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## STRUCTURAL READINESS FOR SYSTEM PADU: A RURAL PERSEPECTIVES

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### ABSTRACT

In rural areas, the adoption of technological systems such as PADU (Pangkalan Data Utama) holds promise for enhancing efficiency and service subsidies. However, successful implementation hinges on the structural readiness of these communities. This study explores the intersection of structural readiness and system PADU adoption in rural communities, aiming to uncover key factors influencing the adoption process. Data was collected from communities in Linggi, Negeri Sembilan through interviews. Findings reveal significant challenges in infrastructure, resources and support systems, highlighting the importance of addressing structural readiness for successful technology integration. Implications for policy and practice are discussed, emphasizing the need for targeted interventions to bridge the gap and facilitate system PADU adoption in rural areas, ultimately contributing to equitable development and improved public service subsidies

### ARTICLE INFO

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## 1.0 INTRODUCTION

Pangkalan Data Utama (PADU) is Malaysia's initiative for digital transformation, consolidating utility information for effective policymaking. It aims to streamline government services and enhance social welfare by centralizing data from various agencies. The success of PADU relies on community readiness, particularly in rural areas, where challenges like limited access to services persist. Previous ICT implementations in Malaysia, like MySejahtera and eKasih, demonstrate the value of technology in improving citizens' lives. However, rural communities often face unique obstacles in adopting new systems due to connectivity issues and limited resources.

The lack of standardization in data formats across utilities impedes the effective adoption of PADU. Rural communities, including Linggi in Negeri Sembilan, Malaysia, present specific challenges in embracing the new system. Understanding their readiness is crucial for successful implementation and equitable access to benefits. Additionally, acceptance of PADU may be hindered by concerns about data privacy, security and transparency.

This qualitative study focuses on understanding rural community perceptions and experiences regarding PADU adoption. Data will be collected through interviews and focus groups in Linggi, Negeri Sembilan, Malaysia. Thematic analysis will be used to identify patterns and narratives. Ethical considerations will be prioritized throughout the research process.

This study addresses the pressing issue of rural community readiness for PADU adoption, offering insights for policymakers, educators, and mental health professionals. By understanding community perceptions, the study aims to inform strategies for successful implementation and promote responsible technology use. Ultimately, it seeks to empower individuals and communities to navigate digital transformation for enhanced well-being.

## 2.0 LITERATURE REVIEW

Structural readiness refers to the degree to which a community or organization's infrastructure, resources, and organizational frameworks are equipped to support the implementation of a new system, program, or initiative. This involves evaluating the physical, logistical, and administrative capacities necessary for successfully adopting and integrating proposed changes.

In investigating factors influencing the adoption of e-government services in rural tele centers, with a focus on support and training, it's evident that incorporating comprehensive support and training mechanisms is crucial. A survey conducted among participants from rural areas and tele centers in Malaysia revealed that factors such as performance expectancy, social influence, and facilitating conditions positively influence users' intention to use e-government services (Syafila, 2021). This highlights the importance of establishing effective support and training initiatives within tele centers, as they play a pivotal role in facilitating adoption.

Another study explores the factors influencing individuals' intention to use e-filing, emphasizing the role of perceived ease of use, usefulness, security, and technology readiness. It suggests that individuals' readiness to accept information technology significantly influences their intention to use e-filing systems (TAHAR et al., 2020). Ensuring users are prepared and equipped to use the technology enhances adoption and effectiveness.

An article in the International Journal of Academic Research in Progressive Education and Development delves into the factors determining the optimization of digital technology in rural schools, offering insights into the challenges and opportunities of implementing digital technology in such settings (Khaizer, 2023). This can inform studies on the readiness of rural communities, especially in Linggi, to adopt and utilize technology effectively.

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Similarly, a study on the acceptance of e-government services in Sintok, Malaysia, using the Unified Theory of Acceptance and Use of Technology (UTAUT) model, underscores the importance of government support and citizen willingness for the success of e-government systems (Anisa & Aiman, 2020).

Researchers examining the digital transformation of agriculture and rural areas highlight the need for a responsible research and innovation (RRI) approach to anticipate the effects of this transformation (Rijswijk et al., 2021). The framework they present emphasizes considering the social, cyber, and physical aspects of the system, as well as the need for moral responsibility and accountability in the process, which aligns with the proposed research on structural readiness for digital transformation in agriculture and rural areas.

### **3.0 METHODOLOGY**

#### **3.1 Research Design**

This qualitative study employs semi-structured interviews to explore the technology readiness of rural communities towards PADU in Linggi, Negeri Sembilan. Semi-structured interviews offer flexibility in probing for information, requiring adaptability to overcome language barriers and validate respondents' responses. The interviews are audio-recorded to ensure data precision and comprehensiveness.

#### **3.2 Research Sampling**

The study samples appointed village heads from Linggi, chosen for their familiarity with the community. Utilizing a snowball sampling technique ensures the inclusion of individuals with strong community ties, crucial for accessing hard-to-reach groups. The sampling aims for saturation, where further participants would merely echo previous responses.

