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Implementation of Digital-Based Performance Management in Improving the Quality of Educational Administration Services and Educational Personel

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Abstract

In the digital era, schools are increasingly required to modernize administrative processes to meet the demands of efficiency and quality service. This study aims to examine the implementation of digital performance management to improve educational administration and staff performance. Using a qualitative case study approach, data were collected through in-depth interviews, participant observations, and document analysis, then analyzed following Miles' interactive model of data condensation, display, and conclusion drawing. The findings show that digital performance management has improved administrative workflows by shifting from manual to real-time, structured, and paperless processes, resulting in more efficient, accurate, and transparent services. Service quality improved across speed, reliability, responsiveness, and accountability. Challenges remain, including variations in staff digital competence, dependence on ICT infrastructure, and occasional network instability. Recommended strategies include ongoing staff training, technological infrastructure enhancement, periodic system evaluation, and strong digital leadership. Digital performance management plays a strategic role in enhancing school administration quality and provides valuable insights for the digital transformation of educational administration. These findings are expected to contribute to policy development on the digitalization of secondary school educational administration.

Keywords

Digital Performance Management, Digital Transformation, Educational Administration, School Administration, Service Quality, Staff Performance.

1. Introduction

The development of digital technology has encouraged organizations across sectors, including public administration, to transform their performance management. Digitalization enables more effective planning, monitoring, evaluation, and reporting through integrated, data-driven systems. In the context of educational administration, the implementation of digital-based performance management is a strategic tool for improving service efficiency, strengthening accountability, and accelerating educational administration and staff processes. Previous studies have shown that institutions that adopt digital performance management tend to have more responsive, accurate, and consistent service quality in supporting operational service tasks (Ferreira & Otley, 2009; Poister et al., 2014; Dewa, 2023).

In Indonesia, efforts to strengthen the digital ecosystem in educational administration are increasingly relevant amid demands for bureaucratic reform, greater public information transparency, and accelerated educational services. Various programs, such as the development of an Education Management Information System, a digital platform for educators and education personnel services, and an application-based performance reporting system, reflect the commitment of the government and educational institutions to improving the quality of administrative services. However, the implementation of digital performance management has not been fully optimized. Various studies have found differences in technology adoption rates across institutions, unequal competence among educational personnel in operating digital systems, and problems with information system integration that led to ineffective administrative services (Hidayat, 2024; Santoso et al., 2024). This highlights a clear research gap, while digital tools are available, there is limited empirical evidence on how digital-based performance management directly impacts the quality of educational administration services and staff performance.

Furthermore, research on digital-based performance management in Indonesia still focuses on the technical aspects of information systems, while studies specifically examining how digital performance management affects the quality of educational administration services are still limited. There is also an empirical gap in the literature, particularly regarding the relationship between the implementation of digital-based performance management and measurable and systematic improvements in the quality of administrative services for educators and education personnel. Based on this, more in-depth research is needed on the dynamics of digital performance management implementation, its supporting and inhibiting factors, and its contribution to the quality of administrative services in educational institutions (Mohamed et al., 2022).

Based on these problems, this study is designed to answer a number of important questions, namely how is the implementation of digital-based performance management in educational administration services and education personnel, to what extent does it contribute to improving the quality of administrative services, what factors influence the effectiveness of its implementation, what obstacles are faced in the implementation process, and what is the right strategy to optimize digital performance management in supporting educational administration services.

These questions form the basis for formulating research objectives, this study aims to analyze the implementation of digital-based performance management in educational administration services, analyzing its contribution to improving the quality of administrative services, identifying factors that influence the effectiveness of its implementation, explaining obstacles that arise in the implementation process, and formulating optimization strategies to improve the quality of administrative services for educators and education personnel through the implementation of digital-based performance management. Thus, this research is expected to provide

theoretical and practical contributions, both by enriching the literature on digital-based performance management in the education sector and by offering recommendations for educational institutions to develop more effective, efficient, and service-quality-oriented administrative practices.

2. Methods

This research uses a qualitative case study design, following the concept proposed by Creswell (2018), which states that case study research aims to explore in depth a system, event, or process within a particular context. The selection of the qualitative case study method is considered appropriate to the focus of this research, namely, examining the implementation of digital-based performance management in improving the quality of educational administration services and educational staff at SMAN 1 Cikarang Pusat. This approach allows researchers to understand phenomena holistically by exploring work processes, subject experiences, organizational interactions, and the dynamics of digital performance management implementation in the school environment.

