Assessing the Impact and Effectiveness of the Jalinan Digital Negara (JENDELA) Plan

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Abstract
The Malaysian government launched the Jalinan Digital Negara (JENDELA) plan in August 2020 with the goal of expanding and improving digital connectivity nationwide. This study examines the impact and effectiveness of the plan on various aspects of Malaysian society, including the economy, social dynamics, and education. To achieve the research objective, 53 people from diverse respondents, representing various backgrounds, such as telecommunication service providers, government officials, urban and rural residents, individuals from the education and business sectors, and representatives of the Orang Asli community were interviewed. This diverse array of perspectives facilitated a holistic examination of the plan's effects. The analysis from NVIVO 14 revealed four distinct themes; user perspectives on internet service quality and their perceptions of government initiatives; issues concerning digital inclusion and support, encompassing affordability and internet usage frequency; customer interaction and support, evaluating assistance from private entities and users' awareness of complaint and feedback platforms; government initiatives and promotional efforts, emphasizing the need for increased awareness and understanding of the JENDELA program. This research provides valuable insights into the multifaceted impact of JENDELA on Malaysian society and identifies key areas for improvement in plan implementation. By addressing the information and support needs of diverse stakeholders, the study aims to enhance the plan's efficacy, facilitating Malaysia's ongoing digital transformation and contributing to the nation's digital connectivity and socio-economic progress.
Keywords: Connectivity; Digital Inclusion; Digital Transformation; JENDELA Plan; Socio-Economic Growth

INTRODUCTION

In August 2020, the Malaysian government launched the Jalinan Digital Negara (JENDELA) plan, a significant initiative aimed at addressing critical needs and improving the nation's communication services and connectivity. This comprehensive program is dedicated to achieving 100% internet coverage in populated areas by the year 2025, with a strong emphasis on enhancing broadband quality and accessibility, particularly in underserved regions. The primary objective is to meet the competitive demands of the digital age, that have redefined work, education, business, social interactions, and various aspects of modern life. JENDELA's implementation is, therefore, fundamental in Malaysia's overarching strategy of transitioning into a digitally advanced and innovation-driven nation.The year 2020 was a global wakeup call in response to the COVID-19 pandemic where there has been a significant shift towards remote work and increased online activities. Adhering to safety and public health guidelines (i.e., maintaining social distancing, minimizing human contact) have amplified in remote work/learning and increased online activities (i.e., e-payment, online deliveries, online shopping) (Alzaidi & Agag, 2022). However, Malaysia was faced with challenges where the rapid digitalization revealed significant deficiencies in the digitalization efforts (Sing, 2023). Foremost among these challenges was the inadequacy of internet connectivity, resulting in work disruptions, delays, and widespread frustration. While Malaysia had previously invested in digitalization initiatives, including the National Fiberization and Connectivity Plan (NFCP), which later evolved into JENDELA, these efforts were found to be insufficient to meet the demands of the emerging remote lifestyle (Bernama[a], 2020). Consequently, JENDELA was established to diligently address these concerns by improving internet connectivity to align with the requirements of our modern digital landscape.The implications of JENDELA's efforts are aimed at benefiting the nation at large, specifically in the underserved areas. The plan not only generates job opportunities, offering flexibility to individuals such as working mothers, part-time workers, and those with special needs, but it also nurtures business prospects for micro-sized and emerging entrepreneurs. Furthermore, the success of

JENDELA will lead to real-time data, innovation in education through tools like gamification and virtual reality, surge of e-commerce growth, and influences social dynamics.

This research aims to comprehensively assess the impact of JENDELA's implementation from various perspectives, including socio-economic growth, community development, social activities, education, businesses, and government efficiency. The primary issue addressed by this study is the need for a clearer understanding of how the implementation of JENDELA affects the socio-economic growth of Malaysia. It is essential to evaluate whether the current approach to JENDELA effectively achieves its intended goals and positively contributes to the socio-economic growth of the country. As emphasized by past authors, enhanced digital connectivity has the potential to stimulate economic growth, create new employment opportunities, and improve access to education and healthcare services (Sing, 2023; Xia, Baghaie, & Sajadi, 2023). Having said that, however, most of the studies on JENDELA are relatively new, and there is still a need for more long-term research to assess its full impact. Therefore, this research will assess the impact of JENDELA on socio-economic growth and identify areas for improvement. Ultimately, this study seeks to offer valuable insights into the effectiveness of the plan and provide guidance for further enhancing Malaysia's digital transformation journey.

