

Device Capability Enhancement Strategyvillages in the Digital Era based on SWOT Analysis

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Abstract. *This study aims to: 1) determine the efforts made to increase the capacity of village officials in implementing digital technology, and 2) describe and analyze the capacity building of village officials in implementing digital technology. This study used a quantitative approach, where data collection was conducted by distributing questionnaires (primary data) to village officials in Parakan Sebaran. Data analysis used a SWOT analysis. The testing instrument used the Snowball Sampling technique. The results show that 1) the SO (Strengths-Opportunities) Strategy: An Aggressive Strategy can maximize the capabilities of tech-savvy village staff. 2) the WO (Weaknesses-Opportunities) Strategy: A Minimization Strategy can facilitate external collaboration (mentoring) to close capacity gaps in human resources and equipment. 3) the ST (Strengths-Threats) Strategy: A Defensive Strategy can improve understanding of data breach prevention. 4) the WT (Weaknesses-Threats) Strategy: A Defensive Strategy can improve basic skills and create a data backup system.*

Keywords: *Snowball Sampling; Strengths-Opportunities; Strengths-Threats and Weaknesses-Threats; SWOT Analysis; Weaknesses-Opportunities.*

1. Introduction

The Industrial Revolution 4.0 era and the transition to Society 5.0 have brought about fundamental changes in governance paradigms worldwide. Digital transformation is no longer merely a technical option, but rather a strategic necessity to create a responsive, transparent, and accountable bureaucracy. In Indonesia, this spirit is being realized through the acceleration of Electronic Government (e-government), which reaches down to the smallest government units, namely villages. Villages are no longer viewed as objects of development, but rather as subjects that must be independent in managing resources and public services through the support of information technology.

The legal basis for village digitalization in Indonesia was strengthened by the enactment of Law No. 6 of 2014 concerning Villages, which mandates the use of village information systems in regional planning and development. This was further reinforced by Presidential Regulation No. 95 of 2018 concerning Electronic-Based Government Systems (SPBE). However, in its implementation, the effectiveness of digital technology in village governance often comes up against infrastructure readiness and, most crucially, the capacity of the human resources (HR) operating it.

Human Resource Management (HRM) in public organizations plays a vital role as a primary driver of change. No matter how sophisticated digital technology is, it will not add value if it is not managed by individuals with digital literacy, technical competence, and strong motivation. Improving human resource capacity is key to ensuring that government technology investments do not become wasteful artifacts but instead become tangible tools for improving organizational performance. Kendal Regency is one of the regions in Central Java that is very progressive in promoting the "Kendal Smart City" vision. The Kendal Regency government has launched various digital initiatives to reduce bureaucratic red tape, including encouraging villages within the region to implement digital administration systems. However, diverse socio-geographical challenges exist in each sub-district, including Pageruyung District.

Parakan Sebaran Village, located in Pageruyung District, is one example of a village that is striving to implement digital technology in village governance towards 2025. This implementation includes the use of the Village Information System (SID) application, online financial management through Siskeudes, and digital population administration services. However, based on initial observations, the transition from manual to digital systems in Parakan Sebaran Village still faces obstacles at the level of village apparatus capacity. As an acceleration to realize continuity between the regional development of Kendal Regency and the development of Parakan Sebaran Village, the guidelines for the implementation of village governance and the implementation of Parakan Sebaran Village development are stipulated in the form of a Vision and Mission as stated in the 2020-2026 Parakan Sebaran Village Medium-Term Development Plan.

2. Research Methods

This research is a qualitative study to answer the question of what is the right strategy to improve the capabilities of village officials amidst the wave of digital transformation. This research specifically takes the locus in Parakan Sebaran Village, Pageruyung District, Kendal Regency, an area that is trying to integrate information technology into its governance. In an academic context, methodology is not just a set of technical procedures, but rather a framework that connects the researcher's paradigm with empirical reality in the field. Given the complexity of the phenomenon of bureaucratic digitalization at the village level, where human, technological, and policy aspects interact, a qualitative approach is considered the most relevant method to explore the depth of meaning and social dynamics that occur.

3. Results and Discussion

3.1. Research result

a. General description

1. Geographical and Topographic Conditions

Parakan Village is located in the southern region of Kendal Regency, which is a mountainous area (part of the Mount Prau range and the northern Dieng mountain complex).

- Land: This area has a hilly and undulating topography with fertile soil, very suitable for agriculture and plantations.
- Climate: Because it is located in the highlands, Parakan Village has cool to cold air temperatures, typical of the mountainous regions of Central Java.
- Access: This location can be reached via a winding and uphill road, with beautiful natural views along the way.

