DIJEMSS:
Dinasti International Journal of Education Management and Social Science
E-ISSN: 2686-6331
P-ISSN: 2686-6358
https://dinastipub.org/DIJEMSS dinasti.info@gmail.com +62 811 7404 455
DINASTI PUBLISHER

DOI: https://doi.org/10.38035/dijemss.v6i4

Analysis of Factors Influencing The Acceptance and Adoptiom of Starlink Internet Services in Indonesia

Via Amalia Lesmana[1], Nabilah Ananda Razani[2]
[1]Universitas Indonesia, Jakarta, Indonesia, via.amalia@ui.ac.id
[2]Universitas Indonesia, Jakarta, Indonesia, nabilah.ananda@ui.ac.id

Corresponding Author: valesmana@gmail.com[1]

Abstract: This study aims to examine the extent of Indonesian society's acceptance of Starlink amidst the convenience of existing internet services and identify the factors influencing its adoption. A quantitative approach was employed using SPSS data processing, with online questionnaires and interviews as the primary data collection methods. Data analysis was conducted by surveying respondents who use Starlink to assess their level of acceptance. The findings indicate that overall acceptance of Starlink remains relatively low, with statistical influences from factors such as age, gender, cost, and the type of internet service currently in use. As internet service demand continues to rise, Starlink offers a high-quality, low-latency satellite-based internet solution capable of reaching remote areas. However, its acceptance and adoption are not entirely positive and are influenced by various factors. This study concludes that only certain factors significantly impact Starlink's acceptance, although the overall perception remains relatively positive, with users tending to fall into the early majority category. Most Indonesians still rely on cable and mobile internet services. Therefore, this study suggests that Starlink should develop effective strategies to enhance awareness and education on satellite-based internet usage, particularly in regions that prefer cable and mobile internet due to its affordability and accessibility.

Keyword: Starlink, Satellite-Based Internet, New Technology Acceptance Model

INTRODUCTION

The internet has made a significant contribution to human life, particularly in learning and development (Nguyen, 2022). The need for the internet has become crucial, with high-speed internet services increasingly required to meet the needs of societies worldwide (Yadav et al., 2022). One such advancement is satellite-based internet, which offers low latency by utilizing the concept of Low Earth Orbit (LEO), as seen with Starlink. Starlink is the world's first and largest satellite constellation operating in Low Earth Orbit (LEO) and non-geostationary orbit (GSO) to provide high-speed, low-latency broadband internet (Starlink, 2024). This technology supports and enhances services such as streaming, online gaming, video calls, telemedicine, drone technology, emergency rescue, military applications, and more for users worldwide (Chen & Cho, 2024; Susanto & Iskandar, 2024).

Starlink technology relies on a constellation of thousands of low-orbit small satellites that transmit high-speed internet data to users worldwide via radio waves (BBC, 2024). Over the past decade, information and communication technology companies like SpaceX have rapidly expanded their presence in the space industry (Brady & Orlinksi, 2022). Starlink is predicted to be a long-term pioneering project by SpaceX, initiated by Elon Musk, aimed at bridging the digital divide and providing internet access to rural and remote areas that fiber-optic cables cannot reach (Kokez & Al-Deen, 2020; Shaengchart & Kraiwanit, 2023; BBC, 2024). This demonstrates that satellite communication has become a crucial form of wireless communication in the era of high-speed connectivity. Starlink's satellite constellation presents a significant opportunity to support seamless global connectivity with fast and reliable data transmission (Chen & Cho, 2024; Han, 2022; Corrado et al., 2023).

Indonesia is among the countries that operate satellites as part of its Domestic Satellite Communication System (SKSD), with most of its satellites placed in geostationary orbit (GSO) (Susanto & Iskandar, 2024). The latest development in Non-GSO (NGSO) satellite communication, such as Starlink, presents both opportunities and challenges for Indonesia. According to the BBC (2024), PT Starlink Services Indonesia (Starlink Indonesia) has collaborated with PT Telkom Satelit Indonesia (Telkomsat) in a business-to-business (B2B) relationship since 2022. In 2024, Starlink updated its business contract to sell services directly to customers, acting as an internet service provider (ISP) and offering very small aperture terminal (VSAT) services, which enable users to send and receive data via satellite. In May 2024, Starlink partnered with the Ministry of Health to provide internet access to community health centers (puskesmas) in remote, border, and island regions as part of the "Starlink for Community Health Centre" trial in Denpasar, Bali (BBC, 2024). With internet penetration reaching 79.5% of Indonesia's total population (APJII, 2024), Starlink's presence could open new market opportunities for foreign telecommunications companies in the country.

