Image: Jurnal Riset Manajemen

E-ISSN: 2657-0688, P-ISSN: 2339-2878
Journal homepage: https://ejournal-economy.upi.edu/image

The Trust Factor: How AI Ethics and Privacy Fatigue Shape Usage Intentions for E-Commerce Users

Rifki Hanif[1*], Hasrudy Tanjung[2], Halim bin Mad Lazim[3], Hafid Aditya Pradesa[4], Mime Azrina Jaafar[5]

[1] *Department of Management, Institut Teknologi dan Bisnis Asia Malang, Indonesia*
[2] *Department of Management, Universitas Muhammadiyah Sumatera Utara, Medan, Indonesia*
[3] *School of Technology Management & Logistics, Universitas Utara Malaysia, Kedah Darul Aman, Malaysia*
[4] *Department of Public Sector Business Administration, Politeknik STIA LAN Bandung, Bandung, Indonesia*
[5] *Department of Management, Politeknik Sultan Abdul Halim Mu'adzam Shah, Kedah, Malaysia*

Abstract

This study investigates the complex relationships between AI Ethics, Privacy Fatigue, Consumer Trust, and Usage Intention within the e-commerce sector in Malang City, Indonesia. As artificial intelligence integration rapidly grows, consumer concerns regarding algorithmic fairness and data exhaustion have become critical determinants of digital behavior and engagement. This research contributes to digital marketing theory by uniquely identifying privacy fatigue as an independent psychological barrier that operates outside the traditional trust-adoption paradigm. Using a non-experimental cross-sectional survey design, data were collected from 210 e-commerce users. The conceptual model was evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results indicate that AI Ethics significantly and positively influences Consumer Trust, which acts as a pivotal mediator for Usage Intention. Conversely, Privacy Fatigue has a negligible effect on trust but exerts a potent direct negative impact on usage intention, acting as a significant psychological deterrent. These findings support a dual-pathway model where ethical integrity builds necessary trust, while privacy exhaustion triggers user resignation. Practically, e-commerce providers must prioritize transparency and simplify data management interfaces to mitigate fatigue.

Article Info

Correspondence:
Rifki Hanif
(rifki.hanif@asia.ac.id)

Article History:
Submitted: 02-06-2025
Revised: 21-09-2025
Accepted: 22-10-2025
Published: 30-10-2025

JEL Classification:
M31, O33, L81

Keyword:
AI Ethics;
Privacy Fatigue;
Consumer Trust;
Usage Intention;
E-Commerce

1. INTRODUCTION

The rapid evolution of data tools like artificial intelligence and immersive experiences like augmented reality has dramatically changed the face of digital business, especially in how they interact with their consumers in the modern era of electronic commerce. In the contemporary setting of electronic business, the incorporation of these high-tech tools like generative conversational AI and AR technology has become a business imperative in the quest to boost consumer satisfaction and business success. In the recent academic literature, generative AI tools like ChatGPT were recognized to be of immense potential in attaining high-level societal benefits in how they could offer consumers seamless and

human-like interaction experiences, as discussed in previous work (Basha & Rodríguez-Pérez, 2025; Niu & Mvondo, 2024; Stahl & Eke, 2024). However, this digital revolution is a double-edged sword that improves user experience but simultaneously presents complex ethical challenges that threaten the relationship between service providers and their customers. The success of AI systems is no longer measured by their technological advancements but by their ability to balance the relationship between innovation and ethics. However, these technological advancements also introduce complex ethical challenges, including concerns over social justice, individual autonomy, and accountability, which directly influence how consumers perceive and intend to use these digital services.

The underlying theme of this moral discussion is the idea of Perceived AI Ethics (Arango et al., 2023; Hari et al., 2025; Mustofa et al., 2025), which centers on the values of fairness, explainability, and transparency. Today's consumer is a savvy one when it comes to algorithmic decision-making, often wondering if the suggestions they are receiving are indeed objective or merely cleverly manipulative. Studies have shown time and again that when AI is transparent in its decision-making processes, explaining why certain products are recommended and how activity data is used, the result is a marked improvement in consumer trust. According to Wang et al. (2022), trust acts as a vital prerequisite for business success in complex online environments, as it helps reduce perceived risks and uncertainties regarding sellers, products, and third-party organizations. Their meta-analysis confirms that trust significantly and positively influences a consumer's intention to purchase, particularly when social support systems—such as online forums and communities—are present to foster social bonds and information sharing. However, a lack of accountability and the presence of bias can result in perceived invasiveness, which can be an insurmountable hurdle to overcome to fully adopt AI solutions.

Gallese (2026) explains that there is a growing trend of employing predictive profiling and AI technologies in law enforcement and justice, which often operate with a lack of transparency and may embed societal biases into their training data. The use of such systems, including those that perform risk assessments on marginalized groups, poses significant threats to fundamental rights, including the presumption of innocence and the right to privacy. This intersection of necessary trust for e-commerce and the potential for intrusive data processing creates a tension that shapes how users navigate and intend to use modern AI-driven platforms. Adding to these ethical concerns is the growing issue of "privacy fatigue" (Chen & Chen, 2025; Jin, 2023). This is a mental state of fatigue because of the constant decision-making related to privacy and the constant barrage of information related to the breach of privacy. Unlike other concerns related to privacy, "privacy fatigue" is a more advanced level of detachment where the consumer feels a complete lack of control and feels resigned to the fact that their personal information is being gathered regardless of their actions (Choi et al., 2017; Chung & Kwon, 2025; Tian et al., 2022). This is not just a factor related to the decision-making of the consumer related to privacy; it is also a major factor in the consumer's decision to avoid AI. The rapid incorporation of artificial intelligence (AI) into consumer-centric platforms has revolutionized the manner in which users engage with digital platforms (Giang et al., 2025; Hari et al., 2025), thus bringing AI ethics to the forefront of academic and practical debate (Gaczek et al., 2026; Giarmoleo et al., 2024). At the heart of this revolution is the notion of Perceived AI Ethics, which refers to the ethical dimensions of fairness, explainability, and transparency (Kleizen et al., 2023; Koo et al., 2025).

The dynamics surrounding digital consumption in Indonesia have been further influenced by the advanced forms of consumer comprehension in terms of information processing, which creates confidence for Internet brands. In the case of Malang City, East Java, Indonesia, which represents one of the major urban areas with a high number of consumers adept at digital consumption, the decision in relation to the intention for engaging with the e-commerce platform has been further influenced by various psychological factors in the first instance. Past studies have indicated the importance attached to the construct of trust, especially when coupled with utilitarian and hedonic

values that consumers derive from their online shopping experiences (Amanda & Marsasi, 2023). Consumer trust also plays a major role in influencing the intention to make purchases (Hanif et al., 2024; Hidayati et al., 2025), which is also valid, particularly for e-commerce platform users in the Malang region, where the construct of behavioral control exercised in the process further determines the eventual pattern for the decision-maker.

