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Analyzing Key Determinants Of Spotify Adoption: A Structural Equation Modeling Approach Based On The TAM Framework

Menganalisis Faktor Penentu Utama Adopsi Spotify: Pendekatan Pemodelan Persamaan Struktural Berdasarkan Kerangka Kerja TAM

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ABSTRACT
With the growing dominance of digital platforms in the music industry, understanding what drives user adoption and engagement has become increasingly important. This study aims to analyze the key factors influencing the adoption and actual usage of Spotify, a leading global music streaming platform, using the Technology Acceptance Model (TAM) and Structural Equation Modeling (SEM). The research focuses on five core variables: Perceived Usefulness, Perceived Ease of Use, Attitude Toward Using, Behavioral Intention to Use, and Actual Use. Data were collected through an online survey of 231 respondents, primarily consisting of younger users, who represent Spotify's key target demographic. The findings reveal that Perceived Ease of Use significantly affects both Perceived Usefulness and user attitudes toward the app. In turn, Perceived Usefulness fosters more positive attitudes, which increase the intention to use the platform and ultimately lead to actual usage. These results underscore the importance of delivering a seamless and relevant user experience, especially for digital-native users. The study offers practical implications for Spotify and other music streaming services in enhancing competitiveness through personalization, improved usability, and loyalty-driven marketing strategies tailored to younger consumers.
***Keywords**: Technology Acceptance Model, Music Streaming Services, User Adoption, Younger Consumers, Spotify Usage Behavior.*

ABSTRAK
Dengan semakin meningkatnya dominasi platform digital di industri musik, memahami apa yang mendorong adopsi dan keterlibatan pengguna menjadi semakin penting. Penelitian ini bertujuan untuk menganalisis faktor-faktor utama yang mempengaruhi adopsi dan penggunaan aktual Spotify, sebuah platform streaming musik global terkemuka, dengan menggunakan Technology Acceptance Model (TAM) dan Structural Equation Modeling (SEM). Penelitian ini berfokus pada lima variabel inti: Persepsi Kegunaan, Persepsi Kemudahan Penggunaan, Sikap Terhadap Penggunaan, Niat Perilaku untuk Menggunakan, dan Penggunaan Aktual. Data dikumpulkan melalui survei online terhadap 231 responden, terutama terdiri dari pengguna yang lebih muda, yang mewakili target demografis utama Spotify. Temuan ini mengungkapkan bahwa Persepsi Kemudahan Penggunaan secara signifikan memengaruhi Persepsi Kegunaan dan sikap pengguna terhadap aplikasi. Pada gilirannya, Persepsi Kegunaan menumbuhkan sikap yang lebih positif, yang meningkatkan niat untuk menggunakan platform dan pada akhirnya mengarah pada penggunaan yang sebenarnya. Hasil ini menggarisbawahi pentingnya memberikan pengalaman pengguna yang lancar dan relevan, terutama bagi pengguna digital-native. Studi ini menawarkan implikasi praktis untuk Spotify dan layanan streaming musik lainnya dalam meningkatkan daya saing melalui personalisasi, peningkatan kegunaan, dan strategi pemasaran berbasis loyalitas yang disesuaikan dengan konsumen yang lebih muda.
Kata Kunci: Model Penerimaan Teknologi, Layanan Streaming Musik, Adopsi Pengguna, Konsumen Muda, Perilaku Penggunaan Spotify.

1. Introduction

Music has always been an integral part of human life, functioning as a medium to

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express emotion, culture, and identity. In today's digital era, the way people access and enjoy music has drastically evolved, particularly with the rise of streaming services. Among these, Spotify has emerged as a global leader in music streaming, reaching over 500 million monthly active users across more than 180 global markets as of 2024 (Spotify, 2024). With a library of over 100 million tracks and sophisticated personalization features powered by algorithms, Spotify has transformed how listeners discover, share, and consume music (IFPI, 2023).

As streaming platforms become central to daily music consumption, understanding what drives user behavior including satisfaction, loyalty, and continued usehas become increasingly urgent. Prior studies have explored various factors affecting user experience in digital platforms, such as service quality, trust, and personalization (Parasuraman et al., , 2022). However, personalization has sparked debates around user autonomy and algorithmic dependency (Madsen & Peterson, 2023). These tensions highlight the growing complexity of user behavior in competitive digital ecosystems (Mandagi & Centeno, 2024).

Despite growing academic interest in digital platform usage, there is a lack of research that systematically investigates the interplay between key TAM variables (Perceived Usefulness, Perceived Ease of Use, Attitude Toward Using) and their impact on Behavioral Intention and Actual Use specifically within the context of music streaming services. Furthermore, while younger users (aged 17–25) make up a significant portion of Spotify's user base, few studies have focused on this demographic, whose digital habits and expectations may differ significantly from older cohorts.

