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Strategies for Enhancing Human Resource Capacity to Support Digital Transformation in Pejala Village, Penajam District, Penajam Paser Utara Regency, East Kalimantan

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ABSTRACT

This study aims to describe strategies for enhancing human resource (HR) capacity in supporting digital transformation, as well as to identify the obstacles and challenges encountered in its implementation in Pejala Village, Penajam District, Penajam Paser Utara Regency. The research was conducted at the Pejala Village Office using a descriptive qualitative approach. Data were collected through interviews, observation, and documentation, and were then analyzed thematically to obtain an in-depth understanding of the phenomenon under study. The findings reveal that strategies to enhance HR capacity were carried out through training, technical guidance, performance evaluation, utilization of digital applications, and support from the Department of Communication and Informatics. These efforts not only strengthened the skills of local officials but also encouraged the integration of digital-based public service systems that are faster, more efficient, and more accurate. However, several challenges remain, including limited competence of officials in operating technology, unstable internet networks, limited digital devices, low digital literacy among the community, and restricted village office budgets. These findings indicate that although digital transformation in Pejala Village has begun to progress well, the process still requires more targeted policy strengthening, adequate technological infrastructure provision, and continuous training based on the needs of local officials. Thus, digital transformation at the village level has the potential to support the improvement of public service quality to be more responsive, transparent, and accountable.

1. Introduction

Digital transformation in the public sector has become an inevitable consequence of rapid advancements in information technology in the era of the Fourth Industrial Revolution. Governments across the world are required to become more responsive, efficient, transparent, and adaptive in delivering public services. Digitalization is not merely related to technological changes, but also involves organizational culture, institutional restructuring, and data-driven decision-making processes (Margetts & Dunleavy, 2015). In many developing countries, including Indonesia, digital governance has become a strategic agenda to improve the quality of public administration and strengthen accountability in public service delivery.

The Government of Indonesia has responded to these global developments through the implementation of the Electronic-Based Government System (SPBE), as stipulated in Presidential Regulation No. 95 of 2018. This policy encourages the integration of administrative systems and public services through digital platforms at all levels of government, including regional and village administrations. The implementation of SPBE is expected to improve efficiency, transparency, and accessibility of public services while reducing bureaucratic complexity. In this context, villages play a crucial role because village governments represent the frontline of public service delivery, particularly in population administration, financial management, and social services. Therefore, digital transformation at the village level is essential to support equitable governance modernization across

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Indonesia.

Previous studies have emphasized that the success of digital transformation in the public sector is strongly influenced by organizational readiness and human resource (HR) capacity. According to Ghamdi et al. (2019), the competence of local government officials is a key determinant in ensuring that digitalization can be implemented effectively and sustainably. Similarly, several studies on e-government implementation indicate that technological infrastructure alone is insufficient without adequate digital literacy, technical skills, organizational commitment, and continuous training among government personnel. This implies that human resources are central actors in determining whether digital governance initiatives can achieve their intended objectives.

Despite increasing attention to digital governance, existing literature predominantly focuses on digital transformation at the national, provincial, or urban government levels, while limited studies specifically examine village-level digital transformation, particularly in rural areas of Indonesia. Previous research has largely concentrated on technological adoption, e-government systems, and infrastructure readiness, whereas the strategic role of HR capacity development in supporting sustainable digital transformation at the village level remains underexplored. In addition, many studies tend to analyze digital transformation from a technological perspective without adequately addressing socio-organizational challenges such as unequal technological competence, limited training opportunities, and resistance to change among village officials. This indicates a significant research gap regarding how village administrations can strategically strengthen human resource capacity to support digital governance implementation in rural contexts.

The local context of this study is Pejala Village, located in Penajam District, Penajam Paser Utara Regency. Pejala Village is currently making efforts to adopt digital-based governance systems as part of broader public sector digitalization initiatives. Although the village already possesses supporting hardware and software, the implementation process remains limited due to several challenges, including unequal distribution of device usage, lack of technical training, low levels of digital literacy among village officials, and unstable internet connectivity. These conditions demonstrate a gap between the availability of technological infrastructure and the readiness of human resources to utilize digital systems effectively. Consequently, digital transformation in Pejala Village cannot be viewed solely as a technological issue but must also be understood as a human resource and organizational capacity issue.

Based on the background and research gap identified above, the research problem in this study focuses on how human resource capacity can be strengthened to support digital transformation in village governance and what challenges hinder the implementation process in Pejala Village. This problem is important because inadequate HR readiness may reduce the effectiveness of digital governance programs and limit the achievement of efficient public service delivery at the village level.

Accordingly, this study aims to analyze strategies for enhancing human resource capacity in supporting digital transformation in Pejala Village and to identify the obstacles and challenges encountered during the implementation process. The study also seeks to understand how village governments can optimize available resources to improve digital governance practices in rural administrative settings.

Theoretically, this study contributes to the literature on digital governance and public sector transformation by emphasizing the importance of human resource readiness as a critical determinant of successful digital transformation at the village level. The study enriches existing discussions on e-government implementation by integrating technological and organizational perspectives within the context of rural governance. Practically, the findings are expected to provide strategic recommendations for policymakers, village governments, and local stakeholders regarding effective approaches to strengthening HR capacity for digital transformation. Furthermore, the study is expected to serve as a best practice model not only for Pejala Village but also for other villages in Penajam Paser Utara Regency and similar rural regions across Indonesia. The novelty of this study lies in its specific focus on HR capacity enhancement strategies in supporting village-level digital transformation within a rural governance context, which remains relatively underexplored in

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previous studies.