Furthermore, the impact of social interaction and endorsements also becomes a vital concern in influencing the behavioral intentions among local consumers. The emergence of electronic word of mouth (eWOM) among social media networks has significantly changed how consumers perceive a product, where high-quality reviews and informative content can significantly enhance purchase interest (Prabawati & Fadhilla, 2021). Often, this issue tends to be associated with the availability of digital influencers or even celebrities who have been recognized as a source of information in various contexts. As suggested by Mulyana et al. (2022), it has been recognized that celebrity influence could indeed effectively build the image of a brand and influence consumer intention, though it may vary based on specific external influences, particularly negative publicity. In relation to the social community of Malang, these social influences become significant in measuring the ethicality of a digital vendor.

Given these localized dynamics, understanding the particular interplay between ethical AI performance and consumer psychology is crucially important for the e-commerce market, especially in Malang City. The complicated interplay between trust, perceived value, and social influence yields a sensitive environment in which users are highly selective about the way their data is processed. As local consumers increasingly become aware of the role that AI plays within their shopping journey, their continued engagement is contingent upon the platform's abilities not only to maintain a positive brand image but also to mitigate risks related to information overload and privacy exhaustion. Thus, focusing the analysis on e-commerce users in Malang City provides a representative and timely perspective on the challenges and opportunities of ethical digital marketing in a rapidly growing Indonesian urban economy.

Conceptual Framework and Hypotheses Development

Previous research studies have clearly demonstrated that ethical considerations, which involve fairness in algorithms and transparency in terms of data usage, are the main determinants of consumer trust (Akbar et al., 2021; Jain et al., 2025; Shamim & Misra, 2025; Zhao, 2025). Therefore, it is postulated that users who perceive an AI system as ethical will be more likely to view the system not as a manipulative tool but rather as a trusted ally. Therefore, it is proposed that an ethical system not only meets the needs of regulatory compliance but also forms an integral part of the system that provides a platform for creating positive psychological associations with AI systems. It is proposed that Perceived AI Ethics has a substantial positive influence on Consumer Trust (H1) and a direct positive influence on Usage Intention (H2).

In this context, whereas ethics acts as a supporting factor for the user experience (Chaitanya et al., 2023), the concept of Privacy Fatigue presents itself as an essential psychological barrier affecting the user experience negatively. This is due to the perpetual exposure to intricate privacy decisions and news about data breaches. Research findings have revealed that when consumers experience fatigue concerning their digital privacy, their level of trust in the system diminishes. This is because the concept of Privacy Fatigue acts as a negative force affecting the rationality of AI personalization. It is proposed that there is a significant negative relationship between Privacy Fatigue and Consumer Trust (H3), and also between Privacy Fatigue and Usage Intention (H4).

Consumer Trust is a crucial psychological mediator that turns ethical impressions into concrete behavioral consequences (Jyothsna et al., 2024; Oktaviany & Padmantyo, 2025; Prasetyani et al., 2024). In the context of AI, trust is framed through the constructs of reliability, integrity, and competence, which correspond to the user's impression that the AI will do them some good. High degrees of trust have been found to positively impact the

intention to use or continue using AI systems, as trust is an effective risk and anxiety reducer in the context of automated decision-making. Consequently, trust is not only a consequence of ethical systems but also a prerequisite for long-term engagement. Accordingly, the research hypothesis is that Consumer Trust has a significant positive impact on Usage Intention (H5).

The complex interplay between these variables suggests that consumer trust plays a crucial mediating role in the relationship between external perceptions and internal intentions (Gallin & Portes, 2024; Matar & Aloqaily, 2025; Oktaviany & Padmantyo, 2025; Punyatoya, 2019). While AI ethics and privacy fatigue exert direct pressures on the user's willingness to engage, their impact is often channeled through the lens of trust. For instance, ethical transparency builds trust, which then fuels the intention to use, whereas privacy exhaustion depletes the trust reservoir, subsequently lowering usage intentions. This mediating mechanism explains why technical compliance alone is often insufficient if it does not successfully cultivate a sense of trustworthiness in the user's mind. Consequently, it is hypothesized that Consumer Trust significantly mediates the relationship between Perceived AI Ethics and Usage Intention (H6), as well as the relationship between Privacy Fatigue and Usage Intention (H7).

When these various threads are woven together, the conceptual framework does not simply become a compilation of variables, but rather a comprehensive representation of the current human-AI dynamic, the fine line between idealism and tiredness. It recognizes that although moral righteousness forms the backbone of engagement, the corrosive nature of privacy fatigue remains an ever-present reality. By framing trust as the fulcrum around which everything else operates, this framework allows us to appreciate the inner workings that convert perceptions to practice. In essence, this framework becomes a blueprint that demonstrates how, in order to succeed in our adoption of artificial intelligence in the future, we must foster a digital environment that safeguards human vulnerability and builds confidence through ethics.

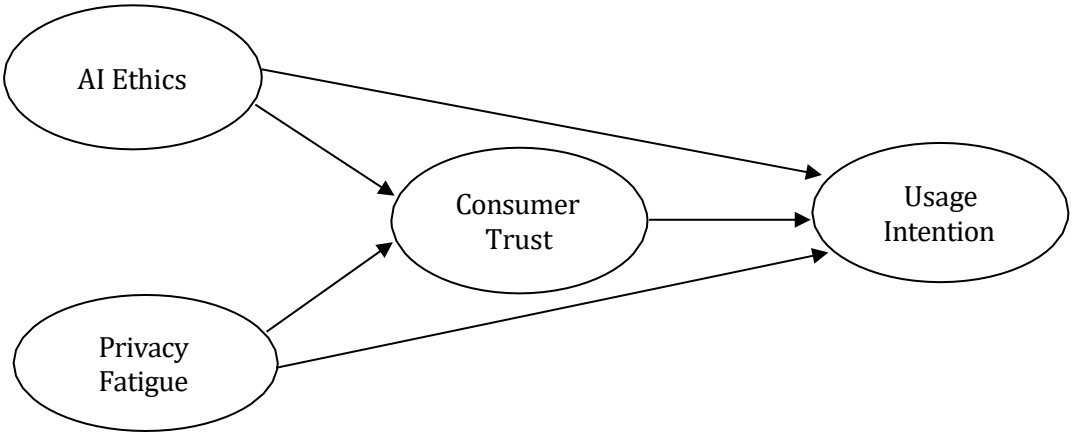


Figure 1. Conceptual Framework
Source: Developed for this study (2025).

