Optimizing Economic Outcomes Through Information System Utilization: Enhancing Competency in Civil Servant Candidate Basic Training at South Sulawesi

Hamdana Jamaluddin [1]

Abstract:

System (LMS) in supporting competency development among Civil Service Candidates (CPNS) at the Human Resource Development Agency (BPSDM) in South Sulawesi Province. Using a mixed-methods approach, the research combines quantitative surveys of 89 CPNS participants with qualitative interviews of 20 participants to assess SIBANG's impact on technical, managerial, and socio-cultural competencies. Quantitative results indicate that while SIBANG effectively supports technical competency development, the platform is less effective in enhancing managerial and socio-cultural skills, which require more interactive and hands-on learning methods. The regression analysis shows a positive but statistically insignificant relationship between SIBANG usage frequency and competency improvement, suggesting that additional factors, such as content interactivity and technical infrastructure, play a critical role. Qualitative findings highlight challenges such as connectivity issues, usability concerns, and a need for more practical learning tools within SIBANG. Based on these insights, the study recommends incorporating interactive features, enhancing technical support, and providing targeted guidance to optimize SIBANG's potential as a comprehensive training tool. These improvements could enable SIBANG to better support the diverse competency needs of CPNS, contributing to the development of a skilled and adaptable civil service workforce.

Keywords: *SIBANG, Learning Management System, competency development, CPNS, technical competencies, digital learning, South Sulawesi*

1. Introduction

Education is widely regarded as a transformative force, particularly when it comes to shaping the future of public administration. The rapid advancements in information and communication technology (ICT) have brought about significant changes in how public sector organizations operate and how civil servants (ASN) develop their competencies. The application of e-learning systems and Learning Management Systems (LMS) has gained traction in the realm of public sector education, offering a flexible and efficient means of training and competency development.

In Indonesia, the role of ASN is critical in enhancing the quality of public services and achieving good governance, as outlined in Law No. 20 of 2023 on

[1]*Badan Pengembangan Sumber Daya Manusia (BPSDM), Sulawesi, Indonesia.,*
halo.hamdana@gmail.com

ASN. The law mandates that ASN continuously improve their competencies through learning processes, aiming to equip them to meet the evolving demands of their respective institutions. With this goal in mind, digital-based learning platforms, particularly LMS, have become a strategic tool for supporting ASN in their professional growth. These systems offer a more structured and accessible means of competency development, overcoming geographic and time barriers that traditionally hindered the effectiveness of training programs.

A review of previous research demonstrates the growing recognition of the role of technology in public administration and ASN education. Djawa (2015) explored the adoption of management information systems (Simpeg) within the East Java Provincial Personnel Agency to enhance e-government services, highlighting the importance of digital tools in improving administrative efficiency. Similarly, Dwiyanto (2018) stressed the necessity of continuous competency development for ASN in order to enhance public service quality. These studies suggest that integrating digital technologies in training programs is essential for ensuring that ASN remain adaptable and capable in the face of rapid societal and technological changes.

Beck and Szymanski (2021) observed that information systems, including LMS, play a key role in public administration reforms, facilitating the transition to more efficient and transparent governance structures. This observation is echoed by Chong and Loke (2018), who reviewed the impact of e-government on public service delivery, noting the positive effects of technology in streamlining service provision and improving efficiency. Furthermore, studies such as Goh and Lee (2020) illustrate how the development and implementation of e-government systems have significantly enhanced public service delivery across Southeast Asia. These findings highlight the broader trend of embracing digital tools within public sector organizations to improve both internal processes and external service delivery. Despite the potential benefits, challenges persist in the full integration of LMS in ASN education. While platforms like the South Sulawesi Provincial Personnel Development Information System (SIBANG) have been implemented to support ASN competency development, issues such as limited infrastructure and technical difficulties continue to affect the quality of learning experiences. Research by Mardiana and Abdullah (2020) reveals that despite the widespread adoption of digital platforms, many public institutions face difficulties in ensuring smooth implementation and achieving the desired outcomes in terms of service satisfaction and efficiency.