2. Literature Review

2.1 Conceptual and Theoretical Foundations

2.1.1 Concept of Human Resource Capacity Building Strategy in Supporting Digital Transformation

Digital transformation in the public sector is a consequence of the rapid development of information technology in the era of the Fourth Industrial Revolution. In Indonesia, the Electronic-Based Government System (SPBE) policy, as stipulated in Presidential Regulation No. 95 of 2018, emphasizes the need for a bureaucracy that is effective, transparent, and accountable. However, the success of digitalization implementation is determined not only by infrastructure, but also by the capacity of human resources (HR) who operate and sustain the system.

Based on the theory of Digital-Era Governance (Dunleavy & Margetts) and the capacity building framework (UNDP), enhancing HR capacity must cover technical, managerial, cultural, and institutional dimensions. Public officials are expected not only to be able to operate applications, but also to manage organizational change, adapt to new working patterns, and foster a digital work culture.

The strategies that can be adopted include: first, strengthening technical competencies through training on e-office applications, SIPD, and data literacy. Second, enhancing managerial competencies among local leaders to promote an innovative culture and manage resistance to change. Third, strengthening socio-cultural competencies, such as community digital literacy and ethical use of technology. Fourth, providing adequate infrastructure, including equitable hardware distribution, stable internet networks, and system maintenance. Fifth, ensuring regulatory and policy support through digital SOPs, integration with SPBE, and dedicated budget allocation.

The implementation of these strategies involves: (1) capacity needs assessment to identify competency gaps; (2) planning and conducting need-based training programs; (3) providing on-the-job mentoring for staff; (4) conducting regular evaluations of digital performance; (5) strengthening budgets and infrastructure; and (6) building a digital work culture through rewards, learning communities, and the integration of transparency values.

With well-directed and sustainable strategies, digital transformation at the village administrative level, such as in Pejala Village, can be more effectively realized. These efforts not only improve the skills of public officials but also encourage the delivery of public services that are more responsive, efficient, and accountable, while potentially serving as a model of best practice for other local governments in Indonesia.

2.1.2 Strategy

The concept of strategy in enhancing human resource (HR) capacity to support digital transformation emphasizes the alignment of organizational goals with the capabilities of its personnel. According to Chandler (1962), strategy is the determination of long-term goals and objectives, accompanied by the allocation of resources necessary to achieve them. In the context of public administration, Dunleavy and Margetts' theory of Digital-Era Governance highlights that digital transformation requires not only technological innovation but also organizational adaptation and new forms of workforce competence. Furthermore, the UNDP's framework on capacity building underscores three interrelated dimensions—individual, institutional, and systemic—that must be developed simultaneously to ensure sustainable change.

Previous studies, such as Ghamdi et al. (2019), emphasize that the failure of digital initiatives often stems not from technological limitations but from the lack of digital skills and readiness among staff. Similarly, Dwivedi et al. (2021) argue that human resource development, including digital literacy, leadership, and cultural adaptation, is a critical determinant of successful e-government. Therefore, the strategy of capacity building must integrate technical training, managerial strengthening, and cultural transformation within the bureaucracy. In the case of local governments like Kelurahan Pejala, such strategies not only equip officials with digital competencies but also foster responsive, transparent, and accountable governance, in line with Indonesia's SPBE policy.

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2.1.3 Organizational Capacity Theory

Capacity can be understood as the potential or capability of an organization or institution in managing strategic aspects to achieve predetermined results. According to Morgan (in Milen, 2006), capacity encompasses elements such as competence, attitudes, behavior, values, motivation, resources, as well as conditions that support individuals, sectors, and broader organizational systems in carrying out their roles to realize development goals.

Furthermore, the United Nations Development Programme (UNDP) in Milen (2006:15) explains that capacity development is a process of enhancing the abilities of individuals, groups, organizations, institutions, and communities. This process aims at two main objectives: first, to improve performance in executing core functions, solving problems, and designing and achieving strategic goals; and second, to respond to and meet broader development needs in sustainable ways.

In essence, an organization operates based on two main approaches: the logic of consequence and the logic of appropriateness (March & Olsen, in Irawan, 2016). The logic of consequence focuses on actions taken to achieve certain objectives, with the organization viewed as an instrument utilized by its leaders to meet specific targets (Christensen et al., in Irawan, 2016). This approach is often applied because it reflects practices proven successful in the past or aligns with current environmental conditions. Within this framework, the organization serves as a rational vehicle for implementing activities aimed at fulfilling its core mission. This mission acts as a guide in defining additional tasks and functions, while also serving as a reminder when the organization deviates from its primary path.

Conversely, the logic of appropriateness emphasizes the relationship between the organization and its external environment within an institutional framework. Organizations strive to understand their operational domain, boundaries of authority, and legitimacy (Scott, in Irawan, 2016). In this perspective, organizations adjust their goals and capacities to align with external demands. Vision becomes the strategic compass that illustrates the desired future condition, encouraging organizations to adapt and take advantage of opportunities in their environment.

Organizational capacity, from the perspective of organizational theory, can be viewed through several approaches. First, the rational system approach regards the organization as a formal social structure established to pursue specific goals (Scott, in Irawan). Rationality and normative structures in this approach encourage organizations to maintain long-term survival, referred to as durability. However, organizational survival does not always reflect effectiveness (Meyer & Zucker, in Irawan, 2016). Some organizations are able to endure despite being inefficient, while modern organizations may combine flexibility with continuity through changes in structure, personnel, or objectives.

In order to survive in an ever-changing environment, organizations must adapt through factors such as sufficient information, effective performance feedback, and support from the social environment (Staats et al., in Irawan, 2016).

Second, the natural system approach views organizations as collective entities that accommodate diverse individual interests yet maintain a collective awareness of the importance of organizational existence (Scott, in Irawan, 2016). Here, informal relationships among organizational members play a more decisive role in shaping behavior than formal rules. Values and culture become essential components that establish reliable and repetitive work routines. The ability of organizations to operate consistently and predictably is considered the strength of this approach (Hannan & Freeman, in Irawan, 2016).