2. METHODS

As defined by Creswell & Creswell (2023), quantitative research is a systematic approach to test theories through the measurement of variables followed by data analysis in numerical form. The research design for this research study was based on the non-experimental cross-sectional survey approach with the sole objective of examining the behavioral intentions of digital consumers. The process of gathering information was

made easy through the close-ended online survey conducted for the research participants, which made use of the 5-point Likert instrument on a 5-point scale ranging from 1, which stands for "strongly disagree," up to 5, which means "strongly agree." The application of this standard instrument for measuring and gathering information for the research paper ensures that the resulting ordinal-level information collected can be analyzed properly while remaining clear and simple for clarity purposes. The unit of analysis is based on consumers who are using e-commerce platforms. For this study, it was deemed necessary that the respondents be at least 18 years old to remain relevant demographically and obtain informed consent. By using a type of convenience sampling strategy, a method that attempts to target consumers by their experiences within first-hand encounters with various online markets was deemed appropriate. It was considered representative because, in the context of e-commerce consumers, vendor familiarity is a critical component of trust-building.

The measurement instruments employed in this study were adapted from existing measures known for their construct validity and reliability. The variables examined cover the independent factors of AI Ethics and Privacy Fatigue, the mediating factors of Consumer Trust, and the usage intention as the dependent variable. The measurement for AI Ethics involves tests on the honesty and predictability capacity of the system's supporters, while Privacy Fatigue and Trust tests are based on the perceptions and feelings of the consumer based on their digital environment experience. The employed measurement instruments are the original forms of existing instruments used for reliability, and no change was made to weaken the reliability of the constructs.

As an independent variable, perceived AI Ethics was measured based on three main aspects: fairness, explainability, and transparency. According to the research studies conducted by Cheng et al. (2025) and Adanyin (2024), the main aspects of perceived AI ethics were based on the fairness of product recommendations, the transparency of the logic used in product suggestions made by AI, such as the use of specific labels to determine why a product was suggested, and the transparency of the use of activity history. The second independent variable, privacy fatigue, was measured based on the framework established by Choi et al. (2017). This construct reflects the psychological aspect of living in a digital world, where we examine the exhaustion brought about by constant reports of data breaches, lack of control over personal data processing, as well as resignation towards the inevitability of data collection.

Consumer Trust is used as a key mediator in this research, and its measurement is based on the constructs of reliability, integrity, and competence, as defined in previous studies (Jain et al., 2025; Lin & Liu, 2025). The constructs were used to determine if the user perceives the AI's behavior based on their expectations, if the advice given is honest and non-misleading, and if the AI is competent enough to comprehend their shopping needs, respectively. The last construct, Usage Intention, was measured based on the constructs defined in the previous studies (Aji et al., 2024; Jyothsna et al., 2024; Lin & Liu, 2025; Cheng et al., 2025), which is a multi-dimensional construct consisting of the user's intention to continue using the AI's features in the future, their intention to purchase products, and their intention to promote the AI by recommending it to other people.

The sample size of 210 respondents was deemed appropriate and justified based on the minimum sample size requirements for PLS-SEM. According to Hair et al. (2019), a common rule of thumb is the "10-times rule," which suggests that the sample size should be at least 10 times the maximum number of arrowheads pointing at a latent variable in the structural model. Alternatively, an a priori power analysis using G-Power indicates that for a model with 2 predictors (pointing to Usage Intention), an effect size of 0.15, an alpha of 0.05, and a power of 0.95, a minimum of 107 respondents is required. Thus, the collected sample of 210 is more than sufficient to achieve robust predictive power.

For data processing and hypothesis testing, this study utilized PLS-SEM. Furthermore, to perform PLS-SEM, this study utilized software known as SmartPLS, owing to its specific

advantages over other approaches, which can effectively estimate complex paths and shared variances between variables developed within the model. This approach allows for a robust evaluation of the model, which, based on a two-step approach, includes examining the measurement model's validity and reliability and assessing the structural model's significance of relationships between the constructs. PLS is a strong statistical tool that enables the estimation of the parameters and a realistic analysis of the influence of ethical perceptions and privacy on consumer behavior. Ethical considerations continued to play an important role even in this respect. Informed consent about the complete privacy and confidentiality of the participation was ensured, and no participant was forced to do so. The bias of the timing factor could be reduced to a minimum by making the survey less time-sensitive, ideally answered at the convenience of the participant. Finally, also regarding time, the protocol was tight concerning the issue of informed consent. Also, all participants would have the complete right to withdraw from the study without penalty.

3. RESULTS AND DISCUSSION

In the end of data collection process, a sample of 210 respondents has been successfully reached, thus surpassing the basic standards of minimum number needed to run PLS-SEM analysis based on both the 10-times rule and a priori power analysis. The demographic characteristics of the sample are quite favorable and reflect a fairly evenly balanced and highly educated group of respondents, which is a solid basis for studying consumers' behavior in the context of using AI-driven technology. As far as the gender is concerned, almost half men and women constitute the sample, 108 men making 51.4% of respondents and 102 women constituting 48.6% of the sample. Additionally, the educational background of respondents can be described as quite high, as all respondents have received higher education. In particular, there are 54.8% of respondents who graduated from Bachelor's program, whereas the other 45.2% have a Master's Degree.

The descriptive statistics provide an initial insight into the participants' perceptions of the studied variables. For the independent variables, AI Ethics and Privacy Fatigue show distinct patterns; users generally demand high ethical standards while expressing moderate to high levels of exhaustion regarding data privacy management. Consumer Trust, acting as the mediating mechanism, maintains a stable mean, suggesting that e-commerce users are cautious yet willing to engage when perceived reliability is present. Finally, the Usage Intention scores indicate a varied but generally positive inclination toward continuing AI-driven e-commerce interactions. The data distribution for all constructs was monitored to ensure it met the requirements for further structural modeling.

The first step in this analysis involved the measurement model, with the primary intention of ensuring the integrity of the data collected, as well as its reliability and validity. Internally consistent constructs were achieved as the values for Cronbach's Alpha and Composite Reliability (CR) relating to AI Ethics, Privacy Fatigue, Consumer Trust, and Usage Intention are all well above the established figure of 0.70. The aforementioned figures are a demonstration that a scale of 5 points, as applied in this study, ensures consistency in measuring all entities within the data relating to the target audience, an e-commerce user.

Table 1. Mean, Standard Deviation, and Correlation Between Variables

	Mean	SD	1	2	3	4
1. AI Ethics	3.674	0.895	(.712)			
2. Privacy Fatigue	3.133	1.011	-.195**	(.875)		
3. Consumer Trust	3.683	0.880	.382**	-.019	(.785)	
4. Usage Intention	3.985	0.902	.369**	-.351**	.398**	(.809)

Notes: **p < 0.01; *p < 0.05; Cronbach's alpha for each scale is italicized and shown diagonally.

