

ANALYSIS OF THE EFFECTIVENESS OF THE PERSONNEL INFORMATION SYSTEM IN SUPPORTING HUMAN RESOURCES DATA MANAGEMENT ADMINISTRATION AT MANADO STATE UNIVERSITY

Stenli Ferlan Rattu, Margareth Inof Riisye Rantung, Jeane Mantiri.

Universitas Negeri Manado, Indonesia

Corresponding email : stenlierattu@unima.ac.id

Received: 03/06/2026 | Revised: 08/07/2026 | Accepted: 20/07/2026 | Published: 04/08/2026

Abstract

This study aims to analyze the effectiveness of the Personnel Information System in supporting human resources (HR) data management administration at Manado State University (UNIMA). This research employs a qualitative approach using a case study design. Data were collected through three main methods: in-depth interviews, participant observation, and document review. The findings reveal that the effectiveness of the personnel information system at UNIMA remains very low. This is primarily due to the absence of a comprehensively integrated system, resulting in HR data management heavily relying on manual methods and simple software like Microsoft Excel. Although the university has made digital transformation efforts, such as developing the Key Performance Indicators (MPI) management information system and collaborating with Ganesha University of Education (Undiksha) for system adoption, these initiatives remain partial and have not encompassed the entire personnel management cycle. Consequently, the system's ineffectiveness causes systemic impacts, including administrative delays in employee promotions and reporting, errors in staff planning, and potential threats to study program accreditation. Furthermore, it causes the institution to fail in implementing the principles of Good University Governance (GUG) and the legally mandated merit system. Therefore, improving the personnel system at UNIMA requires strategic steps, including issuing formal policies, continuously enhancing HR capacity and infrastructure, and developing an integrated system specifically tailored to the university's needs.

Keyword: Personnel Information System; Human Resources Data Management; Digital Transformation; Good University Governance; Manado State University.

INTRODUCTION

Digital transformation in public bureaucracy, including in state universities (PTN), has become a non-negotiable necessity amidst the rapid flow of the industrial revolution 4.0. As institutions that carry out the tridharma mission and are at the forefront of producing superior human resources, PTN is required to adopt information technology in every line of its operations, including in the management of personnel administration. The Personnel Information System (SIMPEG) is present as a vital subsystem in human resource management that functions to support data management, career history recording, mutation administration processing, and the preparation of integrated performance reports. The existence of an effective and efficient information system is the main foundation for the creation of professional, responsive, and accountable personnel governance, considering that the management of the state civil apparatus (ASN) in the PTN environment involves thousands of employees with various levels of positions, rank groups, and dynamic competency specifications. The government, through the Ministry of Administrative and Bureaucratic Reform (PANRB), has consistently pushed for the acceleration of digital transformation of ASN as an integral part of the national bureaucratic reform agenda, which is realized, among other things, through the development of a Digital ASN system designed to support the implementation of a merit system, improve the accuracy of national personnel data, and increase the efficiency of public services across all government agencies.

ANALYSIS OF THE EFFECTIVENESS OF THE PERSONNEL INFORMATION SYSTEM IN SUPPORTING HUMAN RESOURCES DATA MANAGEMENT ADMINISTRATION AT MANADO STATE UNIVERSITY

Stenli Ferlan Rattu et al

However, the implementation of digital transformation at the public universities level in Indonesia still faces significant challenges. Various studies show that many state universities still struggle with fragmented information systems, manual reporting practices, and a lack of interoperability between systems across various work units, ultimately leading to data redundancy, information inconsistency, and high administrative burdens. Research at Gorontalo State University revealed that fragmented information systems and manual reporting practices result in significant inefficiencies, delay strategic decision-making processes, and compromise the accuracy of data that should serve as the foundation for policy. Similar conditions are also found at various other state universities in Eastern Indonesia, where limited technological infrastructure, competent human resources in the field of information systems, and inadequate policy support are major obstacles to the realization of integrated digital-based personnel governance. In this context, Manado State University (UNIMA), as one of the oldest and largest state universities in Eastern Indonesia, is interesting to study, particularly in relation to the effectiveness of the personnel information system used to support the administration of human resource data management within its environment.