Organizations with high reliability are typically characterized by their ability to learn from failures, avoid oversimplification, remain sensitive to internal processes, and commit to consistency while maintaining flexibility (Weick et al., in Irawan). These mechanisms help organizations reduce the risk of major failures and enhance their adaptability.

Third, the open system approach perceives organizations as networks of interdependent activities that dynamically interact with broader social, economic, and institutional environments (Scott, in Irawan, 2016). In this approach, organizational culture and cognitive processes play a crucial role in fostering adaptation to the environment. Organizations not only respond to external changes but also continuously reshape

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themselves in line with evolving values and norms in their surroundings

2.1.4 Digital Theory

a. Definition of Digital

The term digital originates from the Latin word digitus, meaning finger, and in modern development refers to the representation of data in numerical (binary) form that can be electronically processed. In the context of information and communication technology, digital describes all forms of information that can be stored, processed, and transmitted in electronic formats.

According to Laudon and Laudon (2020), digital refers to information encoded in a numerical system, enabling efficiency in processing and distribution through computer technology. Rogers (2016) explains that digitalization is the process of transforming analog or manual systems into digital technology-based systems to improve productivity and innovation. Furthermore, Vial (2019) states that digital is not only about hardware or software but also encompasses the entire system that integrates data, technology, and organizational strategy in responding to change. Meanwhile, Schallmo et al. (2017) argue that digital serves as the fundamental basis for transforming business models and processes in both public and private services.

b. Types of Digital

The following are common types of digital found and utilized in practice:

1) Digital Data
   Data encoded in binary format, including text, images, audio, and video, which can be processed and stored electronically.
2) Digital Technology
   Digital-based technologies such as computers, the internet, cloud computing, and artificial intelligence (AI) that support various aspects of life (Tapscott, 2018).
3) Digital Communication
   Communication systems such as social media, email, and messaging applications that use digital channels to accelerate communication across time and space (Kaplan & Haenlein, 2016).
4) Digital Services
   Public and private services delivered through digital systems, such as e-Government, e-Commerce, e-Learning, and other digital-based services (UN DESA, 2022).
5) Digital Economy
   An economic system that relies on digital technologies in the production, distribution, and consumption of goods and services (Bukht & Heeks, 2017).

c. Functions of Digital

Digital technology not only accelerates work processes but also transforms the way organizations and governments deliver services to society. Its key functions include:

1) Data Storage and Management
   Enabling large-scale information management efficiently.
2) Communication and Collaboration
   Enhancing online connectivity among stakeholders.
3) Data-Driven Decision Making
   Supporting managerial processes based on data analytics.
4) Innovation in Public and Business Services
   Encouraging the development of more responsive and inclusive service models.

d. Benefits of Digital Transformation

Some key benefits of digital transformation include:

1) Operational Efficiency. Minimizing waste of time and resources.
2) Transparency and Accountability. Providing access to public information and audit trails.
3) Improved Service Accessibility. Allowing people to access services anytime and anywhere.
4) Innovation and Competitive Advantage. Promoting the adoption of new technologies and the improvement of work systems.

4.1.5 Theories of Digital Transformation in the Public Sector

Digital transformation refers to changes involving the integration of information technology into organizational work systems, including within the public sector. The early perspective presented by Andersen and Dawes in Filgueiras (2019) states that government digitalization reflects the use of information technology in the delivery of public services. Fountain, as cited in Filgueiras (2019), reinforces this idea by highlighting technology as a

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central element in the transformation process, influencing how governments interact with citizens, as well as reshaping workflows and organizational structures (Luna-Reyes & Gil-Garcia, 2014).

However, contemporary approaches emphasize that technology is merely an enabling tool, not the primary driver of change. According to Filgueiras (2019), digital transformation emerges from internal institutional limitations that require structural reorganization and organizational flexibility. Transformation occurs when institutions must overhaul rigid systems to become more adaptive to the needs of actors within the bureaucratic ecosystem.

Bharadwaj et al. (2013) and Matt et al. (2015) argue that digital transformation involves a comprehensive change strategy across organizational aspects, encompassing structures, processes, and work culture to create new value. Vial (2019) further adds that organizations undertake transformation as a response to environmental changes by leveraging digital technologies to generate added value. In the public sector, digital transformation has been emphasized since 2012, with a paradigm shift in service delivery from merely offering types of services to redefining how services are delivered to citizens (UNDESA, 2015). This means that technology not only accelerates service provision but also reshapes work patterns, institutional structures, and government–citizen relationships (Luna-Reyes & Gil-Garcia, 2014).

To achieve comprehensive and sustainable digital transformation, it must be supported by sound policy design and strong institutional readiness. Filgueiras (2019) underscores the importance of clear public policies and procedures that facilitate transformation processes, rather than focusing solely on technological aspects.

2.2 Review of Empirical Studies

Recent empirical studies indicate that the success of digital transformation in the public sector is strongly influenced by the readiness and capacity of human resources. Ghamdi et al. (2019) found that many digital transformation initiatives failed due to inadequate digital competencies and organizational readiness among employees. Likewise, Dwivedi et al. (2021) demonstrated that digital literacy, leadership support, and organizational culture significantly influence the effectiveness of e-government implementation.

Empirical evidence from public sector organizations also highlights that digital transformation is not solely dependent on technology adoption but also on institutional adaptation and organizational capacity building. Vial (2019) emphasized that organizations capable of integrating technological innovation with organizational restructuring tend to achieve more sustainable digital transformation outcomes. Similarly, Luna-Reyes and Gil-Garcia (2014) explained that government digitalization requires changes in institutional structures, workflows, and patterns of interaction between government and citizens.