These elements of descriptive analysis and correlations between variables form the groundwork of understanding how e-commerce users view the integration of artificial intelligence within their consumer experience. From the analysis of the means from the Likert scale, it can be determined that the average score implies that each of the constructs is viewed moderately positively. In particular, as observed from the table, the construct of 'Usage Intention' yields the highest average (Mean = 3.985), suggesting that e-commerce users have a strong inclination or interest towards using AI services as long as the environment in which they find themselves is favorable. On the opposite end of the spectrum, 'Privacy Fatigue' yielded the lowest average (Mean = 3.133) among the e-commerce users, suggesting that even as this phenomenon exists, it seems such fatigue is yet to assume prominence among e-commerce users.

Internal consistency for each measure was confirmed through Cronbach's Alpha coefficients, which are displayed diagonally in parentheses within the correlation matrix. All coefficients exceeded the conventional 0.70 threshold, ranging from 0.712 for AI Ethics to 0.875 for Privacy Fatigue. These high alpha values demonstrate that the survey instruments provided reliable and stable measurements, ensuring that the items within each scale effectively captured the intended latent constructs. Furthermore, the standard deviations, which ranged from 0.880 to 1.011, indicate a healthy degree of variance in participant responses, reflecting a diverse range of opinions among e-commerce users regarding these digital phenomena.

From the matrix, several correlations emerge that are statistically significant while still coherent with the theory. For instance, the AI Ethics measure correlates significantly with Consumer Trust ($r = .382$, $p < 0.01$), as well as Usage Intention ($r = .369$, $p < 0.01$). This means that as the e-commerce platform develops its ethical qualities, the more its consumers will trust the service and the greater the intention to utilize the service. This once again illustrates the idea that ethics are not actually an auxiliary factor in the consumer experience in the artificial intelligence era, but are the motive behind favorable consumer action. Conversely, Privacy Fatigue is negatively and significantly correlated with Usage Intention ($r = -.351$, $p < 0.01$), emphasizing the importance that the factor holds. Nevertheless, the presence of a statistical zero in the measure of Privacy Fatigue and Consumer Trust ($r = -.019$), while indicating that the two factors perhaps exist independently in the user's psychological makeup, also suggests that the user will trust artificial intelligence capabilities in an e-commerce platform, but ultimately will fail to utilize the services once the privacy fatigue sets in.

Finally, the strongest correlation in the whole model was found between Consumer Trust and Usage Intention, which correlated positively ($r = .398$, $p < 0.01$). This positive correlation between the said variables is further proof that trust remains the primary mediator and catalyst for digital transactions. When consumers perceive that the AI system is trustworthy, their intention to use the system is also positively influenced. Overall, the foregoing correlations demonstrate a complex interplay between ethical considerations, which lead to trust, counterbalance the effects of friction related to privacy, and ultimately influence the development of AI in the burgeoning field of e-commerce.

The results for the outer model showed high levels of convergent validity across all constructs, as supported by the high levels of significant loading factors. It was evident from the results that, under the AI Ethics construct, aspects of Transparency (X1.3) and Explainability (X1.2) stood out as major attributes to be integrated, as illustrated by the high mean values recorded, 3.75 and 3.74, respectively. This implies that, for e-commerce users, these aspects matter the most. Though Fairness (X1.1) recorded a relatively lower mean value of 3.53, it was evident that it had the highest loading factor, 0.818. This implies that, though users may perceive slightly lower levels of actual fairness, the attribute would remain the most critical as a statistical model.

Table 2. Outer Model

Indicators	Loading Factor	t-statistics	p values	Mean
Fairness ($X_{1.1}$)	0.818	24.384	0.000	3.53
Explainability ($X_{1.2}$)	0.785	19.389	0.000	3.74
Transparency ($X_{1.3}$)	0.781	21.821	0.000	3.75
Weariness ($X_{2.1}$)	0.901	55.061	0.000	3.11
Loss of Control ($X_{2.2}$)	0.875	32.444	0.000	3.13
Resignation ($X_{2.3}$)	0.907	64.117	0.000	3.16
Reliability ($Z_{1.1}$)	0.827	27.191	0.000	3.67
Integrity ($Z_{1.2}$)	0.880	39.296	0.000	3.70
Competence ($Z_{1.3}$)	0.797	24.699	0.000	3.68
Continuance ($Y_{1.1}$)	0.849	44.705	0.000	4.00
Purchase ($Y_{1.2}$)	0.897	60.964	0.000	3.98
Recommendation ($Y_{1.3}$)	0.801	23.595	0.000	3.97

Source: Data Analyzed (2025)

Under the heading of Privacy Fatigue, the indicators exhibited a constant state of psychological exhaustion. Resignation (X2.3) was particularly noteworthy, given its very high loading factor at 0.907 and mean rating of 3.16, the highest recorded in this set of indicators. Arguably, it is the sense of hopelessness regarding data protection that causes most of the frustration in relation to privacy fatigue. However, equally high loading factors were evident in the indicators of Weariness (X2.1) and Loss of Control (X2.2), thus establishing that these indeed form a constant and reliable set of indicators of the burden of privacy management. The lower mean ratings of these indicators in relation to all the variables suggest that, while fatigue does set in, the sense of withdrawal from the digital world has not reached a critical level.

The measurement factor for Consumer Trust appears heavily influenced by the Integrity indicator (Z1.2), with the largest loading factor at 0.880 and the highest mean at 3.70 among its category peers. However, as discussed earlier, it somewhat confirms our suspicion that, for consumers, the integrity of the e-commerce system itself represents the most vital aspect of trust creation. The relatively high loading factors for the Reliability and Competence factors at 0.79 and above suggested that, for consumers, the integrity and competence of the e-commerce system are both critical factors for creating trust. The consistent mean values among these categories at 3.67, 3.70, and above testified that the perception of the balance and dependability of the system was relatively stable among consumers.

Lastly, the indicators under the construct of Usage Intention show the strongest and most unified construct with regard to future intentions, as all the indicators scored above the mean score of 3.90. Purchase Intention (Y1.2) was also worthy of mention as it acquired the highest loading factor of 0.897, in addition to having the second-highest mean score of 3.98, indicating that the most direct outcome of consumer trust in AI ethics lies in the intent of purchase. On the other hand, the indicator of Continuance (Y1.1) was seen as having acquired the highest mean score of 4.00. Although the indicator of Recommendation (Y1.3) had a somewhat lower loading factor of 0.801, it was still not negligible. Still, as seen in the t-statistics of each of the indicators of the four constructs, the t-statistics are well above the critical threshold. Moreover, the p-values are marked as 0.000.

