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ASSESSING EXTERNAL DETERMINANTS OF TECHNOLOGY READINESS IN VILLAGE AND COMMUNITY DIGITAL MANAGEMENT INITIATIVES: AN AHP APPROACH

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ABSTRACT

This study investigates the role of external determinants in shaping technology readiness within village and community digital management initiatives. It focuses on six key factors compatibility, relative advantage, complexity, trialability, observability, and social influence that influence technology adoption in rural and semi-urban contexts. A multi-criteria decision-making approach based on the Analytic Hierarchy Process (AHP) is employed to systematically evaluate and prioritize these determinants using expert judgments. The results indicate that relative advantage emerges as the most influential factor, followed by social influence, highlighting the importance of perceived benefits and community-driven dynamics in adoption decisions. In contrast, trialability and observability demonstrate relatively limited influence, suggesting that experiential exposure plays a secondary role compared to perceived value and social validation. This study contributes to the existing literature by extending technology adoption research into community-based digital environments and providing a structured prioritization of external factors. The findings offer practical implications for policymakers and system developers by emphasising the need to enhance perceived benefits and leverage social networks to improve digital adoption in rural settings.

KEYWORDS: Technology Readiness; Digital Village; Analytic Hierarchy Process (AHP); Technology Adoption; Rural Digital Transformation.

1. INTRODUCTION

The rapid advancement of digital technologies has significantly transformed governance systems, including rural community management. In recent years, the concept of digital villages has gained increasing attention as part of national digital transformation strategies aimed at improving service delivery, administrative efficiency, and community engagement (Dwivedi et al., 2021; Jin, 2025). These initiatives are increasingly recognized as essential mechanisms for enhancing rural development and reducing socio-economic disparities.

In Malaysia, initiatives such as Digital Village have introduced digital tools, including QR-based systems, to streamline village-level operations. These systems enable residents to access services more efficiently, facilitate data management, and improve communication between community members and local authorities. Despite these potential benefits, the adoption of such technologies remains uneven, particularly among rural populations. This disparity reflects broader structural challenges associated with the digital divide, including limited infrastructure, unequal access, and varying levels of digital literacy (Sindakis et al., 2024; Doloi, 2025).

Although digital village initiatives have been introduced to enhance rural governance, their effectiveness is largely dependent on user acceptance and participation. However, existing evidence suggests that adoption levels among community members remain relatively low, particularly in resource-constrained environments where technological exposure is limited (Islam, 2025).

Several challenges contribute to this issue. First, there is often a mismatch between technological systems and users' daily practices, which negatively affects perceived compatibility. Second, limited digital literacy among certain groups, particularly older residents, reduces confidence in using digital tools. Third, the perceived complexity of new systems creates barriers to adoption, especially when adequate training and institutional support are lacking. These challenges highlight the importance of considering both technological and contextual factors in understanding adoption behavior (Venkatesh et al., 2022).

Moreover, previous studies on technology adoption have predominantly focused on general models such as the Technology Acceptance Model (TAM), with limited attention given to the role of external determinants in rural and community-based contexts. While these models provide valuable insights, they often overlook the influence of social structures, environmental conditions, and community dynamics, which are particularly relevant in non-urban settings (Tamilmani et al., 2021).

In addition, there is a lack of structured approaches to evaluate the relative importance of these external factors. Most studies identify influencing variables but do not systematically prioritize them, limiting their practical applicability in policy and system design.

Therefore, this study seeks to address these gaps by applying a systematic multi-criteria decision-making method, namely the Analytic Hierarchy Process (AHP), to identify and prioritize the external determinants influencing technology adoption readiness in digital village management initiatives. By doing so, this study provides both theoretical and practical contributions to the understanding of technology adoption in rural and community-based environments.

2. LITERATURE REVIEW

2.1. Technology Readiness in Rural Contexts

Technology readiness in rural environments encompasses not only access to digital infrastructure but also the capability, confidence, and contextual suitability required for effective technology utilization. Unlike urban settings, rural communities are often characterized by limited connectivity, lower levels of digital literacy, and socio-economic constraints, all of which significantly influence adoption outcomes (Sindakis et al., 2024).