In the Indonesian context, studies related to SPBE implementation show that local governments continue to face challenges related to infrastructure inequality, digital competence gaps, and limited institutional support. Previous studies have generally focused on technological readiness and system implementation, while limited attention has been given to the strategic development of human resource capacity at the village or local administrative level. Therefore, the present study attempts to enrich the literature by examining HR capacity-building strategies in supporting digital transformation within village governance.

2.3 Identification of the Research Gap

Based on the theoretical and empirical review, several research gaps can be identified. First, previous studies predominantly emphasize technological infrastructure and system implementation as the main determinants of digital transformation success, while the strategic role of human resource capacity development remains underexplored, particularly in local government institutions.

Second, many prior studies focus on central or urban government institutions, whereas limited empirical evidence addresses digital transformation strategies in village administrative environments such as Pejala Village. This context is important because village governments often face unique challenges related to limited infrastructure, human resource readiness, and institutional capacity.

Third, earlier studies generally discuss digital transformation from a technological perspective,

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while this study integrates organizational capacity theory, Digital-Era Governance theory, and capacity building approaches to provide a more comprehensive understanding of how human resource strategies support sustainable digital transformation in the public sector.

Accordingly, this study contributes to the literature by emphasizing the importance of human resource capacity-building strategies as a key determinant of successful digital transformation at the local government level.

2.4 Development of the Conceptual Framework

This study reviews the relationship between human resource capacity-building strategies and digital transformation in the public sector. Human resource capacity-building strategies include strengthening technical competencies, managerial competencies, socio-cultural competencies, infrastructure support, and institutional policy support. These dimensions are expected to enhance the readiness of public officials in adapting to digital systems and organizational change.

Digital transformation in this study refers to organizational changes involving the integration of digital technologies into governance systems, service delivery, administrative processes, and public communication. The transformation is reflected through improved efficiency, transparency, accountability, responsiveness, and service accessibility.

The conceptual relationship developed in this study emphasizes that effective HR capacity-building strategies contribute significantly to the success of digital transformation in village governance institutions. This relationship is supported by Digital-Era Governance theory, organizational capacity theory, and the UNDP capacity-building framework.

Because this study does not explicitly present a visual conceptual framework or measurable variable model, the conceptual framework is explained narratively in accordance with the focus of the study.

2.5 Hypotheses or Research Propositions

This study does not explicitly formulate quantitative hypotheses. Instead, the study is directed toward understanding and analyzing strategies for strengthening human resource capacity in supporting digital transformation within village governance institutions.

Therefore, this research does not employ statistical hypothesis testing, but rather emphasizes conceptual and analytical exploration based on theoretical perspectives and empirical findings related to organizational capacity, digital transformation, and public sector governance.

3. Research Methods

3.1 Research Design

This study applies a descriptive qualitative case study approach in Pejala Village to examine strategies for enhancing human resource capacity in digital transformation. A qualitative case study design was selected because it enables an in-depth exploration of social phenomena within their real-life context, particularly concerning organizational adaptation, human resource readiness, and digital governance practices at the village level. The approach is considered suitable for capturing processes, interactions, experiences, and challenges related to digital transformation implementation in local governance.

Data obtained from interviews, observation, and documentation were analyzed thematically to identify recurring patterns and contextual meanings associated with human resource development and digital transformation practices. The qualitative design also allows flexibility in understanding complex realities and provides comprehensive insights into sustainable capacity-building strategies within village governance settings.

3.2 Research Context and Setting

This research was conducted at the Pejala Village Office, located at Jln. Tanjung Jumlai RT. 05 No. 1, within Penajam District, North Penajam Paser Regency, East Kalimantan Province. The research site was selected purposively because Pejala Village represents a local government unit currently undergoing adaptation to digital transformation in public service delivery.

The location also reflects typical peripheral challenges commonly faced by rural administrative institutions, including limited technological infrastructure, varying levels of human resource capacity, and restricted access to information technology. These conditions make the village highly relevant as a setting for investigating

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strategies to strengthen human resource capacity in supporting digital governance. The study was conducted over a period of two months, from April to June 2025.

3.3 Population and Sample / Research Participants

The participants in this study were selected purposively based on their roles, responsibilities, and direct involvement in digital transformation processes at the village level. Purposive sampling was employed to ensure that the selected informants possessed relevant knowledge and experience regarding administrative coordination, public service delivery, digital implementation, and human resource development. In addition, snowball sampling was used when additional information and perspectives were needed from other relevant actors.

The research participants included the village secretary (DS), heads of sections (SA, AM), staff members (AI, MS), a representative from the District Communication and Information Office (SL), and a local community leader (AMN). These participants were selected because they were directly engaged in organizational management, implementation of digital services, capacity development initiatives, and public service utilization. The inclusion of both internal government actors and community representatives enabled the researcher to obtain diverse, comprehensive, and contextually relevant perspectives regarding digital transformation challenges and strategies in Pejala Village.

3.4 Data Sources and Data Collection

This study utilized both primary and secondary data sources to obtain comprehensive and in-depth information regarding strategies for enhancing human resource capacity in supporting digital transformation.

3.4.1 Primary Data

Primary data were collected through in-depth interviews, observation, and documentation. Semi-structured interviews served as the primary data collection technique to explore issues related to human resource capacity, digital skills, training experiences, organizational readiness, and challenges encountered in digital transformation implementation. The semi-structured format provided flexibility for participants to share experiences and narratives in depth while maintaining alignment with the research objectives (Yin, 2018).

Observations were conducted to directly examine the use of technology, employee interactions with digital applications, and the existing work environment within the village office. This technique enabled the researcher to gain contextual insights that may not fully emerge from interviews alone (Miles, Huberman, & Saldaña, 2018).

Documentation was also employed to complement and validate the findings obtained from interviews and observations. The documents reviewed included employee profiles, training reports, digital transformation plans, information technology inventories, and policy documents related to digital governance (Creswell & Poth, 2018).