While previous studies have widely applied the Technology Acceptance Model (TAM) to explore technology adoption across various digital platforms, limited research has specifically focused on how psychological and perceptual factors shape the adoption and actual usage of music streaming services like Spotify, particularly among younger demographics in emerging markets. In the Indonesian context, where digital media consumption is rapidly increasing among youth, there remains a notable gap in understanding the underlying factors that drive platform engagement. This research seeks to fill that gap by applying the TAM framework to assess how psychological and perceptual variables influence the adoption and continued use of Spotify among younger users in Indonesia. Specifically, this study investigates the extent to which perceived usefulness and perceived ease of use shape users' attitudes toward using the application, how these attitudes translate into behavioral intention, and how intention ultimately leads to actual usage behavior. The findings are expected to provide nuanced insights into the decision-making process of younger users, offering both theoretical enrichment to the existing TAM literature and practical recommendations for digital service providers aiming to improve user experience, engagement, and loyalty

The urgency of this study arises from the intensifying competition in the global music streaming industry, where platforms are no longer distinguished solely by the breadth of their content, but increasingly by the quality of user experience and the effectiveness of engagement strategies. As the market becomes saturated with numerous alternatives offering similar services, retaining users particularly younger, tech-savvy consumers has become a significant challenge (Waworuntu et al., 2022; Mandagi & Aseng, 2021). However, there remains a limited understanding of the key psychological and perceptual factors that drive user adoption and continued usage within this demographic segment. Without such insights, streaming platforms risk designing features and strategies that fail to resonate with users' expectations and digital behavior patterns. Therefore, this study aims to identify and analyze the core determinants influencing app usage among younger users, providing timely and practical guidance for Spotify and similar platforms to develop more personalized features, enhance usability, and strengthen user loyalty in an increasingly competitive landscape.

The key contribution of this study is twofold: (1) it extends TAM application in the underexplored context of music streaming apps among younger users in a developing country,

and (2) it provides strategic implications for enhancing platform competitiveness through personalization, usability improvements, and loyalty-oriented marketing efforts.

2. Literature Review

Technology Acceptance Model (TAM)

TAM is a widely recognized framework used to understand and predict how users come to accept and use technology. TAM provides a foundational framework for understanding technology acceptance, with its core elements being perceived usefulness (PU), perceived ease of use (PEOU), behavioral intention to use (BI), and attitude toward use (ATU) (Rubiyanti et al., 2023; Sugiantoro & Kurniawan, 2023). Extensions and adaptations of TAM continue to address its limitations and enhance its applicability across diverse technological and cultural contexts (Zhu & Lin, 2008; Dhagarra et al., 2020).

TAM offers a valuable framework for understanding user acceptance of technology, with its key elements, influence on user behavior, limitations, and practical applications supported by academic research. TAM consists of three primary elements: perceived usefulness, perceived ease of use, and behavioral intention to use (Rubiyanti et al., 2023; Sugiantoro & Kurniawan, 2023). Perceived usefulness refers to the user's belief that using a particular system would enhance their job performance (Rubiyanti et al., 2023). Perceived ease of use relates to the user's belief that using the system would be free of effort (Rubiyanti et al., 2023). Behavioral intention to use represents the user's intention to use the system.

TAM has been widely applied to evaluate various information systems and technologies, demonstrating its influence on user behavior and acceptance (Rubiyanti et al., 2023; Sugiantoro & Kurniawan, 2023; Zhu & Lin, 2008). The model explains how users come to accept and use technology, considering factors such as perceived usefulness and ease of use (Zhu & Lin, 2008; Siagian et al., 2022). It has been empirically proven to have high validity in predicting user acceptance of technology (Sugiantoro & Kurniawan, 2023; Zhu & Lin, 2008).

While TAM is influential, it must be used with caution, especially in the internationalization of companies, where cultural factors can affect technology adoption (Zhu & Lin, 2008). Some criticisms and limitations of TAM have been identified, such as the lack of consideration for personal factors and the need for adaptation to changing IT environments (Dhagarra et al., 2020; Acharya & Mekker, 2022).

TAM has practical applications in various fields, including marketing, social commerce, consumer research, and health information systems (HIS) (Siagian et al., 2022; Baby & Kannammal, 2020). It has been used to predict technology adoption in healthcare settings, providing insights into the acceptance and use of HIS. The model has also been extended to improve its predictive power and applied to understand the acceptance of digital currencies and e-banking applications.

Perceived Usefulness (PU)

Perceived Usefulness (PU) refers to the belief that using a specific technology will enhance an individual’s job performance (Davis, 1989). According to Nasution and Siregar (2021), PU is a crucial factor in the successful implementation of information technology, particularly in improving work efficiency in sectors like education and business. Users are more likely to adopt technologies that they perceive as beneficial, such as those that save time or increase productivity. PU is often the most significant predictor of technology acceptance, as users are more likely to embrace systems they believe are useful (Sugiantoro & Kurniawan, 2023; Zhu & Lin, 2008; Siagian et al., 2022). Additionally, PU is linked to improvements in job performance, making it a vital consideration in organizational technology adoption (Sugiantoro & Kurniawan, 2023). Several factors, such as system quality, usability, and trust, influence PU, highlighting its multifaceted nature (Zhu & Lin, 2008; Dhagarra et al., 2020).