Recent literature emphasizes that technology readiness is a multi-dimensional construct, integrating technological, human, and institutional components. Access to infrastructure alone is insufficient if users lack the necessary skills or awareness to engage with digital systems. In many rural contexts, the readiness gap is further exacerbated by disparities in education, income, and exposure to digital environments (Dwivedi et al., 2021).

Moreover, digital transformation initiatives in rural areas have been shown to enhance economic productivity, governance efficiency, and service accessibility, particularly through improved information flow and administrative processes (Jin, 2025). However, these benefits are unevenly distributed due to the persistent digital divide, which limits participation among certain population groups, especially older adults and low-income households (Doloi, 2025).

In addition, recent studies highlight that technology readiness is strongly influenced by contextual and social conditions, including

community norms, trust in institutions, and collective attitudes toward innovation. In rural environments, where social structures are tightly interconnected, adoption decisions are often shaped by shared experiences and community-level dynamics, rather than purely individual preferences (Venkatesh et al., 2022).

Furthermore, the concept of readiness must be understood as dynamic rather than static, evolving alongside technological exposure and policy interventions. Continuous training, infrastructure development, and community engagement are essential in strengthening readiness over time. Without such support mechanisms, even well-designed digital initiatives may fail to achieve widespread adoption.

Overall, the literature suggests that technology readiness in rural contexts is not solely determined by technological availability but is shaped by a complex interaction of technical capacity, social influence, and environmental conditions. This reinforces the need for context-sensitive approaches in evaluating and promoting digital adoption within community-based initiatives.

2.3. External Factors Influencing Technology Adoption

External factors play a crucial role in shaping technology adoption, particularly in rural and community-based contexts where socio-cultural and infrastructural conditions significantly influence user behavior. Recent studies emphasize that technology adoption is not solely determined by individual perceptions but is also influenced by contextual factors such as social interaction, technological characteristics, and environmental readiness (Dwivedi et al., 2021; Tamilmani et al., 2021).

In digital village environments, these external factors are essential in determining the success of digital initiatives. This study focuses on six key factors: compatibility, relative advantage, complexity, trialability, observability, and social influence.

2.3.1. Compatibility

Compatibility refers to the extent to which a technology aligns with users' existing values, experiences, and daily practices. Recent studies highlight that compatibility significantly enhances perceived usefulness, particularly when technology integrates seamlessly into users' routines (Almaiah et al., 2020).

In rural digital initiatives, compatibility is critical because technologies must fit within local socio-cultural contexts. Studies in developing countries show that systems aligned with community practices are more readily adopted (Sharma et al., 2022). However, compatibility does not necessarily guarantee ease of use, as technical barriers and digital literacy still play important roles.

2.3.2. Relative Advantage

Relative advantage remains one of the strongest predictors of technology adoption. It refers to the perceived benefits of a new system compared to traditional methods. Recent empirical studies confirm that relative advantage significantly influences both perceived usefulness and behavioral intention (Nguyen et al., 2023). Technologies that provide clear benefits such as efficiency, time-saving, and improved service delivery are more likely to be accepted by users. In the context of digital village management, perceived improvements in administrative processes and accessibility strengthen users' motivation to adopt digital systems.

2.3.3. Complexity

Complexity refers to the degree to which a system is perceived as difficult to use. Studies consistently show that complexity negatively affects adoption, especially among users with limited technological experience (Alalwan et al., 2020). Recent research highlights that simplifying system design and improving usability can significantly enhance adoption rates (Raza et al., 2021). In rural contexts, where digital literacy varies widely, reducing complexity is essential to ensure inclusivity.

2.3.4. Trialability

Trialability allows users to experiment with a system before full adoption. It reduces uncertainty and helps users gain confidence in using new technologies. However, recent studies indicate that the impact of trialability depends on the level of exposure and system maturity (Susanto et al., 2022). In early-stage implementations, limited opportunities for trial may reduce its influence on user perceptions.

