PILAR Nusa Mandiri: Journal of Computing and Information System
Vol. 21, No. 1 March 2025 | DOI: 10.33480/pilar.v21i1.6082

GENERATION Z'S AND ANDROID OS: HOW USER EXPERIENCE, SECURITY, AND SYSTEM PERFORMANCE SHAPE SATISFACTION

Cahyasari Kartika Murni[1*]; Achmad Firman Choiri[2]; Fadhel Akhmad Hizham[3]

Informatics Department[1, 2, 3]
Institut Teknologi dan Bisnis Widyagama Lumajang, Indonesia[1, 2, 3]
http://itbwigalumajang.ac.id[1, 2, 3]
cahyasarikartikamurni@gmail.com[1*], firman@dosen.itbwigalumajang.ac.id[2], hizhamfadhel@gmail.com[3]
(*) Corresponding Author

Abstract— *This paper investigates Generation Z's opinion of the Android OS through an analysis of system performance, security, and user experience and their influence on general satisfaction. With Technology Adaptation (Z) as a mediator, the study focuses on three main factors: User Experience (X1), Security and Privacy (X2), and System Performance and Stability (X3), specifically among students who use Android devices. Data were collected through a structured questionnaire, and the analysis was conducted using the Partial Least Squares (PLS) method to evaluate the relationships between the variables. The findings reveal that, in addition to frequent updates, Generation Z's satisfaction is significantly influenced by the accessibility, performance, and security features of Android. The results highlight the importance of a positive user experience and robust security measures in enhancing user satisfaction. Continuous development in these areas is crucial for improving user engagement and contentment with Android devices.*

Keywords: *android os, generation z, security and privacy, user experience, user satisfaction.*

Abstrak— *Makalah ini menyelidiki pendapat Generasi Z tentang OS Android melalui analisis kinerja sistem, keamanan, dan pengalaman pengguna serta pengaruhnya terhadap kepuasan secara umum. Dengan Adaptasi Teknologi (Z) sebagai mediator, penelitian ini berfokus pada tiga faktor utama: Pengalaman Pengguna (X1), Keamanan dan Privasi (X2), serta Kinerja dan Stabilitas Sistem (X3), khususnya di kalangan mahasiswa yang menggunakan perangkat Android. Data dikumpulkan melalui kuesioner terstruktur, dan analisis dilakukan dengan menggunakan metode Partial Least Squares (PLS) untuk mengevaluasi hubungan antar variabel. Temuan ini mengungkapkan bahwa, selain seringnya melakukan pembaruan, kepuasan Generasi Z secara signifikan dipengaruhi oleh aksesibilitas, kinerja, dan fitur keamanan Android. Hasil penelitian ini menyoroti pentingnya pengalaman pengguna yang positif dan langkah-langkah keamanan yang kuat dalam meningkatkan kepuasan pengguna. Pengembangan berkelanjutan di area ini sangat penting untuk meningkatkan keterlibatan dan kepuasan pengguna dengan perangkat Android.*

Kata Kunci*: android os, generasi z, keamanan dan privasi, pengalaman pengguna, kepuasan pengguna.*

INTRODUCTION

The development of the Android operating system since its introduction in 2008 has been one of the biggest success stories in the technology industry. With more than two billion active devices, Android has become the dominant platform that connects various aspects of the daily lives of users around the world. Generation Z, born between the mid-1990s and early 2010s, is a significant group of users in the Android ecosystem. They are known as digital natives who are highly skilled in using technology and have high expectations of user experience, security, and system performance.

Since its introduction, Android has continued to grow and become a very popular operating system among smartphone users. Extensive support from various device manufacturers has helped Android spread widely and become the first choice for many people (Berger et al., 2022).

However, the popularity of Android also brings challenges, especially related to system security. Ransomware attacks and exploitation attempts by malicious parties have increased along with the popularity of Android, indicating that security is a crucial issue that needs attention (Sharma et al., 2021).

In addition to security, user experience is also a major focus in the assessment of the Android

operating system. Generation Z, as technology-skilled users, have high expectations for user-friendly and responsive interfaces. Studies have shown that improved CPU performance in Android smartphones can improve the overall user experience (Kumakura, 2024). This suggests that aspects of system performance play an important role in Generation Z users' satisfaction with Android. Not only that, Generation Z users show increased concerns about privacy and data security, which heavily impacts their online behavior and interactions with digital platforms, as recent studies emphasize their awareness of privacy risks and the importance of secure data handling (Rózsa, 2024; Liao et al., 2022).

Studies show that the information security behavior of smartphone users, including Generation Z, can vary by generation, with Generation Z tending to exhibit more secure behavior in their device settings (Candiwan et al., 2023). This confirms that security is an important factor influencing Generation Z users' perception and satisfaction with Android.

In addition, it is also important to pay attention to the attributes of counterfeit products that may influence Generation Z's purchase intentions. Studies show that Generation Z's utilitarian and hedonic attitudes can influence the purchase intention of counterfeit products (Kusuma, 2021). This suggests that aspects of product authenticity and quality can also influence Generation Z's perception of a platform, including the Android operating system.

In the context of using Android, the permissions requested by apps are also important to consider. Research on Android's comprehensive permission system has focused on enhancing user privacy by eliminating unnecessary permissions, thereby addressing the security concerns associated with application access to sensitive user data (Yılmaz and Davis, 2023).

Thus, looking at the various aspects that influence Generation Z's perception of the Android operating system, including user experience, security, and system performance, it can be concluded that these factors are interrelated and contribute to overall user satisfaction. The development of Android as the dominant platform demands greater attention to these aspects to ensure an optimal user experience for Generation Z and other users. As such, further research in this regard can provide valuable insights to improve the quality of the Android operating system in the future.

Previous research has revealed various relevant aspects in the context of the Android operating system, including the importance of user experience in determining the success of mobile applications (Ibrahim, 2023). This factor is crucial because a good user experience can enhance user adoption and satisfaction. Generation Z, as tech-savvy users, have unique needs and are sensitive to security and privacy aspects in the use of the Android operating system.

