



From Vision To Reality: Overcoming The Challenges of Implementing E-Government in Papua

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Abstract. *This study aims to identify and analyze the main challenges in the implementation of e-government in Papua Province, employing a descriptive qualitative approach based on secondary data. Papua, with its unique geographical conditions and socio-cultural characteristics, faces considerable obstacles in digital transformation, despite national policies to accelerate the Electronic-Based Government System (SPBE). The analysis highlights several key challenges, including limited ICT infrastructure, low digital literacy, weak system interoperability, cultural resistance, and the absence of adaptive regulatory frameworks. To comprehensively interpret these complexities, this research integrates multiple theoretical lenses, namely the Technology-Organization-Environment (TOE) framework, the Unified Theory of Acceptance and Use of Technology (UTAUT), ICT readiness, and organizational resistance theory. Findings reveal that while Papua's internet penetration rate has reached 69.91%, the adoption and utilization of public digital services remain significantly low. This gap reflects a disconnect between technological availability and institutional as well as cultural readiness. Moreover, the lack of involvement of local communities and indigenous leaders in the design and implementation of digital services has exacerbated the challenges of public acceptance and trust in government-led innovations. These limitations not only hinder service delivery but also create disparities in the broader agenda of equitable digital transformation across Indonesia. In response, this study recommends several strategic solutions: strengthening ICT infrastructure to reduce connectivity disparities, enhancing digital literacy programs tailored to local needs, drafting regulations that are context-sensitive and flexible, and applying cultural-based as well as participatory approaches to increase legitimacy and acceptance. By doing so, e-government initiatives in Papua can become more inclusive, sustainable, and effective. Overall, this study contributes to the literature on e-government in disadvantaged and high-complexity regions, emphasizing the urgency of inclusive and equitable digital policy design.*

Keywords: *Cultural Resistance, Digital Literacy, E-government, Papua, SPBE.*

1. INTRODUCTION

Indonesia is currently in an important phase of digital transformation in the government sector, in line with global demands for transparent, efficient, and responsive governance. Within this framework, the implementation of e-government is seen as the main instrument in answering the challenges of modern public services and digital inclusion. However, Indonesia's achievements in the development of e-government still face a number of structural and technical challenges. Based on data from the United Nations E-Government Development Index (EGDI) in 2024 (Figure 1), Indonesia occupies the 64th position in the world with the score of the *e-participant index* sub-index (0.79), *Online Service Index* (0.80), *Telecommunication Infrastructure Index* (0.86), and *Human Capital Index* (0.72) (UN DESA, 2024). Digital inequality in various provinces such as Maluku, North Sulawesi, and Papua indicates that the development of information technology infrastructure is uneven, with many regions still experiencing limited access to electricity and the internet (Hafel et al., 2022) Even in big cities like Jakarta, studies on e-government applications such as JAKI show that even

though these digital initiatives build public trust, the level of digital literacy is low and the system is low. that are not integrated are the main obstacles to the realization of effective digital public services (Fairuzyah et al., 2024). National data leak incidents such as ransomware attacks on the National Data Center (PDN: *Pusat Data Nasional*) in 2024 also highlight the urgency of digital security as an indispensable element of digital governance (Khalil, 2024). From a theoretical perspective, the *TOE (Technology-Organization-Environment)* and *UTAUT (Unified Theory of Acceptance and Use of Technology)* frameworks have been used to explain that weak infrastructure, low commitment to top management, and the existence of *digital divide* are obstacles to technology adoption in the public sector (Alfiani et al., 2024).