The research location was SMAN 1 Cikarang Pusat, which was purposively selected because the school has adopted a digital-based administration system and implemented several performance management applications for its educational staff. The research site was purposively selected because the school has implemented a digital-based administration system and several performance management applications. Informants included the principal, vice-principals for curriculum and infrastructure, administrative staff, and educators and education personnel directly involved in using the digital system, selected through purposive sampling to ensure they had relevant knowledge and experience regarding the implementation process. Informants were selected using purposive sampling, as recommended by Creswell for qualitative research, selecting participants who understand and are directly involved in the phenomenon being studied.

Data collection was conducted through three main techniques: in-depth interviews, observation, and document analysis. Interviews were conducted in a semi-structured manner to gain a deeper understanding of perceptions, experiences, and obstacles to implementing digital systems. Observations were conducted to directly observe administrative service practices, interaction patterns, and how educational staff utilize digital platforms. Meanwhile, document analysis included a review of administrative service Standard Operating Procedures (SOPs), digital performance reports, internal evaluation results, and documents related to technology implementation. The use of these three techniques aligns with Creswell's view that triangulation is a crucial component for increasing the credibility and depth of qualitative research findings.

The data analysis technique used the interactive analysis model of Miles et al. (2014), as recommended by Creswell when qualitative data is narrative and complex. The analysis consists of three stages: data reduction, data presentation, and conclusion drawing/verification. In the data reduction stage, researchers select, group, and organize data based on themes relevant to the research focus. In the data presentation stage, information is organized into narratives, thematic tables, or categorization matrices to facilitate interpretation. Next, conclusions are drawn iteratively through verification with field data to ensure the validity of the interpretations.

Data validity was ensured through source and technical triangulation, member checking, and audit trails, enhancing credibility, transferability, and accountability. Using Creswell's case study approach, the research provides a comprehensive and in-depth analysis of digital-based performance management, detailing its effectiveness, supporting factors, obstacles, and strategic implications for improving educational administration and staff services

3. Results

3.1. Implementation of Digital-Based Performance Management

Theoretical studies provide a scientific foundation for key concepts related to the implementation of digital-based performance management to improve the quality of educational administration and personnel services. In the context of digital transformation in the education sector, the use of technology for performance management has become a global demand, particularly with the increasing need for efficiency, accountability, and transparency in education governance (OECD, 2020; Mohamed et al., 2022; Cosa & Torelli, 2024). Performance management is no longer understood solely as a traditional evaluation process but has evolved into a system integrated with digital technology to support real-time data analysis, performance monitoring, and evidence-based decision-making (Armstrong, 2021; Nyathani, 2023).

In educational administration and education personnel environments, digitalization plays a crucial role in accelerating service processes, improving coordination, and increasing the satisfaction of internal and external stakeholders. Several previous studies have confirmed that digital performance management systems can improve the effectiveness of administrative services through document automation, work tracking, and integrated performance reporting (Nawaz & Gomes, 2020; Rasdiana et al., 2024). However, several studies also note that the implementation of digital systems often faces obstacles, including human resource readiness, ICT infrastructure, and an organizational culture less adaptive to innovation (Heeks, 2017; Zhen et al., 2021).

Digital-based performance management is an evolution of traditional performance management systems that utilizes information technology to support the entire process of planning, monitoring, evaluating, and reporting performance. This system emphasizes data integration, process automation, and analytical capabilities to improve decision-making effectiveness. Ferreira and Otley (2009) state that digital performance management enables organizations to conduct more objective, accurate, and real-time evaluations than manual methods. In the context of public administration, Poister et al. (2014) emphasize that the digitization of performance management plays a crucial role in increasing accountability, transparency, and the quality of public services.

In the education sector, implementing digital performance management can improve administrative governance by leveraging integrated information systems, performance dashboards, and data-driven applications. Research by Benlhabib and Berrado (2025) shows that this system contributes to increased service speed, information consistency, and improved communication quality between work units within educational institutions. Therefore, the digitization of performance management is a strategic element in improving the quality of educational administration services and education personnel.