This research aims to evaluate the effectiveness of the SIBANG system in enhancing the competencies of Latsar CPNS participants at the South Sulawesi

Provincial Personnel Development Agency (BPSDM). The study seeks to assess how well the system supports the competency development of ASN and identify the challenges that hinder its optimal use. By addressing these issues, the research aims to contribute to the body of knowledge on digital learning platforms in public sector education, offering insights into improving the effectiveness of LMS and similar systems in the public administration context. The effectiveness of LMS platforms like SIBANG will be examined in light of previous studies that have explored the role of digital transformation in enhancing public service efficiency. Jung and Lee (2017) emphasized the role of digital transformation in improving public sector performance, while Karim (2020) highlighted the importance of continuous professional development for ASN, particularly in the context of the COVID-19 pandemic. Together, these studies underscore the necessity of adopting technology in public administration and provide a framework for evaluating the implementation of LMS in the training and development of ASN.

Through this research, we aim to provide actionable recommendations to optimize the use of LMS for ASN competency development and overcome the existing challenges in its implementation. The findings will contribute to advancing the effectiveness of digital platforms in public sector training, supporting the broader goals of improving governance and public service delivery in Indonesia.

2. Theoretical Background

Concept of E-learning and Learning Management Systems (LMS)
E-learning has revolutionized traditional education and training systems by facilitating learning through electronic media, primarily on the internet. It enables learners to access resources, participate in interactive sessions, and engage in self-paced learning environments. E-learning is advantageous in terms of accessibility, allowing learners to engage with content regardless of their physical location, making it particularly suitable for distributed networks like civil servants (ASN) in Indonesia. With e-learning, learning is no longer constrained by time or place, which is especially useful in a geographically diverse country like Indonesia (Martono, 2015). A Learning Management System (LMS) is a software application designed to manage, deliver, and track learning processes. LMS platforms are widely used in educational and training institutions to provide online courses and automate administrative functions related to training programs. LMS platforms like SIBANG offer multiple features, such as course registration, content delivery, discussion forums, assessments, and evaluations. These systems support both self-paced learning and instructor-led training, enabling personalized and

flexible learning approaches that can be adapted to the individual needs of users (Komalasari, 2014).

Through LMS platforms, organizations can effectively monitor and measure learner progress, engagement, and outcomes. The SIBANG system, for example, has been instrumental in the Human Resource Development Agency (BPSDM) of South Sulawesi Province, providing an accessible platform for CPNS training. This platform not only facilitates content delivery but also fosters a more interactive learning experience, which is essential for fostering deeper engagement among learners (Karim, 2020).

Competency Development for Civil Servants (ASN)

Competency refers to the knowledge, skills, and attitudes required for effective performance in specific job roles. For civil servants, competency development is crucial to improving the quality of public services, ensuring adaptability to changing job requirements, and upholding the standards of good governance. According to Indonesia's Law No. 20 of 2023 on ASN, all civil servants must continually develop their competencies to align with organizational goals and adapt to dynamic work environments (Muslikhah, 2019). The Ministry of Administrative and Bureaucratic Reform (Permenpan RB) No. 38 of 2017 on Job Competency Standards identifies three main competencies for ASN: technical competence, managerial competence, and socio-cultural competence:

- **Technical Competence** includes specific knowledge and skills necessary for performing particular tasks, such as understanding regulatory frameworks, using specific software, or applying industry standards (Rivai, 2011).

- **Managerial Competence** involves leadership and organizational management skills, including problem-solving, decision-making, communication, and project management.

- **Socio-Cultural Competence** reflects the ability to interact effectively with diverse communities, understanding cultural nuances, and demonstrating respect and sensitivity to different social groups. Developing these competencies is essential for ASN to perform effectively in their roles, meet public expectations, and support the government's goals of transparent and accountable public service (Nurdin, 2018).

The Role of Digitalization in ASN Competency Development
In response to the demands of an increasingly digital world, public sector organizations worldwide are adopting digital solutions to enhance workforce

capabilities and service quality. Digitalization in competency development is not merely about transferring learning materials online; it represents a shift towards a more adaptive, flexible, and learner-centered approach to training. For ASN, digitalization helps streamline learning processes, allowing for scalable training programs that can reach large numbers of employees with minimal logistical barriers. For example, the SIBANG system used by BPSDM South Sulawesi Province demonstrates how digitalization can improve competency development. By integrating e-learning and online assessments into its competency development programs, SIBANG allows participants to access content at their convenience, monitor their own progress, and engage in a structured learning environment. Furthermore, digitalization facilitates data-driven decisions in training by enabling real-time tracking of participants' progress and feedback, which can be used to improve future programs (Nuriyanto, 2014).