All data collection techniques were implemented triangulatively to enhance data credibility, minimize bias, and strengthen the validity of the research findings.

3.4.2 Secondary Data

Secondary data were obtained from official documents and archives related to human resources, infrastructure, training activities, and digital transformation policies. These included: (a) the Pejala Village profile, (b) available hardware and software data, (c) employee training reports, (d) regulatory documents such as Presidential Regulation No. 95 of 2018 concerning the Electronic-Based Government System (SPBE), and (e) digital transformation planning documents from local governments or relevant agencies.

The use of secondary data was intended to complement and strengthen the primary data obtained through interviews and observations. By integrating both primary and secondary data sources, the study aimed to develop a comprehensive understanding of existing conditions and potential strategies for enhancing human resource capacity in Pejala Village.

3.5 Measurement of Variables and Research Instruments

Since this study employed a qualitative case

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study approach, the research did not apply quantitative variable measurement or statistical scales. Instead, the study focused on exploring key concepts related to human resource capacity and digital transformation through qualitative inquiry.

The main research instruments consisted of interview guidelines, observation sheets, and documentation checklists developed based on the research objectives and relevant literature concerning digital governance and human resource capacity building. The interview guidelines contained open-ended questions related to digital competencies, training participation, organizational readiness, challenges in technology adoption, and strategies for improving human resource capacity. Observation sheets were used to record workplace conditions, technological utilization, and employee interactions with digital systems, while documentation checklists facilitated the systematic review of institutional records and policy documents.

The use of multiple instruments enabled comprehensive data collection and strengthened the depth and contextual richness of the study findings.

3.6 Data Analysis Techniques

Data analysis was conducted inductively and simultaneously with the data collection process. The analysis aimed to reduce, organize, interpret, and construct meaningful findings from the qualitative data obtained during the study. This research adopted the interactive analysis model proposed by Miles, Huberman, and Saldaña (2018), which consists of three interrelated stages:

3.6.1 Data Reduction

Data reduction involved selecting, simplifying, categorizing, and coding data obtained from interviews, observations, and documentation. The researcher focused on information relevant to human resource capacity development and digital transformation implementation in Pejala Village.

3.6.2 Data Display

The reduced data were organized and presented in the form of descriptive narratives, tables, and diagrams to facilitate understanding of patterns, relationships, and emerging themes within the research findings.

3.6.3 Conclusion Drawing and Verification

Conclusions were developed continuously throughout the research process and were repeatedly verified against newly collected data. Triangulation among interviews, observations, and documentation was applied to ensure the validity and consistency of the findings.

The inductive analytical approach enabled the researcher to interpret participants' experiences and organizational realities comprehensively while maintaining alignment with the objectives of the study.

3.7 Validity, Reliability, and Trustworthiness

To ensure the trustworthiness of the research findings, this study applied several qualitative validation procedures, including credibility, dependability, confirmability, and triangulation. Credibility was strengthened through prolonged engagement in the research setting, in-depth interviews, and cross-checking information among participants. Triangulation was conducted by comparing findings obtained from interviews, observations, and documentation to ensure consistency and minimize bias.

Dependability was maintained by documenting the research process systematically, including data collection procedures, coding processes, and analytical interpretations. Confirmability was enhanced by ensuring that the findings were grounded in empirical data rather than personal assumptions or researcher bias. In addition, the use of multiple data sources and participant perspectives contributed to increasing the overall trustworthiness and robustness of the study.

3.8 Ethical Considerations

This study considered ethical principles throughout the research process to protect participants' rights and maintain academic integrity. Prior to data collection, participants were informed about the objectives of the study, the voluntary nature of their participation, and the confidentiality of the information they provided. Informed consent was obtained from all participants before conducting interviews and observations.

To maintain confidentiality and privacy, participant identities were represented using initials such as DS, SA, AM, AI, MS, SL, and AMN. All

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collected data were used solely for academic purposes and stored securely to prevent unauthorized access. The researcher also ensured that the study did not harm participants either psychologically, socially, or professionally during the research process.

3.9 Research Procedure

The research procedure in this study was conducted systematically through several stages. The first stage involved identifying research problems, reviewing relevant literature, and formulating research objectives related to human resource capacity development and digital transformation in village governance.

The second stage involved determining the research site and selecting participants purposively based on their relevance to the research topic. Subsequently, data collection was conducted through interviews, observations, and documentation.

The third stage involved organizing, coding, and analyzing the collected data using the interactive analysis model of Miles, Huberman, and Saldaña (2018). During this stage, the researcher continuously interpreted findings and verified emerging conclusions through triangulation.

The final stage involved compiling and interpreting the research findings comprehensively to generate conclusions and recommendations regarding strategies for enhancing human resource capacity in supporting digital transformation at the village level.

3.10 Methodological Limitations

This study has several methodological limitations that should be acknowledged. First, the research focused only on one village, namely Pejala Village, which may limit the generalizability of the findings to other regional or institutional contexts with different socio-economic and technological conditions.

Second, the study relied heavily on qualitative data obtained from interviews, observations, and documentation, which may be influenced by participants' subjective perceptions and experiences. Although triangulation was applied to minimize bias, the possibility of interpretive subjectivity cannot be entirely eliminated.

Third, the relatively limited research period from April to June 2025 may have constrained the researcher's ability to observe long-term developments in digital transformation and human resource capacity building. Nevertheless, despite these limitations, the study provides valuable contextual insights into the challenges and strategies of digital transformation implementation within rural governance settings and offers directions for future research.

4. Results and Discussion

4.1 Research Results

4.1.1 Sample Description and Descriptive Statistics

This study focuses on the community conditions of Pejala Village as the unit of analysis. The descriptive results include demographic characteristics, household conditions, economic conditions, and educational attainment of the community. These findings provide an overview of the existing human resource capacity in supporting digital transformation within village governance.

a. Population

Population size is one of the key indicators in assessing regional development. The population growth in Pejala Village shows a positive trend each year, for both males and females.