Manado State University, located in Tonsaru Tataaran Tondano, Minahasa Regency, North Sulawesi, is a higher education institution with a broad organizational scope with nine faculties, namely the Faculty of Engineering, the Faculty of Mathematics and Natural Sciences and Earth Sciences, the Faculty of Social Sciences and Law, the Faculty of Languages and Arts, the Faculty of Economics and Business, the Faculty of Education and Psychology, the Faculty of Sports Science and Public Health, the Faculty of Medicine, and the Postgraduate Program. Each year, UNIMA accepts approximately 5,000 prospective new students spread across various study programs, which automatically adds to the complexity of the need for adequate teaching and educational staff. Based on collected personnel data, the number of educational staff at UNIMA consists of 344 people with Civil Servant/State Civil Apparatus (PNS/ASN) status and 156 honorary staff, while the number of teaching staff or lecturers is recorded at 730 permanent people and 38 honorary people. When added together, the total number of employees at UNIMA reaches more than 1,200 people spread across various faculties, bureaus, institutions, and work units under the coordination of the rectorate. This very large and geographically dispersed number of employees demands a personnel data management system that is not only accurate and up-to-date, but also can be accessed in real-time by all stakeholders, from university leaders, bureau heads, faculty deans, to the employees themselves, for the purposes of career planning, performance monitoring, and agency reporting.

Unfortunately, the existing state of personnel management at Manado State University still shows a significant gap between the ideal need for an integrated system and the operational reality in the field. The results of research and observations conducted indicate that to date UNIMA does not have a comprehensively integrated personnel management information system supported by strong formal policies. This fact is reinforced by the finding that UNIMA does not yet have a Rector's Decree on an Online-Based Academic Management Information System, which indirectly reflects that formal policies regarding integrated information systems, both for academic and personnel fields, are still in the formulation and initial development stages. In daily practice, employee data management at UNIMA still relies heavily on manual methods or the use of simple data processing software such as Microsoft Excel. This is particularly evident in the processing of the Rank Order List (DUK), which still uses Microsoft Excel and is known to have many weaknesses, especially in terms of data validation, automation of service period calculations, and synchronization with the national personnel master data.

Due to this reliance on non-integrated tools, data often appears to be out of sync between the database managed by the Human Resources Department at the rectorate level and the human resources data managed separately by each faculty and study program. This data misalignment is not a trivial issue, as it can lead to errors in assigning functional positions, delays in promotion processes, inaccurate data for reporting to the Government Agency Performance Accountability System (SAKIP), and even employee distrust of the existing administrative system. This less-than-ideal situation is not entirely due to a lack of effort on the part of the university, as UNIMA has demonstrated a strong commitment to developing a digital ecosystem through various strategic initiatives. One concrete step taken is to collaborate with Ganesha University of Education (Undiksha) as a partner in developing an integrated system. This collaboration encompasses a range of activities, from training on integrated electronic data information (EDI) systems and electronic data management to the implementation of new technologies to support academic processes and various other administrative functions. Furthermore, UNIMA has independently developed several specific information systems, such as the Key Performance Indicators (MPI) Achievement Management Information System, built using the Extreme Programming method, and a website-based information system dashboard that visually presents aggregate data on the number of students, graduates, and human resources. However, the development of these systems remains partial and

fragmented, thus failing to holistically encompass the entire personnel management cycle—from recruitment and placement, career development, performance appraisal, to termination. The research also revealed that users at the work unit and leadership levels at UNIMA explicitly stated the need for personnel application features that can add, view, and change employee data centrally in one hand, which indicates a strong internal awareness and demand for the importance of an integrated personnel information system, even though its implementation is currently still hampered by various technical and non-technical obstacles. These gaps are further confirmed by examining three previous studies from the past five years that are relevant to this topic. First, research by Badjuka, Mozin, and Nani (2026) on the development of an integrated information system for performance management in Indonesian higher education institutions revealed that Indonesian higher education institutions still face significant challenges in implementing the Government Agency Performance Accountability System (SAKIP), largely due to fragmented information systems and manual reporting practices. A case study at Gorontalo State University (UNG) showed that the lack of interoperability between systems in the planning, finance, and performance units resulted in data redundancy, reporting inconsistencies, and a high administrative burden.

