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Digital Transformation Strategy in Improving Public Service Efficiency: A Study on the Implementation of Smart Governance in Tojo Una-Una Regency, Indonesia

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A B S T R A C T

This study analyzes digital transformation strategies for improving public service efficiency through smart governance in Tojo Una-Una Regency. Using a qualitative descriptive-analytical approach, data were collected from 25 informants through interviews, observations, document analysis, and focus group discussions during 2024–2025. Data analysis employed the Miles-Huberman-Saldana model and SWOT analysis supported by IFAS and EFAS. The findings reveal significant progress, with the SPBE score increasing from 2.13 to 3.06, the construction of 84 BTS towers, and the implementation of digital innovations such as AKSI-BPKAD. However, challenges remain, including uneven digital infrastructure, limited human resource competencies, and organizational resistance to change. SWOT analysis positioned the organization in Quadrant II (WO Strategy/Turnaround), indicating internal weaknesses alongside substantial external opportunities. The study recommends leveraging national policy support, technological advancements, and multi-stakeholder partnerships to address infrastructure and competency gaps. These strategies are essential for achieving effective, inclusive, and sustainable digital governance across the archipelagic region.

INTRODUCTION

Digital transformation has become a major force reshaping how both public and private organizations operate, creating new opportunities while also bringing complex challenges in modern administration (Ciancarini et al., 2023). Local governments are now facing demands to provide faster, more transparent, and adaptive services to meet the increasingly diverse needs of society. Conventional public service models that are based on top-down bureaucracy often no longer suffice to meet public expectations in the fast-paced, data-driven digital era.

In the context of digital transformation, local governments need to develop sufficient capacity and knowledge to effectively lead this change process (Pittaway & Montazemi, 2020). However, even though the number of academic publications on digital transformation in the public sector keeps increasing, the existing literature is still dominated by studies on national government institutions and central-level public organizations (Kuhlmann & Heuberger, 2023). This gap suggests that our understanding of the dynamics and challenges of digital transformation at the local level is still limited, even though local governments play a direct role in providing public services that are close to the community. Besides that, existing research in the regional context generally still focuses on electronic government initiatives, which tend to emphasize digitalizing and digitizing existing offline services, so they haven't fully explored innovative digital transformation strategies that actually improve public service efficiency (Gasco-Hernandez et al., 2022)

Smart governance has emerged as one of the strategic approaches to improving public service efficiency through the use of digital technology (Hong & Lee, 2023). Technologies like big data, artificial intelligence (AI), and the Internet of Things (IoT) have made it possible to boost operational efficiency, innovate public services, and increase citizen participation (Al-Ansi et al., 2024). For example, the concept of dynamic capabilities highlights the importance of an organization's ability to respond to environmental signals, adjust resources, and reassemble capabilities to maintain a competitive edge in ever-changing conditions (Ellström et al., 2022).

Even though the concept of smart governance has huge potential, its implementation, especially in developing countries, often faces significant challenges like funding, the scale of the informal economy, regulatory limitations, low digital inclusivity, and the need for social, legal, and HR reforms (Turner et al., 2024). Things get even more complicated in areas with tough geographic features like Tojo Una-Una Regency, which is made up of islands and remote villages. This situation calls for a digital transformation strategy that not only focuses on technology but also takes into account human resource capacity, infrastructure availability, and regulatory support.

Tojo Una-Una Regency in Central Sulawesi has huge potential in the maritime, fisheries, and tourism sectors, but it also faces challenges in connectivity between regions. Its geography, made up of scattered islands, calls for innovative public service models to reach all layers of society. Implementing smart governance in this area could be a strategic solution to overcome distance

and time barriers, while also improving the accessibility and quality of public services.

This study will discuss Digital Transformation Strategies in Improving Public Service Efficiency at the local level. By focusing the research on the strategies used by local governments, the researcher can identify steps that have proven effective, obstacles faced, and solutions applied. This is important because the right strategies not only determine the smooth adoption of technology but also ensure that the technology adds value to the public service process. The aim of this research is to analyze Digital Transformation Strategies in Improving Public Service Efficiency: A Study on the Implementation of Smart Governance in Tojo Una-Una Regency and to find the position of the strategy as well as establish strategies that can be implemented.

