



Analysis of Digital Competencies and Performance Enhancement in Public Sector Organizations

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Abstract

Employee performance in public sector organizations heavily relies on their digital competencies. The performance of employees in public sector organizations is highly dependent on their digital competencies, which are crucial for optimizing public services and increasing effectiveness and accountability in the digital era. The purpose of this study is to analyze the digital competencies of village officials and their impact on their performance in the context of digital transformation of village governance. The approach used was a descriptive qualitative method, including documentation studies, participant observation, and in-depth interviews with village heads, secretaries, assistants, and administrative staff to collect data. This study found that, despite significant limitations in some areas of data management and application development, village officials have a basic understanding of how to access and use digital technology. According to the perceptions of village officials, their digital competencies have a positive impact on the quantity, quality, timeliness, effectiveness, and independence of the work they perform. The limitations of this study indicate that some aspects of data management and application development by village officials are very limited. Furthermore, in the context of digital transformation in village administration, this study specifically examines the relationship between digital competencies and the performance of government officials at the village level—an area that has received little attention.

Keywords: *Digital Competencies; Performance Enhancement; Public Sector*

Introduction

The dynamics of the development of information and communication technology have become a catalyst for the restructuring of governance at various levels, including in village or Nagari government entities. The imperative of digitalization emerged in response to the urgent need to optimize operational efficiency, increase transparency in resource allocation, and strengthen accountability for public services. The development of information and communication technology has driven significant changes in governance, including at the village or Nagari level. Digitalization is a necessity to increase efficiency, transparency, and accountability for the public (Alla & Filonych, 2020; Omar *et al.*, 2024; Santos & Pessoa, 2024).

In this context, digital competence of village apparatus is key. This competence, defined as the ability to use digital technology to manage information (Corbett & Spinello, 2020), greatly influences the quality of public services (Noh & Hong, 2022). Thus, mastering digital competence is not just a technical ability but a foundation for village apparatus to adapt to change, increase productivity, and ultimately, realize responsive and competitive governance in the digital era. Furthermore, digital change is not only about adopting new technologies but also about changing work culture, business processes, and HR management (Ahmed *et al.*, 2019; Bozkus, 2023).

Without adequate competency, village digitalization programmes, as implemented in various regions, are at risk of being hampered and will not reach their optimal potential. Research has also consistently

shown that limited digital competency of civil servants directly impacts performance, hindering efficiency in population data management, electronic-based administrative services, and various other digital initiatives (Abi & Gana, 2020; Wahyudi *et al.*, 2023; Windyaningrum *et al.*, 2023). This in turn can reduce the quality of public services expected by the community and erode trust in village government institutions.

Digital competence is a necessity for village officials to meet the challenges of changing times and ensure the sustainability of village development. This obligation is essentially implicitly mandated in Law Number 6 of 2014 concerning Villages, which mandates the development of a Village Information System (SID) to support the efficiency of public services, transparency, and accountability in village government management (Republic of Indonesia, 2014). This mandate's primary objective is to raise the standard of public services and guarantee more accountable and transparent management of the village government, both of which will eventually promote sustainable development in the community.

Although the urgency of digital competence is clear, the fact is that many village apparatuses still have limitations in mastering digital technology (James, 2021; Olofsson *et al.*, 2020; Warschauer, 2004). This condition is not just a technical obstacle but a fundamental challenge that directly hinders the effectiveness of public services at the village level. The inability of devices to operate modern digital systems and applications can slow down the administrative process, cause inefficiency, and even trigger frustration among people who crave fast and transparent services. If left unchecked, this situation has the potential to reduce public trust in village government institutions. Therefore, improving digital competence is no longer an option but an urgent and crucial need to strengthen governance that is not only transparent and accountable but also responsive to the dynamics of the digital era.