System performance, which includes both speed and stability, significantly affects user satisfaction, as evidenced by recent studies that emphasize the importance of these factors in enhancing user experiences across various applications (Hajesmaeel-Gohari et al., 2022). Within the scope of Generation Z, who tend to desire responsiveness and optimal performance from the system, this factor becomes increasingly important in determining the level of user satisfaction with Android.

However, previous research has often not thoroughly investigated the interaction between these three aspects in the context of Generation Z. Therefore, this article aims to fill this knowledge gap by exploring how user experience, security, and system performance interact to influence user satisfaction among Generation Z. By considering variables X1 (User Experience), X2 (Security and Privacy), X3 (System Performance and Stability), as well as the mediating factor of Technology Adaptation (TA) and variable Y (User Satisfaction), this research is expected to provide a deeper understanding of the factors influencing Generation Z users' perceptions and satisfaction with the Android operating system.

Research on the analysis of Android permission systems is essential for understanding the security and privacy implications of using the Android operating system, particularly as it relates to user interactions and the potential for misuse of permissions by applications (Kumar, 2023; Gamba et al., 2024; Mishra et al., 2022). Additionally, research on Android malware detection is crucial for understanding the security challenges faced by Android users, particularly among Generation Z, as this demographic is increasingly targeted by malicious applications that threaten their privacy and data integrity (Yusfrizal, 2024).

Studies on the evolution of Android application vulnerabilities provide critical insights into the security factors that must be considered in the context of Android usage by Generation Z, particularly as this demographic increasingly engages with mobile applications and is more aware of privacy and security issues (Aval et al., 2022; Nikkhah et al., 2023; Tabassum et al., 2023).

Thus, through a comprehensive approach to user experience, security, and system performance in the context of Generation Z, this research is expected to make a valuable contribution to understanding the factors influencing user

PILAR Nusa Mandiri: Journal of Computing and Information System
Vol. 21, No. 1 March 2025 | DOI: 10.33480/pilar.v21i1.6082

satisfaction with the Android operating system. Consequently, this study is anticipated to provide deep and relevant insights for operating system developers, researchers, and practitioners involved in information technology development, particularly in the context of Android use by Generation Z.

In the context of the background that has been presented, this research aims to explore the interaction between user experience, security and privacy, and system performance and stability in influencing user satisfaction among Generation Z using the Android operating system. Previous research has highlighted the importance of these aspects separately, but has not comprehensively integrated them in the context of Generation Z, which has unique characteristics and needs.

The novelty of this research lies in the holistic approach that includes three main variables, namely user experience, security, and system performance, and considers technological adaptation as a mediating factor, to understand how these factors interact with each other and impact Generation Z users' satisfaction with the Android operating system. Thus, this research is expected to provide a deeper understanding of the factors that influence Generation Z users' perceptions and satisfaction with Android. By referring to the literature review that has been presented, this research will fill the knowledge gap by integrating aspects of user experience, security, and system performance in one comprehensive research framework. Thus, this research is expected to provide valuable insights for operating system developers, researchers, and practitioners involved in the development of information technology, particularly in the context of Android usage by Generation Z.

MATERIALS AND METHODS

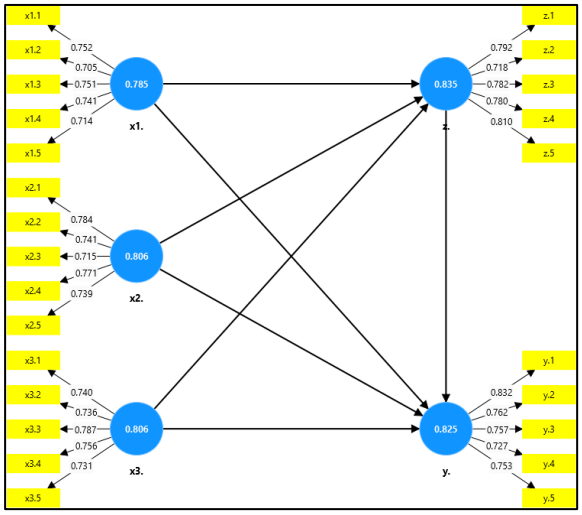
This study used a non-probability purposive sampling method to select 153 respondents from Generation Z (born between 1996 and 2010) who had actively used the Android operating system for at least one year. Respondents, recruited through online platforms such as Instagram and WhatsApp, represented a variety of demographics, including age, gender, Android usage experience, and device type (e.g., entry-level, mid-range, flagship).

The number of female samples was 73 respondents and the number of male respondents was 80 respondents. In the study conducted, the number of male respondents was greater than that of female respondents. Then sorted by year of birth, the lowest was born in 2002 and the highest was born in 2007, 2002 to 2007 are still included in the genz category.

Data collection was conducted using a structured questionnaire featuring a 5-point Likert scale, with 5-6 questions per variable covering User Experience (X1), Security and Privacy (X2), System Performance and Stability (X3), Technology Adaptation (mediating factor), and User Satisfaction (Y). This study uses SmartPLS for data analysis due to its robustness in handling complex structural models, its ability to process small to medium sample sizes without requiring data normality, and its effectiveness in analyzing mediation effects. This approach provides detailed insights into the relationships of latent variables, making it ideal for understanding how user experience, security, and system performance interact to influence Generation Z's satisfaction with the Android operating system. The analysis will be conducted using SmartPLS 4, which includes two main analyses: outer model analysis and inner model analysis (Hudzafidah, Dhany, et al., 2023; Rahmansyah et al., 2024; Rahmansyah & Dhany, 2023). The analysis in this study will include evaluation of both outer and inner models to ensure a comprehensive understanding of the data. External model analysis will assess the measurement model, focusing on the reliability and validity of the constructs, which include user experience, security and privacy, system performance, technology adaptation, and user satisfaction (Dhany et al., 2024; Dhany & Rahmansyah, 2022). This involves examining the relationships between the observed variables and their respective latent constructs. Meanwhile, internal model analysis will evaluate the structural model, exploring the relationships between the latent constructs (Fitriana et al., 2024; Hudzafidah, Rahmansyah, et al., 2023). Specifically, this analysis will examine how user experience, security and privacy, and system performance interact to influence user satisfaction, while considering the mediating role of technology adaptation among Gen Z Android users. To support the research methodology, this study incorporates insights from Maray (2024) (Maray, 2024), who explored intelligent pattern recognition for Android malware detection, which offers a strong foundation for understanding security aspects in the Android ecosystem. By integrating these methodological approaches and leveraging selected references, this study aims to provide a comprehensive analysis of the factors influencing user satisfaction among Generation Z Android users. This includes examining the dynamics between user experience, security, system performance, and technology adaptation, thereby contributing to a deeper understanding of how these elements collectively shape users' perceptions and satisfaction with the Android operating system.