LITERATURE REVIEW

Digital transformation is a deep, integrative process of bringing digital technology into all aspects of an organization, whether in the public or private sector. This process fundamentally changes how organizations operate and deliver value to stakeholders (Gong & Ribiere, 2021; Verhoef et al., 2021). It doesn't happen overnight, but goes through three main stages: digitization (converting analog data into digital), digitalization (using digital data to improve process efficiency), and finally digital transformation, which involves changing business models, organizational strategies, and institutional structures.

More than just a tech upgrade, digital transformation calls for changes in organizational culture, strengthening adaptive capabilities, and having a more agile structure to respond to shifts in the external environment (Hanelt et al., 2021a; Warner & Wäger, 2019). In this context, dynamic capabilities like visionary leadership, continuous innovation, and the willingness to experiment become really important when dealing with ongoing changes (Nadkarni & Prügl, 2021).

To effectively guide digital transformation, organizations need to develop a comprehensive digital transformation strategy that focuses on business goals. This strategy is different from traditional IT strategies because it doesn't just focus on technology infrastructure; it also emphasizes aligning digital initiatives with the organization's vision and mission, coordinating across departments, and creating innovations that go beyond conventional organizational limits (Hanelt et al., 2021b; Matt et al., 2015). An effective strategy includes developing a digital culture, enhancing human resource competencies, and investing in appropriate digital infrastructure (Brunetti et al., 2020; Saarikko et al., 2020). Research shows that successfully implementing this strategy significantly impacts organizational performance, especially when supported by diverse perspectives and a moderate level of cognitive conflict within the management team (Wang et al., 2020).

Digital transformation also has a big impact on the public sector. Governments are encouraged to go digital to meet people's expectations for fast, transparent, and high-value services. On top of that, push from international agreements and policies also drives governments to improve the efficiency and effectiveness of public services and boost citizen satisfaction (Mergel et al., 2019).

One real example of applying digital transformation in the public sector is the concept of smart governance. This term refers to the use of information and communication technology (ICT) and collaborative innovation to improve decision-making quality, urban management, and public value creation (Castelnovo et al., 2016; De Guimarães et al., 2020; Meijer & Bolívar, 2016). Smart governance isn't just about technology; it's more about how the government encourages active citizen participation, enhances transparency and accountability, and builds strategic partnerships among stakeholders.

Recent research highlights that implementing smart governance should be done in a holistic way and be sensitive to the local context. This means that the success of digital transformation in government depends on the integration of technology, social collaboration, and institutional reform (Jiang, 2021; Mora et al., 2023; Nesti, 2020). Key factors that drive the success of smart governance include open communication, participatory policy-making processes, and the design and production of public services involving citizens directly (co-design and co-production) (Viale Pereira et al., 2017).

METHODS

Research Approach

The author decided to use a descriptive qualitative analysis method. The aim is to analyze how digital transformation is implemented in public services in Tojo Una-Una Regency and to determine the right strategies that can be applied. The research will take place during the 2024–2025 period, focusing on eight main aspects: understanding the concept of digital transformation, policies and implementation strategies, technology infrastructure, public service efficiency, human resource capacity and organizational culture, obstacles and challenges, participation and collaboration, as well as evaluation and future expectations. The research location is in Tojo Una-Una Regency, Indonesia.

Informants and Sampling Techniques

Informants were selected using purposive sampling. There were a total of 25 informants, consisting of:

- Key informants: the Regent, Regional Secretary, Head of the Communication and Information Office, and Head of BPKAD.
- Main informants: 5 Heads of OPD and 8 implementing civil servants.
- Supporting informants: 2 academics, 6 community representatives, and 2 private sector representatives.

The criteria are stakeholders who have the capacity and are responsible within the scope of the research.