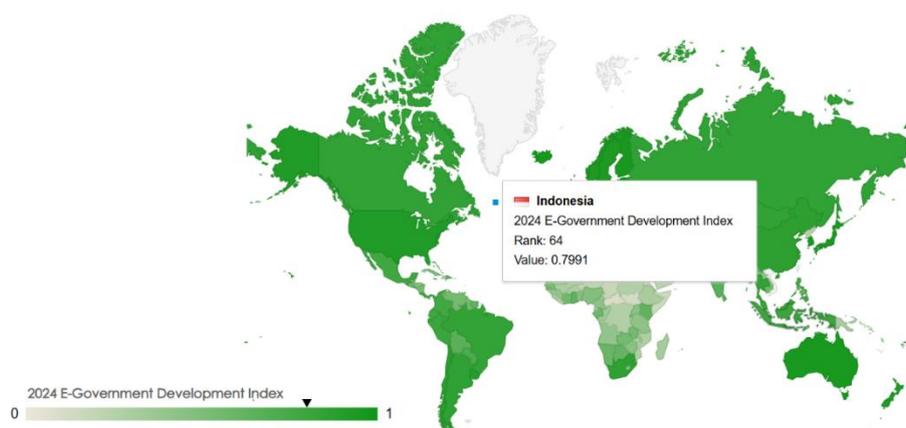


Figure 1. E-Government Development Index in 2024

Source: UN DESA (2024)

There is a lot of research on the implementation of *eGovernment* in Indonesia. Yazid & Karmila (2024) identify regulatory barriers, data integration, information communication technology infrastructure, human resource competence, and bureaucracy. Nurhidayat et al. (2024) highlight the lack of public participation and understanding of information security among state apparatus. Gusman & Kusuma (2023) quantitatively found gaps in the dimensions of information and human resource skills using the ITPOSMO model in the implementation of SIPKD in Riau. These studies still lack critical analysis of the synergy between contextual challenges (such as archipelago geography, demographic disparities) and security and data integrity aspects.

In particular, the Papuan context presents unique and profound challenges. Papua is a region with extreme geographical conditions and uneven communication infrastructure, causing the penetration of information and communication technology (ICT) to still lag behind other regions (Amrulloh et al., 2025). Although the Palapa Ring project, which was completed in 2019, aims to expand internet connectivity in eastern Indonesia, the benefits have not yet

fully reached the interior of Papua (Nugraha et al., 2020). At the national level, the Electronic-Based Government System (SPBE: *Sistem Pemerintahan Berbasis Elektronik*) index shows that only a small percentage of local governments have achieved a good predicate, while more than half are still in the category of good to bad (Maulida, 2024). Local studies such as those conducted by Syarifah et al. (2022) in Jayawijaya show that *e-government readiness* is in the "less" category, due to suboptimal intranet infrastructure and lack of human resource capacity. Other research in Jayapura City also shows that the implementation of *e-government* has not been optimal in supporting public services (Bao et al., 2023) and in West Papua, government employees' awareness of cybersecurity is still considered low (Maharani, 2024). All of this shows that efforts to implement *e-government* in Papua require an approach that is not only technology-based, but also considers cultural, geographical, and specific autonomy policy aspects.

Although various studies have been conducted, there is still a significant *research gap*. Most previous studies have only captured one dimension of the challenges of *e-government implementation*, such as technical readiness or digital literacy, without systemically integrating structural, institutional, cultural, and information security factors in a single intact framework. For example, the research of Syarifah et al. (2022) only assesses *readiness* descriptively without exploring the influence of special autonomy policies. Bao et al. (2023) highlighted digital public services in Jayapura but have not examined the factors of cultural resistance and inter-regional disparities. Meanwhile, Maharani (2024) emphasized the low awareness of cybersecurity in West Papua, but has not yet linked it to the need for national SPBE policy integration. The absence of a comprehensive approach in these studies highlights the need for a more in-depth and systematic study of how Papuan local challenges affect the effectiveness of *e-government implementation*.

Based on this background and gap, this study aims to comprehensively analyze the challenges of *e-government implementation* in Papua Province. The focus of this research includes: (a) identification of structural barriers such as infrastructure, human resources, and regional regulations within the framework of special autonomy; (b) technical readiness analysis and digital literacy; (c) evaluation of cybersecurity awareness and practices; (d) mapping of local cultural and institutional resistance factors; and (e) the preparation of an SPBE implementation strategy that is adaptive, inclusive, and in accordance with the geographical and socio-cultural context of Papua. This goal is explicitly written to prepare *a roadmap* for

the implementation of *e-government* in Papua in a realistic manner that can be operationalized by government actors and development partners.