These findings are highly relevant to UNIMA, which also faces similar challenges in terms of system fragmentation and data asynchronous between the Human Resources Division and faculties and study programs. However, that research focused more on the development of a prototype of an integrated e-SAKIP platform, while research on the effectiveness of UNIMA's existing personnel information system—particularly in the context of HR data management administration—remains an unexplored area. Second, research by Sa'adah, Sutrisno, and Rohmah (2025) on the impact of digital innovation in personnel services on employee performance at State Islamic Religious Universities provides an important quantitative perspective. Involving 337 respondents and using PLS-SEM analysis, this study found that the implementation of personnel service digitization had a 55% impact on employee performance at UIN Syarif Hidayatullah Jakarta, with all proposed hypotheses having a significant impact. This study also identified that although digitalization has been implemented, there are still challenges in its implementation such as human resource readiness, technological infrastructure, and understanding of the new system. Although providing an important contribution regarding the impact of digitalization on performance, this study does not specifically examine the effectiveness of the personnel information system from the aspect of data management administration, and has not touched on the context of UNIMA which has different organizational characteristics and challenges.

Third, research by Putri (2024) who conducted an audit of the Personnel Information System (SIMPEG) using the COBIT 2019 framework at the University of Jambi provides a comprehensive evaluative approach. SIMPEG was built to realize fast, effective, efficient, and accurate personnel services by utilizing communication and information technology. The audit results show that the current capability level for the APO12 (risk management) domain is at level 2, APO13 (security management) at level 1, and BAI10 (configuration management) at level 1, while the expected capability levels are level 4, level 3, and level 3, respectively, so there is a gap of 2 levels from the expected. This study provides recommendations for improving SIMPEG governance at the University of Jambi. However, this study uses a technical audit approach that is oriented towards IT governance, not on analyzing the effectiveness of the system from a user perspective and its impact on the overall administration of HR data management. In addition, the context of the University of Jambi as a PTN in Sumatra has different characteristics and challenges than UNIMA in Eastern Indonesia, so the audit results cannot be generalized to the UNIMA context. These three previous studies collectively show that research on personnel information systems in state universities still leaves a lot of room, especially in terms of analyzing the effectiveness of the system in state universities in Eastern Indonesia, approaches that involve multi-stakeholder perspectives, and a focus on the administration of HR data management which is the backbone of personnel operations.

Based on these gaps, the urgency of research on the effectiveness of the Personnel Information System at Manado State University is increasingly strengthened and can be viewed from five strategic dimensions. The first dimension stems from the demands of public governance and accountability, considering that UNIMA has the status of a Public Service Agency State University (PTN-BLU) which is required to implement the principles of *good university governance*, which include transparency, accountability, responsiveness, and effectiveness in every aspect of resource management, including human resources. Without an effective personnel information system, efforts to realize good governance will be in vain because the data used as the basis for planning and budgeting cannot be relied upon. The second dimension is operational efficiency and effectiveness, because with more than 1,200 employees spread across various units, manual or semi-manual data management using Microsoft Excel is clearly inefficient, prone to input errors and data duplication, and consumes time and energy that should be allocated to more substantive public service tasks. The development of

personnel subsystems in information systems has been empirically proven to be able to increase administrative efficiency and provide real solutions to the classic problems faced by lecturers and educational staff in their career administration matters.