Data Collection Techniques

Data is collected using four main methods, which are:

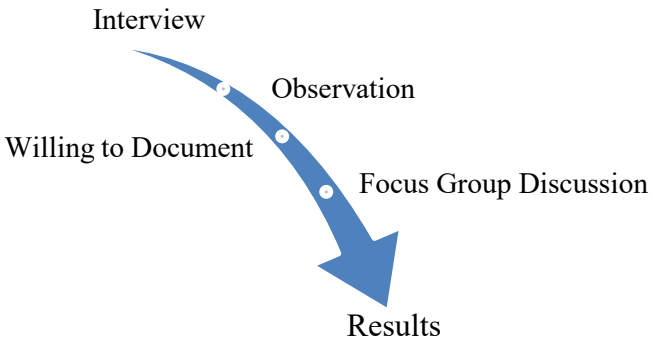


Figure 1: Research Data Collection Techniques
Source: Author's compilation, 2025

Data Analysis Techniques

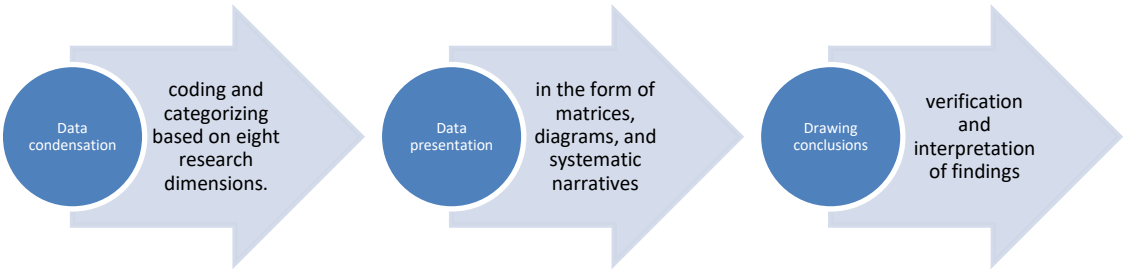


Figure 2: Qualitative Data Analysis Technique
Source: Author's processing, 2025

Besides qualitative analysis, a quantitative SWOT analysis was also used with IFAS and EFAS. The calculation results show:

- IFAS = 2,44
- EFAS = 2,82

So we get the coordinates (–0.06 ; +0.32), which places the organization in Quadrant II (WO/Turnaround Strategy). This position indicates that the organization needs to take advantage of external opportunities to cover internal weaknesses.

Data Validity and Research Ethics

The validity of data is maintained in several ways:

- Source triangulation (various types of informants),
- Method triangulation (interviews, observation, documents, and FGD),
- Time triangulation (data collection at different periods).

Validity is also strengthened through member checking with key informants, peer debriefing with fellow researchers, and an audit trail that systematically documents the research process.

RESULTS

In this study, the researcher created dimensions as benchmarks in the research, consisting of eight (8) dimensions, which include their measurements or parameters. Here are the dimensions and their parameters:

A. Understanding & Concepts of Digital Transformation

1. Understanding digital transformation in public services
2. What is the meaning and purpose of smart governance in Tojo Una-Una Regency?
3. Socializing this concept to civil servants and the community?

B. Implementation Policies & Strategies

1. Local government policies related to digital transformation
2. A roadmap or specific strategic plan for implementing smart governance
3. Strategies carried out to accelerate digital transformation
4. Coordination between regional government agencies in supporting this strategy

C. Infrastructure & Technology Aspect

1. The current information technology infrastructure in Tojo Una-Una Regency
2. Availability of digital systems/applications that support public services
3. Main challenges related to infrastructure (internet, servers, IT human resources)

D. Public Service Efficiency

1. the implementation of digital transformation affects the speed, convenience, and cost of public services
2. comparison of services before and after digitalization
3. public response to digital-based services
4. performance indicators that show efficiency improvements

E. HR Capacity & Organizational Culture

1. Readiness of civil servants to adopt digital technology
2. Special training to improve HR capacity?
3. Organizational culture barriers, for example resistance to change