RESULTS AND DISCUSSION

Outer Model



Source: (Research Results, 2024)

Figure 1. Outer Model

Figure 1 represents the Outer Model derived from data processing using SmartPLS, which evaluates the measurement model in this study. The analysis focuses on three key aspects: Convergent Validity, which ensures that the indicators of each construct are highly correlated; Discriminant Validity, which confirms that constructs are distinct from one another; and Reliability, which assesses the consistency of the constructs through Composite Reliability and Cronbach's Alpha values. These results validate the reliability and validity of the constructs, including user experience, security and privacy, system performance, technology adaptation, and user satisfaction, ensuring their robustness for further structural analysis.

Convergent Validity

Table 1. Outer Loading

Indicator	X1	X2	X3	Z	Y	Terms	Description
1	0.752	0.784	0.740	0.832	0.792	>0.7	Valid
2	0.705	0.741	0.736	0.762	0.718	>0.7	Valid
3	0.751	0.715	0.787	0.757	0.782	>0.7	Valid
4	0.741	0.771	0.756	0.727	0.780	>0.7	Valid
5	0.714	0.739	0.731	0.753	0.810	>0.7	Valid

Source: (Research Results, 2024)

All indicators for the variables X1 (User Experience), X2 (Security and Privacy), X3 (System Performance and Stability), the mediating factor Z (Technology Adaptation), and the dependent variable Y (User Satisfaction) shown strong outer loadings, exceeding the threshold of 0.7, indicating their validity based on the results presented in Table 1. More specifically, the outer loadings ranged from 0.705 to 0.832, so verifying that every indicator consistently measures its matching construct. These results confirm the structural model by implying that the constructions used to evaluate Generation Z's view of Android OS—especially in terms of User Experience, Security and Privacy, System Performance and Stability, Technology Adaptation, and User Satisfaction—are precisely reflected in the model. This supports the research model's robustness in identifying the pertinent elements influencing Generation Z user satisfaction.

Table 2. Average variance extracted (AVE)

Variable	Average variance extracted (AVE)	Terms	Description
X1	0.537	>0,5	Valid
X2	0.563	>0,5	Valid
X3	0.563	>0,5	Valid
Z	0.588	>0,5	Valid
Y	0.604	>0,5	Valid

Source: (Research Results, 2024)

The average variance extracted (AVE) values for all the constructs—X1 (User Experience), X2 (Security and Privacy), X3 (System Performance and Stability), Z (Technology Adaptation), and Y (User Satisfaction)—are above the threshold of 0.5, so verifying the convergent validity of the model. Table 2 shows these results. More than half of the variance in the indicators is suggested to be explained by the latent variables, specifically the AVE values range from 0.537 to 0.614. Particularly with regard to the elements of user experience, security, system performance, and their impact on technology adaptation and general user satisfaction, these results show that the constructions applied in this study are well-suited to measure Generation Z's perspective of the Android OS.

Discriminant Validity

Table 3. Heterotrait-monotrait ratio (HTMT)

Variable	Heterotrait-monotrait ratio (HTMT)	Terms	Description
x2. <-> x1.	0.396	>0,9	Valid
x3. <-> x1.	0.512	>0,9	Valid
x3. <-> x2.	0.668	>0,9	Valid
y. <-> x1.	0.649	>0,9	Valid
y. <-> x2.	0.566	>0,9	Valid
y. <-> x3.	0.747	>0,9	Valid
z. <-> x1.	0.758	>0,9	Valid
z. <-> x2.	0.641	>0,9	Valid
z. <-> x3.	0.823	>0,9	Valid
z. <-> y.	0.820	>0,9	Valid

Source: (Research Results, 2024)

PILAR Nusa Mandiri: Journal of Computing and Information System
Vol. 21, No. 1 March 2025 | DOI: 10.33480/pilar.v21i1.6082

All the relationships between the constructions—X1 (User Experience), X2 (Security and Privacy), X3 (System Performance and Stability), Z (Technology Adaptation), and Y (User Satisfaction)—are below the threshold of 0.9, so confirming discriminant validity—as shown in Table 3. The HTMT values, which range from 0.396 to 0.823, indicate that the constructions are different from one another and not strongly correlated. This implies that every factor in the research specifically helps to explain Generation Z's view of the Android OS, especially in respect to how user experience, security, system performance, and technology adaptation affect general user satisfaction. These results support the validity and dependability of the used constructions in this research model.

Reliability

Table 4. Average variance extracted (AVE)

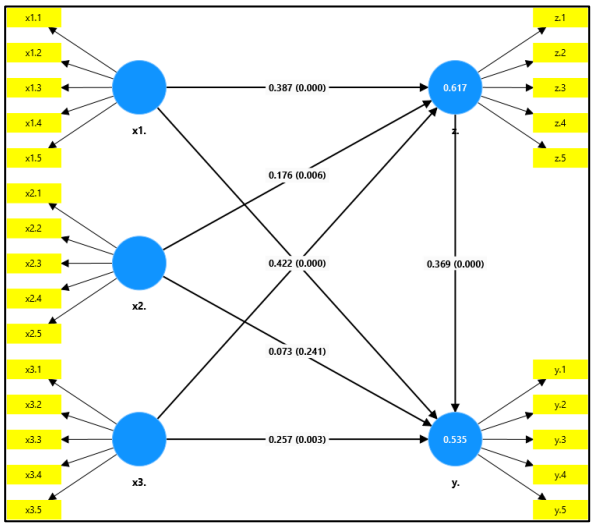
Variable	Cronbach's alpha	Composite reliability (rho_c)	Terms	Description
X1	0.785	0.853	>0,7	Reliable
X2	0.806	0.866	>0,7	Reliable
X3	0.806	0.866	>0,7	Reliable
Z	0.825	0.877	>0,7	Reliable
Y	0.835	0.884	>0,7	Reliable

Source: (Research Results, 2024)

Cronbach's alpha and Composite Reliability (rho_c) values in Table 4 indicate that all the variables—X1 (User Experience), X2 (Security and Privacy), X3 (System Performance and Stability), Z (Technology Adaptation), and Y (User Satisfaction)—show great dependability. Specifically, both Composite Reliability values range from 0.853 to 0.484 and Cronbach's alpha values range from 0.785 to 0.835, both of which surpass the allowed threshold of 0.7. These results support the evaluation of Generation Z's view of the Android OS by verifying the dependability and consistency of the measuring scales applied in this research. These constructions guarantee that the variables fairly reflect the underlying elements they are meant to measure, so rendering the study results reliable and valid.