Starlink is considered a technological breakthrough with significant potential to meet the global demand for internet connectivity (Shaengchart & Kraiwanit, 2023). According to Shaengchart & Kraiwanit (2023), public perception of Starlink is a crucial issue influenced by various factors such as gender, age, and technology usage, including computers, laptops, tablets, and wearable devices, which shape opinions on the service. Perceived usefulness has 50% more influence than ease of use in determining usage behavior (Davis, 1987). In Indonesia, after Starlink officially began operations, many consumers exhibited FOMO (Fear of Missing Out) and rushed to purchase satellite internet equipment (Susanto & Iskandar, 2024). On May 20, 2024, Elon Musk announced via his X account that Starlink had reached 3 million subscribers across 99 countries, including Indonesia (Musk, 2024). However, there is no official data on the number of individual users in Indonesia (Mediana, 2024).

The introduction of new technology often sparks both support and opposition. While Starlink is praised for successfully delivering internet access worldwide (Yadav et al., 2022), research by Corrado et al. (2023) indicates that ASEAN countries such as Cambodia and Myanmar are not yet prepared to adopt this technology due to limited electricity access and insufficient experience in space technology development. From an environmental perspective, satellite-based internet technology may contribute to space debris and light pollution and could even trigger the Kessler Syndrome (Brady & Orlinksi, 2022). Furthermore, Shaengchart & Kraiwanit (2023) note that the large number of satellites could increase space junk. In terms of cost, a significant drawback is the high price of Starlink equipment, which can reach IDR 7.6 million—an amount considered expensive for many Indonesians (Iqrimah, 2023). Regarding reliability, Starlink terminals must be installed in open areas free of obstructions like trees or tall buildings, as the network is susceptible to disruptions caused by physical barriers (Muhtar, 2024). Additionally, Insyani (2024) highlights concerns among global telecommunications players regarding Starlink's Direct-to-Cell Service, which allows users to send SMS messages

directly via satellite, similar to mobile internet services. This is seen as a significant threat to Indonesia's established telecommunications industry (Insyani, 2024).

Although there have been many studies on user acceptance of Starlink services, no comprehensive efforts have yet been made to interpret and synthesize evidence regarding the factors influencing the acceptance and adoption of satellite-based internet services in the context of new technology diffusion. Moreover, there are significant concerns regarding Starlink's technology and service quality, including cost, technological infrastructure, and the socio-economic and geopolitical conditions of the adopting countries. Therefore, further research is needed to analyze the factors affecting the acceptance and adoption of Starlink. To enhance scientific value and generalizability, Davis's Technology Acceptance Model and Rogers's Diffusion of Innovations theory will serve as theoretical frameworks for analyzing the factors influencing user and non-user decisions to adopt or reject Starlink services as an innovation.

METHOD

This study employs a quantitative approach to measure the level of acceptance and adoption of Starlink among the Indonesian public. Additionally, it aims to analyze various factors influencing the acceptance and adoption of this new communication technology. The research is supported by survey and interview methods. The survey method involves distributing online questionnaires to participants willing to take part in the study, while interviews are conducted with individuals who have adopted and used Starlink to gain a deeper understanding of the factors influencing its adoption. The selection of the study population and sample follows a purposive sampling method with the following criteria 1) Aged 18 years or older; 2) Residing in Indonesia; 3) Having knowledge or experience in using internet services; 4) Being either a Starlink user or a non-user; 5) Willing to participate in the study by completing the questionnaire or taking part in an interview.

The data collection technique used is the survey method, which is carried out by randomly distributing online questionnaires. The questionnaire is disseminated through various online platforms such as WhatsApp, X, and Instagram to reach participants widely and efficiently. Before the large-scale distribution, the questionnaire is tested on a small group to ensure that the questions are easy to understand and align with the research objectives. The results of this pilot test are then used to refine the questionnaire. The questionnaire is designed to collect information about internet usage experiences, knowledge, perceptions, and public attitudes toward the presence of Starlink technology and its service quality. The questions begin with a consent form and include nominal data as well as the use of a Likert scale. The collected data is then analyzed using binary logistic regression analysis through the SPSS data processing application to identify the key factors influencing the acceptance of Starlink.

RESULTS AND DISCUSSION

Socioeconomic status influences the decision-making process in adopting innovation (Rogers, 2003). Socioeconomic status can be affected by various factors such as age, gender, place of residence, level of internet consumption, and the type of internet service used. These factors are then identified as participant characteristics or independent variables (X).