F. Obstacles & Challenges

1. Obstacles to implementing smart governance in this area
2. How the local government deals with these obstacles

G. Participation & Collaboration

1. Forms of collaboration with the community, private sector, or other institutions in digital transformation
2. Special programs to improve community digital literacy
3. Ways to collect community aspirations digitally

H. Evaluation & Hopes for the Future

1. Evaluation mechanism for the current implementation of smart governance
2. Short-term and long-term targets in the digital transformation of public services in Tojo Una-Una Regency
3. Future development of smart governance

DISCUSSION

Understanding Digital Transformation, digital transformation is understood as a comprehensive revolution of government systems that includes changes in work culture and the patterns of interaction between the government and the public, not just the digitization of services. The focus is on ease, speed, transparency, and inclusivity, with special attention to the challenges of the island geography and the digital literacy needs of the people. Smart Governance in Tojo Una-Una focuses on using technology to overcome the challenges of island geography, improve bureaucratic performance, and bring services closer to the people.

Main goal: improving service quality, transparency, bureaucratic efficiency, equal access, and becoming the foundation for a future smart city. Policy & Implementation, SPBE is the backbone with an increase in value from 2.13 (2023) to 3.06 (2024). Collaboration with ITS Surabaya in developing the architecture, and the AKSI-BPKAD innovation won 1st Place in the Regional Innovation Competition.

The Digital Talent Scholarship for 300 Participants Shows a Comprehensive Approach to Cross-Sector Human Resources Development.

Infrastructure & Technology, 84 BTS towers have been built (51 on islands, 33 on the mainland), and there are 241 free internet access points at public facilities. However, there are still 122 blank spot areas that need attention. Challenges: fiber optic disruptions, dependence on cable infrastructure. Solutions: Indonesia One Data Portal and BAKTI Kominfo collaboration. Service Efficiency, Significant impact, service times reduced from days to hours, faster document verification, automated processing of permits and population administration. Public response is mixed: positive regarding speed and transparency, challenges with digital literacy and infrastructure access. Human Resources & Organizational Culture, Civil servant readiness has increased through SPBE Workshops, Digital Talent Scholarship, and various technical trainings. High participation in capacity development programs.

Challenges: resistance from senior civil servants, uneven digital literacy, hierarchical culture, and unstable networks that hinder digital consistency. Obstacles & Solutions, Main issues: uneven infrastructure, low HR competence,

suboptimal coordination between government agencies, disparities in technology access across institutions. Solutions: collaborate with ISPs, regular workshops, SPBE Coordination Team, data integration standardization, and university collaboration.

Stakeholder Collaboration, Comprehensive cooperation: public digital literacy, ISP synergy for networks, corporate CSR, university collaboration (ITS, Unsimar, Untad). Special programs: Digital Talent Scholarship, Community Information Hub, e-maimo reading app, and digital feedback via SP4N-Lapor. Evaluation & Projection, Combined national-internal evaluation, consistent improvement of the SPBE Index. Targets 2024-2026: strengthening the foundation. Targets 2027-2034: 'Super App ToUna' and AI-based smart governance. Vision: digital equity, integrated services, national cybersecurity, and becoming a model for digital archipelago regions in Eastern Indonesia.

SWOT Analysis of Digital Transformation Strategy in Improving Public Service Efficiency: A Study on the Implementation of Smart Governance in Tojo Una-Una Regency

A. Strengths

1. Commitment of Local Government
   a) Policy support from local leaders for service modernization
   b) Special budget allocation for information technology development
   c) Organizational structure that supports digital innovation

2. Human Resource Potential
   a) Availability of young officials who are adaptive to technology
   b) Ongoing training programs to improve digital skills
   c) Collaboration with local educational institutions

B. Weaknesses

1. Technology Infrastructure Limitations
   a) Internet connectivity that is not yet evenly distributed across all areas
   b) Legacy systems that are still used in some agencies
   c) Cybersecurity that is not yet optimal

2. Digital HR Capacity
   a) Information technology competency gaps among senior staff
   b) Resistance to change from some employees
   c) Lack of internal IT specialists