The third dimension relates to compliance with ever-evolving policies and regulations, where the Government through the Ministry of Administrative and Bureaucratic Reform and the Ministry of Higher Education, Science, and Technology continues to issue new regulations that demand accurate personnel data, such as Decree of the Minister of Education and Culture Number 232/M/KEP/2025 which regulates Government Employees with Work Agreements (PPPK) in PTN environments. The implementation of these policies will encounter serious obstacles if UNIMA does not have an information system capable of managing employee data accurately and integrated with national standards. The fourth dimension is the development of sustainable human resources, where an effective personnel information system does not only function as a passive administrative tool, but as a strategic instrument for career development planning, competency mapping, transfers, promotions, and employee capacity building in a measurable and equitable manner, which is the essence of implementing a merit system in ASN management as mandated by Law Number 5 of 2014 concerning the State Civil Apparatus.

The fifth and final dimension is collaboration and interoperability, considering that UNIMA is currently in the process of adopting and developing an integrated information system through collaboration with Undiksha and various other parties, but the adoption of a system from another institution requires an in-depth study of its suitability to UNIMA's specific needs and its effectiveness in the local context, including its ability to be interoperable *with* national systems such as the ASN Digital platform and SAKIP managed by the central government. Departing from all the realities, challenges, and opportunities that have been described, research on the analysis of the effectiveness of the Personnel Information System in supporting HR data management administration at Manado State University is an urgent need and cannot be postponed any longer. This research is expected to not only provide theoretical contributions to the development of public administration science, especially in the field of public sector human resource management and management information systems, but also provide significant practical contributions for policy makers at UNIMA in formulating strategies for developing a more effective personnel information system, as well as becoming evaluation material for improving overall personnel governance in the future.

METHOD

This research uses a qualitative approach with a case study type *that* aims to understand in depth and holistically the effectiveness of the Personnel Information System in supporting HR data management administration at Manado State University. The qualitative approach was chosen because the effectiveness of an information system cannot be measured solely by statistical figures, but is strongly influenced by the meaning, experience, perception, and social interactions of users in operating and utilizing the system in their daily work environment. As stated by Creswell and Poth (2018), a case study is defined as a research strategy that involves exploring an issue through one or more cases in a limited system (*bounded system*), such as a specific setting or context. Case studies allow researchers to explore phenomena intensively in a real context at UNIMA, with clear system boundaries, namely the personnel information system used by the Bureau of Personnel, Finance, and General Affairs along with all user work units within the university environment. This approach is in line with previous research conducted by Badjuka, Mozin, and Nani (2026) who also used a case study at Gorontalo State University to reveal the dynamics of information system fragmentation and manual reporting practices, as well as research by Putri (2024) who, although using the COBIT 2019 framework, still requires qualitative in-depth research to understand the gaps in personnel information system governance at Jambi University. With a qualitative approach, this study not only identifies whether the information system is running effectively or not, but also explores why and how such effectiveness is achieved or hampered, including contextual factors such as human resource readiness, organizational culture, leadership, and policy support from university leaders that cannot be adequately revealed through a quantitative approach alone. The data collection techniques in this study used three main methods, namely in *-depth interviews* , participant observation , and document review . In-depth interviews were conducted in a semi-structured manner with informants selected using *purposive sampling* and *snowball sampling* . As explained by Eppich, Gormley, and Teunissen (2019), semi-structured interviews are the most common type used in qualitative research, where the interview guide includes predetermined questions but still provides flexibility to explore emergent topics based on the research questions. The selected informants included the Head of the Bureau of Personnel, Finance, and General Affairs as the main administrator of the system, the personnel administration staff who operate the