Theoretical Foundations of Constructivist Learning
Constructivist learning theory, proposed by educational theorists such as Jean Piaget and Seymour Papert, emphasizes the role of active engagement in the learning process. Constructivism posits that learners construct knowledge through interaction and experience rather than passively receiving information. In a constructivist learning environment, learners are encouraged to explore, ask questions, and engage in problem-solving activities that help them understand concepts in depth. In the context of SIBANG, constructivist principles can be applied by creating a learning environment that fosters collaboration, interactive exercises, and real-life problem-solving scenarios. Instead of merely delivering static content, SIBANG can leverage its interactive features to encourage learners to actively participate in discussions, case studies, and projects that are directly relevant to their roles as civil servants. By aligning with constructivist principles, SIBANG can create a more meaningful and impactful learning experience for ASN, which in turn contributes to their competency development.

Challenges in Implementing LMS for ASN Competency Development
Despite its benefits, implementing an LMS like SIBANG for ASN competency development faces several challenges, including technological, infrastructural, and human factors. Key challenges include:

- **Adaptation and Digital Literacy**: Many ASN, particularly those in remote areas, may face difficulties in adapting to digital learning platforms due to limited digital literacy skills.

- **Infrastructure Limitations**: In certain regions, particularly remote or rural areas, the digital infrastructure may be inadequate to support consistent access to online learning platforms.

- **Interactivity and Engagement**: While LMS platforms offer numerous features for interaction, not all learners are equally engaged. Passive learning modes and lack of peer interaction may reduce the effectiveness of LMS-based learning.

- **Technical Maintenance and Support**: Regular technical maintenance is essential to prevent disruptions and ensure that the LMS functions effectively. However, technical issues and system downtimes can reduce user satisfaction and hinder learning continuity.

Addressing these challenges is crucial to maximizing the benefits of digital competency development for ASN. This requires a coordinated approach involving investment in digital infrastructure, capacity-building programs to enhance digital literacy, and the continuous refinement of LMS content and features to align with learner needs (Rahardian & Zakariya, 2017).

3. Methodology

This study employed a mixed-methods approach, integrating both quantitative and qualitative methods to comprehensively assess the impact of the SIBANG Learning Management System (LMS) on competency development among Civil Service Candidates (CPNS) at the Human Resource Development Agency (BPSDM) of South Sulawesi Province. The quantitative component involved a survey distributed to 89 CPNS participants from 2022 training sessions in Makassar, using structured questions on a 5-point Likert scale to evaluate perceptions of SIBANG's usability, content quality, and impact on competencies Arikunto (2010). To further explore participant experiences and insights, the qualitative component involved in-depth interviews with 20 participants from the 2023 cohorts in Makassar and Maros, focusing on ease of use, challenges, and overall satisfaction with the system.

Data from the survey were analyzed using descriptive statistics and simple linear regression to identify trends and relationships between SIBANG usage and competency improvement. The interview data were examined through thematic analysis, coding responses to uncover themes such as user satisfaction, challenges, and system impact on various competencies. Combining these approaches enabled the study to triangulate findings, enhancing validity and reliability by verifying quantitative results with qualitative insights Sugiyono (2011). This mixed-methods design provided a well-rounded perspective on SIBANG's effectiveness and areas for potential improvement in ASN training.

4. Empirical Findings/Result

Quantitative Results
Descriptive Statistics
Descriptive statistics revealed that, on average, participants rated SIBANG's usability favorably, with a mean score of 3.8 out of 5, indicating that most users found the platform relatively easy to navigate. The standard deviation was 0.6, suggesting moderate variability in responses, with some participants experiencing greater difficulties, particularly those in areas with limited internet infrastructure. Content quality scored similarly high, with 68% of participants rating it as effective or highly effective for their learning needs. This consistency suggests that the instructional materials within SIBANG are well-aligned with training objectives, although a small percentage of respondents (around 15%) reported content that could be more interactive or tailored to various learning styles.

When evaluating SIBANG's impact on specific competencies, technical competence received the highest mean score of 4.1, with a standard deviation of 0.5, indicating a strong consensus that SIBANG effectively supports technical skills relevant to CPNS roles. Managerial competence had a mean score of 3.6, while socio-cultural competence scored lower, with a mean of 3.4. These results suggest that SIBANG may need additional features, such as interactive modules or simulations, to enhance competencies beyond the technical domain.