2.3.5. Observability

Observability refers to how visible the benefits of a technology are to others. It plays an important role in social learning, where users observe others' experiences before making adoption decisions. Recent studies show that observability enhances perceived usefulness but has limited impact on perceived ease of use (Kamal et al., 2020). This suggests that while visibility increases awareness,

direct experience is still necessary for understanding usability.

2.3.6. Social Influence

Social influence is a critical factor in technology adoption, particularly in collectivist societies and community-based environments. It reflects the extent to which individuals are influenced by others' opinions and behaviors. Recent studies confirm that social influence significantly affects both perceived usefulness and behavioral intention (Venkatesh et al., 2022). In rural settings, support from community leaders, family members, and peers plays a crucial role in encouraging adoption. Social influence also reduces uncertainty and increases trust, making it one of the most influential factors in digital village initiatives.

3. METHODOLOGY: ANALYTIC HIERARCHY PROCESS (AHP)

This study employs the Analytic Hierarchy Process (AHP), developed by Thomas L. Saaty, to systematically evaluate and prioritize external factors influencing technology readiness in community-based digital management initiatives. AHP is particularly suitable for this study as it allows complex decision-making problems to be structured into a hierarchical model and quantified through expert judgment.

3.1. Research Design

A quantitative multi-criteria decision-making approach was adopted to assess the relative importance of six external factors:

i. Compatibility
ii. Relative Advantage
iii. Complexity
iv. Trialability
v. Observability
vi. Social Influence

The AHP method was selected due to its ability to convert subjective judgments into measurable weights while ensuring logical consistency.

3.2. Hierarchical Structure Development

The decision problem was structured into three levels:

i. Level 1 (Goal):

Technology Readiness for Digital Village Management

ii. Level 2 (Criteria):

The six external factors influencing adoption

iii. Level 3 (Alternatives):

Not applicable, as this study focuses on prioritizing criteria rather than selecting alternatives

This hierarchical decomposition simplifies complex relationships and enables systematic comparison between factors.

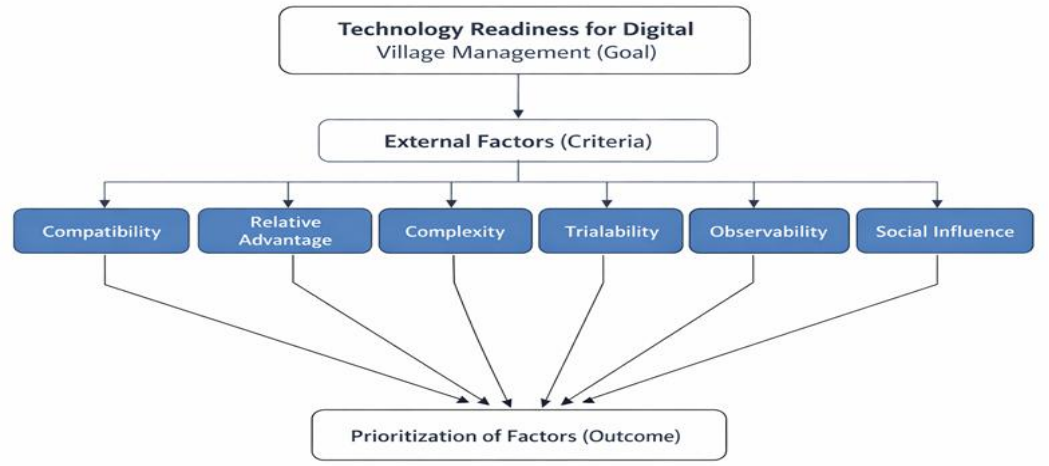

Figure 1: Hierarchical Structure Development of Technology readiness for digital villages Sources: (Researcher, 2026).