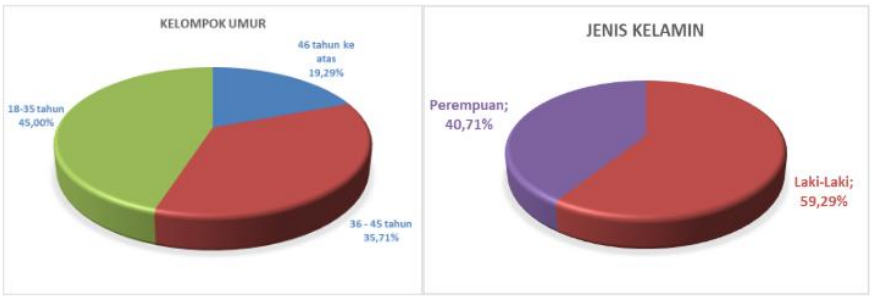

Figure 1. Participant Characteristics Based on Age and Gender

Figure 1 shows the characteristics of participants based on age, with the majority belonging to the 18–35 age group at 45.00% (63 participants), followed by the 36–45 age group at 35.71% (50 participants), and the 46 and above age group at 19.29% (27 participants). The majority of participants fall within the 18–35 age range, which represents active internet users from the productive age group (Annur, 2023). Regarding gender, the majority of participants are male. According to a survey by APJII (2024), the contribution of men and women in increasing internet penetration in Indonesia is nearly equal, at 50.9% and 49.1%, respectively. This indicates that internet access has become widespread among all individuals.

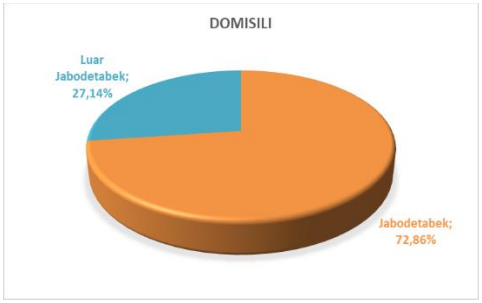

Figure 2. Characteristics of Participants Based on Domicile

Figure 2 shows that the majority of internet users reside in the Greater Jakarta area (Jabodetabek: Jakarta, Bogor, Depok, Tangerang, Bekasi), with 72.86% or 102 participants coming from major cities and the capital, Jakarta. Meanwhile, 38 participants or 27.14% live outside Jabodetabek. A survey by APJII (2024) indicates that the internet penetration rate in rural and urban areas does not show a significant difference, at 74% and 82.2%, respectively. This suggests that both urban and rural areas have similar demands for internet access.

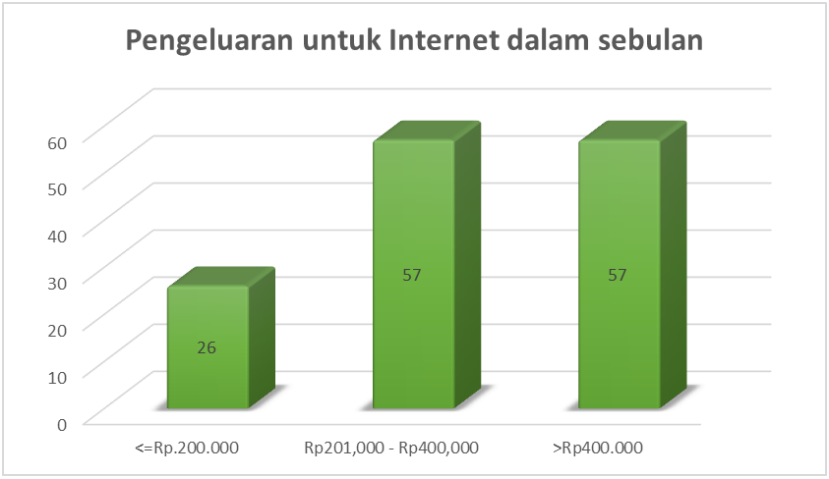

Figure 3. Characteristics of Participants Based on Internet Spending in One Month

From Figure 3, it can be seen that the majority of participants have a combined monthly internet expenditure—covering both mobile (personal) and household modem usage—ranging from Rp201,000 to over Rp400,000, with a total of 114 participants. This is followed by 26 participants who spend below Rp200,000. According to data from BPS (2023), the average monthly telecommunications expenditure for both urban and rural communities in Indonesia reaches Rp434,957.65. This indicates an increase in internet spending over the past two years.