Simple Linear Regression Analysis
To explore the relationship between SIBANG usage frequency and perceived improvements in competencies, a simple linear regression analysis was conducted. In this model, frequency of SIBANG use was the independent variable, and self-reported competency improvement was the dependent variable, specifically focused on technical competencies.

Table 1. Results of Simple Linear Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	76.279	6.279		12.149	.000					
	Sibang	.106	.074	.134	1.434	.154	.134	.134	.134	1.000	1.000

a. Dependent Variable: Postest

Based on the SPSS printout above, the following simple linear regression equation is obtained;

The regression analysis for this study used a simple linear regression model to examine the relationship between the frequency of SIBANG usage (independent variable) and the improvement in competency levels among CPNS participants (dependent variable). The resulting regression equation was:
$Y=76.279+0.106X$

where:

Y represents the competency improvement score,

X denotes the frequency of SIBANG usage,

The constant 76.27976.27976.279 represents the baseline competency score when SIBANG usage is zero, and

The regression coefficient 0.1060.1060.106 indicates that for each additional unit increase in SIBANG usage frequency, there is an associated 0.106-point increase in the competency score(Bu Hamdana).

Interpretation of the Regression Coefficient

The positive coefficient (0.106) suggests that higher usage of SIBANG is associated with higher competency scores, aligning with the expected direction that more frequent use of the platform may lead to improved learning outcomes. However, despite this positive relationship, the effect size is relatively small, implying only a modest increase in competency for each additional usage unit.

Statistical Significance

The regression analysis yielded a **p-value of 0.154**, which is greater than the commonly accepted significance thresholds of 0.05 or 0.01. This high p-value indicates that the observed effect is not statistically significant, meaning we cannot conclude with confidence that SIBANG usage independently causes an increase in competency scores at conventional significance levels. In other words, the relationship observed in this sample may be due to chance rather than a true underlying effect of SIBANG usage on competency improvement.

Qualitative Results

The qualitative results from the study provide insights into participant experiences, challenges, and suggestions for improving the SIBANG Learning Management System (LMS) used in CPNS training at BPSDM South Sulawesi. Through in-depth interviews and focus group discussions, the study captured feedback from participants, facilitators, and administrators, revealing both positive aspects and areas needing enhancement.

Participant Experiences and Perceptions

Participants generally appreciated SIBANG's accessibility, as it allowed them to revisit training materials at their convenience. Many users found the LMS helpful for reinforcing their understanding of course content, especially through the availability of e-learning modules and quizzes. However, technical issues were a common challenge. Some participants experienced difficulties due to unstable internet connections, which made the system slow and less responsive. In these cases, participants often resorted to reattempting access or reaching out to administrators for

support. Additionally, while participants valued the content, several expressed a desire for more interactive features, such as live chat or real-time video support, to facilitate better communication with instructorsistrator Feedback Muslikhah (2014).

Facilitators noted that SIBANG played an essential role in providing structured and readily accessible training materials, which enhanced their teaching effectiveness. However, they also highlighted challenges in ensuring all participants could consistently access SIBANG without technical disruptions. Some facilitators mentioned that participants, particularly those unfamiliar with digital systems, required more time to adapt to the online platform. Administrators added that regular system maintenance and support were essential to mitigate downtime and improve response rates. Recommendations from facilitators and administrators included adding interactive elements, such as video conferencing options, to foster more dynamic engagement and enhance the learning experience

Overall, the qualitatile SIBANG is an effective tool for competency development, improvements in technical infrastructure and interactive features could enhance its value as a learning platform. These insights support the need for a comprehensive approach that combines reliable technical support with interactive functionalities to optimize SIBANG's impact on CPNS training Rahardia & Zakariya (2017).

5. Discussion

Based on the quantitative and qualitative findings, several important themes emerge that highlight both the strengths and limitations of the SIBANG Learning Management System (LMS) in supporting CPNS competency development. The quantitative results suggest a modest yet positive relationship between SIBANG usage and technical competency improvement, but the lack of statistical significance indicates that LMS usage alone may not be a strong predictor of competency gains. This finding underscores the potential influence of other factors, such as instructional quality, learner engagement, and support infrastructure, which may also play essential roles in competency development. Therefore, while SIBANG contributes positively to learning, it should be viewed as part of a broader system of training supports rather than as a standalone solution (Komalasari, 2014; Karim, 2020).