Research on the implementation of digital-based performance management at SMAN 1 Cikarang Pusat shows that digitalization has created new work patterns in educational administration, affecting not only service speed but also organizational structure, work relationship patterns, and the quality of decision-making. In-depth analysis of interview, observation, and documentation data revealed six main themes: (1) transformation of the performance management process, (2) improvement of service quality, (3) behavioral changes and human resource adaptation, (4) readiness and the role of infrastructure, (5) dynamics of implementation barriers, and (6) sustainable strengthening strategies. All these findings are discussed in depth in the context of digital performance management theory by Armstrong (2021), organizational innovation adoption theory, the concept of service quality by Grönroos (1984) and Parasuraman et al. (1985), and e-government theory by Heeks (2017).

Key findings indicate that the implementation of digital-based performance management has reshaped the administrative work process at SMAN 1 Cikarang Pusat. Processes that previously relied on physical documents, manual approvals, and layered reporting have now shifted to a real-time, integrated system. Indah Tri Utami provides a comprehensive overview of this transformation, stating that before digitalization, the administrative process began with "a lot of paper, old reports, manual approvals, and scattered data," but after digitalization, it has become "paperless, real-time, online and fast, with centralized archives." This transformation demonstrates a shift from traditional management models to continuous performance management, as described by Armstrong (2021), which emphasizes the use of technology as a tool for ongoing performance monitoring and evaluation. The implementation of online performance targets for teachers and education personnel, including teaching modules, attendance, student assessments, and extracurricular activities, confirms that digital tools have become part of the school's formal performance structure. Furthermore, an interview with Atikah revealed that the school's digital system is "applicable and facilitates various administrative activities." This indicates that application integration serves not only as a recording tool but also as a workflow control tool that influences how administrative staff manage their daily work.

3.2. Contribution to the Quality of Administrative Services

The quality of educational administration services refers to an institution's ability to deliver fast, accurate, informative, and tailored services to educators, staff, students, and other stakeholders. The SERVQUAL model developed by Parasuraman et al. (1985) is widely used to measure service quality, comprising five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. This model is also relevant for adaptation in the context of educational administration services.

In the context of schools and universities, the quality of administrative services is determined by factors such as the effectiveness of bureaucratic processes, speed of service delivery, data accuracy, and the use of information technology. Sutarjo (2025) suggest that the digitalization of administrative services significantly improves service quality, particularly in terms of speed, accuracy, and transparency of information. The quality of educational administration services improves when standardized information systems and work processes are consistently implemented by competent human resources (Ilham & Yuniarti, 2022).

The research results show that digitalization has significantly improved the quality of administrative services. Three key indicators show consistent improvement: service speed, data accuracy, and information transparency. First, all informants confirmed increased efficiency. Atikah stated that services have become "better, more structured, and transparent," while Indah emphasized that digitalization "speeds up administrative services, making processes more efficient, accurate, and accessible." This finding aligns with the responsiveness dimension in the SERVQUAL model by Parasuraman et al. (1985), which states that service acceleration is a key indicator of improved service quality.

Second, information quality has significantly improved. Informants stated that data has become more accurate, complete, and timely. Sandi Prayoga stated that the digital system "makes information more accurate, complete, and timely, thus supporting work efficiency and service quality." Improved data quality indicates that digitalization has strengthened the reliability and assurance dimensions of administrative services.

Third, transparency is the most significant impact. The digital system allows every activity to be recorded and traced. Sandi emphasized that "all actions are recorded and traceable... administrative processes are more organized and transparent." Open information strengthens organizational accountability and

creates a work system free from manipulation, in line with Heeks' (2017) theory on digital governance, which emphasizes traceability and information openness as key characteristics of successful digital transformation

3.3. Factors Influencing Effectiveness and Challenges

Educational administration encompasses all management processes that support the delivery of education, from data management and academic services to the management of educators and educational staff (Lunenburg & Ornstein, 2021). The development of digital technology has shifted the paradigm of educational administration from a manual system to a more efficient, transparent, and data-driven one. According to Bush (2020), digital transformation in educational administration enhances institutions' ability to make strategic decisions by providing fast and accurate data access.

Digitalization of educational administration includes the implementation of management information systems, service automation, database integration, and digital workflows. At the operational level, digitalization impacts changes in work processes, the need for new competencies, and adaptations to work culture. Al-Zaqeba et al. (2025) emphasize that the success of digital transformation is heavily influenced by organizational readiness, technological support, and human resource competency. In the context of educational institutions in Indonesia, the main challenges lie in disparities in technological infrastructure, variations in human resource digital literacy, and the lack of synchronization of information systems used across units.