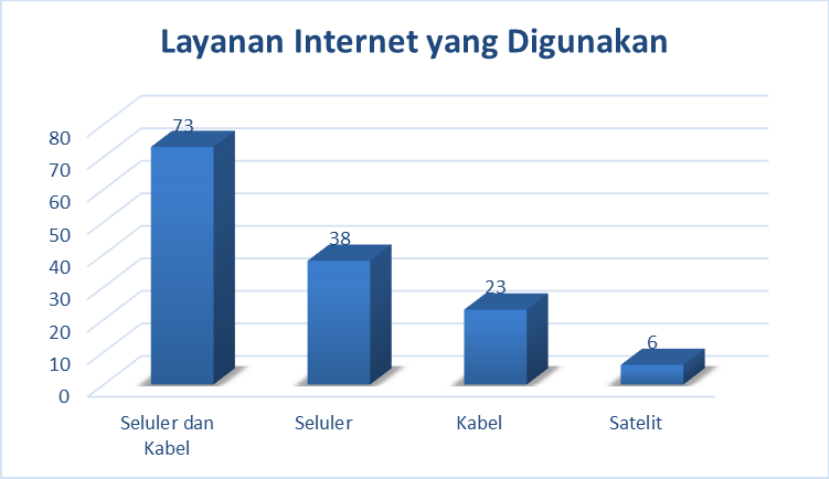

Figure 4. Participant Characteristics Based on Internet Services Used

Figure 4 shows that the majority of participants use both mobile and wired internet services, totaling 73 participants or approximately 52.14%. Meanwhile, participants who use only mobile internet services account for around 38 participants or 27.14%. Those who rely solely on wired internet services amount to 23 participants or 16.42%. The remaining 6 participants (4.28%) use satellite internet services. Based on the study results, compared to terrestrial internet networks such as cable, fiber optic, or mobile, satellite internet usage is still relatively uncommon among the general public due to the higher cost of both the equipment and satellite service fees compared to mobile or wired internet. This aligns with findings from APJII (2024), which state that the majority of internet users primarily rely on mobile data services.

The analysis of factors affecting the acceptance and adoption of Starlink is conducted using the SPSS data processing software with binary logistic regression analysis. A binary logistic regression model is used when the dependent variable is a categorical variable with two classifications, which are dichotomous or binary variables, meaning they have values of zero and one. The independent variables can be either numerical or categorical (Roflin et al., 2023). According to Sinaga et al. (2016), this analysis is used to examine the tendency of independent factors (X) in influencing the dependent factor (Y), where in this study, X represents the participant characteristics (age, gender, domicile, internet expenditure, and type of internet service used), and Y represents the acceptance of Starlink.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	160.821[a]	.169	.229

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Figure 5: Coefficient of Determination Test

Showing the determination coefficient test is used to find out the extent to which endogenous variables can simultaneously explain exogenous variables. This test measures the model's ability to explain variations in dependent variables (Prilano et al., 2020). The value of Nagelkerke R Square is 0.229, which means that the ability of the variables of age group, gender, domicile, spending on the internet and the type of internet service used explains the Starlink revenue variable of 22.9%. While the rest are explained by other variables that are not studied.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	25.881	9	.002
	Block	25.881	9	.002
	Model	25.881	9	.002

Figure 6: Test Parameters Simultaneously

Figure 6 shows the simultaneous parameter test to examine the hypothesis of whether the X variables affect the Y variable together. The testing criterion for the simultaneous parameter test is a Sig value < 0.05, which concludes that the X variables have a simultaneous effect on the Y variable. From the output results, the Sig value obtained is 0.002 < 0.05, thus rejecting H0. This means that the variables of age group, gender, domicile, internet expenditure, and the type of internet service used have a simultaneous effect on the acceptance of Starlink.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	Keterangan
Step 1[a]	**Kelompok umur**			4.087	2	.130		
	Umur 36-45	.562	.576	.951	1	.329	1.754	Tidak Signifikan
	Umur 18-35	1.179	.597	3.901	1	.048	3.251	Signifikan
	Jenis Kelamin(Laki-laki)	1.172	.424	7.664	1	.006	3.230	Signifikan
	Domisili(Jabodetabek)	-.214	.485	.195	1	.659	.807	Tidak Signifikan
	Pengeluaran untuk internet dalam sebulan			7.761	2	.021		
	Rp201,000 - Rp400,000	1.305	.612	4.552	1	.033	3.687	Signifikan
	>Rp400.000	1.889	.678	7.760	1	.005	6.615	Signifikan
	Layanan internet yang digunakan			6.865	3	.076		
	Seluler	.574	.510	1.264	1	.261	1.775	Tidak Signifikan
	Kabel	.994	.530	3.510	1	.061	2.701	Tidak Signifikan
	Satelit	2.652	1.338	3.931	1	.047	14.186	Signifikan
	Constant	-3.527	.962	13.440	1	.000	.029	Signifikan

a. Variable(s) entered on step 1: Kelompok umur, Jenis Kelamin, Domisili, Pengeluaran untuk internet dalam sebulan, Layanan internet yang digunakan.

Figure 7: Partial Parameter Test

Figure 7 shows the partial parameter test to examine whether each X variable affects the Y variable. The testing criterion for the partial parameter test is a significance value < 0.05, which concludes that the X variable has a partial effect on the Y variable. The X variables that significantly affect the service acceptance variable (Y) are gender and expenditure. From the output results in Table 1, the factors that significantly influence the acceptance of the Starlink satellite service technology at a 0.05 alpha level are the 18-35 age group, gender, internet expenditure across all categories, satellite internet service, and the constant (B0).