Ulakan Village Community, located in Ulakan Tapakih District, Padang Pariaman Regency, has taken proactive steps in adopting technology as an integral part of its governance modernization efforts. This initiative not only demonstrates Nagari Seulayat Ulakan's commitment to improving the quality of public services but also reflects its adaptation to the demands of the digital era. As the main pillar of this transformation, Ulakan Village Community has implemented various digital platforms that are crucial for daily operations and improving services to the public. The platform specifically encompasses the vital systems that support village development administration.

Specifically, the adoption of OpenSID (Village Information System) enables the management of population data and the provision of basic community services to be more efficient and integrated. Meanwhile, the use of Village SDGs supports the monitoring and reporting of sustainable development goals at the local level, ensuring that development programmes are more focused and accountable. No less important, the implementation of SISKEUDES (Village Financial System) has become the backbone of village financial management, increasing transparency and accountability in the use of village budgets. All of these platforms are not just tools but strategic foundations that enable the Ulakan Village Community to realize governance that is more adaptive, transparent, and responsive to the needs of its citizens. Details on the digital transformation that has been implemented in the Ulakan Village Community can be seen in Table 1.

However, despite having invested heavily in digital infrastructure, the effectiveness of implementing these platforms in the Ulakan Village Community is still heavily influenced by the limited digital competence of the village apparatus. The fundamental problem lies not only in the lack of basic understanding but also in practical skills in operating complex digital applications, managing administrative information systems, and integrating data between different platforms. These limitations directly hamper the performance of village apparatus as the spearhead of service, resulting in processes that should be accelerated through digitalization becoming less efficient and slowing down the flow of public services to the community.

Table 1: Implementation of Digital Platform

Year of Implementation	Digital Platforms	Utility
2016	Village Economic System	Systematic recording, reporting and management of village financial transactions, including village income and expenditure.
2021	SDGs	More in-depth data collection at the Neighbourhood Association (RT), family, and individual levels. This application facilitates the filling of survey questionnaires related to 17 sustainable development goals at the village level (SDGs Desa), also known as data on nagari profiles.
2020	OpenSID	This application is designed to help village governments in managing various aspects of administration and services.

Source: Results of an interview with the Secretary of Nagari Seulayat Ulakan's, March 12, 2025.

The low level of digital literacy in Nagari Seulayat Ulakan is in line with the findings of previous studies (Nikou *et al.*, 2022). This study found that information literacy and digital literacy directly influence perceived ease of use of technology, but not its perceived usefulness. Furthermore, the influence of these two types of literacy on the intention to use digital technology in the workplace is indirect, mediated by individual attitudes toward using the technology.

The lack of digital understanding and skills in Nagari Seulayat Ulakan clearly shows the potential for resistance to full adoption of digital platforms, as well as hindering increased productivity and effectiveness of task execution. On the other hand, as shown by Ingsih *et al.* (2024), who found a positive impact of digital competence on smart services and employee performance in other sectors, increasing digital competence in the Ulakan Village Community has great potential to significantly improve the quality of public services and the overall performance of village apparatus, bringing real progress to the village.

Previous studies tend to use a quantitative approach to measure the level of digital literacy or the correlation between digital competence and the performance of village officials in general. The gap in this research lies in the limitations of the quantitative method in capturing in-depth understanding. Therefore, this study adopts a qualitative approach to understand in depth how the Nagari Seulayat Ulakan apparatus subjectively interprets digital competence in their work routines and how this interpretation affects their service performance.

Methodology

The type and approach of this research use a qualitative descriptive approach that aims to obtain in-depth data on the perceptions, actions, and conditions experienced by the village apparatus as a whole. This approach was chosen based on considerations to explore in depth the experiences, perceptions, and realities faced by the village apparatus in the context of limited digital competence and its impact on their performance (Moleong & Rosdakarya, 2007). The location and subject of this research were carried out in the Ulakan Village Community, Ulakan Tapakih District, Padang Pariaman Regency. The informants in this study consisted of four people who were selected purposively, namely the village head, village head, village head, and administrative staff. Data collection techniques were carried out through three main methods, namely in-depth interviews, participatory observation, and documentation studies. Furthermore, data analysis was carried out qualitatively descriptively using the Miles and Huberman analysis model, which consists of three main stages, namely: (1) data reduction, (2) data presentation, and (3) drawing conclusions. To ensure the validity of the data, a triangulation technique was used, which refers to Sugiyono (2018), namely comparing the results from various data sources, methods, and techniques used to increase the validity and reliability of the research results.