Theoretically, this research contributes to the expansion of the study of e-government in the 3T (Disadvantaged, Frontier, and Outermost) areas, by integrating ICT readiness theory, cybersecurity theory, organizational resistance theory, and special autonomy policy framework into one conceptual model. Practically, the results of this study are expected to provide empirical data-based policy recommendations for local governments, the Ministry of Communication and Information, as well as partner institutions such as BAKTI (*Badan Aksesibilitas Telekomunikasi dan Informasi*: Telecommunication and Information Accessibility Agency) and USAID (*United States Agency for International Development*), in designing *digital governance* strategies that is contextual, sustainable, and able to reduce inequality between regions. On the other hand, the strategic model of this research can also be a reference in the implementation of *e-government* in other regions that have similar geographical and social characteristics to Papua.

2. THEORETICAL STUDIES

TOE (Technology-Organization-Environment Framework)

The TOE framework was developed by Tornatzky and Fleischer in 1990 to describe the factors that influence the adoption of technological innovations in an organization. The TOE highlights that the successful implementation of technology is influenced by three main dimensions: (a) available and relevant technologies, (b) **organizational structure and capabilities**, and (c) **external environments** such as regulation and policy support. One of the main challenges in this theory is the inadequate ICT (Information and Communication Technology) infrastructure, which hinders the effective implementation and utilization of *e-government* services (Meiyanti et al., 2019; Sabani et al., 2019; Tonggiroh, 2017; Wagola et al., 2023)

In addition to infrastructure problems, the challenge of implementing e-government is also closely related to the aspect of interconnected system integration.

A crucial challenge in the implementation of *e-government* is the difficulty in integrating various information systems owned by government agencies and ensuring data exchange that runs in an integrated and seamless manner. System integration and data compliance are fundamental aspects in creating efficient and responsive digital services. This disintegration not only hinders coordination between institutions, but also impacts the

effectiveness of public services as a whole. Therefore, the success of *e-government* initiatives is highly dependent on the government's ability to build a technology architecture that supports cross-sector integration and enables *real-time* and secure exchange of information (Al-Sebie, 2015; Yusuf et al., 2023). In the context of *e-government* in Papua, the technology dimension includes ICT infrastructure readiness and system suitability; the organizational dimension involves human resource competence, regional leadership commitment, and bureaucratic culture; while the environmental dimension is related to special autonomy policies, geographical challenges, and local socio-cultural dynamics (Alfiani et al., 2024; Nguyen et al., 2022)

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh (2022) is a theory that explains the intention of individuals in using information technology systems and the actual behavior of their use. UTAUT identified four main constructs, namely performance expectations, business expectations, social influence, and facilitation conditions. In the application of *e-government*, this theory explains how the perception of system benefits, ease of use, and social and technical support can affect the level of adoption by the community and civil servants in Papua. The limitations of digital literacy and trust in the digital system are also important indicators in this framework (Alfiani et al., 2024; Subedi et al., 2022)

However, the success of technology adoption is not only determined by user perception, but also influenced by the capacity of human resources who manage and run the system. The limitation of human resources who have technical competence in the management and maintenance of the e-government system is one of the main obstacles in the implementation of digital transformation in the public sector. The shortage of skilled experts in the field of information and communication technology (ICT) leads to a low quality of digital infrastructure management, which ultimately has an impact on the effectiveness and sustainability of e-government services. This situation indicates the need for a strategy to develop human resource capacity systematically through training, certification, and improvement of digital literacy in the government bureaucracy environment (Meiyanti et al., 2019; Sabani et al., 2019; Wagola et al., 2023).

In addition to technical aspects and human resources, the success of e-government is also greatly influenced by regulatory factors. Inadequate regulations, especially the absence of a comprehensive and adaptive legal framework, are significant obstacles to the implementation of e-government. Regulatory ambiguity results in weak operational guidance, lack of legal certainty, and difficulties in coordination across sectors and institutions. In the context of dynamic technological developments, regulations are needed that not only regulate technical and procedural aspects, but are also able to adapt to changes in the digital environment. Therefore, the formulation of integrative, responsive, and proactive policies and regulations is the main prerequisite to support effective and sustainable e-government governance (Wagola et al., 2023)

ICT Readiness (Information Communication Technology)

ICT (Information Communication Technology) Readiness is a theory that focuses on the extent of an organization's or region's readiness to adopt and utilize information and communication technology (ICT) (Arfani & Ambardi, 2024). ICT readiness includes aspects of technical infrastructure, human resource (HR) capabilities, supportive regulations, and organizational culture readiness to change. In the context of Papua, *readiness* needs to be looked at comprehensively, considering that there is still a significant digital divide between the central and regional governments, both in terms of network availability, technological devices, and usage skills (APJII, 2024). However, infrastructure and institutional readiness alone is not enough to ensure the success of *e-government* implementation. One of the main challenges that is often faced in the digital transformation process is resistance to change.