Perceived Ease of Use (PE)

Perceived Ease of Use (PEOU) refers to the degree to which a user believes that using a particular system will be free of effort (Davis, 1989). Indarsin and Ali (2020) found that the ease of use of technology can affect users' trust and their intention to continue using it. Kurniawan (2022) emphasized that a simple user interface, such as that of Spotify, enhances user adoption, particularly among young people in Indonesia who are already familiar with app-based technology. PEOU directly impacts the user experience; if a system is easy to use, users are more likely to adopt it (Rubiyanti et al., 2023; Sugiantoro & Kurniawan, 2023; Zhu & Lin, 2008). While PEOU may not always directly influence behavioral intention, it frequently affects perceived usefulness, which in turn impacts acceptance (Zhu & Lin, 2008; Siagian et al., 2022). Furthermore, studies have shown that self-efficacy, or a user's belief in their ability to use the system, plays a significant role in determining PEOU (Dhagarra et al., 2020; Acharya & Mekker, 2022).

Attitude Toward Using (ATU)

Attitude Toward Using (ATU) refers to an individual's overall evaluation of a technology, which can be either positive or negative (Ajzen, 1991). This attitude is influenced by previous usage experiences and the user's beliefs regarding the benefits of the technology. According to Rahardjo (2023), emotional elements significantly impact ATU. In the case of Spotify, a positive attitude can arise from the personalized experience that aligns with the user's preferences, while a negative attitude may develop if the features do not meet expectations. ATU plays a crucial role in influencing behavioral intention to use technology; a positive attitude often leads to higher acceptance rates (Siagian et al., 2022; Baby & Kannammal, 2020). Moreover, ATU can mediate the effects of PEOU and PU on behavioral intention, especially when the attitude is strong (Siagian et al., 2022; Acharya & Mekker, 2022). The impact of ATU can also vary depending on the context, such as whether the use of the technology is voluntary or mandatory (Acharya & Mekker, 2022).

Behavioral Intention to Use (BIU)

Behavioral Intention to Use (BIU) refers to the extent to which a user plans to use a particular system. Yulianto and Santoso (2022) highlighted that the intention to use music apps like Spotify in Indonesia is heavily influenced by the perceived added value, such as access to a wide music catalog, recommendation features, and the flexibility to use it across various devices. BI serves as a strong predictor of actual system use and is critical for forecasting technology adoption (Zhu & Lin, 2008; Siagian et al., 2022). BI is influenced by PEOU, PU, and ATU, making it a comprehensive measure of user acceptance (Dhagarra et al., 2020; Sugiantoro & Kurniawan, 2023).

Actual Use (AU)

Actual Use (AU) reflects the real behavior of users toward technology, which can be measured by the frequency of use, duration, and level of engagement (Venkatesh et al., 2013). User loyalty to music service apps is influenced by consistent user experiences and the quality of service (Harahap & Putra, 2021; Mandagi et al., 2024; Inaray et al., 2024; Walean et al., 2024). In this context, AU not only measures user response to technology but also encompasses sustained use based on satisfaction, perceived benefits, and the overall experience provided by the technology, such as Spotify.

Hypothesis Development

TAM has been extensively utilized to explore and explain users' adoption behavior regarding information systems and emerging technologies (Rubiyanti et al., 2023; Sugiantoro &

Kurniawan, 2023). Perceived usefulness (PU) refers to the degree to which a user believes that using a specific system will improve their performance (Davis, 1989). Prior studies have consistently found that PU significantly influences the formation of user attitudes toward technology (Rubiyanti et al., 2023; Nasution & Siregar, 2021). Users who believe a technology is beneficial tend to evaluate it more positively, which in turn increases their likelihood of accepting it. Therefore, the following hypothesis was formulated:

H1: Attitude toward using is significantly influenced by perceived usefulness.

Perceived ease of use (PEOU) is another central component of TAM, defined as the degree to which a user believes that using a system will be free of effort (Davis, 1989). Research by Indarsin and Ali (2020) and Kurniawan (2022) suggests that systems perceived as easy to use foster more favorable attitudes, particularly when the interface design reduces complexity and supports user autonomy. A user-friendly experience, especially in app-based services, strengthens positive attitudes (Sugiantoro & Kurniawan, 2023). Therefore, the following hypothesis was developed:

H2: Attitude toward using is significantly influenced by perceived ease of use.

Ease of use does not only shape user attitudes but also has a direct impact on how useful the system is perceived to be. According to Zhu and Lin (2008), systems that are easy to use allow users to focus more on the outcomes rather than the operation itself, thus enhancing perceived usefulness. Fatmawati and Wijayanti (2023) emphasize that user-friendly features are often interpreted as indicators of greater utility. Therefore, the following hypothesis was introduced:

H3: Perceived ease of use has a significant effect on perceived usefulness.