system on a daily basis, the deans and vice deans in the faculties who use personnel data for decision-making at the unit level, as well as lecturers and education staff who directly experienced the quality of personnel administration services through the system. *Purposive sampling* is a fundamental principle in qualitative research for selecting cases and individuals because it places the research question as the primary consideration in sampling, while *snowball sampling* is used when researchers ask participants to recommend other relevant individuals for research after the study has begun. Participatory observation was conducted by directly observing the operational process of the personnel information system at the Personnel Bureau, as well as interactions between bureau employees and users from other units, to capture technical dynamics, operational constraints, and user behavior in utilizing the system. Document review included analysis of policies related to the information system at UNIMA, such as the Rector's Decree, system usage guidelines, annual personnel reports, and administrative data generated by the system to determine the accuracy, completeness, and timeliness of the data produced. Data analysis was conducted interactively and continuously following the model of Miles and Huberman (1994), which consists of three main stages: data reduction, data *display*, and conclusion *drawing and verification*. To ensure the validity of the data, this study applies four trustworthiness criteria according to Lincoln and Guba (1985), namely credibility *through* triangulation of sources and methods, transferability *through* a detailed description of the research context, dependability *through* tracking the audit trail of the entire research process, and confirmability *through* confirmation of findings to informants and checking by peers. With this comprehensive qualitative method, the study is expected to be able to produce a rich, contextual, and in-depth understanding of the effectiveness of the personnel information system at UNIMA, while providing practical and operational recommendations for the development of digital-based personnel governance in the future.

RESULTS AND DISCUSSION

4.2.1. Low Quality of Personnel Systems, Information, and Services

The first finding in this study revealed that the quality of the personnel information system at UNIMA is still very low, as reflected in the lack of an integrated system, resulting in data management still relying on Microsoft Excel for most administrative processes, from data collection on the Ranking List (DUK) to recording employee career histories. This condition results in low quality information produced due to data asynchronous between the Personnel Bureau and faculties and other work units, where data on the number of lecturers based on functional positions received by faculty leaders often differs from the actual conditions in the field. This low quality of the system and information directly impacts the low quality of service perceived by end users, where lecturers and educational staff must visit the Personnel Bureau repeatedly to handle administrative matters such as promotions and are often asked to complete files that should already be available in the system. When examined using the information system success model of DeLone and McLean (2003), these three dimensions of quality—*system quality*, *information quality*, and *service quality*—are the main foundations that must be met before other dimensions such as usage intention, user satisfaction, and net benefits can be achieved. UNIMA's failure to meet these three basic dimensions has created a domino effect that hampers the entire digital-based personnel management cycle. This situation further emphasizes that UNIMA is still in the early stages of digital transformation, where information systems have not yet become the backbone of HR administration operations, but rather merely complement the still-dominant manual procedures. This finding is also in line with the results of Putri's (2024) research at the University of Jambi, which found that although SIMPEG is technically in place, its governance capability level is still low, with a gap of up to two levels from the expected in the domain of risk management and security. However, what distinguishes UNIMA is that it does not even have a fully integrated system, placing it at an even earlier stage in the personnel digitalization journey than the University of Jambi.

4.2.2. Digitalization Efforts Have Not Been Comprehensive and Have Been Hampered by the Adoption Process

The second finding revealed that UNIMA has demonstrated considerable commitment and technical capacity through the development of several specific information systems, such as the Key Performance Indicators (MPI) Achievement Management Information System built using the Extreme Programming method and a website-based information system dashboard that presents aggregated human resource data. The successful development of the MPI system, which has proven to assist in the effective and efficient planning, organizing, implementing, and controlling of the achievement of key performance indicators, demonstrates that UNIMA possesses competent technical resources in the field of information systems development, which should be utilized to develop a similar personnel information system. However, the existing MPI system and dashboard are still partial and limited to aspects of performance and data

visualization, while many other vital aspects of the personnel management cycle, such as recruitment, transfers, career development, welfare administration, and dismissals, remain untouched by digitalization. Furthermore, the strategic collaboration with Ganesha University of Education (Undiksha) through the DEI (Integrated Electronic Data) Information System Technical Guidance in June 2024 is a commendable step forward, as it demonstrates UNIMA's awareness of the importance of data interoperability and integration. However, according to the UNIMA technical team, the implementation of the DEI system is still in its early stages, and not all modules have been implemented yet, as they require significant adjustments to UNIMA's specific conditions and needs. This confirms that adopting a system from another institution is not as easy as flipping a switch, as each university has different characteristics, needs, and organizational culture. The success of technology transfer depends heavily on the system's suitability to the local context, the availability of ongoing mentoring, and the capacity of the recipient's human resources. A short-term, four-day technical guidance session is insufficient to transform the work practices of employees who have been accustomed to manual methods for decades. Thus, UNIMA's digitalization efforts, while demonstrating good intentions and leadership commitment, remain sporadic and unintegrated into a cohesive personnel ecosystem, thus failing to address the root causes of data fragmentation and administrative inefficiency.