The next step in the analysis is related to the quality and fit of the model structure and its overall quality. According to the estimation results, the Standardized Root Mean Square Residual (SRMR) for the saturated and the estimated model is 0.090. This result is entirely within the accepted norm (i.e., less than or approaching 0.10), suggesting a low discrepancy between the observed correlations and the model correlations. In order to guarantee the reliability of the coefficients obtained, the structural model was checked for multicollinearity via the Variance Inflation Factor (VIF) test. All the critical path coefficients, for instance, between AI Ethics and Consumer Trust (VIF = 1.054) as well as between Consumer Trust and Usage Intention (VIF = 1.259), show levels that are consistently and

highly significantly below the critical threshold of 3.3 and thus guarantee the clear estimation of the direct or indirect effects of the predictor variables.

The validity of the model can also be accounted for by the R Square (R^2) coefficients. From the findings, it is evident that the Consumer Trust model had an R^2 of 0.206. This shows that the AI Ethics and the Privacy Fatigue variables are able to explain 20.6% of the variance in the level of trust. More interestingly, however, the Usage Intention model yielded an R^2 of 0.386. This shows that nearly 39% of the variance in the intention to use the e-commerce services among the users can be effectively explained using the variables. Such a figure can be said to have a moderate predictive ability in the context of the complex behavior of humans in a competitive market like that of Malang. Lastly, there is also predictive relevance, which is validated through Q-square value assessment. Although this value was not explicitly specified in the raw results, it can be calculated on the basis of R-Square value and the given high Average Variance Extracted scores: 0.800 for Privacy Fatigue and 0.722 for Usage Intention. Since it is mentioned that most of the latent variables have Average Variance Extracted scores higher than 0.500, with R-Square scores reported to be positive, it could be theoretically determined that Q-Square value is also higher than zero, thereby establishing the predictive relevance of the model and proving that there is sufficient accuracy within this particular framework combining AI ethics and privacy fatigue to predict future trends with respect to consumers within this digital marketplace.

Table 3. Heterotrait-monotrait ratio (HTMT)

	Heterotrait-monotrait ratio (HTMT)
Consumer Trust <-> AI Ethics	0.575
Privacy Fatigue <-> AI Ethics	0.300
Privacy Fatigue <-> Consumer Trust	0.109
Usage Intention <-> AI Ethics	0.601
Usage Intention <-> Consumer Trust	0.564
Usage Intention <-> Privacy Fatigue	0.460

Source: Data Analyzed (2025)

In order to confirm the unique characteristics of each variable used in the research, a test of discriminant validity using Heterotrait-Monotrait (HTMT) ratio was conducted. According to the analysis, the HTMT ratio of all inter-construct correlations ranges from 0.109 to 0.601, successfully surpassing the recommended threshold of 0.85 suggested by Henseler et al. (2015). These results show that there is enough diversity among all of the constructs, especially between Usage Intention and AI Ethics, where a relatively high value of the ratio was obtained. Therefore, no conceptual redundancy is found in the model, which ensures the reliability of the measures.

Table 4. Direct and Indirect Effects

Relationship Among Variables	**Beta**	**t-statistics**	**P values**
[H1] AI Ethics -> Consumer Trust	0.457	7.420	0.000
[H2] AI Ethics -> Usage Intention	0.240	3.122	0.002
[H3] Privacy Fatigue -> Consumer Trust	0.017	0.225	0.822
[H4] Privacy Fatigue -> Usage Intention	-0.309	4.851	0.000
[H5] Consumer Trust -> Usage Intention	0.332	4.602	0.000
[H6] AI Ethics -> Consumer Trust -> Usage Intention	0.152	3.325	0.001
[H7] Privacy Fatigue -> Consumer Trust -> Usage Intention	0.006	0.229	0.819

Source: Data Analyzed (2025)

Based on the statistical outcomes and hypothesis decisions detailed in Table 4, the structural model assessment confirms several critical pathways in AI-driven e-commerce.

First, AI Ethics (H1 & H2) demonstrates a robust positive influence on both Consumer Trust (β = 0.457, p < 0.001) and Usage Intention (β = 0.240, p = 0.002). Consumer Trust (H5) also significantly drives Usage Intention (β = 0.332, p < 0.001) and effectively mediates the relationship between AI Ethics and Usage Intention (H6). In contrast, Privacy Fatigue (H3) yields a negligible and non-significant effect on Consumer Trust (β = 0.017, p = 0.822). However, it directly and negatively impacts Usage Intention (H4) (β = -0.309, p < 0.001). Consequently, the mediation path involving Privacy Fatigue, Consumer Trust, and Usage Intention (H7) is not supported.

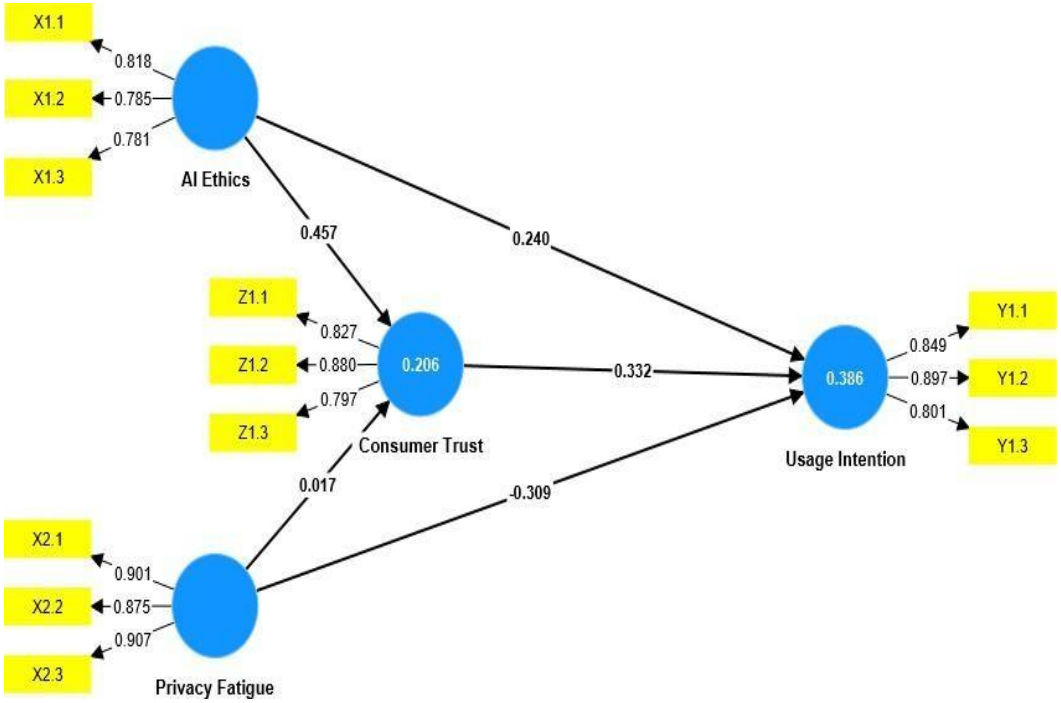


Figure 2. SmartPLS Output (PLS-Algorithm)
Source: Data Analyzed (2025)