Inner Model

Figure 2 illustrates the Inner Model, generated through data processing using SmartPLS, which evaluates the structural model in this study. The analysis highlights both direct effects, showing the relationships between the independent constructs (e.g., user experience, security and privacy, system performance) and the dependent construct (user satisfaction), as well as indirect effects, mediated by technology adaptation. These results provide insights into the strength and significance of the pathways, offering a comprehensive understanding of how the constructs interact to influence user satisfaction among Generation Z Android users.



Source: (Research Results, 2024)

Figure 2. Inner Model

Table 5. Direct Effects

Direct Effects	Original sample	T statistics	P values	Terms	Description
x1. -> y.	0.170	2.310	0.021	T statistics > 1,96 & P values < 0,05	Positively Affected
x1. -> z.	0.387	4.567	0.000		Positively Affected
x2. -> y.	0.073	1.173	0.241		No Effect
x2. -> z.	0.176	2.753	0.006		Positively Affected
x3. -> y.	0.257	2.930	0.003		Positively Affected
x3. -> z.	0.422	4.879	0.000		Positively Affected
z. -> y.	0.369	3.700	0.000		Positively Affected

Source: (Research Results, 2024)

Within the framework of Generation Z's perspective of the Android OS, the results shown in Table 5 underline the direct effects of the variables on User Satisfaction (Y) and Technology Adaptation (Z). The results show that User Experience (X1) significantly and favorably affects Technology Adaptation (Z) (β = 0.387, p = 0.001) and User Satisfaction (Y) (β = 0.170, p = 0.021). Additionally highly positively influencing User Satisfaction (Y) (β = 0.257, p = 0.003) and Technology Adaptation (Z) (β = 0.422, p = 0.001) is System Performance and Stability (X3). Though they do favorably influence Technology Adaptation (Z) (β = 0.176, p = 0.006), Security and Privacy (X2) have little effect on User Satisfaction (Y) (β = 0.073, p = 0.241). Furthermore,

User Satisfaction (Y) benefits much from Technology Adaptation (Z) itself (β = 0.369, p < 0.001). These findings highlight the important part User Experience and System Performance play in determining Generation Z's technology adaptation and satisfaction; Security and Privacy seems to have less direct influence on satisfaction.

Table 6. Indirect Effects

Direct Effects	Original sample	T statistics	P values	Terms	Description
x1. -> y.	0.143	2.915	0.004	T statistics > 1,96 & P values < 0,05	Positively Affected
x2. -> y.	0.065	2.274	0.023		Positively Affected
x1. -> y.	0.143	2.839	0.005		Positively Affected

Source: (Research Results, 2024)

The indirect effects shown in Table 6 expose notable mediating influences of Technology Adaptation (Z) on the relationship between the independent variables (X1: User Experience, X2: Security and Privacy, X3: System Performance and Stability) and User Satisfaction (Y) among Generation Z users of Android OS. Particularly, the indirect influence of User Experience (X1) on User Satisfaction (Y) is positive and significant (β = 0.143, p = 0.004), meaning that Technology Adaptation is a very important mediator in raising satisfaction. By means of Technology Adaptation (β = 0.065, p = 0.023), Security and Privacy (X2) likewise show a positive indirect influence on User Satisfaction (Y). These results highlight the complex dynamics in how Generation Z interacts with and assesses Android OS, so stressing the relevance of Technology Adaptation as a route through which both User Experience and Security and Privacy indirectly influence User Satisfaction.

Discussion

Direct Effects

1. User Experience (X1) Positively Correlates with User Satisfaction (Y)

User experience (X1) is a critical factor influencing user satisfaction (Y), particularly in the context of Generation Z's interaction with Android operating systems. A positive user experience, characterized by fast application response times and appealing interface designs, significantly enhances user satisfaction. Research indicates that users are more likely to express satisfaction when their interactions with technology are seamless and intuitive (Uwamungu, 2024). This aligns with findings that emphasize the importance of user interface quality and usability in fostering positive user experiences, which in turn leads to higher satisfaction levels (Kian, 2024).

Moreover, the expectations of Generation Z, who utilize Android for various daily activities such as social media, gaming, and education, further underscore the importance of user experience. Their demand for responsive and easy-to-navigate systems suggests that when these needs are met, user satisfaction is likely to increase (Huang, 2022). This is supported by studies showing that a well-designed user interface can significantly impact user engagement and satisfaction, reinforcing the notion that user experience is a vital determinant of overall satisfaction with technology (Taurah et al., 2020).

2. User Experience (X1) Enhances Technology Adaptation (Z)

User experience (X1) not only affects user satisfaction (Y) but also plays a crucial role in facilitating technology adaptation (Z). Generation Z's comfort with the Android interface allows them to quickly embrace new features and technologies. This adaptability is essential in a rapidly evolving technological landscape, where user experience can significantly influence the willingness to adopt new innovations (Khan, 2023). Studies have shown that users who report positive experiences with a system are more likely to engage with new functionalities, indicating a strong link between user experience and technology adaptation (Mukhiya et al., 2020).

Furthermore, the ease of use and accessibility of features within the Android ecosystem fosters a conducive environment for technology adaptation. As users become accustomed to a positive user experience, they are more inclined to explore and utilize new technologies, such as artificial intelligence and system upgrades (Lamo et al., 2022). This relationship highlights the importance of user experience as a precursor to successful technology adaptation, suggesting that enhancing user experience can lead to greater acceptance and utilization of emerging technologies (Alahmad & Robert, 2021).