The implementation of digital-based performance management relies heavily on the digital competence of educators and education personnel. Digital competence includes the ability to operate administrative applications, manage data digitally, and understand management information systems. According to Redecker and Punie (2017), digital competence encompasses not only technical skills but also cognitive abilities to effectively utilize technology in work processes. Research by Mohammadyari and Singh (2015) shows that the level of digital literacy of human resources influences the effectiveness of digital performance management implementation. Educational personnel with high levels of digital literacy can adapt better to new systems and maximize available features. Conversely, low digital competence poses a barrier to implementing digital systems, affecting the quality of educational administrative services.

The findings show that the adaptation of educational staff to digital systems varies across individuals. Sandi identified three categories of understanding: the first, the good category, includes teachers and education personnel who are already familiar with technology; the second, the medium category, consists of those who require adaptation and guidance to use the systems effectively; and the third, the low category, comprises senior staff members who are less familiar with using technology and need more intensive support. This diversity in digital competency levels demonstrates that successful digitalization depends not only on software but also on psychological readiness and individual competency. Redecker and Punie (2017) emphasized that digital competence is a key factor in the success of digital transformation in education. Furthermore, younger administrative staff tend to show greater enthusiasm. Sandi cited "enthusiasm and curiosity" in learning digital systems. This indicates a shift in work culture toward a stronger digital orientation.

ICT infrastructure is a critical determinant of the successful implementation of digital-based performance management (Odebode & Ogunbayo, 2025). Interviews revealed that schools have adequate facilities, such as computers, servers, printers, and a stable internet connection. Indah emphasized that "computers, servers, local networks, and digital administration systems are available and regularly updated." This perspective supports the theory that digital transformation can only be successful if supported by adequate technology readiness. A robust infrastructure

enables digital systems to function optimally, improves accessibility, and ensures smooth data integration.

Despite many positive aspects, the study identified significant barriers. Three main issues emerged: unstable internet connections, which hinder access to digital services; dependence on hardware, as Sandi described it: "dependence on digital devices, electricity, networks..."; and variations in human resource competencies, particularly among senior education staff. These barriers indicate that digitalization creates new vulnerabilities in administrative systems. When devices or networks are disrupted, the entire service process comes to a halt. This finding aligns with Heeks' (2017) literature on the design-reality gap, where a mismatch between digital system design and infrastructure capabilities is a contributing factor to the failure of digital implementation.

3.4. Optimization Strategies for Digital-Based Performance Management

Various studies show that the implementation of digital performance management is influenced by internal and external factors. Supporting factors include leadership commitment, clear policies, digital competency training, and technological infrastructure readiness. Meanwhile, the main obstacles include resistance to change, limited tools, lack of system integration, and variations in human resource capabilities in mastering technology (Hidayat, 2024). Analyzing digital system implementation requires a comprehensive understanding of the organizational context, work culture, technological readiness, and change management strategies. A thorough understanding of these supporting and inhibiting factors is crucial for formulating strategies to optimize the implementation of digital-based performance management in educational administration.

The informants proposed various strengthening strategies. Indah emphasized the importance of training, mentoring, and regular evaluations, while Sandi emphasized the need to "improve human resource competencies, strengthen ICT infrastructure, and make the system more user-friendly." This strategy is consistent with the continuous improvement model in digital performance management. Furthermore, support from school leaders was the most dominant factor according to all informants. Atikah stated that the support of the principal and the foundation made the implementation of the digital system effective. Educational management literature confirms that digitalization can only succeed with strong leadership commitment (Bush, 2020). Schools committed to innovation will more easily overcome obstacles and improve service quality.

4. Discussion

The findings of this study indicate that the implementation of digital-based performance management at SMAN 1 Cikarang Pusat has significantly improved the quality of administrative services through system integration, increased efficiency, improved information quality, and enhanced transparency. However, this success is still influenced by human resource readiness, infrastructure resilience, and ongoing support from school leadership.

This research reinforces national and international literature that digitalization is not only a technological transformation but also a transformation of the culture, competencies, and management of educational organizations. Studies on educational administration have shown that digital technology enhances administrative processes by improving efficiency and coordination among administrative functions, reducing manual workload, and increasing overall service responsiveness (Harini et al., 2024). The evidence from SMAN 1 Cikarang Pusat, where administrative workflows shifted from paper-based to fully integrated digital systems, aligns with this broader trend of digital transformation in educational management.

The improvement in service quality observed in this study, characterized by faster processing, more accurate documentation, and greater transparency, supports findings in related research that digital systems can enhance service delivery by centralizing data and enabling real-time access (Jennah et al., 2025). This is consistent with studies on school administrative digitalization, which report that integration of information systems not only accelerates service processes but also supports better stakeholder communication and organizational accountability.