3.3. Pairwise Comparison Process

A pairwise comparison matrix was constructed to evaluate the relative importance of each factor. Experts were asked to compare factors using Saaty's 1–9 fundamental scale:

Scale	Interpretation
1	Equal importance
3	Moderate importance
5	Strong importance
7	Very strong importance

Scale	Interpretation
9	Extreme importance

Intermediate values (2, 4, 6, 8) were used when necessary.
Each comparison reflects how much more one factor influences technology readiness relative to another.

3.4. Mathematical Model and Weight Calculation

The priority weights were derived using eigenvector normalization. The comparison matrix is represented as:
A=[aij],i,j=1,2,…,nA=[a_{ij}],\quad i,j=1,2,\dots,nA=[aij],i,j=1,2,…,n
Where:
i. aija_{ij}aij represents the relative importance of factor iii over factor jjj
ii. nnn represents the number of criteria
The normalized priority vector www was obtained by solving:
Aw=λmaxwAw=\lambda_{max}wAw=λmaxw
Where:
i. www = priority weights (eigenvector)
ii. λmax\lambda_{max}λmax = maximum eigenvalue
The resulting weights indicate the relative contribution of each factor to technology readiness.

3.5. Consistency Test

To ensure reliability, the consistency of judgments was evaluated using the Consistency Index (CI) and Consistency Ratio (CR).
CI=λmax−nn−1CI=\frac{\lambda_{max}-n}{n-1}CI=n−1λmax−n
CR=CIRICR=\frac{CI}{RI}CR=RICI
Where:
i. CI = Consistency Index
ii. RI = Random Index
iii. CR = Consistency Ratio
A CR value below 0.10 indicates acceptable consistency. In this study, the CR value of 0.06 confirms that the judgments are reliable and free from significant inconsistency.

3.6. Data Collection Procedure

Data for this study were collected through expert judgment using the Analytic Hierarchy Process (AHP) pairwise comparison technique. The expert-based approach was selected because AHP requires informed and experienced evaluators to assess the relative importance of decision criteria systematically and consistently.

The expert panel consisted of individuals with substantial professional and academic experience in areas related to digital governance, community management, information systems, rural development, and technology adoption. A total of 5 experts participated in the evaluation process. The experts were selected using purposive sampling to ensure that only respondents with relevant expertise and contextual understanding were included in the study.

Several selection criteria were applied in identifying suitable experts:

i. A minimum of five years of professional or academic experience in fields related to digital governance, information systems, community development, or rural digital transformation

ii. Direct involvement in technology implementation projects, digital policy development, community engagement programs, or digital service management initiatives

iii. Familiarity with rural or community-based digital initiatives, particularly those involving technology adoption and digital readiness assessment

iv. Ability to evaluate decision criteria objectively based on professional knowledge and practical experience

The purposive sampling approach was considered appropriate because the study required respondents with specialized knowledge rather than general public opinions. This approach ensured that the judgments obtained were credible, contextually relevant, and capable of supporting reliable decision analysis within the AHP framework.

Data collection was conducted through a structured pairwise comparison questionnaire developed based on Saaty's 1–9 fundamental scale. Each expert was asked to compare the six external factors influencing technology readiness in terms of their relative importance. The comparisons were performed systematically by evaluating one factor

against another within the same hierarchical level.

To improve consistency and reduce ambiguity, the experts were provided with a brief explanation of each criterion prior to the evaluation process. This ensured that all respondents shared a common understanding of the concepts being assessed. The completed pairwise comparison matrices were then compiled and analyzed to generate normalized priority weights and consistency values.

The use of expert-based evaluation is widely recognized in AHP research because it enables complex qualitative judgments to be transformed into measurable quantitative priorities. Furthermore, the inclusion of clearly defined expert selection criteria and consistency testing enhances the methodological transparency, reliability, and credibility of the study.

3.7. Data Analysis Procedure

The analysis followed these steps:

i. Construct pairwise comparison matrix
ii. Normalize the matrix
iii. Compute eigenvector weights
iv. Rank factors based on weights
v. Perform consistency test

This structured process ensures that the evaluation is systematic, transparent, and replicable.