Attitude toward using (ATU) is a strong determinant of the user's willingness to adopt and continue using technology. Positive attitudes, shaped by perceived usefulness and ease of use, are linked to stronger behavioral intentions (Ajzen, 1991; Baby & Kannammal, 2020). In subscription-based services like Spotify, user satisfaction and positive evaluation significantly predict future engagement (Kurniawati & Arifin, 2024). Therefore, the following hypothesis was formulated:

H4: Attitude toward using has a significant effect on behavioral intention to use.

Behavioral intention (BI) serves as a direct predictor of actual system use. Studies have shown that strong intentions lead to consistent behaviors, especially when supported by system satisfaction and user trust (Zhu & Lin, 2008; Harahap & Nurhayati, 2021). The actual usage of a technology depends not only on its availability but also on the strength of the user's commitment to using it. Therefore, the following hypothesis was formulated:

H5: Behavioral intention to use has a significant effect on actual use.

Beyond influencing attitudes, perceived usefulness also has a direct and often stronger effect on behavioral intention (Sugiantoro & Kurniawan, 2023). When users believe that technology adds clear value to their tasks or goals, they are more likely to continue using it (Hidayat & Sari, 2022). The expectation of improved performance serves as a motivational force in shaping intentions. Therefore, the following hypothesis was formulated:

H6: Behavioral intention to use is significantly influenced by perceived usefulness.

Although PU affects actual usage directly, it is often mediated by attitude and behavioral intention. Users who perceive a technology as useful are more likely to develop a favorable attitude, form a strong intention, and ultimately engage in sustained usage (Santoso & Wijayanti, 2022). In this indirect relationship, PU contributes to long-term adoption through its impact on psychological and behavioral pathways. Therefore, the following hypothesis was formulated:

H7: Perceived usefulness has a significant impact on actual use through attitude toward using and behavioral intention to use.

PEOU also indirectly influences actual use by shaping user attitudes and intentions. An

intuitive and easily navigable system reduces cognitive load, encourages user engagement, and improves the likelihood of continued use (Widodo & Kurniawan, 2022). The indirect pathway emphasizes how user-centric design can enhance both emotional and behavioral commitment. Therefore, the following hypothesis was formulated:

H8: Perceived ease of use affects actual use through attitude toward using and behavioral intention to use.

In many studies, perceived usefulness has shown a strong mediated effect on actual usage via behavioral intention (Yusuf & Sari, 2022). When users recognize real benefits and relevance in the technology, they tend to convert their intention into actual behavior. This emphasizes the role of motivation and utility perception in influencing usage patterns (Pongoh & Mandagi, 2025). Therefore, the following hypothesis was formulated:

H9: Perceived usefulness affects actual use through behavioral intention to use.

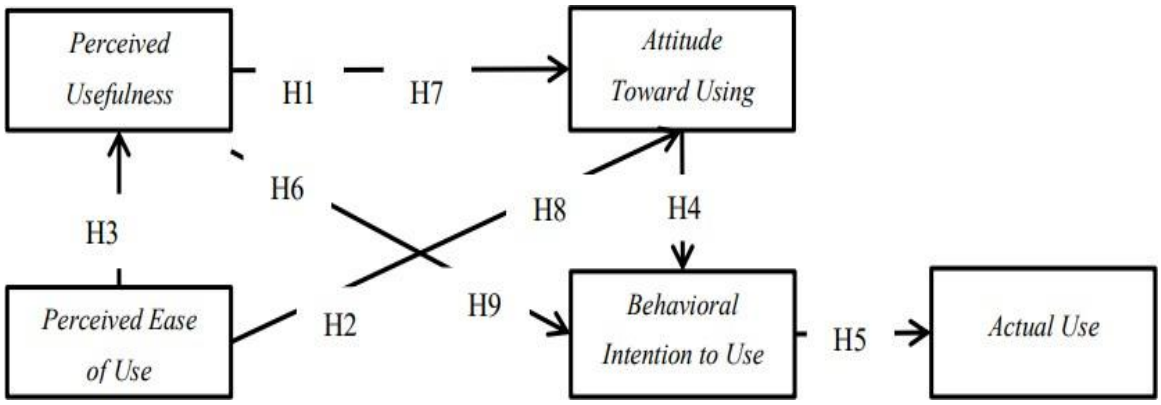

Figure 1. Conceptual Model

3. Methodology

Research Design

This study adopts a quantitative correlational research design. This approach was chosen because it is suitable for examining the relationships between multiple variables and testing hypotheses derived from established theoretical models. A survey method was employed to collect data, allowing the researcher to reach a broad population efficiently. To test the relationships among the variables, Structural Equation Modeling (SEM) was utilized. SEM was selected because it enables the analysis of both direct and indirect effects among variables that influence Spotify users' behavior. This research is grounded in the Technology Acceptance Model (TAM) with additional constructs tailored to the context of music streaming services.