The empirical findings of this study offer profound analytical insights into the dual-pathway model of consumer behavior in AI-integrated e-commerce. The dominant positive impact of AI Ethics on Consumer Trust (H1) and Usage Intention (H2) strongly corroborates recent assertions that ethical integrity-characterized by algorithmic transparency, fairness, and accountability-functions not merely as a compliance checklist but as a strategic asset (Adanyin, 2024; Aldboush & Ferdous, 2023; Kleizen et al., 2023; Niu & Mvondo, 2024). When consumers perceive that an AI system possesses embedded ethical safeguards, cognitive uncertainty decreases, allowing a robust trust relationship to flourish. Furthermore, the successful mediation of Consumer Trust (H6) emphasizes that ethical AI deployment is optimized only when it translates into "trust equity." Consumers use this trust to mentally offset the potential risks of AI integration, forming an affective commitment to the platform (Jain et al., 2025; Rana et al., 2024; Yu et al., 2025).

Perhaps the most intriguing and unexpected finding of this research is the non-significant relationship between Privacy Fatigue and Consumer Trust (H3). While prior literature frequently conflates privacy concerns with a loss of trust (Ryan et al., 2025; Shepperd et al., 2025), our results reveal that privacy fatigue operates through a completely different psychological mechanism. Consumers may implicitly trust an e-commerce platform's systemic reliability and security capabilities, yet simultaneously experience profound exhaustion from constant data-consent pop-ups and complex privacy management policies. This indicates that fatigue is a state of cognitive overload rather than a manifestation of distrust.

Despite leaving trust intact, Privacy Fatigue exerts a severe, direct negative impact on Usage Intention (H4), circumventing the trust pathway entirely (H7). This identifies privacy fatigue as a highly potent, independent "usage barrier." Even when consumers highly trust a platform, the sheer psychological friction and resignation caused by managing their privacy can override their positive intentions, causing them to abandon the platform (Oluwafemi et al., 2021; Sipos, 2025).

The validation of these pathways firmly establishes a "dual-pathway approach" to digital consumer behavior. The "promotion pathway" (AI Ethics -> Trust -> Usage Intention) builds necessary positive associations, while the "prevention pathway" (Privacy Fatigue -> Disengagement) operates as an independent psychological cost. Theoretically, this distinguishes privacy fatigue from traditional privacy concerns, urging a discourse shift in digital marketing from simply building trust to actively reducing cognitive burdens. Practically, e-commerce providers must realize that transparent "AI dashboards" are insufficient if the user interface remains plagued by privacy friction. To sustain long-term engagement, organizations must implement "privacy by design" frameworks that not only safeguard data ethically but do so with minimal cognitive taxation on the user.

These findings collectively illuminate a transformative path forward, bridging the gap between abstract academic inquiry and the lived reality of the digital consumer. Theoretically, this research redefines the boundaries of the privacy discourse by decoupling cognitive exhaustion from moral suspicion, challenging scholars to view user trust engagement through a lens of psychological sustainability rather than mere security. Practically, it serves as a clarion call for developers and policymakers to move beyond the "transparency paradox," where more information often leads to more fatigue. By harmonizing ethical rigor with a frictionless, human-centric design, organizations can transition from being technically compliant to being truly empathetic. Ultimately, these implications suggest that the next frontier of AI success lies in honoring the user's cognitive peace as much as their data privacy, fostering a digital landscape where technology empowers without overwhelming.

The research provides a crucial guidepost for the future of digital marketing in the age of AI, moving away from merely collecting data to protecting the human experience (Tasnim et al., 2025). Conceptually, this study disrupts the established marketing framework by showing that "trust equity" and "cognitive friction" represent two different concepts; brand trust cannot make up for a lack of conversion if the mental price of engaging with the message is too high. The findings also advance the current dialogue on the role of AI ethics in marketing practices by highlighting that it should not be viewed as a separate issue related to CSR but as a core factor determining lifetime consumer value and emotional engagement (Gaczek et al., 2026; Zaki et al., 2026). Practically, these findings imply the necessity of implementing a model of "Minimalist Privacy Marketing". Success in such a marketing approach will depend on the extent to which a brand manages to protect its customers' privacy without imposing too much cognitive load on them. From the standpoint of digital marketing professionals, although being transparent about one's ethical principles is necessary to establish a "trusted ally" type of relationship with consumers, the true competitive edge will consist in minimizing the "privacy tax" on the consumer's mind.

4. CONCLUSION

This study concludes that the sustainable implementation of artificial intelligence in e-commerce is deeply intertwined with both moral integrity of the system and the psychological state of the user. The findings establish that AI Ethics serves as a critical foundation for building consumer trust, which in turn acts as the primary bridge to usage intention. However, trust alone is insufficient to overcome the negative impact of privacy fatigue. This research highlights that privacy fatigue acts as a direct psychological deterrent that bypasses the trust mechanism, suggesting that users may abandon

platforms not because of a lack of integrity, but due to the overwhelming cognitive burden of managing data privacy.

Practically, e-commerce providers must move beyond technical compliance and adopt a human-centric approach. This involves implementing transparency dashboards to foster trust and utilizing "privacy by design" principles to minimize user friction, thereby preventing consumer resignation. Theoretically, this research introduces a dual-pathway model that distinguishes privacy fatigue as an independent psychological inhibitor, distinct from the traditional trust-adoption paradigm.

Despite these contributions, this study has several limitations. The use of convenience sampling among e-commerce users in Malang may limit the generalizability of the findings to other sectors, such as healthcare or finance, where implications are more severe. Additionally, the cross-sectional nature of the data provides only a snapshot of consumer behavior at a specific time. Future research should employ longitudinal designs to track how trust and fatigue evolve as users become more accustomed to advanced AI. Furthermore, exploring diverse cultural contexts would provide a more global perspective on the interplay between AI ethics and consumer behavior.

REFERENCES

Adanyin, A. (2024). Ethical AI in Retail: Consumer Privacy and Fairness. *European Journal of Computer Science and Information Technology*, *12*(7), 21–35.