3.8. Justification for Using AHP

AHP is appropriate for this study for several reasons:

i. It accommodates both qualitative judgment and quantitative analysis
ii. It provides a clear ranking of factors
iii. It ensures logical consistency in decision-making
iv. It is widely used in technology adoption and decision science research

4. RESULTS

4.1. AHP Pairwise Comparison Matrix

The relative importance of external factors influencing technology adoption readiness was evaluated using the Analytic Hierarchy Process. A pairwise comparison matrix was constructed based on expert judgments using Saaty's 1–9 fundamental scale, which allows systematic comparison between criteria in terms of their relative importance.

Table 1: AHP Pairwise Comparison Matrix (6×6), Sources: (Researcher, 2026).

Criteria	Comp	RelAdv	Complx	Trial	Observ	SocInf
Comp	1	0.333	3	4	3	0.5
RelAdv	3	1	4	5	4	2
Complx	0.333	0.25	1	2	2	0.333
Trial	0.25	0.2	0.5	1	0.5	0.25
Observ	0.333	0.25	0.5	2	1	0.333
SocInf	2	0.5	3	4	3	1

The matrix reflects the comparative judgments among the six criteria: compatibility (Comp), relative advantage (RelAdv), complexity (Complx), trialability (Trial), observability (Observ), and social influence (SocInf).

For instance, the value of 3 assigned to relative advantage over compatibility indicates that relative advantage is considered moderately more important in influencing technology adoption readiness. Similarly, the value of 2 for social influence over compatibility suggests that social factors also play a significant role in shaping user perceptions within community settings.

Overall, the matrix demonstrates that benefit-oriented and socially driven factors (relative advantage and social influence) tend to dominate over experiential factors such as trialability.

4.2. Priority Weights (Eigenvector Analysis)

Following normalization of the pairwise comparison matrix and eigenvector computation, the priority weights for each factor were obtained, as presented in Table 2.

Table 2: Normalized Weights (Eigenvector), Sources: (Researcher, 2026).

Factor	Weight	Rank
Relative Advantage	0.28	1

Social Influence	0.22	2
Compatibility	0.18	3
Complexity	0.14	4
Observability	0.1	5
Trialability	0.08	6

The results indicate that relative advantage (0.28) is the most influential factor affecting technology adoption readiness. This suggests that users prioritize the perceived benefits, efficiency, and added value of the Digital Village QR Code system over other considerations. When users clearly perceive improvements in performance, time savings, and convenience, they are more inclined to adopt the technology.

The second most important factor is social influence (0.22), highlighting the critical role of community dynamics, peer influence, and institutional support. In community-based settings, individuals are strongly influenced by the behavior and recommendations of others, particularly local leaders and family members.

Compatibility (0.18) ranks third, indicating that alignment with users' existing lifestyle, routines, and socio-cultural context remains an important determinant. However, its influence is slightly lower compared to relative advantage and social influence, suggesting that perceived usefulness and social encouragement may override compatibility considerations.

Complexity (0.14) shows a moderate influence, implying that ease of understanding and usability are still relevant, particularly for users with lower digital literacy. However, its impact is less dominant compared to benefit-driven factors.

Meanwhile, observability (0.10) and trialability (0.08) are the least influential factors. This indicates that indirect exposure (seeing others use the system) and opportunities for experimentation are less critical in shaping adoption decisions in this context, especially during early implementation stages.

4.3. Consistency Analysis

To ensure the reliability and logical consistency of the pairwise comparisons, a consistency test was conducted using the Consistency Index (CI) and Consistency Ratio (CR).

i. Consistency Ratio (CR) = 0.06
ii. Acceptable threshold: CR < 0.10

The obtained CR value of 0.06 is well below the acceptable threshold, indicating that the judgments provided by respondents are consistent and reliable. This confirms that the comparison matrix is valid and that the derived priority weights can be confidently used for further interpretation.