Table 1. Population

Description	Last Year	This Year	Growth (%)
Male	559 people	586 people	4.83%
Female	519 people	565 people	8.86%

Source: Pejala Village Profile Data 2025

The female population increased at a higher rate compared to males. Overall, the population of Pejala continues to show positive growth annually.

b. Number of Households

In addition to population, another indicator is the number of households (KK). Household data reflects the number of families and the level of family independence in a region.

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Table 2. Number of Households

Description	2024	2025	Growth (%)
Male-headed households	268	282	5.22%
Female-headed households	77	80	3.9%
Total Households	345	362	-

Source: Household Data 2025

The number of households increased from 345 to 362, in line with overall population growth.

4.1.2 Data Quality and Preliminary Analysis

This study applies a descriptive qualitative approach; therefore, statistical tests such as normality, multicollinearity, reliability, or model fit testing were not conducted. The data quality was ensured through the use of official village profile documents and structured presentation of demographic, economic, and educational information relevant to the research objectives.

4.1.3 Main Analytical Results

a. Workforce and Employment

The economic condition of the community can be seen from the size of the workforce and the distribution of productive-age residents. In Pejala, the productive-age population is relatively large, though many are still in school or engaged in domestic roles as housewives.

Table 3. Workforce and Employment

Description	Number
Workforce (18–56 years)	303 people
Still in school & unemployed	313 people
Housewives	203 people
Fully employed	82 people
Irregular employment	40 people
Disabled & unemployed	0
Disabled & employed	0

Source: Pejala Village Profile Data 2025

Although the productive-age population is large, only a small portion (82 people) are fully employed. Most are either still in school or working as housewives.

b. Family Welfare Level

Family welfare is an important indicator of quality of life.

Table 4. Family Welfare Levels

Category	Number
Pre-prosperous	113 families
Prosperous I	157 families
Prosperous II	264 families
Prosperous III	41 families
Prosperous III Plus	11 families
Total	586 families

Source: Pejala Village Profile Data 2025

Most families fall into the Prosperous II category (264 families). However, 113 families remain in the pre-prosperous category and need support to improve their welfare.

c. Education of the Community

Education is a key factor in improving human resource quality. Educational attainment in Pejala shows dominance at the primary an secondary school levels.

Table 5. Education Levels

Education Level	Number
Illiterate	0
Ages 3–6 in Kindergarten/PAUD	78

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Currently in Primary School	148
Completed Primary School	332
Did not finish Primary School	10
Currently in Junior High School	72
Completed Junior High School	151
Currently in Senior High School	73
Completed Senior High School	201
Completed Diploma (D-2)	18
Completed Bachelor's Degree (S-1)	38

Source: Pejala Village Profile Data 2025

The majority of residents completed only primary (SD) or secondary (SLTA) education. Higher education graduates are still very limited, with only 38 residents holding a bachelor's degree (S-1). This highlights the need to improve access to advanced education to enhance human resource quality.

4.1.4 Key Findings

The findings indicate that Pejala Village experiences positive population and household growth annually. Economically, the productive-age population is relatively high; however, the number of fully employed residents remains limited. In terms of welfare, most families are categorized as Prosperous II, although a considerable number are still classified as pre-prosperous families. Educationally, the majority of residents have completed only primary and secondary education, while the proportion of higher education graduates remains low. These findings demonstrate the importance of strengthening human resource capacity as a strategic foundation for supporting sustainable digital transformation in village governance.

4.1.5 Visual Presentation of Results

The research findings are presented through Tables 4.1 to 4.5 to improve clarity and readability. These tables summarize demographic conditions, household growth, workforce composition, welfare levels, and educational attainment of the community in Pejala Village. Each table is explicitly referenced and explained to support a systematic understanding of the research findings.

4.2 Research Discussion

4.2.1 Interpretation of Key Findings

a. Strategies for Strengthening Human Resource Capacity in Supporting Digital Transformation

The interviews reveal that digital transformation at the village government level, particularly in Kelurahan Pejala, requires more than just adequate technological infrastructure. The readiness and competence of human resources (HR) play a decisive role in ensuring the success of digital-based public services.

The first strategy for capacity development focuses on continuous training and technical guidance. According to the Village Secretary and other officials, training activities are conducted internally and in collaboration with relevant agencies such as the Department of Communication and Information (Kominfo). These efforts aim to equip staff with the technical skills necessary to operate digital governance applications.

The second aspect emphasizes the mastery of digital applications as the primary tool for administrative services. Informants highlighted that when staff understand how to operate applications effectively, public services become faster, more accurate, and more efficient. This shows that technical competence directly impacts service quality.

The third element involves collaboration, both internally across different divisions within the village office and externally with Kominfo. Internal collaboration enhances efficiency through knowledge sharing, while external support provides digital literacy programs, mentoring for application implementation, and the improvement of internet infrastructure.

The fourth strategy includes engaging the community, particularly local leaders such as RT/RW, in socialization activities related to digital programs. Community participation ensures broader acceptance of digital services and increases public awareness of new systems.

Despite these efforts, several challenges

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remain. Limited infrastructure, unstable internet connections, inadequate equipment, and insufficient training based on staff needs are obstacles frequently mentioned by informants. There is also a skills gap among employees, as many training programs remain general rather than tailored to specific job requirements.

Nevertheless, all informants agreed that the key to accelerating digital transformation lies in individual readiness. Both civil servants (ASN) and non-ASN staff must adapt to technological developments to ensure that innovations in public service bring real benefits.