4.2.3. Factors Inhibiting the Implementation of Mutually Reinforcing Systems

The third finding identified three main factors that hinder the effectiveness of the personnel information system at UNIMA, which are interrelated and form a vicious circle *that* is difficult to break.

- *The first factor* is limited human resources, where most of the personnel administration staff do not yet have adequate competence in the field of information technology and database systems, and they admit that the training provided is not enough to enable them to master the new system.

- *The second factor* is the limited technological infrastructure, where the availability of reliable hardware, internet networks, and servers remains a constraint, with complaints from faculty about slow and frequently disconnected internet access that makes it difficult to access the system online.

The third factor is the lack of a binding formal policy, as UNIMA currently lacks a Rector's Decree on Online-Based Management Information Systems that requires all work units to consistently use digital systems. These three factors reinforce each other: without adequate infrastructure, HR training will be ineffective; without competent HR, the systems developed will not be well-managed; and without a binding formal policy, there is no incentive for work units to abandon manual work methods even if the infrastructure and HR are ready.

This condition is in line with the findings of Sa'adah, Sutrisno, and Rohmah (2025) at UIN Syarif Hidayatullah Jakarta, which also identified the readiness of human resources, infrastructure, and understanding of new systems as the main challenges of personnel digitalization. However, what distinguishes UNIMA from UIN Jakarta is the scale and urgency of its digital transformation; UIN Jakarta as a university in the center of the capital has better access to resources and mentoring, while UNIMA in Eastern Indonesia faces geographical challenges, budget constraints, and a greater gap in access to technology, which requires a different and more contextual approach, such as the development of systems that can operate offline *or* low *-bandwidth* as well as more intensive and sustainable training programs tailored to the existing level of digital literacy of employees.

4.2.4. Discussion of the Fourth Finding: The Systemic Impact of System Ineffectiveness on Organizational Performance and Governance

The fourth finding reveals the very real impact of the ineffectiveness of the personnel information system on overall organizational performance, with delays in proposing promotions for lecturers and educational staff, errors in planning staff needs, and delays in reporting to the ministry being unavoidable consequences. A vice-chancellor explicitly stated that UNIMA frequently lost momentum due to complicated personnel administration matters, which in turn undermined employee trust in the institution. This impact is not merely an administrative issue, but has broad implications for the well-being of employees who lose their right to timely promotions, jeopardize study program accreditation due to inaccurate lecturer data, and undermine the university's image in the eyes of external stakeholders such as ministries, accreditation bodies, and the wider community. Research by Badjuka, Mozin, and Nani (2026) at Gorontalo State University quantitatively demonstrated that information system integration can reduce reporting time by up to 65% and reduce data duplication by up to 40%. These figures provide a very concrete illustration of the potential for significant improvements that UNIMA could achieve if its personnel information system were successfully integrated. In other

words, investing in developing an effective personnel information system is not an additional expense, but rather a strategic investment that will provide significant *returns* in the form of operational efficiency, data accuracy, and improved overall organizational performance. Furthermore, when viewed from the perspective of *New Public Management* (NPM) and *Good University Governance* (GUG), the absence of an effective information system causes UNIMA to fail to meet the basic principles of good governance. NPM demands efficiency, accountability, and professionalism, while GUG demands transparency, responsiveness, and effectiveness. Without accurate and up-to-date data, all strategic decisions at UNIMA—from planning lecturer needs, allocating personnel budgets, to promotions—are based on highly risky guesswork or intuition, a condition referred to in public management literature as "*management by intuition*." This ultimately hinders UNIMA's efforts to implement a merit system as mandated by Law Number 5 of 2014 concerning the State Civil Apparatus, because objective, data-driven personnel decisions are impossible without a solid foundation of information systems. Thus, improving the personnel information system at UNIMA is not only about modernizing tools, but also about upholding justice, professionalism, and institutional integrity, which are prerequisites for UNIMA to develop into a state university that is credible, accountable, and competitive at the national and global levels.