4.4. Interpretation of Findings

The AHP results reveal several important insights:

i. Dominance of Benefit-Oriented Factors

Relative advantage emerges as the most influential factor, suggesting that users are primarily motivated by functional benefits and performance improvements rather than usability or experimentation.

ii. Strong Role of Social Context

Social influence plays a significant role, emphasizing that technology adoption in community settings is not purely individual, but socially constructed through interactions, encouragement, and shared experiences.

iii. Moderate Role of Compatibility and Complexity

While compatibility and complexity remain relevant, they do not dominate decision-making. This suggests that users may tolerate certain levels of complexity as long as the perceived benefits are high.

iv. Limited Impact of Trialability and Observability

The low ranking of trialability and observability indicates that early-stage exposure is insufficient to shape strong perceptions. Users rely more on perceived benefits and social validation than on direct experimentation.

4.5. Conceptual Framework Interpretation

Figure 1: Conceptual Framework

The conceptual framework illustrates how external factors influence technology adoption readiness through two key mediating constructs:

i. Perceived Usefulness (PU)
ii. Perceived Ease of Use (PEOU)

Strong Relationships

i. Relative Advantage → PU & PEOU
ii. Social Influence → PU & PEOU

Moderate Relationships

i. Compatibility → PU
ii. Complexity (low complexity) → PU

Weak Relationships

i. Trialability → PU & PEOU
ii. Observability → PU

This framework highlights that technology adoption is driven primarily by perceived value and social reinforcement, rather than experiential learning alone. In community-based digital initiatives, collective influence and visible benefits outweigh individual experimentation.

5. DISCUSSION

Overall, the findings indicate that technology adoption readiness in community-based digital initiatives is influenced primarily by perceived value and social reinforcement rather than experiential exposure alone. This suggests that adoption behaviour in rural and semi-urban settings is increasingly shaped by collective trust, practical benefits, and community dynamics. The findings are consistent with recent studies emphasizing that technology adoption in community environments is strongly influenced by contextual and social considerations (Sindakis et al., 2024; Islam, 2025).

5.1. Dominance of Relative Advantage

The strong influence of relative advantage suggests that users are more likely to adopt digital technologies when clear functional benefits are evident. In community-based environments, technologies are commonly evaluated based on their ability to improve efficiency, convenience, and service delivery rather than on technical sophistication alone. This finding is consistent with previous studies identifying perceived usefulness as a major determinant of technology adoption across different contexts (Nguyen et al., 2023; Affandi et al., 2024).

The findings further indicate that users in rural digital ecosystems prioritize practical outcomes and immediate value. This reflects a pragmatic adoption pattern in which functional benefits outweigh other considerations, particularly in environments where digital exposure and technological resources may be limited. The study therefore reinforces the argument that perceived value remains central to technology readiness in resource-constrained settings.

5.2. The Critical Role of Social Influence

Social influence emerged as another important determinant of technology readiness, highlighting the significance of collective behaviour and community dynamics in shaping digital adoption decisions. In rural and community-based settings, individuals often rely on peer recommendations, local leadership, and shared experiences when evaluating new technologies.

This finding supports recent extensions of the UTAUT framework, which emphasize the growing influence of social and environmental factors in digital transformation processes (Venkatesh et al., 2022; Tamilmani et al., 2021). The findings also suggest that technology adoption in community environments is socially embedded, where trust and social validation play important roles in reducing uncertainty and encouraging participation, especially among users with limited digital literacy (Sindakis et al., 2024; Yuhefizar et al., 2024).

5.3. Moderate Influence of Compatibility and Complexity

Compatibility and complexity demonstrated moderate influence on technology readiness. This indicates that users remain concerned with the alignment between technology and their existing routines, values, and socio-cultural environments. However, these factors appear to be secondary to perceived benefits and social encouragement.

The findings further suggest that users may tolerate moderate levels of complexity when technologies provide meaningful and visible advantages. This reflects adoption behaviour commonly observed in developing and rural contexts, where practicality and usefulness often outweigh concerns regarding technical sophistication or usability challenges (Raza et al., 2021; Sharma et al., 2022). Consequently, technology adoption appears to be driven more by perceived outcomes than by usability considerations alone.