LITERATURE REVIEW

The ideology of JENDELA – on providing quality network access for digital connectivity, has sparked a wave of research across various sectors. These studies offer a nuanced perspective on society, economic growth, education, business innovation, marketing strategies, employment dynamics, and operational efficiency (Sing, 2023; Xia, Baghaie, & Sajadi, 2023; Alzaidi & Agag, 2022).

One of the notable facets of the JENDELA initiative is its potential to bolster socio-economic growth. The World Bank (2021) underscores its role in enhancing Malaysia's digital infrastructure, fostering digital adoption, and subsequently stimulating economic development. This underscores the importance of evaluating how JENDELA has shaped Malaysia's economic landscape, created fresh opportunities and enhanced access to essential services. As Xia, Baghaie, and Sajadi (2023) emphasize, digital connectivity has the potential to create jobs and improve access to education and healthcare. Understanding these implications is essential for a comprehensive assessment of the socio-economic impact.

The education industry has been largely affected; shifting physical to virtual classroom to abide the safe distancing measures during the pandemic era (2020-2022). The shift has caused revolutionary in the education industry where online learning continues to some extent (Stoian et al., 2022; Kang, 2021). This is because the accessibility of online learning resources for students and educators has become a hallmark of the initiative. Additionally, previous studies shed light on how JENDELA has revolutionized education through innovative approaches like gamification and virtual reality, enhancing student engagement and learning outcomes (Onu, Pradhan, & Mbohwa, 2023; Hellín et al., 2023; Haleem et al., 2022). Hence, through the initiatives of JENDELA, it was found that there has been a positive impact on the people's economic development and facilitated home-based teaching and learning method. However, they also underline the importance of equipping educators with the necessary digital pedagogy skills. This shift in education necessitates a critical exploration of how JENDELA has redefined learning methods and the challenges in ensuring effective implementation in the educational landscape.

On the economic front, JENDELA's impact extends beyond large corporations to small businesses as well. Majumdar, Sarma, and Majumdar (2020) point out that improved digital connectivity allows small enterprises to digitize their operations and expand their customer reach through e-commerce. Yet, this transformation also calls for the upskilling of entrepreneurs to navigate the digital terrain. Understanding how JENDELA has empowered small businesses and the hurdles they face in their digital transformation journey is essential for fostering inclusive economic growth. Adomako and Nguyen (2023) emphasize the influence of digitizing business processes on the intensity of technology transfer, focusing on the role of collaboration between organizations. They found the pivotal role of technology commercialization potential in shaping technology transfer outcomes, emphasizing the need for adept management of its interplay with inter-organizational collaboration to optimize technology transfer benefits. Mok and Yang (2022) delves into the use of real-time data facilitated by JENDELA, a trend with the potential to revolutionize marketing campaigns in businesses. The study underscores the importance of responsible

data management and the need for data privacy regulations. JENDELA has also helped small businesses to expand their customer reach and increase their sales via online business and this transformation is apparent among small businesses in rural areas (Bernama[b], 2023).

An intriguing perspective emerges when considering employment dynamics. Anwar, Schäfer, and Golušin (2023) reveal that JENDELA has contributed to the rise of the gig economy, providing flexible work opportunities. This transformation, however, poses challenges related to fair labor practices and job security. Investigating the impact of JENDELA on the nature of work and the ethical considerations in the gig economy is imperative for ensuring a balanced and equitable labor landscape.