Despite these positive outcomes, the variation in staff digital competence highlighted the importance of human factors in successful digital adoption. The categorization of staff into high, medium, and low adaptation levels reflects a common challenge in digital transformation identified in the literature: technological readiness alone is insufficient without accompanying enhancements in digital literacy and human resource capability (Tahir & Rachman, 2025). Educational administrators play a pivotal role in fostering digital competence among staff, which directly influences the effectiveness and sustainability of digital performance management practices.

Moreover, the presence of infrastructure barriers such as unstable internet and hardware dependency underscores that resource readiness remains a critical determinant of successful implementation. Research on digital transformation in educational management emphasizes that infrastructure and organizational support are necessary to achieve operational efficiency and improve service quality (Purwani et al., 2024). The need for leadership support and continuous professional development identified in this study echoes broader findings that organizational culture and strategic leadership commitment are key to navigating digital transition challenges. Effective digital leadership not only promotes adoption but also fosters innovation and responsiveness in school administrative processes, thereby enhancing institutional capacity to manage digital systems (Harini et al., 2024).

The study contributes to the literature by providing a context-specific analysis of how digital performance management functions as an integrative force in educational administration, reinforcing the need to complement technological components with human and organizational readiness. This extends existing research by illustrating how digital transformation operates not just as a technological upgrade, but as a holistic organizational shift that requires strategic planning, capacity building, and supportive leadership to maximize its impact on service quality

5. Conclusion

Research at SMAN 1 Cikarang Pusat shows that digital-based performance management has transformed administrative work from manual to integrated digital systems, streamlining workflows, enabling real-time, paperless reporting, and enhancing accountability and traceability. Digitalization has improved service quality in terms of speed, accuracy, transparency, and procedural consistency, strengthening responsiveness, reliability, and assurance in educational service delivery. HR adaptation varies staff with high digital competence adapt quickly, while senior or less digitally literate staff need more mentoring, affecting implementation effectiveness. Success also depends on the readiness of ICT infrastructure, including computers, networks, and servers, as disruptions and device dependencies pose challenges. Obstacles such as network instability, reliance on devices, and varying staff competencies can slow service if unaddressed. Sustainable strategies regular training, infrastructure improvement, user-friendly systems, and strong leadership are essential to maintain and optimize digital implementation. Overall, digital performance management strategically enhances administrative

effectiveness and service quality, but success requires integrating technology, HR capacity, infrastructure, and leadership.

Based on the findings, schools are advised to strengthen digital-based performance management by enhancing staff competence through regular training and mentoring, improving ICT infrastructure with stable internet, functional devices, and technical support, optimizing systems and simplifying workflows, and ensuring strong leadership commitment to support and monitor digital initiatives. Additionally, digital systems should be integrated across all administrative units, and comprehensive digital performance evaluation models combining quantitative and qualitative indicators should be developed and regularly assessed to ensure effectiveness and continuous improvement in service quality. This study is limited to one school context, so generalization is constrained, and future research could examine multiple schools or explore the long-term impact of digital performance management on educational outcomes.

References

Al-Zaqeba, M., Alshehadeh, A. R., Jebril, I., & Al-khawaja, H. (2025). The role of digital human resources management functions in enhancing digital transformation readiness. *Al-Basaer Journal of Business Research*, *1*(1), 24-29.

Armstrong, M. (2021). *Armstrong's handbook of performance management: An evidence-based guide to delivering high performance*. New York: Kogan Page.

Benlhabib, H., & Berrado, A. (2025). Towards a digital platform for performance management and systemic improvement of education systems: evidence from Morocco. *Discover Education*, *4*(1), 15-19.

Bush, T. (2020). *Theory of educational leadership and management* (5th ed.). London: Sage Publications.

Cosa, M., & Torelli, R. (2024). Digital transformation and flexible performance management: A systematic literature review of the evolution of performance measurement systems. *Global Journal of Flexible Systems Management*, *25*(3), 445-466.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). London: Sage Publications.

Dewa, A. (2023). Empirical analysis of service quality on consumer satisfaction in maritime transportation. *Research Horizon*, *3*(5), 531-541.

Ferreira, A., & Otley, D. (2009). The design and use of performance management systems: An extended framework for analysis. *Management accounting research*, *20*(4), 263-282.