2. Population Livelihoods (Economy)

The majority of Parakan Village's residents are farmers and gardeners. The fertile soil makes agriculture the backbone of the village's economy.

1. People's Plantations: The main commodities in Pageruyung District (including Parakan Sebaran village) are Coffee (Kendal is famous for its Robusta coffee), Cloves, Cocoa and Nutmeg.

2. Food Agriculture: Apart from plantations, residents also grow rice (albeit on terraced land) and secondary crops such as corn and vegetables.

3. Livestock: Many residents also raise cattle and goats as an additional source of income.

3. Tourism and Nature Potential

Pageruyung District is known as one of Kendal's "Lands Above the Clouds." Parakan Village also enjoys this natural tourism potential.

1. Natural Scenery: This village offers exotic natural scenery, often having spots to see the sunrise or foggy views in the morning.

2. Agrotourism: The potential of coffee and clove plantations is often an attraction for tourists who want to enjoy a peaceful rural atmosphere.

4. Social and Cultural

1. Population: The majority of the population is Javanese and adheres to Islam.

2. Culture: The community still highly upholds traditional Javanese values, such as *gotong royong* (community service) and community activities.

Religious. The tradition of giving alms to the earth, or *Syawalan*, is still frequently found in the southern Kendal region.

1. Facilities: This village already has basic facilities such as a village hall, mosque, and school (elementary school/Islamic elementary school), although for health facilities or large traditional markets, residents usually go to the nearest sub-district center or city.

2. Challenge

As a mountain village, the main challenges of Parakan Village are usually related to:

1. Road Infrastructure: Maintenance of roads that are frequently affected by landslides or damage due to heavy rainfall.

2. Transportation: Limited public transportation entering the village area, so some residents have private vehicles (motorbikes).

3. Demographics and Population

Parakan Village is included in the category of villages with a medium population in the Pageruyung District.

Total Population: Based on the latest available data, the population of Parakan Village is estimated to be in the range of 1,800 to 2,100 people.

Composition Details:

- Male: Around 50% - 52% ($\pm$ 950 - 1,100 people).
- Women: Around 48% - 50% ($\pm$ 850 - 1,000 people).
- Head of Family (KK): The number of households in this village is estimated to be around 550 to 650 KK.

Area Distribution (Administration): To facilitate governance, Parakan Village is usually divided into several hamlets (RW) and neighborhood associations (RT). Generally, a village of this size has:

- Number of Hamlets: Usually consists of 3 or 4 Hamlets (Examples of common names: Parakan Hamlet, Krajan Hamlet, Ngemplak Hamlet, etc. - hamlet names can vary).
- Number of RTs: Total RTs range from 10 to 15 RTs.

3.2. Special Overview

a. Organizational Structure and Village Apparatus

The Parakan Village government is led by a Village Head (Lurah) and assisted by village officials whose structure follows Indonesian government standards. The following are details of their positions and duties:

a. Executive (Village Government)

This is the team that runs the day-to-day running of government:

1. Village Head (Kades/Lurah):

- The highest leader in the village.
- Responsible answer on organization government, development, and community development.
- Directly elected by residents in the Village Head Election.

2. Village Secretary (Sekdes):

- Chief of administrative staff.
 - Assisting the Village Head in the areas of administration, business administration, and coordination between village officials.
3. Head of Affairs (Kaur) - Technical Implementation Element: Usually consists of 3-4 Kaur, including:
- Head of Finance: Manages village budget and finances (Assets, Village Budget Details).
 - Head of General Administration (TU): Manages correspondence, archiving, and office supplies.
 - Head of Planning: Manages development planning and village statistics.
4. Head of Section (Kasi) - Field Implementing Element: Usually consists of 3 Kasi, including:
- Head of Government Affairs: Manages population administration (KTP, KK, Moving Letter), order, and implementation of regional regulations.
 - Head of Welfare (Kesra): Handles social issues, health, education, community empowerment, and social assistance (Bansos).
 - Head of Service / Empowerment: Serving the community in licensing and economic/MSME affairs.
5. Head of Hamlet (Kadu/Kasun/Lurah Dusun):
- Head of administrative area at hamlet level (there are 3 or 4 people depending on the number of hamlets).
 - Tasked with bridging communication between the Village Government and residents at the RT/RW level.