C. Opportunities

1. National Policy Support
   a) One Data Indonesia program for government data integration
   b) Making Indonesia 4.0 initiative that encourages digitalization
   c) Technical assistance and funding from the central government

2. Technology Development
   a) Advances in cloud computing that reduce infrastructure costs
   b) Mobile-first solutions that match people's behavior
   c) Artificial Intelligence for automated processes

D. Threat
1. Digital Gap
   a) Differences in access to technology between urban and rural areas
   b) Varying levels of digital literacy among the population
   c) Economic disparities affecting the use of technology

2. Security and Privacy Risks
   a) Threats of cyber attacks on government systems
   b) Public concerns about personal data protection
   c) Potential information

(Internal Factor Analysis Summary) dan EFAS (External Factor Analysis Summary)

Table 1: IFAS (Summary of Internal Factor Analysis)

Internal Factors	Weight	Peringkat	Shoes
STRENGTHS			
1. Local Government Commitment	2.		
a) Policy support from regional heads for service modernization	0.12	4	0.48
b) Special budget allocation for information technology development	0.10	3	0.30
c) Organizational structure that supports digital innovation	0,08	3	0.24
2. Human Resources Potential	3.		
a) The availability of young apparatus that is adaptive to technology	0,09	4	0.36
b) Continuous training program for digital competency enhancement	0,08	3	0.24
c) Collaboration with local educational institutions	0,07	3	0.21
Subtotal Strength	0,54		1.83
WEAKNESSES			
1. Limitations of Technology Infrastructure	2.		
a) Uneven internet connectivity throughout the region	0.11	1	0.11
b) Legacy system that is still used in several agencies	0,09	2	0.18
c) Cyber security that is not optimal	0,08	1	0,08
2. Digital HR Capacity	3.		
a) IT competency gap among senior officials	0,09	1	0,09
b) Resistance to change from some employees	0,06	2	0.12

Internal Factors	Weight	Peringkat	Shoes
c) Lack of in-house IT specialists	0,03	1	0,03
Subtotal Disadvantages	0.46		0.61
TOTAL IFAS	1.00		2.44

Source: Author's Processing, 2025

Table 2: Efas (Summary of External Factor Analysis)

External Factors	Weight	Peringkat	Shoes
OPPORTUNITIES (PELUANG)			
1. National Policy Support	2.		
a) One Data Indonesia program for government data integration	0.13	4	0,52
b) The Making Indonesia 4.0 initiative that encourages digitalization	0.11	4	0.44
c) Technical assistance and funding from the central government	0.10	3	0.30
2. Technological Developments	3.		
a) Advances in cloud computing that reduce infrastructure costs	0,09	4	0.36
b) Mobile-first solutions that are in line with people's behaviors	0,08	3	0.24
c) Artificial Intelligence for automated processes	0,07	3	0.21
Subtotal Odds	0,58		2.07
THREATS			
1. The Digital Divide	2.		
a) Differences in technology access between urban and rural areas	0.12	2	0.24
b) Varying levels of digital literacy of the community	0.10	2	0.20
c) Economic inequality that affects the application of technology	0,08	2	0.16
2. Security and Privacy Risks	3.		
a) The threat of cyber attacks on government systems	0,07	1	0,07
b) Public concerns about the protection of personal data	0,03	2	0,06
c) Potential coverage of information	0,02	1	0,02
Subtotal Threat	0.42		0,75
NUMBER OF EFAS	1.00		2.82

Source: Author's Compilation, 2025

Interpretation of Analysis Results Based on the Author's Translation

1. Recap of IFAS and EFAS Scores
   - Total IFAS (Internal Factor Analysis Summary) = 2.44
   - TotaL EFAS (External Factor Analysis Summary) = 2.82

2. Calculation Formula (SWOT Quadrant)

In quantitative SWOT analysis, we usually use the Internal-External Matrix (IE Matrix) or the SWOT Diagram (X–Y Coordinates) with the formula:

- X Axis (Internal):
  X = Skor IFAS – 2.5
- Y-Axis (External):
  Y = Skor EFAS – 2.5

Interpretation:

- Midpoint = 2.5 (as a neutral line).
- If > 2.5 → strong/positive, if < 2.5 → weak/negative.