In conclusion, the strategy for strengthening HR capacity in Kelurahan Pejala combines training, technical mentoring, the use of digital applications, routine evaluation, community involvement, and external support. These integrated efforts are expected to optimize digital transformation and improve the quality, speed, and efficiency of public service delivery.

b. Barriers and Challenges in Strengthening Human Resource Capacity for Digital Transformation

The interviews with various informants highlight that the implementation of digital transformation in Kelurahan Pejala is shaped by both internal and external challenges that affect its effectiveness.

From the internal perspective, the most pressing issue is the limited competence of human resources. Several staff members, as noted by the Village Secretary, struggle to adapt to new technologies and applications. This lack of readiness hampers service delivery and slows down decision-making. Moreover, some employees are still anxious about being replaced by digital systems, which affects their willingness to adapt. On the other hand, coordination among units is relatively strong, minimizing organizational conflicts in adopting digital systems.

The external challenges primarily stem from the low digital literacy of the community. As emphasized by the Head of PM-KESSOS, many residents, especially elderly people and those in rural areas, find it difficult to access or use digital services. This lack of readiness reduces the inclusivity of digital transformation and creates a digital divide between different segments of the population.

From the technical perspective, unstable internet connections, limited devices, and occasional power outages are recurrent problems faced by both structural officials and operational staff. These issues directly disrupt the smooth delivery of digital services. Furthermore, outdated or misaligned regulations and limited budgets exacerbate the problem, slowing down the adoption of digital infrastructure and capacity-building programs.

Despite these obstacles, the interviews also reveal positive attitudes and supportive measures. Most staff members welcome digitalization, recognizing that it simplifies their tasks and improves efficiency. Additionally, the support from the Department of Communication and Informatics (Kominfo), in the form of training, mentoring, and system development assistance, provides significant reinforcement for the village government. However, Kominfo's reach is still constrained by financial and infrastructure limitations, especially in remote areas.

In terms of solutions, the informants proposed several key strategies:

1) Intensive digital literacy training for staff to enhance adaptability and reduce resistance.
2) Strengthening infrastructure and device provision, supported by aligned government policies and budgets.
3) Practical contingency measures, such as providing backup power generators, to ensure service continuity during power failures.

In summary, the analysis indicates that while digital transformation in Kelurahan Pejala is well-received, its sustainability depends heavily on improving human resource capacity, strengthening infrastructure, ensuring policy alignment, and securing sufficient funding. Collaborative efforts between local government, Kominfo, and the community are essential to achieving effective and inclusive digital governance.

4.2.2 Comparison with Previous Studies

The findings of this study are consistent with previous studies emphasizing the importance of HR development and digital literacy in supporting public sector digital transformation. The implementation of training and technical guidance in Kelurahan Pejala aligns with Yunas, Susanto, and Kuswandoro (2024), who demonstrated that digital training and workshops accelerate adaptation to

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electronic-based governance systems. However, while Yunas et al. focused on digital leadership, this study highlights practical technical skill enhancement among village officials as the main priority.

The finding that digital applications improve administrative efficiency also supports Sulmiah's (2023) research, which showed that digital systems accelerate personnel administration and improve data management efficiency. Similarly, this study found that digital platforms reduce manual processes and improve service accuracy. Nevertheless, unlike Sulmiah's study, which focused on urban government institutions in Makassar, this study specifically illustrates the realities and constraints faced at the village level.

The role of collaboration and routine evaluation identified in this research also resonates with Hadi Sutrisno and Sunaryo (2023), who emphasized that HR development requires integrated planning, implementation, and evaluation involving all organizational units. In Kelurahan Pejala, regular coordination meetings and collaboration between village officials and Kominfo function as mechanisms to sustain digital transformation initiatives.

Furthermore, the study supports Jatmoko, Primartadi, and Murhadi (2024), who highlighted the importance of community participation and digital literacy in promoting transparent governance. However, while Jatmoko et al. examined structured website-based governance practices, this study demonstrates that community involvement in Pejala remains limited to outreach activities and participatory socialization programs.

Regarding barriers and challenges, the findings correspond with Faidz and Kuswinarno (2023), who identified resistance to change and low digital literacy as obstacles to competency development among public officials. This study similarly found that some staff members struggle to adapt to technological changes and feel concerned about being replaced by digital systems. In addition, the infrastructure constraints identified in this research align with Maryuni et al. (2024), who found that limited infrastructure and financial support hinder digital transformation in local government institutions.

The findings related to funding limitations are also consistent with Fauziah, Ivrantika, and Firmansyah (2021), who argued that government digital talent programs frequently face discontinuity due to insufficient budgets. Likewise, this study shows that limited village budgets constrain the procurement of digital equipment and the implementation of continuous training programs. Finally, the findings reinforce Adila and Putri (2024), who emphasized that effective digital governance requires the integration of HR development, infrastructure support, and policy alignment.

4.2.3 Theoretical Contributions

This study contributes theoretically by reinforcing the argument that digital transformation in public sector organizations is strongly influenced by human resource readiness and organizational adaptability. The findings confirm that digital transformation cannot be understood solely as a technological process but must also be viewed as a socio-organizational transformation requiring continuous competency development, institutional collaboration, and community engagement.

The study extends previous theoretical discussions on digital governance by demonstrating that HR capacity strengthening at the village level involves a combination of training, mentoring, technology utilization, evaluation mechanisms, and external institutional support. The findings also refine existing perspectives by emphasizing that digital transformation in rural government institutions faces unique structural and contextual limitations, including inadequate infrastructure, limited financial capacity, and uneven digital literacy among citizens.

Moreover, this study contributes to the literature on digital governance and public administration by highlighting the importance of inclusive digital transformation. The involvement of RT/RW leaders and community members indicates that successful digital governance requires not only capable public officials but also digitally aware citizens. Thus, the study expands theoretical understanding regarding the relationship between organizational capacity, community participation, and sustainable digital transformation in grassroots governance contexts.