Operational efficiency, a cornerstone of any successful venture, has also been impacted by JENDELA. Verhoef et al., (2021) highlight the role of digital connectivity in streamlining operations across various sectors. To thrive in this dynamic landscape, companies are turning to digital technologies and platforms. As in the study by Rajala and Hautala-Kankaanpää (2023) reveals that the impact of Platform-Based Digital Connectivity (PDC) on SMEs' operational performance is influenced by environmental turbulence. In turbulent environments, PDC has a positive effect, enhancing operational performance, while in stable environments, increasing PDC can lead to decreased operational performance, highlighting the significance of adapting to environmental conditions when implementing digital connectivity in SMEs. These aforementioned studies underscore the transformative potential of JENDELA in optimizing processes and improving firm's performance. Examining how JENDELA has enhanced operational efficiency and where there is room for further improvement is vital for the sustained success of the initiative.

JENDELA has not only strengthened the socio-economic fabric but also fostered community engagement. Sibbald et al., (2022) highlight the emergence of virtual communities, where individuals can connect, share experiences, and collaborate on activities and projects. With the improved digital connectivity, this could also lead to increased intermarriages and keeping in touch with loved ones due to greater interaction via dating sites and social media platforms (Markowski, 2020; Taipale, 2019). Understanding the dynamics of these virtual communities and their impact on social life is essential for promoting a healthy balance between digital and physical engagement.

In summary, the research studies surrounding JENDELA collectively paint a comprehensive picture of its profound influence on Malaysian society. From economic growth to education, small businesses, marketing, employment dynamics, and operational efficiency, the initiative has left no stone unturned. These findings not only celebrate its successes but also point to areas that require attention and improvement. By delving into these facets, researchers contribute to a more nuanced understanding of JENDELA's transformative journey, offering insights that can inform policy decisions and shape the future of Malaysia's digital landscape.

METHODOLOGY

In this study, a qualitative approach was adopted to align with the primary objective, which is to gain deep insights into the perspectives of communities regarding the implementation of the JENDELA program. This qualitative approach is well-suited for the study's aim of understanding the viewpoints, thoughts, recommendations, and suggestions of diverse stakeholders regarding the progress of JENDELA.

Several factors underlie the decision to use a qualitative method. First, qualitative research is well-suited for investigating complex social phenomena, such as the perceptions and experiences of diverse stakeholders involved in a national digital infrastructure program. It allows researchers to collect rich, context-specific data that is essential for understanding the nuances and complexities of the JENDELA implementation.

The diverse range of stakeholders involved in this research, each with varying roles, mandates, and perspectives, necessitates an approach that can effectively accommodate this diversity. Qualitative methods enable the study to tailor interview questions to each stakeholder's unique role, ensuring that the insights obtained are relevant and specific to their areas of expertise or experience. This tailored approach leads to a more profound comprehension of the issues at hand.

In contrast, a quantitative approach and survey questionnaires may not be the most suitable for this study due to several limitations. Firstly, the complexity and multidimensionality of the JENDELA program's

impact on different communities and stakeholders require more in-depth exploration than quantitative methods can typically provide. Surveys, with their predetermined questions and limited response options, might oversimplify the multifaceted issues surrounding digital connectivity and infrastructure. They may not capture the subtleties, diverse perspectives, and context-specific insights that are essential for a comprehensive understanding of the JENDELA program.

Secondly, the use of quantitative methods and surveys could potentially overlook emergent themes and unanticipated insights. The rigid structure of survey questionnaires limits the capacity to adapt to unexpected findings, whereas the qualitative method allows for flexibility and open-ended responses, ensuring that we capture the full spectrum of stakeholder perspectives and experiences.

In summary, the choice of a qualitative research approach for this study is well-justified due to its compatibility with the research objective, the complex nature of the subject matter, the diversity of stakeholders, and the need for in-depth exploration of their perspectives and experiences. This method allows us to gather rich, context-specific data that is essential for gaining a comprehensive understanding of the implementation of the JENDELA program, while also overcoming the limitations of quantitative methods and survey questionnaires in addressing the multifaceted and dynamic aspects of the study.

RESEARCH INSTRUMENT

In this study, interview sessions and focus group discussions were meticulously designed to address the research objective. These instruments were carefully crafted to ensure they resonated with the perspectives of the stakeholders while maintaining clarity and avoiding potential bias. The primary goal was to gain insights into the community's views on the implementation of the JENDELA program.