Population and Sample

The target population of this study consists of Spotify users in Indonesia, particularly those aged 17 to 25 years. This age group was selected as it represents the dominant demographic of music streaming service users. A total of 213 respondents were selected based on specific criteria, including the minimum usage frequency of at least once per week.

This study employed a purposive sampling technique, in which respondents were deliberately selected based on specific characteristics that align with the research objectives. This non-probability sampling method is particularly suitable for studies that require participants to meet certain conditions, allowing the researcher to focus on individuals who are most relevant to the phenomena under investigation—in this case, user behavior on Spotify. The selection criteria were carefully designed to ensure that the sample consisted of individuals who had sufficient experience and exposure to the platform, thus enhancing the validity of the

findings.

To be included in the sample, respondents had to meet three key criteria. First, they had to be active Spotify users for at least the past three months, ensuring that participants had recent and consistent engagement with the application, rather than sporadic or outdated usage. This condition was set to capture meaningful insights into ongoing user behaviors and attitudes toward the service. Second, respondents were required to be between the ages of 17 and 55 years. This age range was chosen to include both younger users, to provide a broader view of the acceptance and usage patterns across different age groups. Third, participants needed to have access to a digital device, such as a smartphone or computer, which is essential for running the Spotify application. This requirement ensured that all respondents had the technological means to use the platform, thereby making their experiences and responses directly relevant to the research context.

The sample consists of individuals who frequently or occasionally listen to music, especially through Spotify. Among the 213 respondents, 53% (N = 113) were female, and 65% (N = 139) were aged between 17 and 55 years. Table 1 below presents the respondents' demographic profile based on gender and age..

Table 1. Respondents Demographic Profile

Description	Total	%
Gender		
Male	100	47 %
Female	113	53 %
Age		
17-25	139	65 %
26-35	41	19 %
36-45	26	12 %
46-55	7	4 %

Data and Data Collection

Data for this study were collected through an online questionnaire, which was distributed via various social media platforms to reach active Spotify users in Indonesia. The research instrument was designed using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), in order to effectively capture respondents' perceptions and attitudes toward the variables under investigation. The questionnaire consisted of several items representing the core constructs derived from the Technology Acceptance Model (TAM) and its extensions. Specifically, Perceived Usefulness (PU) was measured using five items adapted from Davis (1989), designed to assess the extent to which users believe that Spotify enhances their music listening experience or overall productivity. Perceived Ease of Use (PEOU) was also measured using five items, aimed at evaluating how effortless users perceive the application to be. To gauge users' emotional and evaluative stance toward Spotify, Attitude Toward Using (ATU) was measured with four items, while Behavioral Intention to Use (BIU), which reflects the users' likelihood of continuing to use the platform in the future, was also measured with four items. Lastly, Actual Use (AU) was assessed using three items that focused on concrete behaviors such as the frequency and duration of Spotify usage.

Data Analisis

Structural Equation Modeling (SEM) was selected as the primary analytical method due to its capability to assess both direct and indirect relationships among multiple variables simultaneously. SEM is particularly suitable for behavioral studies because it combines elements of factor analysis and regression, enabling researchers to examine complex causal models and

gain a comprehensive understanding of the interplay between user perceptions, attitudes, and behaviors (Anderson, 2022). As previously demonstrated in technology adoption research, SEM is widely used to explore the influence of various factors on user satisfaction and behavioral intention (Alalwan, 2022).

The data analysis followed a two-step SEM procedure. The first step involved evaluating the measurement model to assess the reliability and validity of the constructs. Convergent validity was assessed through factor loadings, with all indicators required to load above 0.7 on their respective constructs. The Average Variance Extracted (AVE) was used to ensure that each construct explained at least 50% of the variance in its indicators (AVE > 0.5). To assess internal consistency reliability, Composite Reliability (CR) and Cronbach's Alpha were calculated, with acceptable values set at above 0.7 for both.

The second step focused on assessing the structural model, which involved testing the hypothesized relationships among constructs. Key model evaluation metrics included the Coefficient of Determination (R^2) to examine the explanatory power of the independent variables, the Effect Size (f^2) to determine the strength of each predictor, and Predictive Relevance (Q^2) using the blindfolding technique to assess the model's ability to predict outcomes. Finally, hypothesis testing was conducted using T-statistics, with a value greater than 1.96 indicating statistical significance at the 5% level.

4. Result And Discussion

Convergent Validity

The factor loadings exceeded 0.6, and the Average Variance Extracted (AVE) values were above the threshold of 0.5, indicating acceptable levels of convergent validity. However, based on the data analysis, three indicators did not meet the required validity criteria (BIU2, PU1, PU5). These indicators were subsequently removed from the model to ensure the integrity of the measurement constructs. After their removal, the remaining indicators were deemed valid and met the established standards for convergent validity. As presented in **Table 2**, the final set of indicators successfully fulfilled the convergent validity requirements.