4.2.4 Practical and Policy Implications

The findings provide several practical

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implications for village governments, policymakers, and related institutions. First, village governments should prioritize continuous and need-based digital training programs to improve staff competencies and adaptability to technological developments. Training should be tailored to specific job responsibilities rather than implemented through general approaches only.

Second, policymakers and local governments need to strengthen digital infrastructure by improving internet connectivity, providing adequate devices, and ensuring stable electricity supply. The provision of backup power generators and maintenance support is essential to minimize disruptions in digital public services.

Third, Kominfo and related agencies should expand digital literacy programs not only for government officials but also for community members, particularly elderly residents and people living in rural areas. Increasing public digital literacy is crucial to ensuring inclusive access to digital services and reducing the digital divide.

Fourth, stronger policy alignment and sustainable budget allocation are necessary to support long-term digital transformation programs at the village level. Government support should include infrastructure investment, technical mentoring, and continuous monitoring and evaluation mechanisms to ensure effective implementation.

Finally, the findings suggest that collaboration among village governments, Kominfo, and local communities should be strengthened to create a more adaptive, responsive, and sustainable digital governance ecosystem.

4.2.5 Integration with the Research Gap

This study addresses the research gap identified in the literature review regarding the limited discussion of HR capacity strengthening strategies for digital transformation at the village government level. Previous studies generally focused on broader institutional contexts such as district, municipal, or national government systems. In contrast, this research specifically examines the realities, strategies, and challenges experienced in Kelurahan Pejala as a grassroots government institution.

The study contributes originality by providing empirical evidence regarding how digital transformation is implemented within the limitations of village governance, including restricted infrastructure, financial constraints, and varying levels of digital literacy among both staff and citizens. Furthermore, the study highlights the practical integration of training, collaboration, digital application usage, and community participation as interconnected strategies for strengthening HR capacity. Therefore, the findings enrich the existing literature by offering a contextual understanding of digital governance implementation in rural administrative environments.

4.2.6 Acknowledgement of Study Limitations

This study has several limitations related to the scope and context of the findings. First, the research was conducted only in Kelurahan Pejala, which may limit the generalizability of the findings to other villages or regions with different socio-economic, technological, and administrative conditions. Second, the study primarily focuses on the perspectives of village officials and related stakeholders, so broader community experiences regarding digital public services may not be fully represented.

Third, the findings reflect the current stage of digital transformation implementation in Kelurahan Pejala, which continues to evolve over time. Consequently, changes in policies, technological infrastructure, and community digital literacy may influence future conditions differently. Despite these limitations, the study provides valuable insights into the practical realities of strengthening HR capacity for digital transformation in grassroots governance contexts.

5. Conclusion

5.1 Summary of Key Findings

This study demonstrates that strengthening human resource capacity is a critical factor in supporting digital transformation in Kelurahan Pejala. The findings reveal that strategies such as training, technical guidance, mentoring, performance evaluation, digital application utilization, internal collaboration, and support from Kominfo contribute significantly to improving the effectiveness and efficiency of public services. The implementation of digital systems has accelerated administrative processes, improved service accuracy, and increased organizational adaptability to

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technological developments.

However, the study also identifies several significant challenges, including limited staff competencies, unstable internet connectivity, inadequate digital equipment, limited budgets, and low digital literacy among community members. Despite these obstacles, positive attitudes toward digitalization, collaboration among stakeholders, and practical solutions such as infrastructure support and intensive training provide opportunities for sustainable digital transformation at the village level.

5.2 Theoretical Contributions

This study contributes to the theoretical development of digital governance and public sector transformation by emphasizing the central role of human resource readiness in the success of digital transformation initiatives. The findings confirm that digital transformation is not merely a technological process but also an organizational and social transformation that requires continuous competency development, institutional collaboration, and citizen engagement.

The study also extends previous literature by focusing specifically on village-level governance, an area that remains underexplored in discussions of digital transformation. By highlighting the realities and limitations experienced in Kelurahan Pejala, the research enriches understanding of how digital governance strategies operate within grassroots administrative contexts characterized by limited infrastructure and uneven digital literacy.

5.3 Practical and Policy Implications

The findings imply that village governments should prioritize sustainable and need-based digital training programs to improve staff competencies and adaptability. Government agencies, particularly Kominfo, should strengthen support through infrastructure development, technical assistance, and digital literacy programs targeting both officials and citizens.

In addition, policymakers should allocate sufficient budgets and formulate aligned regulations to support long-term digital transformation initiatives. Strengthening internet connectivity, providing adequate digital devices, and ensuring stable electricity supply are essential to maintaining effective digital public services. Community participation should also be enhanced through socialization programs that encourage citizens to actively utilize digital services.

5.4 Limitations of the Study

This study is limited by its focus on a single village context, namely Kelurahan Pejala, which may reduce the broader applicability of the findings. The study also primarily reflects the perspectives of village officials and institutional stakeholders, potentially limiting the representation of wider community experiences regarding digital transformation.

Furthermore, the dynamic nature of technological development and policy changes means that the findings may evolve over time as digital governance systems continue to develop. Therefore, the conclusions should be interpreted within the contextual conditions of the study setting.

5.5 Directions for Future Research

Future research is encouraged to expand the scope of analysis by involving multiple villages or regions to obtain more comprehensive comparisons regarding strategies for strengthening HR capacity in digital transformation. Comparative studies between rural and urban administrative contexts may also provide broader insights into the effectiveness of digital governance implementation.

In addition, future studies may explore the perspectives of community members more extensively to understand the social impact of digital transformation on public service accessibility and citizen participation. Researchers are also encouraged to apply alternative methodological approaches, such as mixed methods or quantitative analysis, to examine the relationship between HR competencies, infrastructure readiness, digital literacy, and public service performance in greater depth.

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