To establish rapport and ease into the discussion, the conversations were initiated with a warm-up question. Subsequently, general questions pertaining to internet connectivity were posed, concluding with an inquiry into the participants' opinions on digital transformation within the country.

The following questions provide a brief overview of the inquiries posed to the respondents:

Have you heard of the JENDELA program? If yes, what is your understanding of the program?

How would you describe the quality and reliability of digital connection and coverage in your city area?

Have you seen any efforts made to improve digital connectivity in your area?

The ethical conduct of research is a fundamental pillar of responsible scientific investigation. In this study, we prioritize the ethical considerations that underpin our research by establishing robust procedures for informed consent and the protection of participants' privacy and data security.

Ethics:In ethical research, securing informed consent is a foundational principle. Before engaging in interviews, potential participants are provided with a comprehensive informed consent document. This document thoroughly outlines the study's objectives, the extent of their involvement, and the potential use of their input. Its primary purpose is to ensure that participants possess a complete understanding of the research they are about to undertake. It is strongly emphasized that participation is entirely voluntary, and participants maintain the right to withdraw from the study at any point without encountering adverse consequences.

The informed consent document underscores a steadfast commitment to privacy and data security. Participants are explicitly informed that their responses will be made anonymous and handled with the utmost confidentiality to safeguard their privacy. This provides them with the assurance that their personal information and contributions will be protected.

Furthermore, participants are actively encouraged to ask questions and express any concerns they may have about the research process. This open channel of communication fosters a sense of empowerment and ensures that participants contribute willingly to the research, fully understanding the study's goals and their role in it. The informed consent process is documented, typically through written consent forms or electronic acceptance, signifying participants' willingness to participate.

Privacy and Data Security:The safeguarding of participants' privacy and data security is of utmost importance. A comprehensive framework has been established to ensure the protection of their sensitive information during the research.Anonymization is a vital procedure employed to uphold participant confidentiality. All identities are kept confidential, and in transcripts, pseudonyms are used to shield their real identities.In all interactions with participants, the priority is secure and private communication

channels, such as encrypted email and video conferencing platforms. Electronic data transmission is also encrypted to prevent unauthorized access, ensuring the highest level of data security.

In summary, through the meticulous implementation of these ethical considerations and data security measures, there is a dedicated commitment to preserving the confidentiality and privacy of all participants. These practices not only preserve the integrity of the research process but also uphold ethical and legal standards, which are crucial for responsible research conduct.

Sampling

As of October 4th, 2023, a total of 53 individuals' responses have been successfully gathered, representing diverse backgrounds and perspectives.

Table 2 below provides an overview of the respondents and the number of participants from each category:

Respondents	Number of respondents
Telecommunication service provider	8
Government officers	5
Sabah/Sarawak	8
City	5
Rural / Orang Asli	10
Education Industry	13
Business	4
Total	53

The research utilized purposive sampling, also known as judgmental or selective sampling. This approach is founded on the principle of choosing participants with the knowledge, experiences, or characteristics most pertinent to the research objectives. In this instance, the objective was to gather insights from a diverse array of stakeholders who possess varying degrees of involvement and perspectives regarding the implementation of the JENDELA program.

The selection of purposive sampling was motivated by the intention to ensure that the sample represents a broad spectrum of stakeholders. This encompassed telecommunication service providers, government officials, representatives from diverse regions (Sabah/Sarawak, urban and rural areas), the education sector, business community, Orang Asli communities, and state government representatives. By including participants from these categories, the aim was to capture a comprehensive perspective encompassing the various aspects of JENDELA's implementation.

RESULTS AND DISCUSSION

In our rapidly evolving digital landscape, internet connectivity has transcended the realm of convenience to become an integral part of daily life. It no longer merely facilitates communication; it underpins how people access education, conduct businesses, and receive government services. Governments worldwide are fervently working towards ensuring that affordable, high-quality internet is accessible to all, and Malaysia is no exception to this global trend. At the forefront of Malaysia's efforts in this regard stands the JENDELA initiative, driven by a clear and ambitious objective: to bridge the digital divide, stimulate economic growth, and enhance the overall quality of life for Malaysians. This research embarks on a comprehensive exploration of diverse perspectives to discern the real impact of JENDELA and identify avenues for its improvement.