Effective change management is a key element in supporting the transition to sustainable digital governance. This resistance can arise from internal bureaucracy, such as government officials who are reluctant to get out of their comfort zone or do not understand the urgency of digitalization, or from external, namely people who do not have adequate digital literacy or do not trust the digital system. Therefore, a comprehensive change management strategy is needed, including transparent communication, the involvement of all stakeholders, and the fostering of an organizational culture that is adaptive to innovation. This approach is important to minimize psychological and structural barriers, and ensure that the digital transformation process takes place gradually, planned, and sustainable (Mukamurenzi et al., 2019; Naz, 2015).

The readiness of organizations and bureaucracies in adopting ICT must also be balanced with the readiness and acceptance of the public as end users of government digital services. Public readiness and acceptance of *e-government services* is a determining factor for the successful implementation of digital transformation in the public sector. The level of community adoption is greatly influenced by the perception of *perceived* usefulness, *compatibility with their needs and values*, and social influence of the surrounding environment (*social influence*). When people feel the real benefits of digital services, feel that they are in line with their preferences, and get a positive social boost from the surrounding environment, then the likelihood of technology adoption will increase. Therefore, public communication strategies, continuous education, and the design of digital services that are oriented to the needs of users are essential to encourage active participation and strengthen public trust in government digital services (Syaljumairi et al., 2025; Tonggiroh, 2017)

Siber Security

The implementation of *e-government* cannot be separated from the aspect of information security. Cybersecurity theory explains the importance of *confidentiality*, *integrity*, and *availability* of data in digital government systems (Pratama et al., 2024; Vansuri et al., 2023). These three aspects are the main foundation in ensuring that public and administrative information is stored securely, protected from manipulation, and can be accessed consistently when needed. In the context of the implementation of *e-government* in regions with systemic vulnerabilities such as Papua, security issues are becoming increasingly complex. In Papua, low awareness of cybersecurity and limited risk mitigation protocols are the main challenges that hinder public trust and the sustainability of the SPBE system. The emphasis on security literacy and standardized encryption systems is crucial in supporting a secure and trusted digital ecosystem.

The challenge of *implementing e-government* does not only lie in the technical aspects and awareness of information security, but also is closely related to financial resource factors. Limited financial resources and budget constraints are significant challenges in the development and sustainability of *e-government* projects. The implementation of government digital services requires long-term investments that include technology infrastructure, system development, human resource training, and ongoing maintenance. Without adequate budget support, the digitalization process is prone to being hampered, both in terms of the quality of the technology used and the scope of services that can be reached by the public. When budget allocation is insufficient or not well planned, the digital transformation process has the potential

to be hampered, both in terms of quality and service coverage. Therefore, strategic and sustainable budget planning is needed to ensure that *e-government* initiatives can run effectively and provide long-term benefits to society (Al-Zubi, 2015; Meiyanti et al., 2019).

Organizational Resistance to Change

Bureaucracy tends to reject change due to organizational culture factors, unclear vision, and fear of disruption (Astutiek et al., 2025). *Resistance to change* can hinder the adoption of *e-government* due to passive resistance (abstinence from the use of technology) and active resistance (rejecting or hindering implementation). This condition often occurs in areas with strong hierarchical structures and traditional work cultures. Resistance to this change becomes increasingly complex when it is not balanced with human resource empowerment strategies and active public engagement.

One of the strategic approaches to overcome this resistance is through training and continuing education programs, both for government officials and the community. The need for continuous training and education programs is a crucial factor in improving literacy readiness and digital competence. This capacity building not only supports the ability of civil servants to design, manage, and maintain e-government systems, but also strengthens citizens' readiness as users of technology-based public services. Thus, investment in digital skills development through systematic training curricula, professional certifications, and literacy campaigns for the wider community, is a strategic prerequisite to ensure the reliability, accessibility, and sustainability of digital transformation in the government sector (Wagola et al., 2023; Zeebaree et al., 2023).