Results and Discussion

Triangulation is done by comparing the results of interviews, observations, and documentation of the research object. Respondents' answers are the main key in understanding the analysis of digital competence in improving the performance of the Nagari Seulayat Ulakan device. The following are the results of the interpretation of respondents' answers regarding the digital competence they have, which can be seen in table 2 below:

Table 2: Digital Competency Interview Results

Indicator	Research Interpretation
Access means that employees can search for and find certain information or similar information on various digital devices.	According to the informant: they can easily search for and find the information needed for their work on various digital devices.
Use means that employees can record and store data in various formats using various digital devices and tools.	Expressing difficulty in recording or storing data in certain formats, or feeling uncomfortable using various devices for these tasks, indicates limitations in their digital competence.
Application creators (create applications) are employees who are able to create an application as an implementation of their knowledge of ICT, which, of course, can be used to support company activities.	Most local devices do not have the capability to create applications from scratch.
Creation (create) means employees can create report summaries in various formats using various devices using digital tools.	Able to create effective report summaries from various data formats and available digital tools.
Communication (communicate); the ability of village apparatus to use digital tools and platforms to interact, share information, and collaborate with fellow village apparatus, the community, and other related parties effectively and efficiently.	Relying on only a few platforms or being less familiar with important features.

The results of interviews with informants in table 2 indicate that the device in the Ulakan Village Community is in the process of adapting to digital transformation. There is a basic foundation of digital competence that has been formed, especially in terms of access and use of basic technology. This condition is in line with the findings of several studies which show that the adoption of e-government at the local level often starts from the early stages, where basic digital readiness and literacy begin to build gradually (Ahmed *et al.*, 2019; Joshi & Islam, 2018). However, the interview also highlighted that improving overall digital competence is still very much needed, especially in areas that are still weak.

The need for this improvement is key to optimizing the performance of village apparatus and realizing more efficient, transparent, and responsive governance in the digital era. This urgency is reinforced by previous studies that consistently show that improving the digital capabilities of government employees, including at the local level, is crucial to achieving greater e-government goals (Fernanda & Nav, 2020). Despite this basic foundation, the results of interviews in Nagari Sandi Ulakan clearly highlight that improving digital competence as a whole is still very much needed, especially in areas that still show weaknesses. This indicates that the digital adaptation process has not reached an optimal level of maturity and still requires continuous intervention.

In the Indonesian context, studies such as Fernanda and Nav (2020) emphasize that the quality of digital-based public services is highly dependent on the digital literacy and competence of the apparatus. Thus, the results of the interviews in Ulakan Village Community not only capture local conditions but also reflect broader challenges and needs in efforts to digitize village government, where improving digital competence is a fundamental prerequisite for progress.

Furthermore, the results of the interpretation of respondents' answers regarding the performance of the Nagari Seulayat Ulakan village apparatus can be seen in table 3 below:

Table 3: Results of interviews on Village Apparatus Performance

Performance Indicators	Research Interest
Quality of Work: The amount of work produced by an employee in a given time period.	According to informants, the level of data accuracy has triggered the level of public satisfaction with digital services such as ease of access to information and speed of response.
Quantity: The level of perfection of employee work results compared to established standards.	According to informants: The higher the digital competence of village officials, the more work can be completed in the same time.
Punctuality: The level of conformity of work completion time with the specified target or schedule	According to informants: Village apparatus with adequate digital competence tend to be able to complete work faster and according to time targets.
Effectiveness: The level of achievement of predetermined goals or targets.	According to informants: Good digital competence enables village apparatus to work more effectively in achieving village goals.
Independence: The level of employee ability to carry out tasks without requiring excessive assistance or supervision	According to informants: The higher the digital competence, the more independent the village apparatus is in completing tasks involving technology, reducing dependence on technical assistance or colleagues.