3. User Satisfaction (Y) is Not Significantly Influenced by Privacy and Security (X2)

While privacy and security (X2) are often considered critical components of user satisfaction (Y), recent findings suggest that they may not have a statistically significant relationship, particularly among Generation Z users. Despite Android's ongoing improvements in security features, such as malware protection and app permission management, these factors do not appear to be primary determinants of user satisfaction for this demographic (Rianti et al., 2020). Instead,

PILAR Nusa Mandiri: Journal of Computing and Information System
Vol. 21, No. 1 March 2025 | DOI: 10.33480/pilar.v21i1.6082

Generation Z tends to prioritize functionality and performance over security concerns, indicating a shift in how these factors are perceived in relation to satisfaction (Heryanto, 2023).

This perspective is further supported by the notion that security and privacy have transitioned from being major differentiators to becoming baseline expectations among users. As users become more accustomed to certain security standards, their satisfaction may hinge more on the operational performance of the system rather than its security features (Dominguez et al., 2020). This suggests that while privacy and security are essential, they may not directly enhance user satisfaction but rather create a foundational environment that supports user engagement and satisfaction (Yousuf et al., 2021).

4. Technology Adaptation (Z) is Influenced by Privacy and Security (X2)

Although user satisfaction (Y) may not be directly influenced by privacy and security (X2), these factors play a significant role in technology adaptation (Z). Users are more likely to embrace new features and technologies when they feel their privacy is protected and their data is secure. This indicates that a sense of security can create a favorable environment for innovation and technology adoption (Dao et al., 2022). Research has shown that users who perceive their data as secure are more inclined to explore new functionalities, suggesting that privacy and security are critical enablers of technology adaptation (Nakagawa et al., 2021).

Moreover, the relationship between privacy, security, and technology adaptation highlights the importance of creating a secure user environment to foster innovation. As Generation Z continues to engage with new technologies on the Android platform, their willingness to adapt to these changes may be contingent upon their perceptions of security and privacy (Schuetz & Venkatesh, 2020). This underscores the need for developers to prioritize user privacy and security in order to enhance technology adaptation and overall user experience (Kim et al., 2021).

5. System Performance and Stability (X3) Positively Affect User Satisfaction (Y)

System performance and stability (X3) are paramount in influencing user satisfaction (Y), particularly for Generation Z, who rely on Android for various intensive activities. High processing speeds, stability, and efficient memory management are critical components that contribute to a positive user experience. Research indicates that when systems operate without frequent crashes or performance issues, users report higher satisfaction levels, as their functional needs are met (Rianti et al., 2020). This correlation emphasizes the importance of robust system performance in enhancing user satisfaction.

Additionally, the interplay between system performance and user satisfaction suggests that users are more likely to engage with and adopt new technologies when they perceive the system as reliable and stable. A well-functioning system instills confidence in users, encouraging them to experiment with new features and technologies (Taurah et al., 2020). This relationship illustrates how system performance not only directly impacts user satisfaction but also indirectly fosters technology adaptation, creating a cycle of positive user experiences and satisfaction (Mukhiya et al., 2020).

6. Technology Adaptation (Z) and System Performance and Stability (X3) are Interrelated

The relationship between technology adaptation (Z) and system performance and stability (X3) is reciprocal, with each influencing the other. Generation Z's perception of Android as a reliable operating system encourages them to embrace new features and technologies, as they feel secure in the system's performance (Khan, 2023). Studies have shown that users who experience high system stability are more likely to adopt new technologies, indicating a strong link between performance and technology adaptation (Dominguez et al., 2020).

Moreover, the ability to adapt to new technologies is enhanced by a stable and high-performing system. When users are confident in the reliability of their operating system, they are more willing to explore and utilize new functionalities, leading to a more enriched user experience (Heryanto, 2023). This reciprocal relationship highlights the importance of maintaining high system performance and stability to foster an environment conducive to technology adaptation, ultimately enhancing user satisfaction (Kim et al., 2021).

7. User Satisfaction (Y) is Enhanced by Technology Adaptation (Z)

User satisfaction (Y) is significantly enhanced by technology adaptation (Z), particularly among Generation Z users who quickly embrace new technologies on the Android platform. The ability to adapt to new features and updates directly correlates with user satisfaction, as users benefit from the latest innovations that improve their daily activities (Lamo et al., 2022). Research indicates that users who effectively adapt to new technologies report higher satisfaction levels, as they can fully leverage the capabilities of their operating systems (Taurah et al., 2020).

Furthermore, the relationship between technology adaptation and user satisfaction underscores the importance of continuous innovation in enhancing user experiences. As Generation Z engages with new tools and features, their satisfaction with the Android OS increases, reflecting their ability to adapt and utilize these advancements effectively (Alahmad & Robert, 2021). This dynamic illustrates how fostering technology adaptation can lead to improved user satisfaction, creating a positive feedback loop that benefits both users and developers (Heryanto, 2023).

Indirect Effects

1. User Experience (X1) Positively Influences User Satisfaction (Y) through Technology Adaptation (Z)

User experience (X1) significantly impacts user satisfaction (Y), particularly through the mediation of technology adaptation (Z). A positive user experience, characterized by an intuitive interface, quick application responses, and seamless navigation, enhances user satisfaction among Generation Z users of Android. Research indicates that when users find an application easy to navigate and responsive, their overall satisfaction increases Lukman (2024). This is particularly relevant for Generation Z, who utilize Android for various activities, including social media and gaming, where user experience is paramount (Naqvi et al., 2021).

Moreover, the relationship between user experience and technology adaptation suggests that a good user experience encourages users to explore and adopt new features and technologies. Users who are satisfied with their current experience are more likely to engage with updates and innovations presented by the Android OS (Kian, 2024). This dynamic indicates that enhancing user experience not only directly improves satisfaction but also fosters a willingness to adapt to new technologies, thereby creating a positive feedback loop that benefits both users and developers (Lintvedt et al., 2023).