3. Coordinate Calculation

- X (IFAS) = 2.44 – 2.5 = –0.06 → slightly below average (relatively weak internally).
- Y (EFAS) = 2.82 – 2.5 = +0.32 → above average (relatively strong externally, lots of opportunities). Coordinates (X,Y) = (–0.06 , +0.32)

Here is a visualization of its strategic position: SWOT Analysis Matrix Based on IFAS and EFAS

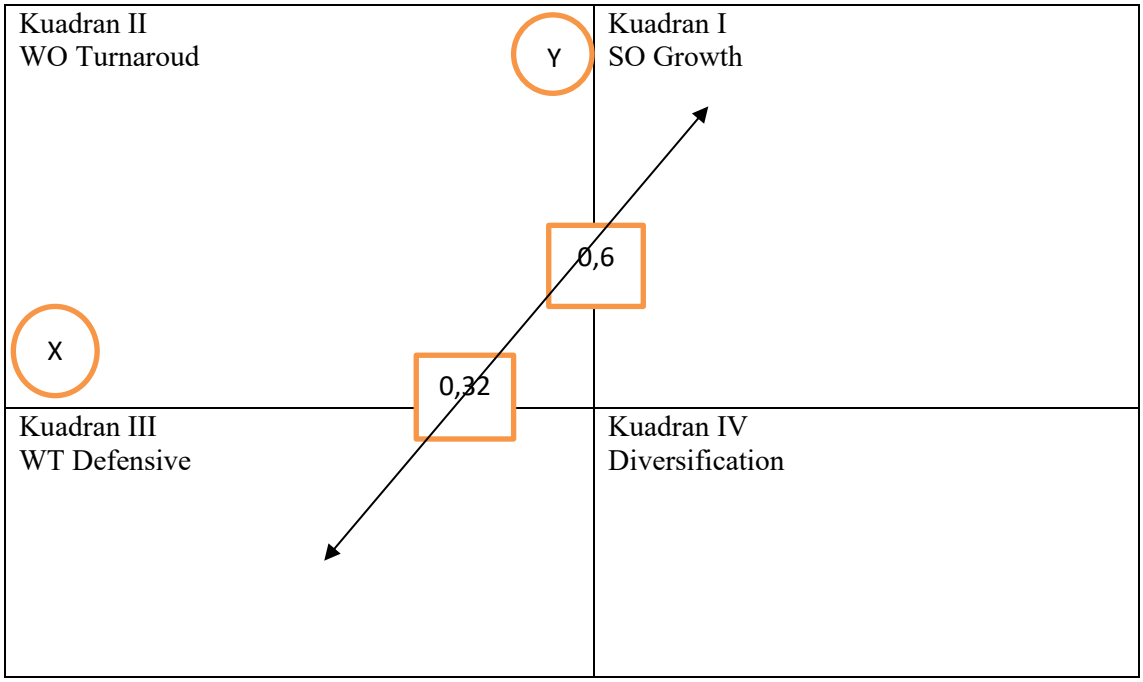


Figure 3: Visualization of Strategic Position
Source: Author's compilation, 2025

Recommended Strategies to Use

Based on the IFAS (2.44) and EFAS (2.82) results, here are the strategic recommendations based on the organization being in Quadrant II, which means internal factors still have weaknesses, but external opportunities are wide open.

The relevant strategy is to take advantage of external opportunities to cover and improve internal weaknesses. Here are the recommendations:

1. Modernizing Digital Infrastructure with Central Support

Limitations in technology infrastructure (uneven internet access, legacy systems, and weak cybersecurity) can be addressed by leveraging national policy support. Local governments should actively collaborate with programs like One Data Indonesia and Making Indonesia 4.0, so that infrastructure modernization needs can be included in national priorities. This step not only fixes old systems but also builds a stronger cybersecurity foundation.