		Penerimaan Layanan Internet Satelit Starlink			
		Rendah		Tinggi	
		Count	Row Valid N %	Count	Row Valid N %
Kelompok usia	45 tahun ke atas	19	70.4%	8	29.6%
	35–45 tahun	32	64.0%	18	36.0%
	18–35 tahun	35	55.6%	28	44.4%
Jenis Kelamin	Perempuan	41	71.9%	16	28.1%
	Laki-Laki	45	54.2%	38	45.8%
Domisili	Luar Jabodetabek	23	60.5%	15	39.5%
	Jabodetabek	63	61.8%	39	38.2%
Pengeluaran untuk internet dalam sebulan	<=Rp.200.000	21	80.8%	5	19.2%
	Rp201,000 - Rp400,000	35	61.4%	22	38.6%
	>Rp400.000	30	52.6%	27	47.4%
Layanan internet yang digunakan	Seluler dan Kabel	49	67.1%	24	32.9%
	Seluler	25	65.8%	13	34.2%
	Kabel	11	47.8%	12	52.2%
	Satelit	1	16.7%	5	83.3%

Figure 8: Descriptive Analysis of Participant Characteristic Factors on Starlink Satellite Internet Service Receipt Category

The descriptive analysis results from Figure 8 are based on cross-tabulation analysis of each category group considered as a sub-population with other category groups. Each sub-population is associated with the acceptance variable of Starlink (Y factor), and the total percentage for each category group is 100%. Figure 7 shows that Starlink acceptance among Indonesian society is divided into two categories: positive (high) and negative (low).

In the age group category, among respondents aged 46 and above, the majority have low acceptance of Starlink services, at 70.4%, while only about 29.6% have high acceptance. Meanwhile, in the 36–45 age group, low acceptance accounts for 64%, compared to high acceptance at 36%. The 18–35 age group has a relatively higher acceptance of Starlink compared to other age groups, at 44.4%, although the majority within this age group still show low acceptance at 55.6%.

Based on gender, the majority of male respondents have a higher acceptance of Starlink at 45.8% compared to female respondents at 28.1%. Conversely, for low acceptance, female respondents have a higher percentage (71.9%) than males (54.2%). Overall, both male and female groups show low acceptance of Starlink.

Regarding domicile, in the high-acceptance category, the Greater Jakarta area (Jabodetabek) accounts for 38.2%, while areas outside Jabodetabek account for 39.5%. On the other hand, in the low-acceptance category, Jabodetabek has a higher percentage at 61.8%, compared to 60.5% in areas outside Jabodetabek. Overall, both Jabodetabek and non-Jabodetabek areas show relatively low acceptance of Starlink.

Based on monthly internet spending, the group spending below IDR 200,000 shows low acceptance of Starlink at 80.8%, while only 19.2% have high acceptance. The group spending between IDR 201,000 and IDR 400,000 shows low acceptance at 61.4%, while 38.6% have high acceptance. The group spending more than IDR 400,000 shows low acceptance at 52.6%, with only a slight difference from high acceptance at 47.4%. These findings indicate that participants with higher internet expenses tend to have a higher acceptance level of Starlink, while those with lower spending tend to show lower acceptance.

Regarding the type of internet service currently used, 67.1% of mobile and cable internet users, 65.8% of mobile internet users, 47.8% of cable internet users, and 16.7% of satellite internet users have low acceptance of Starlink. Conversely, 83.3% of satellite internet users, 52.2% of cable internet users, 34.21% of mobile internet users, and 32.9% of mobile and cable internet users have high acceptance of this service. This suggests that mobile and cable internet users tend to have lower acceptance of Starlink compared to satellite internet users.

As a satellite-based internet service provider, Starlink can be associated with the Technology Acceptance Model (TAM) introduced by Fred Davis in 1987, which states that acceptance of new technology can be measured based on the perceived benefits to users. This can be evaluated through the experiences of individuals who have used Starlink devices, where the study results indicate that factors such as age, gender, internet expenditure, and satellite-based internet services significantly influence Starlink acceptance. Davis also stated that perceived usefulness has a 50% greater influence compared to ease of use (Davis, 1987). However, the majority of participants expressed interest in Starlink due to factors such as internet speed, service quality, and the desire to experience a new internet provider.