The research goal centres on a holistic assessment of JENDELA's impact from multiple vantage points. In this pursuit, the data have unearthed eight pivotal factors, often referred to as "codes," which are instrumental in gauging the program's success. These codes shed light on the significance of collaboration with private sector entities, the collection of user feedback, ensuring the affordability of internet services, encouraging broader internet adoption, and elevating the quality of internet services. Furthermore, they underscore the critical role of keeping users well-informed. These profound insights serve to unravel how JENDELA is shaping the Malaysian landscape, perfectly aligned with the overarching mission of ensuring digital inclusivity across the nation.

Research Objective: To assess the impact of JENDELA implementation from various perspectives.

In the pursuit of Research Objective 1, the study's endeavour was to comprehensively assess the impact of the JENDELA program from various dimensions. Through the analysis of gathered data, eight pivotal factors were identified in playing the crucial role on the impact of JENDELA implementation from diverse perspectives.

User Awareness of the JENDELA Program: The awareness of the JENDELA program within the user community stands as a foundational element in the assessment of its impact. It is paramount to understand whether users are cognizant of the program's existence. The absence of awareness may signal the need for improved communication and outreach strategies. User knowledge about the program is pivotal, as it directly correlates with their participation and utilization.

Affordability of Internet Pricing for Users: The affordability of internet services emerges as a critical factor in evaluating the impact of JENDELA. If users perceive internet services as more affordable due to the program's implementation, it contributes significantly to the achievement of our research objective. Affordable internet access can lead to increased adoption, aligning seamlessly with one of the central goals of JENDELA.

Frequency of Internet Usage by Users: Increased internet usage by users serves as a positive outcome that pertains directly to the impact of JENDELA. This observation indicates that the program may effectively be encouraging a broader population to utilize the internet. This increase in usage directly corresponds with the research objective of assessing impact, as heightened usage serves as a measurable indicator of success.

Users' Perceptions of Internet Quality: The quality of internet services represents a pivotal facet of impact assessment. Users' perceptions of an improvement in internet quality validate the positive outcomes of JENDELA, directly contributing to the research objective. Enhanced quality can lead to improved user experiences and increased internet usage.

Collaboration with Private Entities: The findings suggest that private sector involvement has played a substantial role in the successful implementation of JENDELA. This aligns seamlessly with the research objective, as it underscores the importance of collaboration between governmental and private entities in shaping JENDELA's impact. Private sector participation can lead to improved infrastructure development and service provision, ultimately benefiting users.

User Awareness of Complaint and Feedback Platforms: The emphasis on user awareness of complaint and feedback platforms highlights the significance of user engagement in the JENDELA program. This observation indicates that JENDELA has been proactive in seeking input and feedback from users, which can significantly enhance the program's effectiveness. It also suggests that JENDELA is responsive to user concerns, which is a positive aspect of its impact.

Users' Perceptions of Government Initiatives: Users' perceptions of government initiatives can wield a substantial influence on the success of programs like JENDELA. Positive perceptions signify that the government's efforts are well-received, aligning harmoniously with the research objective of assessing impact. Conversely, negative perceptions may indicate areas where improvements are requisite.

The Necessity for Increased Promotional Efforts: The recognition of the need for heightened promotional efforts underscores the existing gap in user awareness or comprehension of the JENDELA program. In pursuit of our research objective to evaluate impact, it is imperative to ensure that users are well-informed about the program and its associated benefits. Increased promotional endeavours can serve as the bridge to fill this awareness gap.

Together with these 8 Codes, we grouped the codes that are similar to each other, resulting in 4 themes. Those 4 themes are:

Theme 1: Information
Users' thoughts on the Quality of the internet
Users' perception of Government initiatives

Theme 2: Digital Inclusion and Support
Users' affordability of the internet pricing
Users' frequent usage of the Internet

Theme 3: Customer Interaction and Support
Assistance given by Private bodies.