2. Investment in Developing Human Resource Competence in the Apparatus

The gap in competence between young, tech-savvy staff and senior staff who resist technology is a critical issue. Opportunities from central funding and collaboration with local educational institutions can serve as a basis for specialized training programs. The approach isn't just technical (IT skills), but also managerial and digital work culture, so resistance to change can be reduced..

3. Optimizing New Technology for Efficiency

The rise of cloud computing, mobile-first solutions, and artificial intelligence is a real opportunity. Local governments can use these to cut infrastructure costs while boosting the quality of public services. For example, mobile-based apps can be developed for administrative services, while AI can help automate processes like population data management.

4. Community Digital Literacy Program

The digital divide in society (urban vs rural) can be tackled by linking digitalization policies with social inclusion programs. Local governments need to set up community digital schools or village digital literacy centers, making use of collaborations with local universities. This way, digitalization isn’t just a bureaucratic agenda, but also becomes a movement that involves the whole community.

5. Triple Helix Collaboration

Strengthening the digital ecosystem can't be done alone. The right strategy is to build multi-stakeholder partnerships (government–universities–industry/communities). Universities can provide research and IT experts, industry delivers technology and funding, while the government acts as both regulator and facilitator. This synergy will speed up digital transformation while also addressing internal weaknesses like a lack of IT specialists.

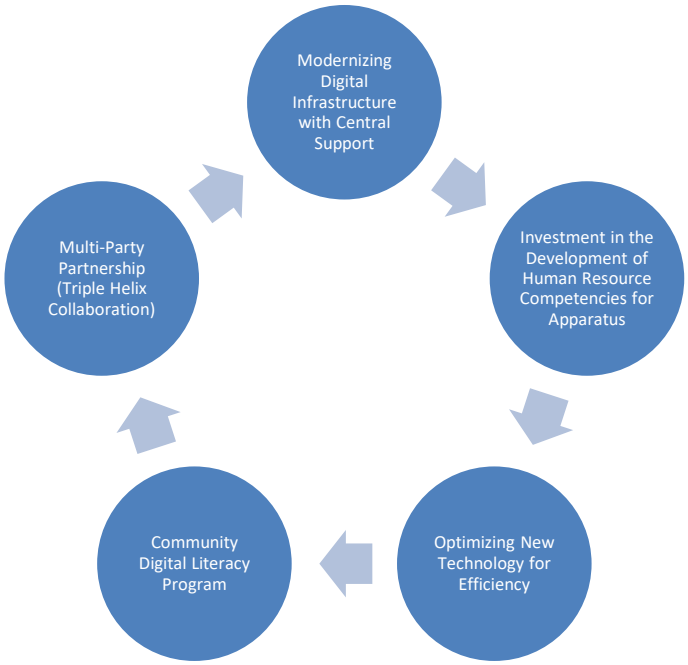


Figure 4: Strategic Recommendations
Source: Author's processing, 2025

CONCLUSIONS AND RECOMMENDATIONS

Based on the IFAS score (2.44) and EFAS score (2.82), the organization is in Quadrant II (WO Strategy/Turnaround) in the SWOT matrix. This shows that internally, the organization still faces weaknesses, especially in terms of limited technology infrastructure, gaps in digital HR skills, and suboptimal cybersecurity. However, external factors offer significant opportunities, such as support from national policies (One Data Indonesia, Making Indonesia 4.0), advances in new technologies (cloud computing, mobile-first, AI), and funding assistance from the central government.

So, the organization's current strategic condition can be summed up as follows:

1. Internally, it's relatively weak, so it's not strong enough to drive digital transformation on its own.
2. Externally, it's relatively strong, providing big opportunities to speed up digital-based public service modernization.
3. The right strategy is to use external opportunities to cover internal weaknesses, so the digital transformation process can run more effectively and sustainably.

FURTHER STUDY

This study still has limitations, so further research on Digital Transformation Strategy in Improving Public Service Efficiency: A Study on the Implementation of Smart Governance in Tojo Una-Una Regency, Indonesia is needed to refine this study and enhance the insights of readers and the authors.

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