Table 1. Interpretation of Rogers' Innovation Adoption Classification Based on Five-Point Likert Scale

Deskripsi Distribusi Nilai Skala Likert		**Klasifikasi Adopsi Inovasi Rogers berdasarkan Skala Likert**	
Deskripsi Skala Likert	**Alokasi Nilai**	**Alokasi Nilai Interval**	**Kategori Adopsi Inovasi Rogers**
Tidak sama sekali	1.0 - 1.49	0.1 - 1.0	*Laggard*
Agak benar	1.5 - 2.49	1.1 - 2.0	*Late majority*
Lumayan benar	2.5 - 3.49	2.1 - 3.0	*Early majority*
Benar	3.5 - 4.49	3.1 - 4.0	*Early adopters*
Benar sekali	4.5 - 5.00	4.1 - 5.0	*Innovators*

Source: Alston & Miller (2002)

The diffusion of innovation theory, introduced by Everett M. Rogers in 1962, explains that over time, an idea or innovation gains momentum and spreads through a specific population or social system (Rogers, 2003). According to Rogers (2003), innovation knowledge is characterized by high levels of formal education, social status, exposure to mass media communication channels, interpersonal communication channels, social participation, contact with change agents, and cosmopolitanism. Rogers (2003) further defines five innovation adoption categories as a classification of members within a social system based on innovation. Within each adopter category, individuals share similarities in terms of innovativeness. Innovativeness refers to how early an individual or decision-making unit adopts new ideas relative to others. These five groups include innovators, early adopters, early majority, late majority, and laggards. These groups are further divided into two adoption categories: earlier adopters and later adopters. Earlier adopters include innovators, early adopters, and the early majority, whereas later adopters consist of the late majority and laggards.

Adopting the research of Alston & Miller (2002), the interpretation of Starlink acceptance based on innovation adoption classification is determined by the extent to which participants are aware of and interested in the presence of this new technology. Among 140 participants, the average acceptance score for Starlink was 2.57, placing them in the early majority category. According to Rogers (2003), earlier adopters (including early adopters) are typically individuals with higher socioeconomic status, personality traits, and communication behaviors that are generally positively associated with innovation. The early majority group interacts well with other members of the social system, though they do not hold leadership roles like early adopters. However, their interpersonal networks remain crucial in the diffusion process. This group deliberately adopts an innovation but is neither the first nor the last to do so. Therefore, their decision-making process takes longer than that of innovators and early adopters (Sahin, 2006). The early majority is characterized by a tendency to deliberate for some time before fully adopting a new idea (Goh & Sigala, 2020).

Innovation adoption is a process that unfolds over time, consisting of a series of actions and decisions (Rogers, 2003). The stages in the innovation decision process begin with initial knowledge of an innovation, followed by the formation of attitudes toward it, the decision to adopt or reject it, the implementation of the new idea, and the confirmation of this decision.

The study findings indicate that the early majority group supports the introduction of new technology due to their knowledge and interest in Starlink. The findings also highlight a willingness to try something new, seek alternatives to current services, and consider recommendations from others as key factors driving interest in Starlink. These factors can lead to subsequent stages in the adoption process, ultimately resulting in a decision to adopt rather than reject the innovation.

CONCLUSION

New technology comes with both advantages and disadvantages. Innovations like Starlink demonstrate how satellite-based internet technology can be adapted to meet future connectivity needs, such as bridging the growing digital divide (Zhang et al., 2023; Shaengchart & Kraiwanit, 2024) and potentially accelerating global digital inclusion (Kodheli et al., 2021).

Based on the study's findings, although Starlink users rate the current service quality as good (4.00 out of 5.00) due to its features and benefits, and their acceptance of Starlink is relatively high or positive, overall service acceptance remains relatively low or negative. Some users report experiencing frequent Request Time Out (RTO) and brief connection spikes, which disrupt internet stability. The router provided by Starlink is considered inadequate, leading users to purchase an Ethernet adapter to use their own routers for better connectivity. Additionally, consumer satisfaction with existing telecommunication services reduces the appeal of satellite-based ISPs in the mainstream market, where most customers are highly price-sensitive (Nguyen, 2022). This is further supported by survey responses indicating that cost is a significant reason for the lack of interest in Starlink.

Despite this, a positive attitude towards Starlink is observed, characterized by interest and support based on knowledge, aligning with the early majority group's characteristics. Awadhi et al. (2022) state that perceived usefulness (PU) and perceived ease of use (PEU) from the TAM model are linked to the acceptance of satellite internet services and play a crucial role in influencing public acceptance. Furthermore, additional factors such as innovativeness (INN) and satisfaction with current services (SAT) from the TAM model also impact users' intentions to adopt satellite internet services (Awadhi et al., 2022). The early majority and early adopters act as key implementers of new technology, bridging the gap between conceptual innovation and real-world application. Their role is transformative in the continuously evolving landscape of LEO satellite technology across various sectors (Chen & Cho, 2024).