Users' awareness of the Complaint and feedback platforms
Theme 4: Government Initiatives and Promotional Effort
The need to increase promotional effort.
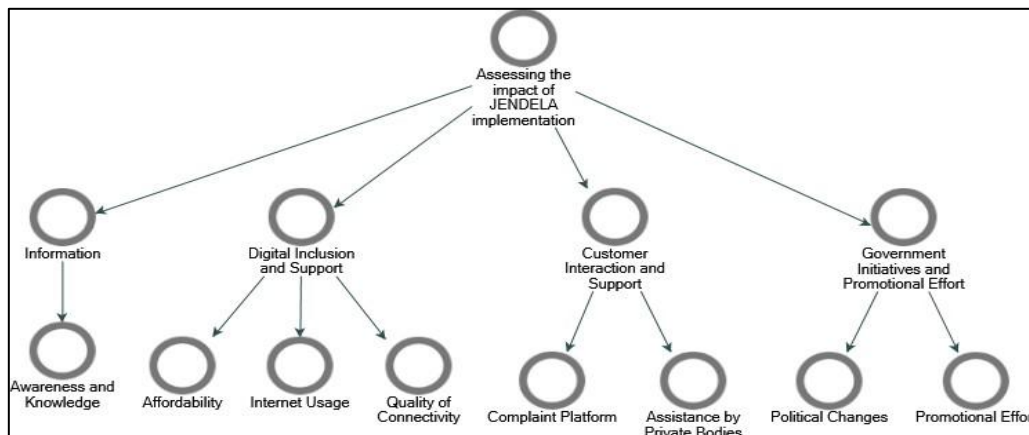Users' awareness of the JENDELA program

Figure 2: Themes generated using NVIVO 14.
Based on the Figure 2 above, we came up with a theoretical framework as below:
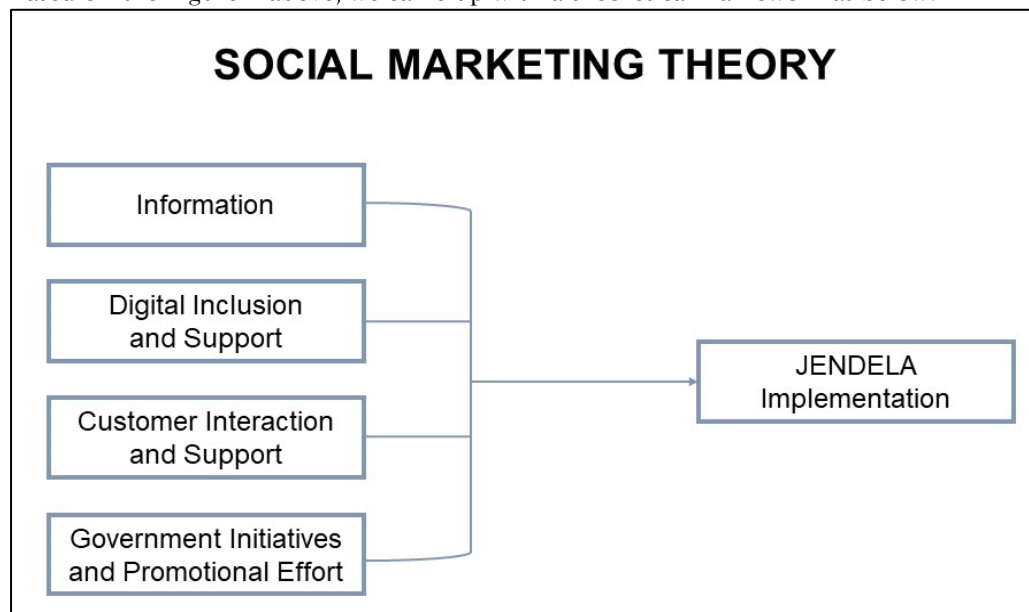