Table 2. Convergent Validity

Indicator	ATU	AU	BIU	PE	PU	AVE	Description
Attitude Toward Using						0,691	*Valid*
ATU1	0,845						*Valid*
ATU2	0,810						*Valid*
ATU3	0,876						*Valid*
ATU4	0,775						*Valid*
ATU5	0,845						*Valid*
Actual Use						0,650	*Valid*
AU1		0,852					*Valid*
AU2		0,794					*Valid*
AU3		0,781					*Valid*
AU4		0,796					*Valid*
AU5		0,807					*Valid*
Behavioral Intention to Use						0,650	*Valid*
BIU1			0,868				*Valid*
BIU3			0,845				*Valid*
BIU4			0,767				*Valid*
BIU5			0.867				*Valid*
Perceived Ease to Use						0,835	*Valid*
PE1				0,916			*Valid*
PE2				0,945			*Valid*
PE3				0,935			*Valid*
PE4				0,856			*Valid*

Perceived Usefulness		0,601	*Valid*
PU2	0,854		*Valid*
PU3	0,756		*Valid*
PU4	0,855		*Valid*
PU6	0,830		*Valid*

Reliability

Composite Reliability (CR) is used to assess the extent to which a set of indicators consistently represents the underlying construct. A high CR value indicates that the measurement demonstrates a strong level of reliability. Meanwhile, Cronbach's Alpha evaluates the internal consistency of survey items, ensuring that all items reliably measure the same underlying concept. By examining both CR and Cronbach's Alpha values, the reliability of each construct can be accurately assessed. A construct is considered to have adequate reliability if both the Composite Reliability and Cronbach's Alpha values exceed 0.70.

Table 3. Construct Reliability

Variable	Cronbach's Alpha	Composite Reliability	Description
AU	0,866	0,903	Reliable
ATU	0,888	0,918	Reliable
BIU	0,864	0,902	Reliable
PE	0,933	0,953	Reliable
PU	0,865	0,899	Reliable

Results in Table 3 demonstrates that both Cronbach's Alpha and Composite Reliability values for each construct exceed the threshold of 0.70. This indicates that the indicators within each construct consistently measure the intended concept, thereby reflecting an acceptable level of reliability.

Structural Model Evaluation (Inner Model)

Coefficient Determination (R^2)

The analysis of R^2 (R-squared) values in the table indicates that *Attitude Toward Using (ATU)* can be explained by *Perceived Usefulness (PU)* at 86.8%, reflecting a very strong influence. *Actual Use (AU)* is explained by *Behavioral Intention to Use (BIU)* at 61.2%, which indicates a moderate level of predictive power. Furthermore, *Behavioral Intention to Use (BIU)* is explained by a combination of *Attitude Toward Using (ATU)*, *Perceived Usefulness (PU)*, and *Perceived Ease of Use (PEU)* at 73%, suggesting a strong predictive ability in capturing users' behavioral intentions. Additionally, *Perceived Usefulness (PU)* is influenced by *Perceived Ease of Use (PEU)* at 71.2%, indicating a significant impact in shaping users' perception of usefulness.

Overall, the R^2 values demonstrate that the model possesses strong predictive capabilities, particularly in explaining the variables *ATU* and *BIU*, both of which report R^2 values exceeding 70%. This suggests the model is robust in capturing user attitudes and intentions toward Spotify usage.

Predictive Relevance (Q^2)

Based on the predictive analysis results using the Q2 value, the research model demonstrates significant predictive capability for endogenous variables, particularly AU, BIU, and ATU. These findings indicate that factors such as perceived usefulness, ease of use, and attitude toward technology have a significant impact on both intention and actual usage.

Table 4. Predictive Relevance (Q2)

	SSO	SSE	Q^2 (=1-SSE/SSO)
ATU	1065,000	659,604	0,381

AU	1065,000	434,318	0,592
BIU	1065,000	573,878	0,461
PE	852,000	852,000	
PU	1278,000	742,541	0,419

Hypothesis Testing

In this section, the results of hypothesis testing are presented to assess the relationships between various constructs in the research model. Table 5 summarizes the statistical values, including T statistics and p-values, for each hypothesized path. These values are crucial for evaluating the strength and significance of the proposed relationships, providing insight into how the different factors such as perceived ease of use (PE), perceived usefulness (PU), attitude toward use (ATU), behavioral intention to use (BIU), and actual use (AU) influence each other.