Aji, H. M., Husin, M. M., Othman, A. K., Hidayat, A., & Rashid, W. E. W. (2024). Religious-based ethics and buy-now-pay-later re-usage intention among Muslim consumers in Indonesia and Malaysia: a commitment-trust theory perspective. *Cogent Business & Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2363441

Akbar, M. U., Ibrahim, I., Nabil, S. J., Iqbal, K. A., & Islam, A. (2021). The Influence of Artificial Intelligence on Consumer Trust in E-Commerce: Opportunities and Ethical Challenges. *European Journal of Theoretical and Applied Sciences*, *2*(6), 250–259. https://doi.org/10.59324/ejtas.2024.2(6).20

Aldboush, H. H. H., & Ferdous, M. (2023). Building Trust in Fintech: An Analysis of Ethical and Privacy Considerations in the Intersection of Big Data, AI, and Customer Trust. *International Journal of Financial Studies*, *11*(90), 1–18.

Amanda, T. A., & Marsasi, E. G. (2023). Exploration of Perceived Behavioral Control and Intention to Purchase to Increase Actual Behavior. *Image: Jurnal Riset Manajemen*, *12*(1), 14–30.

Arango, L., Singaraju, S. P., & Niininen, O. (2023). Consumer Responses to AI-Generated Charitable Giving Ads. *Journal of Advertising*, *52*(4), 486–503. https://doi.org/10.1080/00913367.2023.2183285

Basha, M., & Rodríguez-Pérez, G. (2025). Trust, transparency, and adoption in generative AI for software engineering: Insights from Twitter discourse. *Information and Software Technology*, *186*, 107804. https://doi.org/10.1016/J.INFSOF.2025.107804

Chaitanya, K., Jawad, A. B., Mehta, V., & Hajoary, D. (2023). Ethical Considerations in AI-Based Marketing: Balancing Profit and Consumer. *Tuijin Jishu/Journal of Propulsion Technology*, *44*(3), 1301–1309.

Chen, M., & Chen, M. (2025). Trust, Privacy Fatigue, and the Informed Consent Dilemma in Mobile App Privacy Pop-Ups: A Grounded Theory Approach. *Journal of Theoretical and Applied Electronic Commerce Research*, *4*(11).

Cheng, X., Zeng, A., Yang, B., Liu, Y., & Zhang, X. (2025). Online reviews generated by generative artificial intelligence versus human: A study of perceived differences and user adoption behavior. *Electronic Commerce Research and Applications*, *71*, 101497. https://doi.org/10.1016/J.ELERAP.2025.101497

Choi, H., Park, J., & Jung, Y. (2017). The role of privacy fatigue in online privacy behavior. *Computers in Human Behavior*. https://doi.org/10.1016/j.chb.2017.12.001

Chung, J., & Kwon, H. Y. (2025). Privacy fatigue and its effects on ChatGPT acceptance among undergraduate students: is privacy dead? *Education and Information Technologies*, *30*(9), 12321–12343. https://doi.org/10.1007/s10639-024-13198-6

Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (Sixth)*. Sage Publications.

Gaczek, P., Leszczyński, G., Wei, Y., & Sun, H. (2026). The Bright Side of AI in Marketing Decisions: Collaboration with Algorithms Prevents Managers from Violating Ethical Norms. *Journal of Business Ethics*, *204*(4), 771–794. https://doi.org/10.1007/s10551-025-06083-w

Gallese, C. (2026). Predictive policing and predictive justice: Ethics, data protection, and the AI. *Computer Law & Security Review: The International Journal of Technology Law and Practice*, *61*(March), 106282. https://doi.org/10.1016/j.clsr.2026.106282

Gallin, S., & Portes, A. (2024). Online shopping: How can algorithm performance expectancy enhance impulse buying? *Journal of Retailing and Consumer Services*, *81*, 103988. https://doi.org/10.1016/J.JRETCONSER.2024.103988

Giang, N. T. P., Tan, T. D., & Nhung, L. T. H. (2025). Determinants of E-commerce adoption and its effect on marketing performance among Vietnamese SMEs: An PLS-SEM approach using the TOE framework. *Journal of Open Innovation: Technology, Market, and Complexity*, *11*(4), 100670. https://doi.org/10.1016/j.joitmc.2025.100670

Giarmoleo, F. V., Ferrero, I., Rocchi, M., & Pellegrini, M. M. (2024). What ethics can say on artificial intelligence: Insights from a systematic literature review. *Business and Society Review*, *129*, 258–292. https://doi.org/10.1111/basr.12336

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th Edition). Cengage Learning.

Hanif, R., Astuti, W., & Sunardi, S. (2024). The Mediating Role of Customer Satisfaction in the Effect of Perceived Enjoyment on Customer Trust in Online Investment Application. *Innovation Business Management and Accounting Journal*, *3*(1), 18–29. https://doi.org/10.56070/ibmaj.2024.003

Hari, H., Sharma, A., Verma, S., & Chaturvedi, R. (2025). Exploring ethical frontiers of artificial intelligence in marketing. *Journal of Responsible Technology*, *21*. https://doi.org/10.1016/j.jrt.2024.100103

Hidayati, N., Hanif, R., Pradesa, H. A., & Agustina, I. (2025). Increasing Customer Trust in Islamic Bank: Role of Service Quality and Satisfaction. *Journal of Business and Economics Research (JBE)*, *6*(2), 621–630. https://doi.org/10.47065/jbe.v6i2.7291

Jain, R., Gupta, M., Gupta, P., Pandey, N., Sharma, N., & Raina, S. (2025). Consumer Trust In AI-Enabled Marketing: A Behavioural Analysis. *International Journal of Environmental Sciences*, *11*(17), 840–852.

Jin, K. (2023). Research on the Impact of Privacy Information Sensitivity on Consumers' Purchase Intention in E-commerce Livestreaming. In *Business, Economics and Management EDMI* (Vol. 2023).