Regarding factors influencing Starlink acceptance, statistical analysis shows that variables such as age (particularly the 18–35 age group), gender, internet expenditure, and current satellite internet service significantly impact public acceptance. These factors influence both the experiences of existing Starlink users and the likelihood of adoption among potential users. Additionally, these factors highlight the innovativeness of specific groups in adopting new ideas earlier than others (Rogers, 2003).

A limitation of this study is that the online questionnaire method introduces bias and limitations related to self-reporting and response validity. Furthermore, the study may not comprehensively represent the broader population as it excludes the perspectives of participants with limited internet access in rural areas. Additionally, only 4.28% of total respondents were Starlink users, meaning the findings may not fully reflect overall service usage.

The insights and recommendations provided by this study aim to offer valuable perspectives to governments, technology companies, and the general public on Starlink's potential acceptance and adoption in Indonesia. While overall acceptance remains low, further analysis is needed to optimize strategies for increasing adoption by addressing influencing factors. Given Indonesia's high internet demand, there is potential for continued development of this service. Future studies should expand their scope and conduct in-depth analyses of socioeconomic status, media exposure, personality traits, networking, and communication behaviors, which Rogers (2003) identifies as critical in the innovation diffusion process.

Starlink may face market challenges due to customer satisfaction with existing options. However, it can achieve positive outcomes if it adopts effective market penetration strategies (Nguyen, 2022) and attracts more users in regions where fiber internet is more affordable and convenient (Shaengchart & Kraiwanit, 2023). Chen & Cho (2024) also emphasize the importance of integrating satellite communication systems with various technologies, necessitating a multidisciplinary approach from research and development managers.

This study's findings can serve as a foundation for developing more effective policies to enhance internet access in remote or isolated areas. In marketing this technology, advertising campaigns should be tailored to highlight the usefulness, ease of use, and innovation of satellite broadband services. These campaigns can emphasize the accessibility of satellite internet in remote areas, along with its speed and reliability (Awadhi et al., 2022). Furthermore, these insights can provide valuable input for technology companies in designing marketing strategies and product development that better align with Indonesian consumer needs and preferences.

REFERENCE

Alston. A. J., & Miller, W. M. (2002). Analyzing the barriers and benefits toward instructional technology infusion in North Carolina and Virginia secondary agricultural education curricula. *Journal of Agricultural Education*, *43*(1).

Annur, C. M. (2023). *Mayoritas Pengguna Internet di Indonesia Berasal dari Kelompok Usia Pekerja*. https://databoks.katadata.co.id/datapublish/2023/09/06/mayoritas-pengguna-internet-di-indonesia-berasal-dari-kelompok-usia-pekerja

APJII. (2024). *Survei Penetrasi Internet Indonesia 2024*.

Awadhi, K. Al, Obeidat, B., & Alshurideh, M. (2022). Measuring user acceptance of satellite broadband in the UAE. *International Journal of Data and Network Science*, *6*(4), 1459–1470. https://doi.org/10.5267/j.ijdns.2022.5.005

BBC. (2024, May 26). *Pro-kontra Starlink di Indonesia - "Pemain lokal juga mampu, pemerintah jangan anak emaskan pemain asing."* https://www.bbc.com/indonesia/articles/cmll91z484ro

Brady, P., & Orlinksi, J. (2022). *An Evaluation of the General Public's Perception of the Commercialization of Space*. www.JSR.org

Chen, P. H., & Cho, R. L. T. (2024). The Technological Trajectory of LEO Satellites: Perspectives From Main Path Analysis. *IEEE Transactions on Engineering Management*, *71*, 3629–3640. https://doi.org/10.1109/TEM.2023.3347921

Corrado, R., Berthet, M., & Sakal, M. (2023). Starlink for ASEAN: A Changemaker in the Race Toward Sustainable Development? *Space Policy*, *65*. https://doi.org/10.1016/j.spacepol.2023.101554

Davis, F. (1987). USER ACCEPTANCE OF INFORMATION SYSTEMS: THE TECHNOLOGY ACCEPTANCE MODEL (TAM) . *Division of Research School of Business Administration* .

Goh, E., & Sigala, M. (2020). Integrating Information & Communication Technologies (ICT) into classroom instruction: teaching tips for hospitality educators from a diffusion of innovation approach. *Journal of Teaching in Travel & Tourism*, *20*(2), 156–165. https://doi.org/10.1080/15313220.2020.1740636

Han, J. (2022). Recent Progress and Future Development in Satellite Communication. *Highlights in Science, Engineering and Technology* , *27*.