2. Security and Privacy (X2) Indirectly Influence User Satisfaction (Y) through Technology Adaptation (Z)

While security and privacy (X2) may not directly impact user satisfaction (Y), they play a crucial role in shaping technology adaptation (Z), which in turn influences satisfaction. Generation Z users prioritize functionality and performance over security concerns, yet they are more likely to embrace new technologies when they feel their data is secure (Maqableh et al., 2021). Research has shown that users who perceive their privacy as protected are more inclined to explore new features, thereby enhancing their overall satisfaction with the system (Kamil, 2023).

Furthermore, the indirect influence of security and privacy on user satisfaction underscores the importance of creating a secure environment for technology adaptation. Users are more willing to engage with new features and updates when they trust that their data is safe, leading to increased satisfaction as they benefit from improved functionalities (Saputra, 2023). This suggests that while security and privacy may not be primary drivers of satisfaction, their role in facilitating technology adaptation is significant and should not be overlooked (Setiadi et al., 2023).

3. System Performance and Stability (X3) Positively Affect User Satisfaction (Y) through Technology Adaptation (Z)

System performance and stability (X3) are critical factors that influence user satisfaction (Y), particularly through their mediation of technology adaptation (Z). For Generation Z, who rely heavily on Android for high-performance tasks such as gaming and education, consistent system performance is essential (Prabawanti & Sihombing, 2023). Research indicates that users are more satisfied when the system operates smoothly, with minimal crashes and efficient memory management, which directly correlates with their willingness to adopt new technologies (Pratomo et al., 2023).

Moreover, a stable and high-performing system fosters user confidence, encouraging them to explore and utilize new features without fear of disruptions. This relationship highlights the importance of system performance not only in enhancing immediate user satisfaction but also in promoting long-term engagement with new technologies (Onodera, 2024). As users experience reliable performance, they are more likely to embrace updates and innovations, further contributing to their overall satisfaction with the Android OS (Anderjovi et al., 2022).

4. Technology Adaptation (Z) Mediates the Effects of User Experience (X1), Security and Privacy (X2), and System Performance and Stability (X3) on User Satisfaction (Y)

Technology adaptation (Z) serves as a crucial mediator in the relationship between user experience (X1), security and privacy (X2), system performance and stability (X3), and user satisfaction (Y). A positive user experience enhances the likelihood of users adopting new features, which in turn increases their satisfaction (Herwati, 2023). This suggests that improving user experience is not only beneficial for immediate satisfaction but also for fostering a culture of

technology adaptation among users (Alonso-García et al., 2020).

Additionally, while security and privacy may not directly influence user satisfaction, their impact is felt through technology adaptation. Users who feel secure are more inclined to explore new features, thereby enhancing their satisfaction levels (Wu & Pi, 2022). Similarly, strong system performance encourages users to engage with new technologies, reinforcing the idea that technology adaptation is a key factor in optimizing user satisfaction (Saputra, 2024). This comprehensive understanding emphasizes the need for developers to focus on user experience, security, and system performance to enhance overall user satisfaction with the Android OS.

CONCLUSIONS

The study makes it abundantly evident that Generation Z's impressions of Android OS are mostly shaped by their experiences with system performance, user experience, and new technology adaptation capacity. Determining general user satisfaction mostly relies on user experience; a good experience with easy of navigation, fast application response, and appealing design greatly increases satisfaction. Furthermore highly important are system performance and stability since Generation Z depends on a responsive and dependable OS for gaming and education. Though they directly affect user satisfaction, security and privacy issues influence technology adaptation. Users who feel safe and view their data as protected are more likely to welcome and use new features, so enhancing their OS satisfaction. Technology adaptation acts as a mediator, enabling the use of new features and updates so amplifying the impacts of user experience and system performance on satisfaction. Maximizing user satisfaction among Generation Z depends thus on a well-performing, safe, and user-friendly system that supports simple technology adoption. These results highlight the need of building a strong, flexible, and safe Android environment to fulfill the expectations and improve the whole experience of new users.

REFERENCE

Ainani Lukman, N., & Indrawati, I. (2024). Analysis of E-Servqual Dimensions Influencing E-Customer Satisfaction of My First Media Application Users. *International Journal of Science, Technology & Management*, 5(2), 440–447. https://doi.org/10.46729/ijstm.v5i2.1072

Alahmad, R., & Robert, L. P. (2021). Capturing the Complexity of Cognitive Computing Systems: Co-Adaptation Theory for Individuals. *Proceedings of the 2021 Computers and People Research Conference*, 93–95. https://doi.org/10.1145/3458026.3462148

Alonso-García, M., Pardo-Vicente, M.-Á., Rodríguez-Parada, L., & Moreno Nieto, D. (2020). Do Products Respond to User Desires? A Case Study. Errors and Successes in the Design Process, under the Umbrella of Emotional Design. *Symmetry*, 12(8), 1350. https://doi.org/10.3390/sym12081350

Anderjovi, S., Hamzah, M. L., Maita, I., & Ahsyar, T. K. (2022). User Satisfaction Analysis of E-Learning Using End User Computing Satisfaction in Covid 19. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 1–7. https://doi.org/10.46254/AF03.20220502

Aval, R. N., Baigi, S. F. M., Sarbaz, M., & Kimiafar, K. (2022). Security, Privacy, and Confidentiality in Electronic Prescribing Systems: A Review Study. *Frontiers in Health Informatics*, 11(1), 115. https://doi.org/10.30699/fhi.v11i1.374

Berger, H., Hajaj, C., & Dvir, A. (2022). Problem-space evasion attacks in the Android OS: a survey. *arXiv preprint arXiv:2205.14576*.