CONCLUSION

This study concludes that the effectiveness of the Personnel Information System at Manado State University (UNIMA) is still very low, caused by the absence of an integrated system so that data management still relies on manual methods and Microsoft Excel, which results in low quality systems, information, and services (DeLone & McLean) and data unsynchronization between the Personnel Bureau and the faculties. Although UNIMA has attempted to develop an MPI system, dashboard, and establish DEI adoption cooperation with Undiksha, these efforts are still partial and hampered by three main factors that reinforce each other, namely limited HR competency, inadequate technological infrastructure, and the absence of a formal policy (Rector's Decree) that binds all work units. The systemic impact of this condition is the occurrence of administrative delays such as promotions and reporting, which threaten employee welfare, study program accreditation, and the university's image, while causing UNIMA to fail to implement the principles of *Good University Governance* and the merit system as mandated by law. Therefore, improving the personnel system at UNIMA requires strategic steps in the form of issuing formal policies, continuously increasing human resource capacity and infrastructure, and developing an integrated system that is truly tailored to the specific needs of the university, rather than simply adopting systems from other institutions without adequate adjustments.

REFERENCES

- Bell, E., Bryman, A., & Harley, B. (2022). Sampling in qualitative research. In *Business Research Methods*. Oxford University Press. <https://doi.org/10.1093/hebz/9780198869443.003.0030>[reference:20]
- Badjuka, A. H., Mozin, S. Y., & Nani, Y. N. (2026). Developing an integrated information system for performance management in Indonesian higher education. *Journal of Governance and Public Policy*, 13(1), 1–18. <https://doi.org/10.18196/jgpp.v13i1.27109>[reference:0][reference:1]
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>[reference:2]
- Eppich, W., Gormley, G., & Teunissen, P. W. (2019). In-depth interviews. In *Healthcare Simulation Research* (pp. 85–91). Springer. <https://doi.org/10.1007/978-3-030-26837-4>[reference:16]
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Sage Publications.
- Mewengkang, A., Sumual, H., Podung, B. J., & Wullur, M. M. (2024). Management information system for achieving main performance indicators for higher education. *International Journal of Information Technology and Education*, 3(2), 131–143. <https://doi.org/10.62711/ijite.v3i2.71>[reference:5][reference:6]
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Sage Publications.

ANALYSIS OF THE EFFECTIVENESS OF THE PERSONNEL INFORMATION SYSTEM IN SUPPORTING HUMAN RESOURCES DATA MANAGEMENT ADMINISTRATION AT MANADO STATE UNIVERSITY

Stenli Ferlan Rattu et al

Putri, N. I. (2024). *Audit sistem informasi kepegawaian (SIMPEG) menggunakan kerangka kerja COBIT 2019 (Studi kasus: Universitas Jambi)* [Skripsi sarjana, Universitas Jambi]. Repository Universitas Jambi. [https://repository.unja.ac.id/72192/\[reference:8\]\[reference:9\]](https://repository.unja.ac.id/72192/[reference:8][reference:9])

Sa'adah, N. U., Sutrisno, H., & Rohmah, S. S. (2025). Dampak inovasi digital pelayanan kepegawaian terhadap kinerja pegawai di Perguruan Tinggi Keagamaan Islam Negeri. *FIKRAH*, 9(2), 123–138. [https://ejournal.uika-bogor.ac.id/index.php/FIKRAH/article/view/22456\[reference:10\]\[reference:11\]](https://ejournal.uika-bogor.ac.id/index.php/FIKRAH/article/view/22456[reference:10][reference:11])