In the Papuan context, this form of resistance is exacerbated by unique structural and social conditions. In Papua, this resistance is reinforced by information inequality, limited training, and lack of involvement of local communities in the process of planning for the digitization of services. These factors not only hinder the widespread adoption of technology, but also contribute to the low effectiveness of *e-government* implementation in the region. Therefore, strategies for local community engagement, decentralization of digital decision-making, and strengthening regional institutional capacity are essential to address the challenges of resistance based on culture and geography.

Special Autonomy and Digital Governance Policy

Cultural *alignment* is a crucial aspect in supporting the widespread acceptance of *e-government* services. The implementation of digital governance technology that does not take into account local cultural values and community social practices risks causing resistance and low user participation. Therefore, it is important for governments to design digital services that are in harmony with local socio-cultural norms, customs, and contexts. This culturally sensitive approach not only increases the relevance and accessibility of services, but also strengthens public legitimacy and trust in technology-based systems of government (Naz, 2015; Syaljumairi et al., 2025)

In the Indonesian context, the need for a culturally oriented approach becomes increasingly important when applied in regions with unique sociopolitical and geographical characteristics, such as Papua. Papua has specificity in regional autonomy policies based on the Special Autonomy Law (Otsus: *Otonomi Khusus*). This policy can be seen as an institutional framework that affects digital governance, both in terms of fiscal authority, decision-making, and indigenous peoples' involvement. However, in its implementation, special autonomy has not been fully converted into a boost to digital innovation. Therefore, in order for the implementation of *e-government* in Papua to take place effectively and inclusively, digital policies must be designed contextually, taking into account local social, cultural, and political realities. The *e-government* approach in Papua must be aligned with cultural principles and equitable local participation. This will not only increase public acceptance of technology, but also create digital governance that is more sustainable, adaptive, and rooted in local values.

3. RESEARCH METHODS

This study uses a descriptive qualitative approach that aims to describe in depth the phenomenon of *e-government implementation* in Papua. This approach was chosen because it is able to accommodate the social, cultural, geographical, and institutional complexities that become the local context of Papua, which cannot be explained quantitatively (Creswell & Poth, 2016). Qualitative research allows for narrative and interpretive exploration of the structural and contextual challenges faced in the implementation of government digital policies, particularly in the context of special autonomy and cultural resistance.

The main data source in this study is secondary data. This data was chosen because it can provide a broad and comprehensive picture of the issues being researched, and is very relevant for analyzing the dynamics of public policy, digital infrastructure readiness, and macro-socio-cultural conditions. Secondary data sources include official policy documents such as the Presidential Regulation on SPBE and the Papua Special Autonomy Law, reports from national and international institutions such as UN DESA, APJII, Kominfo, and BAKTI. In addition, scientific journal articles published in 2020–2024 that discuss ICT readiness, *e-government adoption*, cybersecurity literacy, and institutional challenges are also used. Actual information is also obtained from credible online news, especially related to data security incidents and digital divides. This approach allows for a broader and cross-disciplinary understanding of the issue of *e-government implementation* in Papua.

The research procedure is carried out gradually and systematically. The initial stage begins with the identification of problems and the determination of research objectives, which are rooted in the inequality of *e-government implementation* and the complex geographical and social conditions in Papua. Furthermore, secondary data collection was carried out through searching official documents, research reports, scientific articles, and online media. After the data is collected, a thematic classification and coding process is carried out to organize the data into key themes, such as infrastructure readiness, human resources, institutional governance, cultural resistance, and information security. The next stage is data analysis through *a content analysis* approach that allows researchers to explore the contextual meaning of each document and source analyzed.

The analysis was carried out by reducing data, compiling a thematic matrix, and connecting the main patterns and issues with the theoretical framework used, namely TOE, UTAUT, ICT readiness, and organizational resistance. Data interpretation is carried out critically by paying attention to the relationship between technological, organizational, and environmental factors in the local context of Papua. In ensuring the validity of the analysis, the researcher also triangulated between various secondary data sources. The results of the analysis are then used to compile applicable policy conclusions and recommendations, with the aim of formulating a contextual, inclusive, and sustainable SPBE implementation strategy. This analysis technique is considered the most appropriate for a qualitative approach because it can uncover the hidden dimensions of digital policies and practices in a unique geographical and cultural environment such as Papua (Morgan, 2022)

4. RESULTS AND DISCUSSION

The implementation of *e-government* in Papua Province faces various complex structural and contextual barriers, including low readiness of information technology infrastructure, limited human resource competencies, lack of digital literacy, and cultural resistance to digital transformation. Although national projects such as *the Palapa Ring* have formally expanded ICT infrastructure networks, results on the ground show that the distribution of internet access in Papua is still uneven.