The qualitative data provide deeper insight into these potential additional factors, as participants commonly reported mixed experiences regarding SIBANG's usability and content. Many participants appreciated the flexibility and accessibility of the platform, especially as it allowed them to learn at their own pace. However, technical issues, particularly with internet connectivity,

emerged as a recurring theme that hindered the learning process for some users. These connectivity challenges suggest that SIBANG's impact may vary significantly based on users' geographic location and internet access, highlighting a need for infrastructure improvements or alternative offline resources for users in low-connectivity areas (Martono, 2015; Nuriyanto, 2014).

Moreover, while SIBANG seems effective in delivering theoretical content, qualitative feedback indicates a gap in practical skill-building, especially regarding managerial and socio-cultural competencies. Participants expressed a desire for more interactive features, such as live discussions, role-playing simulations, or collaborative projects, to foster deeper engagement and application of skills in real-world scenarios. This feedback suggests that while SIBANG is structured well for content delivery, its impact on competencies that require interaction and experiential learning could be enhanced by integrating more interactive, practical elements into the LMS (Rivai, 2011). Facilitators and administrators echoed these concerns, noting the need for consistent technical support and regular maintenance to improve the platform's reliability. Their feedback suggests that while SIBANG is valuable for distributing training materials, its effectiveness could be improved by addressing technical issues proactively. Additionally, facilitators highlighted that some participants required extra guidance in navigating the platform, especially those less accustomed to digital learning environments. This points to an opportunity for user orientation programs or support services to help participants maximize their engagement with the platform (Komalasari, 2014).

In conclusion, the study's findings indicate that while SIBANG has strengths in providing accessible, structured content, enhancing its effectiveness will require addressing technical challenges, incorporating more interactive learning options, and providing greater support for users. By improving these areas, BPSDM can ensure that SIBANG becomes a more comprehensive tool that supports all aspects of competency development for CPNS participants, ultimately making it a more impactful learning solution (Karim, 2020; Nurdin, 2018).

6. Conclusions

Based on the findings from this study, the SIBANG Learning Management System (LMS) demonstrates significant potential as a tool for supporting competency development among CPNS participants at BPSDM South Sulawesi. The system effectively provides accessible and structured content, particularly enhancing technical competencies, which was reflected in the positive feedback from participants. However, the quantitative and qualitative data together suggest that while

SIBANG is beneficial for theoretical knowledge acquisition, it faces limitations in fostering managerial and socio-cultural skills, which often require more interactive and practical approaches.

Technical challenges, particularly related to internet connectivity and system performance, were notable barriers that hindered the effectiveness of SIBANG for some participants. This issue is especially critical for users in remote areas, emphasizing the need for infrastructure improvements or alternative resources for those with limited internet access. The regression analysis showed a positive yet statistically insignificant relationship between SIBANG usage frequency and competency improvement, indicating that while regular engagement with the LMS may support learning, additional factors are likely essential for achieving substantial competency gains.

To enhance SIBANG's effectiveness, the platform could benefit from integrating more interactive elements, such as simulations, role-playing exercises, and collaborative projects, which could support the development of practical skills and promote deeper engagement. Facilitating technical support, user orientation, and consistent maintenance would also address usability challenges and improve user satisfaction. By addressing these areas, BPSDM can optimize SIBANG as a comprehensive learning tool that supports a broader range of competencies essential for CPNS roles.

In conclusion, while SIBANG is a valuable digital learning tool, its impact can be enhanced through targeted improvements in interactivity, technical reliability, and support systems. These refinements will enable the LMS to better meet the diverse competency needs of CPNS participants, making it a more effective solution for developing a well-rounded, capable civil service workforce..

References:

Ali, I., & Gohar, R. (2019). The impact of organizational culture on knowledge management practices in the public sector. *International Journal of Public Sector Management*, 32(2), 120-137. https://doi.org/10.1108/IJPSM-09-2018-0273

Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.

Beck, M. R., & Szymanski, D. M. (2021). Information systems and public administration reform: A global perspective. *Government Information Quarterly*, 38(3), 101553. https://doi.org/10.1016/j.giq.2021.101553

Chong, T., & Loke, L. H. (2018). E-Government and public service delivery: A comprehensive review of its impact. *International Journal of Information Management*, 40, 146-155. https://doi.org/10.1016/j.ijinfomgt.2017.12.004

Djawa, K. (2015). Implementasi aplikasi sistem informasi manajemen kepegawaian (Simpeg) untuk mendukung e-government pada Badan Kepegawaian Daerah (BKD) Provinsi Jawa Timur. *Jurnal Administrasi Perkantoran (JPAP)*, 3(3), 1-15.