Figure 3: Theoretical Framework

4.2 Theoretical Framework: Social Marketing Theory in Evaluating JENDELA
In light of the prevalent themes, a theoretical framework is constructed, anchoring its roots in the Social Marketing Theory. This theory applies marketing strategies to tackle social issues and cultivate positive changes in behaviour within a specific target audience. In the context of Malaysia's JENDELA program, with its overarching goal of enhancing the nation's digital infrastructure and connectivity, the Social Marketing Theory offers an invaluable lens to assess the program's impact. JENDELA holds paramount significance in narrowing Malaysia's digital divide by bolstering digital infrastructure and connectivity. Evaluating its effectiveness through the framework of Social Marketing Theory allows for a deeper understanding of how the program is effectively reaching and engaging its target audience. Within this context, the theory unravels the intricate dynamics of communication and behaviour shifts concerning digital inclusion, customer engagement and support, and governmental promotional endeavours.
To methodically gauge the program's impact, JENDELA should prioritize the dissemination of articulate and pertinent information to the public. This information must convey the importance of digital inclusion, the advantages of improved connectivity, and pathways for individuals and communities to

actively participate. According to the theory, well-crafted informational campaigns can spark curiosity and engagement.

Digital inclusion and support, as per the theory, demand equal access and effective utilization of digital technologies for all strata of the population. For JENDELA, this entails not only providing access but also delivering support and resources to empower individuals to harness the benefits of enhanced digital infrastructure. Proficient digital inclusion, as underscored by social marketing theory, necessitates a tailored approach for diverse population segments, addressing impediments to access, and ensuring that marginalized communities can harness the full potential of upgraded digital connectivity.

The theory also accentuates the creation of feedback channels, addressing concerns, and furnishing continuous support to effectively engage with the target audience. In the context of JENDELA, this process cultivates trust and loyalty among users, ultimately amplifying the program's impact.

Government initiatives and promotional endeavours encompass the strategies and campaigns orchestrated to promote JENDELA and garner public support. This includes the diverse promotional avenues and activities undertaken by the government to raise awareness and stimulate participation. Social marketing theory underscores the need for well-structured and persuasive promotional efforts. It recommends that government initiatives be meticulously designed to resonate with the values and motivations of the target audience. This encompasses the utilization of social media, traditional media, and community outreach to craft a compelling narrative and generate interest.

In closing, the application of Social Marketing Theory in assessing JENDELA's impact in Malaysia furnishes a comprehensive framework for comprehending how information dissemination, digital inclusion and support, customer interaction and support, and governmental initiatives and promotional endeavours can sway the program's success. By critically evaluating and optimizing these variables, Malaysia can refine the execution of JENDELA and assure its effectiveness in bridging the digital divide. This framework harmonizes with the theory's principles and elucidates how these elements interplay to steer the program's outcomes, contingent on the responses and engagement of the target audience.

Limitations and Future Research Suggestions

One of the main limitations of this study is the potential for sampling bias. We used purposive sampling to select participants based on their relevance to our research objectives, which could have excluded certain perspectives and stakeholder groups. In future research, it would be beneficial to employ a combination of purposive and random sampling to ensure a more diverse and representative sample, thus providing a broader spectrum of viewpoints. Another limitation to consider is the subjectivity inherent in qualitative analysis. The interpretation of data and the identification of themes can be influenced by individual researcher perspectives and biases. To address this, future studies could incorporate inter-rater reliability measures or employ triangulation methods that involve multiple researchers. This would enhance the rigor and objectivity of the analysis. Additionally, there is a temporal constraint in this study. Our data collection was based on information available up to October 2023. Given the rapidly evolving nature of digital infrastructure initiatives, there may have been developments or changes in the JENDELA program since that date. To address this limitation, future research should conduct periodic evaluations to track the program's progress over time and capture any evolving impacts.

In future research, a more diverse sampling strategy that combines purposive and random sampling can be implemented to mitigate the limitations related to sampling bias. This approach would ensure a more comprehensive representation of various stakeholder perspectives, including those that may have been underrepresented in the current study. To address subjectivity in qualitative analysis, future studies can employ methodological triangulation by using multiple research methods, involving various researchers in the analysis process, and reporting inter-rater reliability scores. This would enhance the credibility and objectivity of the research findings. Furthermore, future research could adopt a longitudinal analysis approach to address the temporal constraint. This would involve tracking the impact of the JENDELA program over an extended period, allowing for a better understanding of how its effects evolve over time. Conducting periodic assessments would also enable the capture of changes and adaptations made to the program, providing insights into its long-term impact.