Insyani, V. (2024). *Ancaman "Serius" Kehadiran Starlink Untuk Bisnis di Indonesia*. https://www.uzone.id/ancaman-serius-kehadiran-starlink-untuk-bisnis-di-indonesia#google_vignette

Iqrimah, A. N. (2023, September 25). *Kelebihan dan Kekurangan Starlink milik SpaceX yang Bakal Ekspansi ke Indonesia*.

https://www.beritasatu.com/ototekno/1068638/kelebihan-dan-kekurangan-starlink-milik-spacex-yang-bakal-ekspansi-ke-indonesia

Kodheli, O., Lagunas, E., Maturo, N., Sharma, S. K., Shankar, B., Montoya, J. F. M., Duncan, J. C. M., Spano, D., Chatzinotas, S., Kisseleff, S., Querol, J., Lei, L., Vu, T. X., & Goussetis, G. (2021). Satellite Communications in the New Space Era: A Survey and Future Challenges. In *IEEE Communications Surveys and Tutorials* (Vol. 23, Issue 1, pp. 70–109). Institute of Electrical and Electronics Engineers Inc. https://doi.org/10.1109/COMST.2020.3028247

Kokez, H. A.-D. F. (2020). On Terrestrial and Satellite communications for telecommunication future. *2020 2nd Annual International Conference on Information and Sciences (AiCIS)*, 58–67. https://doi.org/10.1109/AiCIS51645.2020.00019

Mediana. (2024). *Bagaimana Bisnis Starlink di Pasar Ritel Indonesia?* . https://www.kompas.id/baca/ekonomi/2024/05/19/menimbang-untung-rugi-starlink-jualan-ritel-di-indonesia

Muhtar. (2024, May 28). *Ini Kelebihan dan Kekurangan Starlink, Wajib Baca Sebelum Berlangganan*. https://uici.ac.id/ini-kelebihan-dan-kekurangan-starlink-wajib-baca-sebelum-berlangganan/

Musk, E. (2024, May 20). *X*. https://x.com/elonmusk/status/1792536841725661392?s=48&t=mu4yVS5FHmOIwa9tEnSG2w

Prilano, K., Sudarso, A., & Fajrillah, F. (2020). Pengaruh Harga, Keamanan dan Promosi Terhadap Keputusan Pembelian Toko Online Lazada. *Journal of Business and Economics Research (JBE)*, *1*(1), 1–10. https://doi.org/10.47065/jbe.v1i1.56

Roflin, E., Riana, F., Munarsih, E., Pariyana, & Liberty, I. A. (2023). *Regresi Logistik Biner dan Multinomial*. NEM.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). The Free Press.

Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory. *The Turkish Online Journal of Educational Technology*, *5*(3).

Shaengchart, Y., & Kraiwanit, T. (2023). Starlink satellite project impact on the Internet provider service in emerging economies. *Research in Globalization*, *6*. https://doi.org/10.1016/j.resglo.2023.100132

Shaengchart, Y., & Kraiwanit, T. (2024a). An impact of Starlink project on regulations and national security. *Journal of Infrastructure, Policy and Development*, *8*(5). https://doi.org/10.24294/jipd.v8i5.3223

Shaengchart, Y., & Kraiwanit, T. (2024b). THE SPACEX STARLINK SATELLITE PROJECT: BUSINESS STRATEGIES AND PERSPECTIVES. *Corporate and Business Strategy Review*, *5*(1), 30–37. https://doi.org/10.22495/cbsrv5i1art3

Sinaga, N. D., Rais, & Sain. (2016). MODEL REGRESI LOGISTIK BINER UNTUK MENENTUKAN FAKTOR YANG BERPENGARUH TERHADAP ANAK PUTUS SEKOLAH DI SULAWESI TENGAH . *Jurnal Ilmiah Matematika Dan Terapan* .

Starlink Inc, C., & Nguyen, D. (2022). *Satellite Internet and its potentials in the tele-communicating systems in Finland Satellite Internet and its potentials in the telecommunicating system in Finland*.

Starlink. (2024). *Starlink*. https://www.starlink.com/

Susanto, A., & Iskandar. (2024). Interference Analysis between LEO and GSO Satellites at Ku Band Frequency: Case Study on Starlink and Telkom-3S. *Proceeding of 2022 16th International Conference on Telecommunication Systems Services and Applications, TSSA 2022*. https://doi.org/10.1109/TSSA56819.2022.10063928

Yadav, A., Agarwal, M., Agarwal, S., & Verma, S. (2022). Internet From Space Anywhere and Anytime Starlink. *2nd International Conference on "Advancement in Electronics & Communication Engineering* .

Zhang, Y., Zhao, S., He, J., Zhang, Y., Shen, Y., & Jiang, X. (2023). A Survey of Secure Communications for Satellite Internet Based on Cryptography and Physical Layer Security. *IET Information Security*, *2023*, 1–15. https://doi.org/10.1049/2023/5604802