Dwiyanto, A. (2018). *Manajemen Pelayanan Publik: Peduli Inklusif dan Kolaborasi*. Yogyakarta: UGM PRESS.

Goh, C. F., & Lee, S. H. (2020). Development and implementation of e-government systems in Southeast Asia: Case studies from Singapore, Malaysia, and Indonesia. *Information Systems Journal*, 30(1), 92-114. https://doi.org/10.1111/isj.12176

Jung, C., & Lee, H. (2017). The role of digital transformation in enhancing public service efficiency: A review. *Journal of Public Administration Research and Theory*, 27(3), 491-507. https://doi.org/10.1093/jopart/muw053

Karim, T. (2020). Pengembangan kompetensi widyaiswara di tengah pandemi Virus Corona 2019. *Jurnal Kewidyaiswaraan*, 5(2), 2-11.

Komalasari, S. (2014). Aplikasi program sistem informasi manajemen kepegawaian (SIMPEG) (Studi pada Badan Kepegawaian Daerah Kota Malang). *Jurnal Administrasi Publik*, 2(4), 613-619.

Mardiana, S., & Abdullah, A. (2020). Public service digitalization and its effect on service satisfaction: Evidence from Southeast Asia. *Public Administration Review*, 80(5), 821-834. https://doi.org/10.1111/puar.13207

Martono, N. (2015). *Metode Penelitian Sosial*. Jakarta: Rajawali Pers.

Morris, J. M., & Pollock, R. (2019). Organizational behavior and competency development in public sector organizations. *Public Administration Review*, 79(4), 510-522. https://doi.org/10.1111/puar.13058

Mundiarsih, A. P. (2018). Strategi pengembangan kompetensi widyaiswara melalui knowledge sharing. *Civil Service Journal*, 12(1), 1-10.

Muslikhah, R. I. (2019). Dukungan sistem informasi manajemen kepegawaian terhadap pengambilan keputusan di BKPP Kabupaten Sukoharjo. *Efisiensi-Kajian Ilmu Administrasi*, 16(2), 10-21.

Nurdin, S. (2018). Efektivitas penyusunan bahan ajar berbasis website pada pengembangan kompetensi widyaiswara berjenjang. *Tatar Pasundan: Jurnal Diklat Keagamaan*, 12(33), 95-104.

Nuriyanto, N. (2014). Penyelenggaraan pelayanan publik di Indonesia, sudahkah berlandaskan konsep "welfare state"? *Jurnal Konstitusi*, 11(3), 428-45.

Pradita, A. (2009). Sistem informasi kepegawaian berbasis web pada pemerintah Kota Depok menggunakan PHP dan MySQL. Universitas Gunadarma. http://library.gunadarma.ac.id/repository/view/3,227.

Rahardian, R., & Zakariya, Z. (2017). Kualitas pelayanan publik dalam memenuhi kepuasan masyarakat di Kantor Imigrasi Kelas I Khusus Surabaya. *JPAP: Jurnal Penelitian Administrasi Publik*, 3(1), 584-591.

Rivai, V. (2011). *Manajemen Sumber Daya Manusia untuk Perusahaan: Dari Teori ke Praktik* (Edisi Pertama). Jakarta: PT. Raja Grafindo Persada.

Rohm, A. J., & Venkatesh, V. (2018). Information systems development and competency frameworks in public sector: A systematic review. *Journal of Strategic Information Systems*, 27(4), 327-340. https://doi.org/10.1016/j.jsis.2018.03.002

Sugiyono. (2011). *Metode Penelitian Kombinasi (Mixed Methods)*. Yogyakarta: Alfabeta.

Sun, X., & Li, M. (2020). Transforming public sector organizations through e-government: Insights from the digitalization of public services in China. *Information Technology for Development*, 26(1), 172-189. https://doi.org/10.1080/02681102.2019.1642028

Suharto, T. (2020). Model pengembangan kompetensi widyaiswara di Daerah Istimewa Yogyakarta. *Disertasi Tidak Diterbitkan*, Program Studi Manajemen Pendidikan, Program Pascasarjana Universitas Negeri Yogyakarta.

Wang, J., & Zhang, W. (2021). E-government systems and their influence on service delivery: A longitudinal study. *Government Information Quarterly*, 38(2), 101558. https://doi.org/10.1016/j.giq.2021.101558