#### **3.3 Method of Conducting Qualitative Research**

##### **3.3.1 Research Participants**

Interview questions, designed around research objectives, focus on roles, challenges, and future suggestions regarding PADU readiness. Questions are conducted in English, considering the village heads' crucial role as liaisons between Linggi communities and the government.

##### **3.3.2 Data Analysis Approach:**

Thematic analysis, a method for detecting patterns within qualitative data, is employed. The process involves transcribing interviews, familiarizing with the data, generating initial codes, searching for themes, defining themes, interpreting data, and summarizing results. This iterative process ensures a comprehensive understanding of participants' experiences and perspectives.

##### **3.3.3 Trustworthiness and Rigor:**

To maintain credibility and reliability, strategies like member checking and peer debriefing are utilized. Member checking allows participants to review transcripts for accuracy, while peer debriefing involves discussions with other researchers to reduce bias. Rigor is further ensured through meticulous record-keeping and maintaining an audit trail to showcase transparency.

### 3.3.4 Ethical Considerations:

Ethical conduct is prioritized, with informed consent obtained from participants, outlining study aims, risks, and rights. Confidentiality measures, such as pseudonyms and secure data storage, are implemented to protect participants' anonymity and personal data. By adhering to ethical principles and employing rigorous methodologies, this study aims to provide valuable insights into rural community readiness for PADU adoption, contributing to informed policymaking and inclusive governance.

## 4.0 FINDINGS AND DISCUSSION

### 4.1 Data collection

Data collection is the process of gathering information for a specific purpose. This qualitative study aims to explore the subjective experiences, perceptions, and meanings associated with the readiness towards the new system that was introduced known as PADU among adolescents aged 18 to 60 years old. The research will focus on understanding the lived experiences of respondents within the context of their social and cultural environments.

The study will employ qualitative research methods, including semi structured interviews to collect rich, contextually embedded data on respondents' experiences and perspectives. Sampling will be purposive, aiming to include respondents from diverse backgrounds, including different socio-economic statuses, and cultural backgrounds.

In this research it consists of information that was given by the higher authority at the Linggi area. The information that this researcher collects is such as names, phone numbers, and addresses. The respondents for this study consist of appointed village heads who have good relations with the respondents in their area. The sample of interviewees was drawn from the population of village heads in the Linggi area. The researchers for this research contact all of the head villages asking for their availability and set up the date for the interview session. The tools and devices that were used are telephone and microphone.

Interviewee	Occupation
Mr A	Businessman
Mr B	Retired Army
Mr C	Retired Government Officer
Mr D	Businessman

Table 1

### 4.2 Data Organization

In this research, the interview process started by meeting the village head involved and started by asking questions related to the PADU system. The questions that were ask is

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1. Question 1: Please explain in detail regarding your role regarding the readiness among rural communities to adopt system PADU?
2. Question 2: What are the challenges that your organization has to face regarding the readiness among rural communities to adopt system PADU?
3. Question 3: What are your suggestions in the future regarding the readiness among rural communities to adopt system PADU?
4. The systematic handling and analysis of non-numerical data, such as text, images, or audio recordings, is part of data organization in qualitative research. Dissimilar to quantitative exploration, which manages mathematical information and factual examination, subjective examination centers around figuring out peculiarities in their regular settings and settings, frequently utilizing techniques like meetings, perceptions, or record examination. (Bhandari, 2023)

### 4.3 Theme Development

Within study, theme development served as a crucial step in understanding the underlying patterns and insights embedded within the qualitative data. Through a systematic process of coding and analysis, I delved into the narratives provided by respondents, seeking common threads and recurring motifs. This process allowed me to distill the richness of the data into identifiable themes, providing a framework for interpreting and contextualizing the findings. After examining the data, I was able to uncover key insights and nuances that shed light on the phenomenon under investigation. Theme development not only facilitated a deeper understanding of the research topic but also laid the foundation for subsequent analysis and discussion.

1. Structural Readiness
2. It refers to the organizational support and infrastructure available to facilitate technology adoption. This includes resources such as IT systems, training programs, and support mechanisms provided by the organization to empower employees in utilizing new technologies effectively.
3. Respondent 1 seems unready with the implementation of the new system as he said that “The problem is that the internet in this area is always loading and very slow. The internet is really not fast in this area.”
4. Respondent 3 also faces the same problem as he said “Sometimes there are problems with internet access and telco lines too.”
5. However, Respondent 4 seems ready as he said that “So far, it's okay, everyone gets it. Maxis, Celcom, Digi. Moreover, it is close to Port Dickson. So, no worries”

### 4.3.1 Variations or Contradictions

- Acceptance and Use Readiness Challenges

Despite the overall emphasis on the importance of perceived usefulness and ease of use, a few respondents mentioned specific challenges or reservations they had regarding the practicality or applicability of certain technologies in their work context. This highlights the complexity of technology adoption, with varying levels of acceptance among users based on their unique needs and preferences.

Elaborating on these main themes, we gain a deeper understanding of the factors influencing technology adoption within the organizational context, aligning with the principles of the Unified Theory of Acceptance and Use of Technology (UTAUT).