CONCLUSION

In a nutshell, the JENDELA initiative in Malaysia represents a significant stride towards achieving digital inclusivity and transforming the nation's digital landscape. Our comprehensive exploration has unveiled the multifaceted impact of this program from various perspectives, illuminating key areas that merit both acknowledgment and improvement. JENDELA's success hinges on its ability to communicate effectively with its audience, empower individuals and communities, offer unwavering support, and engage in compelling promotional efforts. By anchoring our assessment in the Social Marketing Theory, we've gained valuable insights into how these factors converge to shape the program's outcomes.

First and foremost, awareness of the JENDELA program among users emerges as a foundational element. This awareness is pivotal because it drives participation and utilization. If users are unaware of the program's existence, the need for improved communication and outreach becomes evident. Effective information dissemination is the bedrock upon which all other facets of the initiative rest. The affordability of internet services is another critical factor, which can significantly influence users' perception of the program's impact. Affordable internet access can lead to increased adoption, aligning perfectly with JENDELA's core goals. In this vein, the initiative must continuously strive to make digital connectivity accessible to all, transcending economic disparities. Increased internet usage is a tangible indicator of success, demonstrating that JENDELA effectively encourages a broader population to utilize the internet. This heightened usage directly corresponds to the research objective of assessing impact, reflecting the program's effectiveness in increasing digital engagement.

User perceptions of internet quality represent a vital aspect of the impact assessment. Enhanced internet quality results in improved user experiences and, consequently, increased internet usage. This emphasis on quality underscores the necessity of continually enhancing digital infrastructure and connectivity. Private sector collaboration is an instrumental factor in the successful implementation of JENDELA. Private entities have played a substantial role in shaping the initiative's impact, emphasizing the significance of public-private partnerships in infrastructure development and service provision. User awareness of complaint and feedback platforms signals an active and responsive approach, indicating that JENDELA is receptive to user input. This two-way communication fosters a sense of user involvement and highlights a commitment to improvement based on user experiences and concerns. Users' perceptions of government initiatives hold great sway in shaping the success of programs like JENDELA. Positive perceptions indicate that the government's efforts are well-received, while negative perceptions may point to areas requiring improvement. The government's role in promoting digital inclusivity is central to JENDELA's impact. Lastly, recognizing the need for increased promotional efforts is an acknowledgment of the gap in user awareness. Enhanced promotion is the bridge to fill this awareness gap, aligning with the Social Marketing Theory's emphasis on crafting compelling narratives and generating interest through a variety of channels.

While this research has provided insights into the multifaceted impacts of the JENDELA program in Malaysia and proposed a theoretical framework rooted in Social Marketing Theory for its evaluation, there are notable limitations. These limitations include sampling bias, subjectivity in qualitative analysis, and temporal constraints. To address these limitations, future research should consider more diverse sampling strategies, implement methodological triangulation, and conduct longitudinal analyses to offer a more comprehensive and objective assessment of the program's impact. This approach will contribute to a deeper understanding of how JENDELA is shaping Malaysia's digital landscape and offer valuable insights for enhancing the program's success in bridging the digital divide and promoting digital inclusivity.

In light of these insights, JENDELA's journey is a dynamic and evolving one. It underscores the imperative of aligning strategies, promoting inclusivity, and actively engaging with communities to bridge the digital divide. By embracing the tenets of the Social Marketing Theory, JENDELA can continue to shape Malaysia's digital landscape, fostering a future where every citizen enjoys the benefits of a connected and digitally empowered nation.

The true measure of JENDELA's success lies in its ability to leave no one behind in the digital transformation journey, ensuring that every Malaysian, regardless of their background or location, can fully participate in the opportunities of the digital age. It is a journey worth pursuing, and the insights

we've gathered will undoubtedly guide and inform the continued efforts to enhance Malaysia's digital future.

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