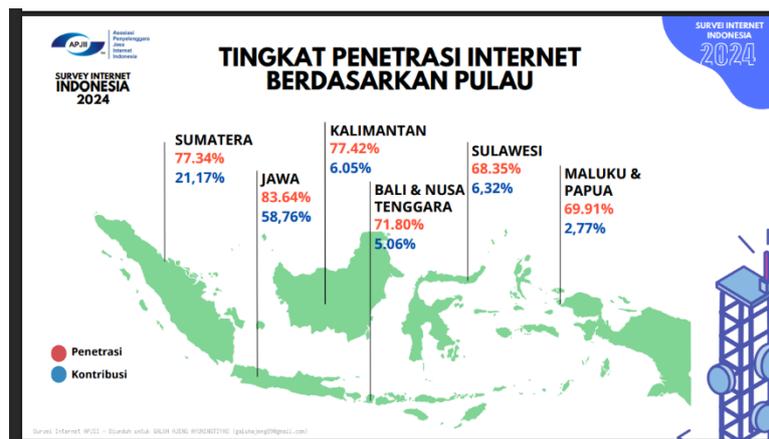


Figure 2. Internet penetration rate by island

Source: APJII (2024)

Figure 2 above is the result of the **2024 Indonesian Internet Survey** released by the Indonesian Internet Service Providers Association (APJII: *Asosiasi Penyelenggara Jasa Internet Indonesia*). This visualization shows **the level of internet penetration by archipelago region in Indonesia**, with two main indicators: the percentage of internet penetration (indicated in red) and the region's contribution to the total national internet users (indicated in blue). Focusing on **the Maluku and Papua regions**, it can be seen that the internet penetration rate reaches **69.91%**, which means that almost 7 out of 10 residents in this region already have access to the internet. However, **its contribution to the total national internet users is only 2.77%**, making it the region with the lowest contribution compared to other islands in Indonesia.

This data is very relevant to the findings in a research article on **the challenges of e-government implementation in Papua Province**. Although the internet penetration rate in Papua is relatively high (close to 70%), **the low contribution to the total national internet users** indicates a **gap in the number of active users**, limited digital infrastructure in remote areas, and challenges in the productive use of technology. As outlined in the article, some of the main factors inhibiting the implementation of e-government in Papua include:

1. **Inequality of communication infrastructure**, although projects such as the Palapa Ring have reached Papua, many remote areas are still not optimally accessible (Amrulloh et al., 2025).
2. **Low digital literacy and awareness of cybersecurity**, as conveyed by Maharani (2024), government apparatus and the community are not fully prepared in terms of using technology safely and efficiently.
3. **Geographical factors and cultural resistance**, extreme geographical conditions and traditional local preferences are significant obstacles to the adoption of digital services (Syarifah et al., 2022; Zeebaree et al., 2023)

Internet penetration data from APJII also shows that **the level of access has not automatically reflected the readiness of *e-government*** implementation. High penetration does not guarantee effective integration of digital governance systems, especially if it is not accompanied by strengthening human resources, regulatory support, and appropriate cultural approaches. Therefore, although Papua shows promising internet penetration figures, this is not enough to ensure the success of SPBE (Electronic-Based Government System) without a **digital policy strategy based on a local**, inclusive, and sustainable context.