### 4.4 Framework Integration

This research has four criteria such as code, categories, theme, and theory. For coding details this research was able to get eighteen different codes, seven categories, three themes, and one theory. Below is the framework.



Figure 1: Framework for this research

This study may learn how internet connection and technical infrastructure affect rural communities' structural preparation for system PADU adoption by adding UTAUT principles into the analytical process

### 4.5 Data Interpretation

In qualitative research, researchers need to interpret the data based on the pattern to generate the themes for each finding. Thus, below is the data interpretation for this research.

Narrative	Code	Theme	Interpretation
So far, it's okay, everyone gets it. Maxis, Celcom, Digi. Moreover, here is close to Port Dickson. So, no worries	Access	Structural Readiness	The data stated that the interviewee expressed that so far everyone satisfy with telecommunication companies like Maxis, Celcom, and Digi, and the proximity near to Port Dickson

Table 2

The data indicates that the telecommunications infrastructure in the Linggi region is structural readiness for the implementation of the PADU system. The close proximity to Port Dickson and the high level of satisfaction with communications firms suggest that the Linggi region is well-prepared to absorb technology. This indicates that the required infrastructure, such as reliable mobile network coverage, is available to facilitate the adoption of the PADU system. Utilizing these current resources may help promote a readiness for technology and facilitate the process of adopting it in the community.

Narrative	Code	Theme	Interpretation
The newly created system sometimes only reaches the top and the middle. When it reaches the bottom, many don't understand	Training / Support	Structural Readiness	The data stated that the interviewee describing a newly created system sometimes achieves success in reaching the top and middle levels, but when it comes to the bottom level, many individuals struggle to comprehend it.

Table 3

The narrative depicts a common challenge where newly introduced systems often falter in reaching all levels within a community or organization, echoing the concept of structural readiness, which evaluates the infrastructure and resources necessary to support such initiatives. In this context, training and support are pivotal, especially considering that while the system may succeed in reaching the top and middle levels, many individuals at the bottom level may struggle to comprehend it. This underscores the significance of comprehensive support mechanisms and tailored training programs to ensure equitable access and understanding of the new system. By addressing structural readiness through targeted support and training initiatives, tele centers can bridge the gap between different levels within the community, aligning with the findings of the research on e-government service adoption in rural areas (Syafila et al., 2021).

Narrative	Code	Theme	Interpretation
The problem is that the internet in this area is always loading and very slow. The internet is really not fast in this area.	Internet	Structural Readiness	The data stated that the interview emphasized that the internet coverage in their community area is not very strong. This will make them not interested in doing online registration of this PADU system.
Sometimes there are problems with internet access and telco lines too.	Internet	Structural Readiness	The data stated that the interviewee explained that in certain villages in their area that are far from the main road, it is quite difficult for the internet to reach their house. This can be difficult for online registration.

Table 4

According to the data, the respondent reported frequent issues with internet connectivity and telecommunications lines in the region. These problems highlight the additional difficulties associated with internet connectivity's structural concerns. Continual challenges in connecting to the internet might hinder citizens' capacity to successfully use online services such as PADU. Consequently, the community's ability to effectively utilize technology is hindered by the lack of dependable internet connectivity.

Some settlements in the region are situated at a considerable distance from the main road, which poses challenges for the installation of internet connectivity to their residences. This geographical obstacle worsens the structural difficulties associated with internet connection. Individuals residing in isolated regions may encounter extra obstacles while attempting to acquire dependable internet services, thereby hindering their capacity to interact with online platforms such as the PADU system. This geographical limitation further reduces the community's preparedness for adopting technology.

Narrative	Code	Theme	Interpretation
So, it's the same with this integrated system, they don't know what they actually have to do. Many seek other ways besides online	Exposure	Structural Readiness	The data stated that the interviewee did not know how to use the integrated system, causing many to look for alternatives offline

The digital revolution of agricultural and rural regions may affect the economy, environment, society, technology, and institutions, according to academics. It stresses the necessity for responsible research and innovation (RRI) to comprehend and predict this shift. The essay investigates the social, cyber, and physical dimensions of digital transformation using a social cyber-physical system paradigm (Rijswijk et al., 2021). This underscores challenges in navigating digital technologies, highlighting the need to manage system complexity effectively. The article emphasizes the significance of considering the social, cyber, and physical dimensions of the system, as well as moral responsibility and accountability. This understanding is crucial for addressing

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issues uncovered in the data and ensuring readiness for digital transformation. This insight is particularly relevant in the context of exposure to e-government services in rural areas.

## 5.0 CONCLUSION

Unified Theory of Acceptance and Use of Technology (UTAUT) is a generally involved model in the area of innovation acknowledgment research. The themes identified in the researches are closely mirror the construct outline in the UTAUT MODEL it contributes to understanding how social influence impacts technology acceptance and readiness. It indicates a strong alignment between the theoretical framework and the empirical findings if a qualitative research study identified themes that closely mirror the constructs outlined in the UTAUT model, particularly focusing on how social influence impacts technology acceptance and readiness. Researchers can gain a deeper comprehension of how social influence interacts with other factors to shape individuals' readiness to accept and use technology by identifying these themes in the qualitative data.

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