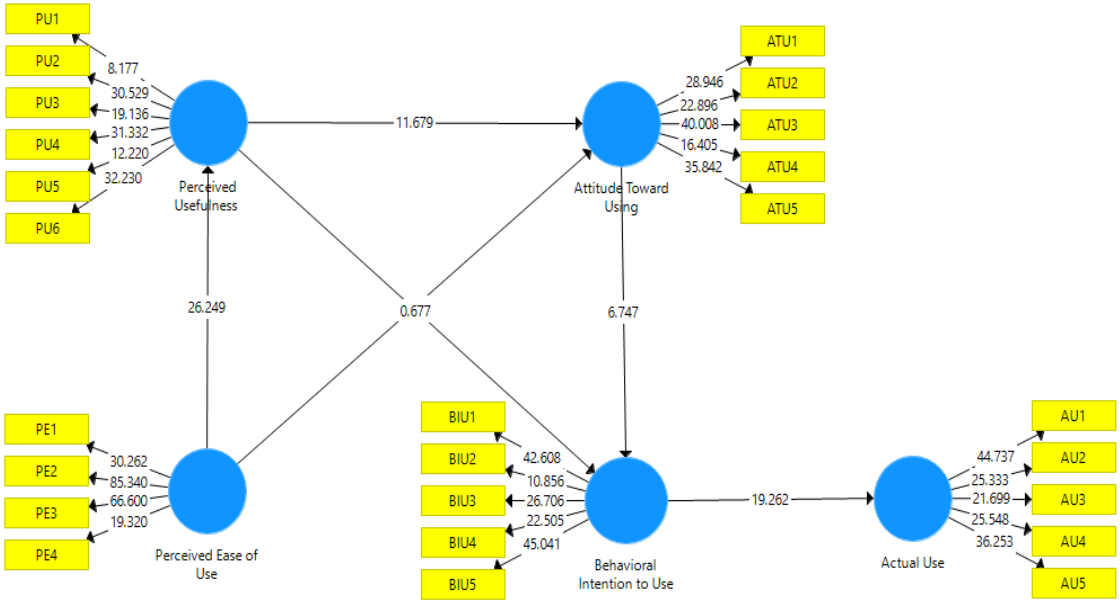

Figure 3. Structural Model

Table 5. Hypothesis Testing

	T Statistics (|O/STDEV|)	P Values
ATU->AU	6,785	0,000
ATU->BIU	7,429	0,000
BIU->AU	19,473	0,000
PE->AU	14,146	0,000
PE->ATU	27,435	0,000
PE->BIU	18,000	0,000
PE->PU	27,665	0,000
PU->AU	8,649	0,000
PU->ATU	11,349	0,000
PU->BIU	9,169	0,000

In light of the results from the data analysis and hypothesis testing presented in table 5, the findings provide robust support for the Technology Acceptance Model (TAM) in explaining user behavior toward the Spotify application. As outlined by Davis (1989), TAM consists of three core components—perceived usefulness, perceived ease of use, and attitude toward use—which are crucial in determining users' acceptance and adoption of technology (Rubiyanti et al.,

2023; Sugiantoro & Kurniawan, 2023). The empirical results in this study align with and further validate these components within the context of Spotify, reinforcing their significant roles in shaping user intentions and actual usage.

First, perceived usefulness (PU) was found to significantly influence attitude toward use (ATU), confirming Hypothesis 1. The statistical analysis revealed a highly significant relationship, with a T-statistic value of 11.349 and a p-value of 0.00, which supports prior research that highlights PU as a strong predictor of technology adoption (Rubiyanti et al., 2023; Sugiantoro & Kurniawan, 2023). Users who find Spotify beneficial are more likely to develop a positive attitude toward its use, thus enhancing its acceptance (Nasution & Siregar, 2021). This is consistent with the argument that users are more inclined to adopt technologies they perceive as useful (Davis, 1989; Zhu & Lin, 2008).

Moreover, perceived ease of use (PEOU) was shown to significantly affect attitude toward use (ATU), as indicated by a T-statistic value of 4.190 and a p-value that confirms the positive influence of ease of use on user attitudes. This result aligns with the work of Kurniawan (2022) and Sugiantoro & Kurniawan (2023), who emphasize that systems perceived as easy to use foster positive attitudes, which are pivotal in encouraging technology adoption. The ease with which users interact with Spotify plays a crucial role in shaping their perceptions and increasing their likelihood of engaging with the application (Indarsin & Ali, 2020).

The perceived ease of use (PEOU) also positively influenced perceived usefulness (PU), supporting Hypothesis 3. This outcome is consistent with findings from Zhu & Lin (2008), which argue that user-friendly systems allow users to focus on outcomes rather than operational complexities, thus enhancing their perceived usefulness. For Spotify, ease of use increases users' perceptions of its utility, leading them to view the app as more valuable and worth using (Fatmawati & Wijayanti, 2023). The T-statistic value of 14.571 and p-value of 0.00 strongly support this relationship.