Strategies to overcome various challenges of *e-government* implementation in Papua must be carried out comprehensively and in a targeted manner. One of the main strategic steps is investment in improving Information and Communication Technology (ICT) infrastructure. Adequate ICT infrastructure, including high-speed internet networks, secure data centers, and integrated hardware and software is the main foundation for the operationalization of the government's digital system. Without strong infrastructure support, *e-government services* will be vulnerable to technical disruptions, limited access, and a decline in the quality of public services. Therefore, the development and modernization of ICT infrastructure must be a priority in the digital transformation agenda of the public sector (Meiyanti et al., 2019; Sabani et al., 2019; Tonggiroh, 2017)

In addition to infrastructure, strengthening system integration and data suitability is a crucial aspect in improving the quality of digital service delivery. System integration allows connectivity between government agencies, while data suitability ensures efficient, accurate, and *real-time information exchange*. These two elements support the creation of integrated public services that are responsive to user needs. Without adequate integration, the system is at risk of data duplication, information inconsistency, and coordination constraints between institutions. For this reason, it is necessary to strengthen a standardized system architecture and

develop data governance policies in a sustainable manner (Al-Sebie, 2015; Wagola et al., 2023; Yusuf et al., 2023; Zeebaree et al., 2023)

Another effort that is no less important is to increase people's digital literacy. Digital literacy is not only related to technical ability to use technological devices, but also concerns understanding the benefits, security, and how to access government digital services. In Papua, low digital literacy is one of the main obstacles to technology adoption, especially in areas with limited access and diverse levels of education. Therefore, the government needs to develop inclusive and sustainable digital education programs, both through direct training, public campaigns, and the integration of materials in formal and informal education (Syaljumairi et al., 2025; Wagola et al., 2023).

In line with increasing literacy, the development and enforcement of adaptive regulations is also a must. Outdated or overly rigid regulations can stifle innovation and fail to address the ever-evolving technological challenges. A legal framework that is progressive, flexible, and oriented towards the principles of good digital governance is needed. These regulations must be able to accommodate new innovations, protect citizens' digital rights, and ensure accountability of technology-based public services (Wagola et al., 2023). Setting clear policies on data security, privacy, and information management is an important foundation for building public trust in *the e-government* system. This policy should include cybersecurity standards, data collection and storage mechanisms, user access rights, and procedures for handling data breaches. With secure and transparent data management, the legitimacy of digital systems will increase and the risk of misuse of information can be minimized (Yusuf et al., 2023; Zeebaree et al., 2023) However, digital transformation cannot be applied uniformly. Adapting *e-government services* to the context of local culture is very necessary for services to be relevant, inclusive, and effective. Each region, including Papua, has unique cultural, linguistic, and social value characteristics. Therefore, the application of a community-based approach is highly recommended, through the active involvement of local communities, the use of familiar symbols and language, and the provision of service features that are in accordance with the socio-economic conditions of the community (Naz, 2015; Syaljumairi et al., 2025).

In encouraging the adoption of digital services, the use of social influence and the role of community leaders is also very strategic. Community, customary, or religious leaders who are trusted by the public can be agents of change who bridge the gap between the government and the community. They can convey information persuasively and contextually, as well as

foster a domino effect in the widespread use of digital services (Syaljumairi et al., 2025). Ultimately, the success of *e-government* programs is highly dependent on the availability and efficiency of funding. Digital transformation requires continuous investment not only in infrastructure, but also in human resource development, system maintenance, and evaluation. Therefore, careful and transparent budget planning is needed so that this transformation is not short-term (Al-Zubi, 2015; Meiyanti et al., 2019)

By implementing these strategies in an integrated manner, Papua can significantly increase the effectiveness and reach of *e-government* services . This will strengthen the capacity for transparent, participatory, and accountable governance, as well as improve the quality of public services that are faster, more precise, and more equitable. A local context-based and inclusive approach has the potential to make digital transformation a key driver of regional development and the reduction of service gaps between regions.

Theoretically, these findings are in line with the **TOE framework** which emphasizes that the success of technology adoption is not only influenced by technical readiness, but also by organizational capabilities and external environments such as regulations and geographical conditions (Al-Sebie, 2015; Tornatzky & Fleischer, 1990). In the Papuan context, the environmental and organizational dimensions have stronger pressure as special autonomy creates unique policy dynamics, while bureaucratic structures are still limited in the ability to manage digital transformation. From **UTAUT's** perspective, resistance to *e-government* is caused by low perceptions of system benefits, high business expectations in accessing services, and weak social and technical support (Venkatesh, 2022). The low digital literacy among civil servants and the community causes the digital services provided not to be utilized optimally. Maharani (2024) noted that awareness of the importance of cybersecurity in West Papua is still minimal, thus limiting trust in digital-based public services.