Jyothsna, J. M., Subbaiah, V. P., & Kryvinska, N. (2024). Exploring the Chatbot usage intention-A mediating role of Chatbot initial trust. *Heliyon*, *10*(12), e33028. https://doi.org/10.1016/j.heliyon 2024.e33028

Kleizen, B., Van Dooren, W., Verhoest, K., & Tan, E. (2023). Do citizens trust trustworthy artificial intelligence? Experimental evidence on the limits of ethical AI measures in government. *Government Information Quarterly*, *40*(4), 101834. https://doi.org/10.1016/J.GIQ.2023.101834

Koo, I., Zaman, U., Ha, H., & Nawaz, S. (2025). Assessing the interplay of trust dynamics, personalization, ethical AI practices, and tourist behavior in the adoption of AI-driven smart tourism technologies. *Journal of Open Innovation: Technology, Market, and Complexity*, *11*(1), 100455. https://doi.org/10.1016/J.JOITMC.2024.100455

Lin, Y.-C., & Liu, Y. (2025). Beyond the courtroom: Exploring consumers' trust and usage of ADR in financial dispute resolution. *Finance Research Letters*, *85*, 107872.

https://doi.org/10.1016/j.frl.2025.107872
Matar, A., & Aloqaily, A. N. (2025). The mediating influence of perceived usefulness on consumer behaviour towards driving e-wallet adoption in Jordan. *Journal of Open Innovation: Technology, Market, and Complexity*, *11*(4), 100651. https://doi.org/10.1016/j.joitmc.2025.100651
Mulyana, H., Hurriyati, R., Kurniawan, A., & Widjajanta, B. (2022). Pengaruh Celebrity Endorsement Terhadap Purchase Intention Dengan Mediasi Brand Image dan Moderasi Negative Publicity. *Image: Jurnal Riset Manajemen*, *11*(1), 69–82.
Mustofa, R. H., Kuncoro, T. G., Atmono, D., Hermawan, H. D., & Sukirman. (2025). Extending the technology acceptance model: The role of subjective norms, ethics, and trust in AI tool adoption among students. *Computers and Education: Artificial Intelligence*, *8*, 100379. https://doi.org/10.1016/J.CAEAI.2025.100379
Niu, B., & Mvondo, G. F. N. (2024). I Am ChatGPT, the ultimate AI Chatbot ! Investigating the determinants of users ' loyalty and ethical usage concerns of ChatGPT. *Journal of Retailing and Consumer Services*, *76*(September 2023), 103562. https://doi.org/10.1016/j.jretconser.2023.103562
Oktaviany, V. V., & Padmantyo, S. (2025). Pengaruh Ekuitas, Citra Merek dan Kepercayaan Terhadap Minat Beli Dengan Kepuasan Pelanggan Sebagai Variabel Mediasi. *JAFM: Journal of Accounting and Finance Management*, *6*(1), 325–338.
Oluwafemi, I. O., Clement, T., Adanigbo, O. S., Gbenle, T. P., & Adekunle, B. I. (2021). A Review of Ethical Considerations in AI-Driven Marketing Analytics: Privacy, Transparency, and Consumer Trust. *International Journal of Multidisciplinary Research and Growth Evaluation*, *2*(2), 428–435.
Prabawati, R. R. S. M., & Fadhilla, H. N. (2021). E-WoM Information Influences ESQA Cosmetics Consumer Purchase Intention on TikTok Application. *Image: Jurnal Riset Manajemen*, *12*(2), 258–269.
Prasetyani, A., Mustika, M. D., Sjabadhyni, B., Adira, N., Dali, N. R. S. B. M., & Nandan, M. (2024). Unlocking paylater preferences: exploring gen z's trust dynamics in Indonesia and Malaysia. *Cogent Psychology*, *11*(1). https://doi.org/10.1080/23311908.2024.2352962
Punyatoya, P. (2019). Effects of cognitive and affective trust on online customer behavior. *Marketing Intelligence and Planning*, *37*(1), 80–96. https://doi.org/10.1108/MIP-02-2018-0058
Rana, M. M., Siddiqee, M. S., Sakib, M. N., & Ahamed, M. R. (2024). Assessing AI adoption in developing country academia: A trust and privacy-augmented UTAUT framework. *Heliyon*, *10*(18), e37569–e37569. https://doi.org/10.1016/J.HELIYON.2024.E37569
Ryan, K., Hogg, J., Kasun, M., & Kim, J. P. (2025). Users' Perceptions and Trust in AI in Direct-to-Consumer mHealth: Qualitative Interview Study. *JMIR MHealth and UHealth*, *13*. https://doi.org/10.2196/64715
Shamim, K., & Misra, S. C. (2025). Leveraging AI to drive online impulse buying: a SOBC perspective. *International Journal of Retail & Distribution Management*, *53*(10–11), 1040–1056. https://doi.org/10.1108/IJRDM-07-2024-0334
Shepperd, J. A., McBride, C. M., An, W., Zhao, J., Pentz, R. D., Escoffery, C., Ward, K., & Guan, Y. (2025). Trust and Privacy Concerns Among Cancer Survivors Who Did Not Visit a Research Website Offering Free Genetic Counseling Services for Families: Survey Study. *Journal of Medical Internet Research*, *27*. https://doi.org/10.2196/64228
Sipos, D. (2025). The Effects of AI-Powered Personalization on Consumer Trust, Satisfaction , and Purchase Intent. *European Journal of Applied Science, Engineering and Technology*, *3*(2), 14–24. https://doi.org/10.59324/ejaset.2025.3(2).02
Stahl, B. C., & Eke, D. (2024). The ethics of ChatGPT – Exploring the ethical issues of an emerging technology. *International Journal of Information Management*, *74*, 102700. https://doi.org/10.1016/J.IJINFOMGT.2023.102700
Tasnim, K., Abdullah, M. S., Karim, Z., & Hasan, R. (2025). AI-Driven Innovation, Privacy

Issues, and Gaining Consumer Trust: The Future of Digital Marketing. *Business & Social Sciences*, *3*(1), 1–7.

Tian, X., Chen, L., & Zhang, X. (2022). The Role of Privacy Fatigue in Privacy Paradox: A PSM and Heterogeneity Analysis. *Applied Sciences (Switzerland)*, *12*(19). https://doi.org/10.3390/app12199702

Wang, J., Shahzad, F., Ahmad, Z., Abdullah, M., & Hassan, N. M. (2022). Trust and Consumers ' Purchase Intention in a Social Commerce Platform: A Meta- Analytic Approach. *SAGE Open*, *April-June*, 1–15. https://doi.org/10.1177/21582440221091262

Yu, T., Tian, Y., Chen, Y., Huang, Y., Pan, Y., & Jang, W. (2025). How Do Ethical Factors Affect User Trust and Adoption Intentions of AI-Generated Content Tools ? Evidence from a Risk-Trust Perspective. *Systems*, *13*(461), 1–32.

Zaki, M., Gustafsson, A., Mccoll-kennedy, J., & Witell, L. (2026). What can service research contribute to better understand B2B: Editorial for the special issue " Service Research in Business-to-Business Marketing ." *Journal of Business Research*, *207*(January), 116015. https://doi.org/10.1016/j.jbusres.2026.116015

Zhao, Y. (2025). An Examination of Ethical Challenges in the Application of AI in Marketing. *International Journal of Business and Management*, *20*(4), 113–121. https://doi.org/10.5539/ijbm.v20n4p113