Grönroos, C. (1984). A service quality model and its marketing implications. *European Journal of marketing*, *18*(4), 36-44.

Harini, H., Ripki, A. J. H., Sulistianingsih, S., Herlina, H., & Putri, A. (2024). Digital transformation: the utilization of information and communication technology to enhance educational management efficiency in the modern era. *Jurnal Minfo Polgan*, *13*(2), 1668-1674.

Heeks, R. (2017). *Information and communication technology for development (ICT4D)*. London: Routledge.

Hidayat, M. H. (2024). Revitalizing high school education management in the digital era: challenges and opportunities for educational transformation. In *proceeding of international conference on education, society and humanity*, *2*(1), 865-872.

Ilham, M., & Yuniarti, Y. (2022). Implementation of management information systems to enhance educational quality:(Case study at SMP Negeri 11 Lhokseumawe). *Idarah: Jurnal Pendidikan dan Kependidikan*, *6*(1), 15-26.

Jennah, S. N., Chotib, M., & Sukamto, S. (2025). Transformasi digital administrasi sekolah: strategi inovatif dalam meningkatkan excellent service. *Tadbir: Jurnal Manajemen Pendidikan Islam*, *13*(2), 244-265.

Lunenburg, F. C., & Ornstein, A. (2021). *Educational administration: Concepts and practices*. New York: Sage Publications.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). London: Sage Publications.

Mohamed Hashim, M. A., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and information technologies*, *27*(3), 3171-3195.

Mohammadyari, S., & Singh, H. (2015). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers & Education*, *82*(4), 11-25.

Nawaz, N., & Gomes, A. M. (2020). The relationship between organizational citizenship behavior and team performance: The mediating effect of team conflict. *Available at SSRN*, *3*(4), 76-79.

Nyathani, R. (2023). AI in performance management: Redefining performance appraisals in the digital age. *Journal of Artificial Intelligence & Cloud Computing. SRC/JAICC-146*, *134*(3), 2-5.

Odebode, A. A., & Ogunbayo, O. T. (2025). The potential of digital-based technology in improving organizational performance. *Journal of Management Development*, *44*(1), 96-106.

OECD. (2020). *Digital government in the public sector: Supporting public service transformation*. New York: OECD Publishing.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of marketing*, *49*(4), 41-50.

Poister, T. H., Aristigueta, M. P., & Hall, J. L. (2014). *Managing and measuring performance in public and nonprofit organizations: An integrated approach*. New York: John Wiley & Sons.

Purwani, R., Fathoni, A., Sarilan, S., & Siswanto, H. (2025). Transformasi administrasi pendidikan untuk mengoptimalkan efisiensi dan kualitas layanan pendidikan pada era digital. *Jurnal Keilmuan Dan Keislaman*, *5*(5), 53-58.

Rasdiana, Wiyono, B. B., Imron, A., Rahma, L., Arifah, N., Azhari, R., ... & Maharmawan, M. A. (2024). Elevating teachers' professional digital competence: synergies of principals' instructional e-supervision, technology leadership and digital culture for educational excellence in digital-savvy era. *Education Sciences*, *14*(3), 266.

Redecker, C., & Punie, Y. (2017). *European framework for the digital competence of educators: DigCompEdu*. New York: Publications Office of the European Union.

Santoso, T. N. B., Ismanto, B., Sitorus, D. S., & Rina, L. (2024). Pengembangan media pembelajaran kas kecil berbasis web untuk kompetensi keahlian manajemen kantor dan layanan bisnis smk solusi digitalisasi bidang perkantoran. *Kelola: Jurnal Manajemen Pendidikan*, *11*(2), 169-182.

Sutarjo, E. (2025). Manajemen tata administrasi pendidikan berbasis digital untuk kualitas layanan di smk taman siswa karawang. *Al-Hasib: Jurnal Manajemen Pendidikan Islam*, *2*(1), 257-271.

Tahir, I., & Rachman, A. A. (2025). The role of educational administration in digital literacy development: transformative strategies for enhancing 21st century competencies. *International Journal of Educational Development*, *2*(3), 115-123.

Zhen, Z., Yousaf, Z., Radulescu, M., & Yasir, M. (2021). Nexus of digital organizational culture, capabilities, organizational readiness, and innovation: Investigation of SMEs operating in the digital economy. *Sustainability*, *13*(2), 720-730.

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The data that support the findings of this study are available from the corresponding author upon reasonable request.