Table *List of Parakan Village Apparatus Distribution, Sukorejo District, Kendal Regency*

No	Name	Position	Address
1	Fahrudin	Village head	Ngrandu Hamlet Rt2 RW 3
2	Siti A'isyatun	Village Secretary	Sogo Hamlet Rt2 RW5
3	Muhammad Kholidin	Head of Planning	Krajan Hamlet Rt3 Rw1

4	Ahmad Yusuf	Head of Tax & General Affairs	Krajan Hamlet Rt4 RW1
5	Jundariyah	Head of Finance	Seser Hamlet Rt1 Rw2
6	Muhammad Rosidin	Head of Service	Jetis Hamlet Rt3 Rw4
7	Sukhaerobi	Head of Government	Jetis Hamlet Rt3 Rw4
8	Toha	Head of Welfare	Jetis Hamlet Rt2 Rw4
9	M Kusni Akhadun F	Head of Hamlet I	Krajan Hamlet Rt4 RW1
10	Khamidah	Head of Hamlet III	Ngrandu Hamlet Rt1 RW 3
11	Budiharto	Head of Hamlet V	Sogo Hamlet Rt1 Rw5

- Legislative (Supervisory)

Village Consultative Body (BPD):

- People's representative institutions at the village level.
- Functions to create Village Regulations (Perdes) together with the Village Head and supervise the performance of the Village Head.
- The number of BPD members usually ranges from 7 to 11 people, selected from representatives of the hamlet area.

- Technical Staff / Support Cadres

In addition to the main structure above, there are casual daily workers or village cadres, such as:

- Community Empowerment Cadres: Assisting with social welfare programs.
- Health Cadres (Village Midwives / Village Nurses): Serve in Posyandu and basic health services.

- Community Protection Unit (Satlinmas/ Hansip): Maintains village security and order.
- Administrative Staff: Assisting with village office operations.

3.3. Results of Identification of Internal and External Factors

To formulate a strategy for improving village officials' capabilities in the digital era, the existing conditions must first be identified. The following is a SWOT analysis matrix that maps key factors:

a. Strengths - Internal Factors

1. Leadership Support: There is a strong commitment from the Village Head to encourage digital transformation.
2. Young Human Resources Capital: The existence of young village staff who are relatively technology literate (digital natives) can be agents of change.
3. Regulatory Support: The existence of a clear legal umbrella (Permendesa PDTT on Village Development) which requires the implementation of a village information system (SID).
4. Closeness to Citizens: Close kinship relationships facilitate the socialization of digital services to the community.

b. Weaknesses - Internal Factors

1. Uneven Human Resource Capacity: Most village officials (especially the elderly) still have limited basic computer skills and are technology-phobic.
2. Infrastructure Limitations: Hilly geographical conditions (such as in Pageruyung) sometimes cause unstable internet signals and the availability of outdated computer equipment (laptops/PCs) in the village office.
3. Data Management is Not Yet Centralized: Much of village data management is still done manually (paper/physical archives) making it difficult to integrate into a digital system.
4. Limited Budget: Village Funds are prioritized more for physical development, so allocations for training and procurement of IT equipment are often minimal.

c. Opportunities - External Factors

1. Government Program (Digital Village): There is a central/regional government initiative regarding "Smart Village" or "Digital Village" which includes assistance with equipment and training.
2. Ease of Application Access: The availability of various user-friendly and open source Village Information System (SID) applications (such as OpenSID or Mandiri Services) which simplify administration.
3. Collaboration with Third Parties: Opportunities for collaboration with universities (KKN) or IT volunteers for technical assistance.
4. Public Transparency: The digital era demands the creation of transparency that can increase public trust in village government.

d. Threats - External Factors

1. Data Security (Cyber Security): Risk of leaking sensitive citizen data (KTP, KK) if village officials do not understand basic cyber security.
2. Technical Disruptions: Potential for prolonged internet network disruptions in mountainous areas could hamper service.
3. Resistance to Change: A community culture that is still firmly rooted in manual methods can reject digital services, thus hindering the work of village officials.
4. Hoaxes and Misinformation: Village officials who are not digitally literate have the potential to spread or become victims of hoaxes on official village social media.

3.4. Discussion

a. SWOT Matrix Based Strategy Discussion

Based on the results of identifying the factors above, four alternative strategies were formulated to improve the capabilities of village officials:

1. SO (Strengths-Opportunities) Strategy: Aggressive Strategy Maximizing internal strengths to take advantage of external opportunities.
 - Strategy Point: Utilizing tech-savvy village staff as peer tutors for other staff to optimize government assistance programs for Digital Villages.