Budi Pratomo, A., Kurnia Harahap, M. A., Oswari, T., Akhirianto, P. M., & Widarman, A. (2023). The Application of End User Computing Satisfaction (EUCS) to Analyze the Satisfaction of MyPertamina User. *Jurnal Sistim Informasi Dan Teknologi*, 78–83. https://doi.org/10.37034/jsisfotek.v5i1.205

Candiwan, Sudirman, B. P., & Sari, P. K. (2023). Differences in Information Security Behavior of Smartphone Users in Indonesia Using Pearsonâ€TMs Chi-Square and Post Hoc Test. *International Journal on Advanced Science Engineering and Information Technology*, 13(2), 703–717. https://doi.org/10.18517/ijaseit.13.2.17975

Dao, N., Tran, A.-T., Tu, N. H., Thanh, T. T., Bao, V. N. Q., & Cho, S. (2022). A Contemporary Survey on Live Video Streaming from a Computation-Driven Perspective. *ACM Computing Surveys*, 54(10s), 1–38. https://doi.org/10.1145/3519552

Dhany, U. R., & Rahmansyah, A. I. (2022). Pengaruh Return on Assets dan Debt To Equity Terhadap Return Saham Degan Inflasi Sebagai Pemoderasi. *Owner : Riset Dan Jurnal Akuntansi*, 6(3), 3312–3323. https://doi.org/10.33395/OWNER.V6I3.1110

Dominguez, A., Florez, J., Lafuente, A., Masneri, S., Tamayo, I., & Zorrilla, M. (2020). A Methodology for User Interface Adaptation of

Multi-Device Broadcast-Broadband Services. *IEEE Access*, 8, 211048–211062. https://doi.org/10.1109/ACCESS.2020.3039616

Fitriana, L., Haris, R. A., & Rahmansyah, A. I. (2024). Pengaruh Rasio Likuiditas, Rasio Solvabilitas Dan Rasio Profitabilitas Terhadap Financial Distress Dengan Kepemilikan Manajerial Sebagai Variabel Moderasi (Studi Pada Perusahaan Sub Sektor Makanan & Minuman Di BEI Periode 2020-2022). *Jurnal PenKoMi : Kajian Pendidikan Dan Ekonomi*, 7(2), 160–168. https://doi.org/10.33627/PK.V7I2.2060

Gamba, J., Feal, Á. Blazquez, E., Bandara, V., Razaghpanah, A., Tapiador, J. E., & Vallina-Rodriguez, N. (2024). Mules and Permission Laundering in Android: Dissecting Custom Permissions in the Wild. *IEEE Transactions on Dependable and Secure Computing*, 21(4), 1801–1816. https://doi.org/10.1109/tdsc.2023.3288981

Hajesmaeel-Gohari, S., Khordastan, F., Fatehi, F., Samzadeh, H., & Bahaadinbeigy, K. (2022). The Most Used Questionnaires for Evaluating Satisfaction, Usability, Acceptance, and Quality Outcomes of Mobile Health. *BMC Medical Informatics and Decision Making*, *22*(1). https://doi.org/10.1186/s12911-022-01764-2

Herwati, I., Ayu, J. P., & Mustafida, L. (2023). User Satisfaction Analysis of Hospital Management Information System Using the EUCS Method at Mitra Delima Hospital. *Jurnal Manajemen Kesehatan Indonesia*, 11(3), 260–268. https://doi.org/10.14710/jmki.11.3.2023.260-268

Heryanto, A. (2023). A Novel Framework for Enhancing User Experience in Virtual Reality Environments. *International Journal of Computer Engineering in Research Trends*, 10(2), 61–68. https://doi.org/10.22362/ijcert/2023/v10/i02/v10i0203

Hudzafidah, K., Dhany, U. R., Rahmansyah, A. I., & Bahri, M. S. (2023). The Effect of Profitability on Social Responsibility (CSR) in Indonesia: Environmental Performance as a Moderator. *Wiga : Jurnal Penelitian Ilmu Ekonomi*, 13(1), 103–113. https://doi.org/10.30741/WIGA.V13I1.974

Hudzafidah, K., Rahmansyah, A. I., Dhany, U. R., & Suharsono, J. (2023). PENGARUH RASIO PROFITABILITAS TERHADAP HARGA SAHAM DENGAN IPO SEBAGAI VARIABEL MODERATING. *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)*, 6(1), 1090–1099. https://doi.org/10.36778/JESYA.V6I1.1163

Ibrahim, I. M. (2023). Feature Selection for Android Malware Detection with Random Forest on Smartphones. *Revue D Intelligence Artificielle*, 37(4), 857–869. https://doi.org/10.18280/ria.370405

Khan, K. (2023). User-Centric Algorithms: Sculpting the Future of Adaptive Video Streaming. *International Transactions on Electrical Engineering and Computer Science*, 2(4), 155–162. https://doi.org/10.62760/iteecs.2.4.2023.62

Kian, T. P., & Min, L. C. (2024). Determinants of User Satisfaction on E-Commerce Chatbot: A Study on Gen-Y. *Proceedings of the 9th International Conference on Marketing and Retailing (INCOMaR 2023)*, 133, Tan Pei-197. https://doi.org/10.15405/epsbs.2024.05.16

Kim, E. S., Laird, L., Wilson, C., Bieg, T., Mildner, P., Möller, S., Schatz, R., Schwarz, S., Spang, R., Voigt-Antons, J., & Rochon, E. (2021). Implementation and Effects of an Information Technology–Based Intervention to Support Speech and Language Therapy among Stroke Patients With Aphasia: Protocol for a Virtual Randomized Controlled Trial. *JMIR Research Protocols*, 10(7), e30621. https://doi.org/10.2196/30621

Kumakura, K. (2024). CPU Clock Rate Control Based on Method Invocation in Foreground Application in Android Smartphone. *Journal of Information Processing*, 32(0), 275–286. https://doi.org/10.2197/ipsjjip.32.275

Kumar, P., & Singh, S. (2023). Enhancing android application security: A novel approach using DroidXGB for malware detection based on permission analysis. *SECURITY AND PRIVACY*, 7(2). Portico. https://doi.org/10.1002/spy2.361

Kusuma, D. F. (2021). Generation Z Perception of Counterfeit Product Attribute and the Influence toward Purchase Intention. *Airlangga Journal of Innovation Management*, 2(1), 82. https://doi.org/10.20473/ajim.v2i1.26224

Lamo, Y., Mukhiya, S. K., Rabbi, F., Aminifar, A., Lillehaug, S. I., Tørresen, J., H Pham, M., Côtè-Allard, U., Noori, F. M., Guribye, F., Inal, Y., Flobakk, E., Wake, J. D., Myklebost, S., Lundervold, A. J., Hammar, A., Nordby, E., Kahlon, S., Kenter, R., … Nordgreen, T. (2022). Towards adaptive technology in routine mental health care. *DIGITAL HEALTH*, 8, 205520762211286. https://doi.org/10.1177/20552076221128678