5.4. Limited Role of Trialability and Observability

Trialability and observability were found to exert comparatively weaker influence on technology readiness. This finding contrasts with traditional diffusion theory, which emphasizes the importance of experimentation and visibility in reducing uncertainty during the adoption process.

However, recent studies suggest that in structured and community-driven implementations, these factors may become less influential (Susanto et al., 2022; Kamal et al., 2020). One possible explanation is that users increasingly rely on social trust and perceived usefulness rather than direct experimentation when evaluating new technologies. In addition, community-oriented implementation strategies may reduce opportunities for individual

experimentation during the early stages of adoption.

These findings indicate a gradual shift from experience-based adoption toward trust- and value-based adoption behaviour in rural digital ecosystems. This suggests that social reinforcement and perceived benefits may play a more dominant role than direct exposure in influencing technology readiness.

5.5. Implications for Technology Readiness in Community Contexts

The findings provide several important implications for both theory and practice. From a theoretical perspective, this study reinforces the relevance of established technology adoption models such as Diffusion of Innovations and UTAUT while emphasizing the importance of contextual and community-driven dynamics. The findings suggest that technology adoption should not be viewed solely as an individual decision-making process but also as a socially influenced and context-dependent phenomenon.

From a practical perspective, policymakers and system developers should prioritize implementation strategies that clearly demonstrate tangible benefits to users. Community engagement initiatives, local leadership involvement, and trust-building activities should also be strengthened to improve adoption readiness. In addition, training programs should focus on improving usability and reducing perceived complexity while maintaining emphasis on perceived usefulness and social reinforcement.

5.6. Integration with the Conceptual Framework

The findings provide empirical support for the proposed conceptual framework, particularly regarding the influence of external factors on perceived usefulness (PU) and perceived ease of use (PEOU). Relative advantage and social influence demonstrated stronger relationships with technology readiness, indicating that perceived value and social reinforcement are central drivers of adoption behaviour.

In contrast, trialability and observability showed comparatively weaker influence, suggesting that collective perception and contextual relevance are more influential than individual experimentation in community-based digital settings. Overall, the findings reinforce the importance of integrating social and contextual dimensions into technology readiness and digital adoption frameworks.

6. CONCLUSIONS

This study demonstrates that technology readiness in village and community digital management initiatives is predominantly influenced by perceived benefits and social dynamics, rather than by experiential or usability-related factors alone. The findings indicate that users are more inclined to adopt digital systems when clear advantages are evident and when supported by strong social influence within the community.

By applying the Analytic Hierarchy Process (AHP), this research provides a systematic and transparent framework for evaluating and prioritizing external determinants of technology adoption. The results highlight the dominance of relative advantage and social influence, while factors such as trialability and observability play a comparatively limited role in shaping adoption readiness.

From a theoretical perspective, this study extends existing technology adoption literature by emphasizing the importance of contextual and community-driven factors, particularly in rural and semi-urban environments. It suggests that adoption is not solely an individual decision-making process but is strongly embedded within social structures and collective experiences. From a practical standpoint, the findings offer important implications for policymakers and system developers. Efforts to enhance digital adoption should focus on demonstrating tangible benefits, strengthening community engagement, and leveraging local leadership to build trust and acceptance. Additionally, strategies should address usability challenges without overlooking the critical role of perceived value.

Despite its contributions, this study is not without limitations. The reliance on expert judgment in AHP may introduce subjectivity, and the findings are context-specific to community-based digital initiatives. Future research is recommended to incorporate empirical user data, longitudinal analysis, and cross-regional comparisons to further validate and extend the findings. In summary, this study provides a comprehensive understanding of the key external determinants influencing technology readiness and offers a practical decision-making framework to support the successful implementation of digital village initiatives. The findings highlight the need for context-sensitive adoption strategies that emphasize value creation, community engagement, and social validation to ensure the success of digital transformation initiatives in rural and semi-urban environments.

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