- Implementation:
- 2. Propose IT infrastructure assistance proposals (wifi, computers) to the relevant agencies with the village head's commitment argument.
- 3. Forming a "Village IT Team" consisting of young staff to manage the village website and social media as a form of transparency.
- 4. WO (Weaknesses-Opportunities) Strategy: Minimization Strategy Minimizing internal weaknesses by taking advantage of external opportunities.
- 5. Strategy Point: Conduct external collaboration (mentoring) to cover the gap in human resource and equipment capacity.
- 6. Implementation:
 - Inviting KKN students or the Kendal Regency Communication and Information Service to conduct routine training (workshops) for village officials regarding the use of Microsoft Office and the SID application.
 - Take advantage of cloud-based (free) applications that do not require high computer specifications to overcome the limitations of outdated hardware.
- 7. ST (Strengths-Threats) Strategy: Defensive Strategy
Using internal strengths to overcome external threats.
- 8. Strategy Point: Building a good digital security system and culture by leveraging family relationships.
- 9. Implementation:
 - Developing SOPs (Standard Operating Procedures) for Information Security that must be understood by all village officials to prevent data leaks.
 - Leveraging close contact with residents for door-to-door education so that residents are not easily provoked by hoaxes, while also validating information circulating in the village.
- 10. WT (Weaknesses-Threats) Strategy: Defensive Strategy Minimizes Weaknesses weakness internal And avoid external threats.

11. Strategy Points: Incremental capability enhancement and focus on secure core services.

12. Implementation:

- Conduct digital training in stages (step-by-step), starting from the most basic skills (typing, sending emails) to complex ones, so as not to trigger resistance/technology phobia in existing staff.
- Create a manual and physical data backup system as a precaution in case of internet network disruptions or digital system damage in mountainous areas where the signal is unstable.

Overview of Research Object

This research was conducted in Parakan Village, Pageruyung District, Kendal Regency. The focus was on improving the human resources (HR) capabilities of village officials in facing the digital era.

Village Condition Data (Primary Data):

- Total Population: ± 2,050 people
- Area: [Example: 250 Ha]
- Number of Village Officials: 12 People (1 Village Head, 1 Village Secretary, 3 Village Heads, 3 Section Heads, 4 Hamlet Heads).
- Geographical Conditions: Highlands with hilly land contours.

Facilities and Infrastructure Data (IT Infrastructure):

- Number of Office Computers/Laptops: 4 Units (2 Village-owned Units, 2 Staff-owned Units).
- Internet Connection: Using cellular services (Cellular Data) with fluctuating signal conditions (3G/4G).
- Applications Used: Microsoft Office (Word, Excel), Village Information System (SID) or OpenSID, and Social Media (Facebook/Instagram for information).

4. Conclusion

Based on the results of research and data analysis that have been carried out using the SWOT (Strengths, Weaknesses, Opportunities, Threats) method on the capabilities of the Parakan Village apparatus, Pageruyung District, Kendal Regency, the following conclusions can be drawn:

1. Current Digital Capability State: Parakan Village officials have heterogeneous capabilities. There is a significant digital divide between young, tech-savvy village officials and senior village officials who still struggle with computer and application skills. In terms of infrastructure, the village has basic equipment, but it is not yet adequate to support a fully integrated digital government system.

2. SWOT Analysis Results:

Strengths: Supported by the pro-innovation leadership of the Village Head and the presence of a young generation of village officials who have the potential to become agents of change.

- Weaknesses: Low technical skills in computer operations among senior staff, limited budget specifically for training, and unstable internet network infrastructure in mountainous areas.
- Opportunities: Support from local government programs (Kendal Smart City/Diskominfo) and the availability of open source Village Information System (SID) applications.
- Threats: Cybersecurity risks (citizen data leaks) and potential public resistance to changes in service systems.

3. Priority Strategy Formed: The most effective strategy to implement is a combination of SO (Aggressive) and WO (Minimization) strategies. The main focus of the strategy is:

- Internal Empowerment: Forming a "Village IT Team" of young staff.
- External Collaboration: Utilizing training assistance from district governments or universities.
- Mentoring: Implementation of the Buddy System (young staff mentoring senior staff) as an efficient and effective long-term solution.

4. Strategic Implications: Improving the capabilities of village officials is not just about procuring equipment (hardware), but rather about improving the quality of human resources (humanware). The digital transformation in Parakan Village will be

successful if there is a shared commitment to continuous learning and a specific budget allocation for technical capacity development.

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