Furthermore, *the theory of ICT Readiness* also helps explain the gap between internet penetration and readiness for e-government implementation (Arfani & Ambardi, 2024). The available infrastructure has not been accompanied by institutional readiness and organizational culture. This is exacerbated by geographical factors, low regional fiscal capacity, and lack of digital training and education. This finding is supported by Syarifah et al. (2022), who stated that the readiness of *e-government* in Jayawijaya is in the "lacking" category due to intranet limitations and human resource competence. A consequence of these findings is the urgency to design digital transformation policies based on local contexts. The central and regional governments need to develop strategies that focus not only on infrastructure development, but

also on digital literacy training, increasing information security awareness, and integrating local culture in the design of digital services. Special autonomy policies should be converted into institutional incentives that support technology adoption.

This study has limitations because it only uses secondary data. These limitations hinder the exploration of micro-dynamics that may occur at the implementation level, such as employee perceptions and user experiences of digital services. In addition, not all secondary data is up-to-date or comprehensively available for all districts in Papua. Therefore, follow-up research is recommended to use a *mixed-methods* approach with in-depth interviews and surveys of service users, both from civil servants and the community. Ethnographic studies that examine local digital cultures can also enrich understanding of resistance and acceptance to e-government. Academically, this research makes an important contribution to the development of *e-government* studies in disadvantaged regions and archipelagos. An analytical model that integrates TOE, UTAUT, ICT readiness, and organizational resistance theory results in a comprehensive and contextual conceptual framework. This research also expands the understanding of the importance of *cultural alignment* and governance based on local wisdom in the successful implementation of digital systems in the public sector.

5. CONCLUSION

The implementation of *e-government* in Papua Province faces complex and multidimensional challenges. Although various digital transformation efforts have been made nationally through the Electronic-Based Government System (SPBE) policy, geographical conditions, infrastructure inequalities, low digital literacy, cultural resistance, and limited institutional capacity are still significant obstacles in Papua. This study shows that internet penetration, which has reached 69.91%, is not in line with the level of utilization and adoption of public digital services, which is reflected in Papua's low contribution to national internet users. By integrating the theoretical frameworks of TOE, UTAUT, and ICT readiness, the findings of this article confirm that the success of *e-government* is not only determined by the availability of technology, but also by organizational readiness and environmental factors, including local socio-cultural. Low digital literacy, suboptimal data governance, and weak cross-sector coordination have also slowed down the digitization process of public services in this region. Therefore, *e-government* in Papua requires an adaptive, contextual, and inclusive approach to bridge the gap between national policies and local realities.

Recommendations

1. Strengthening Digital Infrastructure Evenly

The central and regional governments need to accelerate the equitable distribution of ICT infrastructure, especially in rural and remote areas, by focusing on internet connectivity, the provision of supporting devices, and the availability of stable electrical energy.

2. Improving Digital Literacy and Cybersecurity

Digital education and training programs that are inclusive and sustainable must be developed, both for ASN and the general public. This digital literacy must include technical understanding, the benefits of digital services, as well as information security aspects.

3. Strengthening System Integration and Data Governance

It is necessary to standardize information systems between institutions and build data interoperability to support efficient, *real-time*, and accurate public services. The implementation of the national SPBE architecture needs to be adjusted to local capacity.

4. Preparation of Adaptive and Contextual Regulations

A legal framework that supports digital innovation needs to be formulated, especially related to privacy, data security, and digital protection of citizens. Regulations must be flexible but still guarantee the principles of transparency, accountability, and fairness of access.

5. Cultural and Participatory Approach in Service Design

Adjusting the design of e-government services to local Papuan wisdom is very important. The government must involve indigenous leaders, community leaders, and local institutions in every stage of service development to create a sense of belonging and increase adoption.

6. Efficiency and Transparency of Digitalization Funding

Digital transformation requires long-term investments that must be accompanied by clear, accountable, and transparent budget planning. It is necessary to establish an independent supervision mechanism for the digitalization program to be efficient and sustainable.

Through these strategies, Papua is expected to accelerate digital transformation that is just and has a wide impact, so that it is able to realize modern, responsive, and inclusive governance.

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