Maqableh, M., Hmoud, H. Y., Jaradat, M., & Masa'deh, R. (2021). Integrating an information systems success model with perceived privacy,

perceived security, and trust: the moderating role of Facebook addiction. *Heliyon*, 7(9), e07899. https://doi.org/10.1016/j.heliyon.2021.e07899

Mishra, B., Agarwal, A., Goel, A., Ansari, A. A., Gaur, P., Singh, D., & Lee, H.-N. (2022). Privacy Protection Framework for Android. *IEEE Access*, 10, 7973–7988. https://doi.org/10.1109/access.2022.3142345

Mukhiya, S. K., Wake, J. D., Inal, Y., & Lamo, Y. (2020). Adaptive Systems for Internet-Delivered Psychological Treatments. *IEEE Access*, 8, 112220–112236. https://doi.org/10.1109/ACCESS.2020.3002793

Nakagawa, R., Ohzahata, S., Yamamoto, R., & Kato, T. (2021). Mitigating Congestion with Explicit Cache Placement Notification for Adaptive Video Streaming over ICN. *IEICE Transactions on Information and Systems*, E104.D(9), 2020EDP7237. https://doi.org/10.1587/transinf.2020EDP7237

Nikkhah, H. R., Grover, V., & Sabherwal, R. (2023). Post Hoc Security and Privacy Concerns in Mobile Apps: The Moderating Roles of Mobile Apps' Features and Providers. *Information and Computer Security*, 32(1), 1–37. https://doi.org/10.1108/ics-02-2023-0015

Onodera, N., Maeda, K., Ogawa, T., & Haseyama, M. (2024). Individual Persistence Adaptation for User-Centric Evaluation of User Satisfaction in Recommender Systems. *IEEE Access*, 12, 23626–23635. https://doi.org/10.1109/ACCESS.2024.3360693

Prabawanti, R., & Sihombing, D. J. C. (2023). Analysis of Factors Affecting User Satisfaction of E-Commerce Applications Using End-User Computing Satisfaction (EUCS) Method. *Journal of Information Systems and Informatics*, 5(1), 324–332. https://doi.org/10.51519/journalisi.v5i1.437

Rianti, E., Rizky, S. D., & Nugraha, F. H. (2020). Evaluation of the Satisfaction of Users of Weather Forecast Systems with the Service Quality Method. *SinkrOn*, 4(2), 130. https://doi.org/10.33395/sinkron.v4i2.10512

Rózsa, Z. (2024). Generation Z's Perception of Privacy on Social Media: Examining the Impact of Personalized Advertising, Interpersonal Relationships, Reference Group Dynamics, Social Isolation, and Anxiety on Self-Disclosure Willingness. *Oeconomia Copernicana*, 15(1), 229–266. https://doi.org/10.24136/oc.2956

Saputra, F. A., Yeza, M. P., Fahrezy, M. F., Fami, A., & Barus, I. R. G. (2024). Comparing User Experience Maxim and inDrive Applications Using the User Experience Questionnaire. *ILKOMNIKA: Journal of Computer Science and Applied Informatics*, 6(1), 79–90. https://doi.org/10.28926/ilkomnika.v6i1.614

Saputra, R., Sahona, M. A., & M.Com, T. (2023). Student Satisfaction Assessment Study of E-Learning Users: User Satisfaction with IT (USIT). *Scientechno: Journal of Science and Technology*, 2(3), 212–222. https://doi.org/10.55849/scientechno.v2i3.200

Schuetz, S., & Venkatesh, V. (2020). "Research Perspectives: The Rise of Human Machines: How Cognitive Computing Systems Challenge Assumptions of User-System Interaction ". *Journal of the Association for Information Systems*, 460–482. https://doi.org/10.17705/1jais.00608

Setiadi, B., K, K., Risdwiyanto, A., Ady Bakri, A., & Arief, I. (2023). The Application of Delone and Mclean Framework to Analyze the Relationship between Customer Satisfaction and User Experience of Mobile Application. *Jurnal Sistim Informasi Dan Teknologi*, 84–89. https://doi.org/10.37034/jsisfotek.v5i1.207

Sharma, S., Kumar, R., & Krishna, C. R. (2021). A Survey on Analysis and Detection of Android Ransomware. *Concurrency and Computation Practice and Experience*, 33(16). https://doi.org/10.1002/cpe.6272

Tabassum, N., Naeem, H., & Batool, A. (2023). The Data Security and Multi-Cloud Privacy Concerns. *International Journal for Electronic Crime Investigation*, 7(1), 49–58. https://doi.org/10.54692/ijeci.2023.0701128

Taurah, S. P., Bhoyedhur, J., & Sungkur, R. K. (2020). Emotion-Based Adaptive Learning Systems. *Machine Learning for Networking*, 273–286. https://doi.org/10.1007/978-3-030-45778-5_18

Uwamungu, E., Marara, A. A., Munyaneza, E., & Pinney, J. (2024). Electronic medical record system user satisfaction and its implications for individual work performance: The case of a university teaching hospital in Rwanda. https://doi.org/10.21203/rs.3.rs-4206008/v1

Wu, C., & Pi, P. (2022). How experience value affect user stickiness? An empirical research on booking tourism application. *Advances in*

Economics and Management Research, 2(1), 250. https://doi.org/10.56028/aemr.2.1.250

Yılmaz, S., & Davis, M. J. (2023). Hidden Permissions on Android: A Permission-Based Android Mobile Privacy Risk Model. *European Conference on Cyber Warfare and Security*, 22(1), 717–724. https://doi.org/10.34190/eccws.22.1.1453

Yusfrizal, Y., Andrian Syahputra, Yahya Tanjung, & Safrizal. (2024). Analysis of Markov Blanket Based Feature Ranking for Android Malware Detection. *Journal of Artificial Intelligence and Engineering Applications (JAIEA)*, 3(3), 740–745. https://doi.org/10.59934/jaiea.v3i3.506