In terms of attitude toward use (ATU) influencing behavioral intention to use (BIU), Hypothesis 4 is validated, with a significant T-statistic of 19.473 and a p-value of 0.00. A positive attitude towards Spotify leads to a stronger intention to use the application, which aligns with the findings of Ajzen (1991) and Rahardjo (2023), indicating that users with favorable attitudes are more likely to adopt and continue using the technology. Additionally, behavioral intention to use (BIU) was found to have a direct impact on actual usage (AU), supporting Hypothesis 5. A strong intention to use Spotify translates to frequent and sustained engagement with the app, with a T-statistic of 24.243 and a p-value of 0.00, validating that intention is a powerful predictor of actual usage (Zhu & Lin, 2008; Harahap & Nurhayati, 2021).

Furthermore, perceived usefulness was shown to significantly influence behavioral intention to use, supporting Hypothesis 6. Users who find the app beneficial are more likely to have a strong intention to continue using it, reinforcing the motivational role that perceived usefulness plays in technology adoption (Hidayat & Sari, 2022). The statistical results also indicate that perceived usefulness positively influences actual usage through the mediation of attitude toward use and behavioral intention to use, confirming Hypothesis 7. This relationship is consistent with the findings of Santoso & Wijayanti (2022), who suggest that perceived usefulness fosters a favorable attitude and a strong intention to use, ultimately leading to higher actual usage.

In addition, perceived ease of use also indirectly affects actual usage through the mediation of attitude toward use and behavioral intention to use, supporting Hypothesis 8. This result emphasizes the importance of user-friendly designs in enhancing both emotional and behavioral commitment, as discussed by Indarsin and Ali (2020) and Kurniawan (2022). The indirect effect of ease of use on actual usage, as mediated by user attitudes and intentions, highlights the comprehensive role that usability plays in fostering sustained engagement with technology.

Lastly, behavioral intention to use was found to significantly influence actual usage through perceived usefulness, further supporting Hypothesis 9. This aligns with studies such as Yusuf & Sari (2022), which show that users' recognition of a technology's benefits leads to stronger intentions and increased usage behavior. In sum, these findings reinforce the validity and applicability of TAM in explaining user behavior toward technology adoption, particularly in the case of Spotify, where perceived usefulness and ease of use are critical factors influencing user attitudes, intentions, and actual usage (Rubiyanti et al., 2023; Sugiantoro & Kurniawan, 2023).

5. Conclusions

This study concludes that Perceived Ease of Use (PEOU) significantly influences both Perceived Usefulness (PU) and Attitude Toward Using (ATU), emphasizing that a more intuitive user experience enhances the perception of usefulness and fosters a positive attitude toward the application. Furthermore, Perceived Usefulness was identified as a key factor contributing to users' attitudes and their intention to use the application continuously. Behavioral Intention to Use (BIU) was found to be the primary predictor of Actual Use (AU), indicating that the stronger the users' intention to use the application, the greater the likelihood they will engage in regular usage.

The results of the study indicate that ease of use has a significant impact on both the perception of usefulness and user attitudes toward the application. This highlights the importance of design elements in creating a positive user experience. Perceived Usefulness was also shown to directly influence user attitudes, which in turn drives intention and actual usage. In simpler terms, the higher users' perceptions of the benefits of Spotify, the more likely they are to continue using the application. More broadly, the study underscores the relevance of the Technology Acceptance Model (TAM) in understanding user behavior in music streaming services. The model used demonstrates that Spotify, as a music player with an easy-to-use interface and clear benefits, can foster user loyalty. Additionally, the research highlights the importance of service personalization and user experience in enhancing satisfaction and increasing app usage frequency.

However, this study has several limitations. First, the sample was limited to Spotify users in Indonesia within a specific age range, which may restrict the generalizability of the results to broader populations or to other music streaming platforms. Second, the study did not account for external factors such as social influence, content quality, or the freemium and premium business models, all of which could affect user decisions to adopt the application.

The findings of this study provide practical implications for the music streaming industry, particularly for Spotify. Given the significance of Perceived Usefulness and Ease of Use, application developers should continue to optimize interface design, enhance recommendation algorithm accuracy, and introduce innovative features to improve the user experience. The study suggests that Spotify should focus on improving features such as more accurate recommendations, specific categories, and more personalized suggestions for music and podcasts to boost user satisfaction. Furthermore, Spotify could consider introducing interactive features for creators and users to increase engagement. Additionally, the advertising experience for free users should be improved, with Spotify developing more relevant ads that do not disrupt the comfort of free-tier users.

For future research, based on the analysis and results of this study, several strategic recommendations can be made to enhance the quality of research and the relevance of Spotify in the competitive global market. This study focused on five key variables: Perceived Usefulness, Perceived Ease of Use, Attitude Toward Using, Behavioral Intention to Use, and Actual Use. However, there remains room to expand the scope of the research, such as by adding Social Influence as an additional variable, considering that recommendations from friends, family, or

public figures often influence user decisions. Other factors that could be explored include content quality, such as genre variety, audio quality, and exclusive content, all of which can influence user loyalty. Moreover, service costs remain relevant for further exploration, particularly in comparing the experiences of free and premium users.

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