The interview results in table 3 indicate a very positive perception of the performance of the Nagari Seulayat Ulakan apparatus, which is directly linked to the digital competence they possess. The informants highlighted that the nagari apparatus always strives to demonstrate high productivity, is dedicated to completing work on time, and is orientated towards increasing the effectiveness of achieving the nagari's goals. In addition, they demonstrate adequate independence in carrying out their duties. These proactive efforts are also reflected in the provision of quality services to the community, with a focus on data accuracy and speed of response.

This finding is in line with various studies that examine the impact of digital competence on public performance and services. Studies by (Faozanudin *et al.*, 2023; Novachenko *et al.*, 2020) show that mastery of digital technology by government officials, including at the village level, is crucial in increasing administrative efficiency, speed of service and sustainable development. Furthermore, Ingsih *et al.* (2024) in their research, found that digital competence has a significant positive impact on the quality of intelligent digital services and employee performance, which is relevant to the efforts of village apparatus to provide accurate and responsive services.

The aspect of completing work on time and increasing the effectiveness of goals is also supported by research by Noh and Hong (2022), which confirms that digital competence significantly affects the success and quality of services in public service organizations. Thus, the positive performance of the Nagari Seulayat Ulakan apparatus shows that investment in developing digital competence is indeed positively correlated with increased productivity, efficiency, and quality of services received by the community, making it a model in the digital adaptation of village government.

Must be presented in the form of text, tables and illustrations. The contents of the tables should not be repeated in the text. Instead, a reference to the table number may be given. Long articles may need subheadings within some sections to clarify their contents.

Discussion should emphasize the present findings and the variations or similarities with other work done in the field by other researchers. The detailed data should not be repeated in discussion again. Emphasize the new and important aspects of the study. It must be mentioned whether the hypothesis mentioned in the article is true, false or if no conclusions can be derived.

Conclusion

Based on comprehensive data analysis, it can be concluded that this study firmly found a significant positive influence between digital competence and the performance of the Seulayat Ulakan Village apparatus. This finding indicates that the mastery of digital skills by village officials is not just a technical ability but an important foundation that directly contributes to improving the quality of their

implementation of their duties and responsibilities. In other words, the more proficient the village apparatus is in utilising digital technology, the more optimal the performance they achieve.

Furthermore, this study identified several aspects of performance that were positively influenced by digital competence. Village apparatus with adequate digital capabilities were able to provide higher quality services to the community, characterized by efficiency and timeliness in completing work. Digital competence was also proven to strengthen effectiveness in achieving village goals and foster independence in carrying out tasks that were increasingly integrated with technology.

The practical implications of these findings are crucial for the development of Nagari Seulayat Ulakan and have the potential to be replicated in other nagari. The results of this study underline the urgency to make improving the digital competence of nagari officials a sustainable agenda. Investment in training programmes, mentoring, and providing adequate digital infrastructure are strategic steps to empower nagari officials. Thus, nagari can respond to the demands of the digital era more adaptively, efficiently, and responsively, while improving the quality of public services as a whole.

For sustainability, this study recommends that local governments and related parties design and implement structured and sustainable digital competency improvement programmes for village apparatus, tailored to the specific needs of each region. For further research, it is recommended to explore other factors that may mediate or moderate the relationship between digital competence and performance, as well as conduct comparative studies between villages to gain a deeper and more comprehensive understanding.

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Conflict of Interest:

The authors declare that there is no conflict of interest regarding the publication of this paper.

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