World Journal of Business, Project and Digital Management
Volume 06 Number 02 April 2026

ISSN : 2963-1645
(Online - Elektronik)

The Effect of Administrative Digitalization, Human Resource Data Management, and Work System on Employee Performance: A Study at Puskopal Koarmada II Surabaya

Nabilla Eko Putri [1], Amrun Rosyid [2], Sengguruh Nilowardono [3], I Gede Arimbawa [4]

Management Program, Faculty of Economics and Business, Narotama University, 60117, Indonesia
Email: nabillaep24@gmail.com [1], amrun.rosyid@narotama.ac.id [2], sengguruh@narotama.ac.id [3], gede.arimbawa@narotama.ac.id [4]
* Correspondence: nabillaep24@gmail.com

Citations: Puri, Nabilla Eko., Rosyid, Amrun., Nilowardono, Sengguruh., & Arimbawa, I Gede., (2026). The Effect of Administrative Digitalization, Human Resource Data Management, and Work System on Employee Performance: A Study at Puskopal Koarmada II Surabaya. *World Journal of Business, Project and Digital Management (WJBPDM)*, 06(02), 88-93.

Academic Editor:

Received: 22 March 2026 Accepted: 31 March 2026 Published: 30 April 2026

Abstract: This study analyzes the effect of administrative digitalization, human resource (HR) data management, and work systems on employee performance at Puskopal Koarmada II Surabaya, both partially and simultaneously. The research was motivated by conditions in which administrative processes remain largely manual, HR data management is not yet integrated, and work systems are not fully standardized. A quantitative survey was conducted on a population of 155 employees; using proportionate stratified random sampling with the Slovin formula, 61 respondents were obtained. Data were analyzed using multiple linear regression with SPSS. Results show administrative digitalization has a positive, significant effect on employee performance (t = 8.110; sig. = 0.000), HR data management has a negative, insignificant effect (t = -1.226; sig. = 0.225), work systems have a positive, significant effect (t = 2.747; sig. = 0.008), and all three variables simultaneously affect employee performance (F = 34.769; sig. = 0.000), explaining 62.8% of its variance. Administrative digitalization is the most dominant predictor. The study concludes that accelerating digital transformation in administrative processes and work systems, alongside improving HR data integration, is essential to enhance employee performance.

Keywords: Administrative Digitalization; Employee Performance; Human Resource Data Management; Public Sector Organization; Work System

Copyright: © 2022 by the author. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

Public sector and cooperative organizations are under increasing pressure to modernize their administrative and human resource (HR) management practices in response to accelerating digital transformation (Strohmeier, 2020; Parry & Battista, 2023). Employee performance remains central to this shift, since it is employees who translate organizational systems into tangible outcomes (Mangkunegara & Hasibuan, 2017; Robbins & Judge, 2015).

Puskopal Koarmada II Surabaya, a naval cooperative unit under the Indonesian Navy's Second Fleet Command, exemplifies these challenges. Preliminary observation indicates that approximately 80% of administrative processes are still performed manually, with an average completion time of 2.8 days and an error rate of around 12%. HR data management is fragmented across divisions, some using standalone spreadsheets and others manual bookkeeping. Work systems across the organization's eight divisions and units are likewise uneven: five still operate conventionally, while only three have adopted semi-digital workflows that are not yet functioning optimally.

Administrative digitalization refers to the transformation of manual procedures into digital, application-based systems that improve speed, accuracy, and accessibility of information (Asrul, 2025). Prior studies report that digitalization positively affects employee performance by reducing processing time and improving transparency (Ilyas & Bahagia, 2021; Hasbi & Syahputra, 2025; Maulidini et al., 2024). HR data management concerns the systematic collection, storage, and retrieval of employee information for managerial decision-making (Permana, 2026; Giovany & Almigo, 2026); its effect on performance has been reported as positive in some contexts (Adila & Putri, 2024; Shamaileh et al., 2022) but negligible where systems remain immature (Al-kharabsheh et al., 2023). Work systems, the standardized procedures and technological support structuring how tasks are completed (Novita et al., 2023b), have consistently been linked to productivity gains when clear and digitally supported (Qureshi & Tasneem, 2021).

Despite growing literature on digital transformation in the public sector, empirical evidence remains limited for small naval cooperative institutions where digitalization is still in its early stages and where the relative contribution of these three variables has not been jointly examined. This study addresses that gap, and is expected to guide management in prioritizing digital transformation while contributing empirically to the literature on digital HR management in public-affiliated organizations. Based on this background, four hypotheses are proposed:

H1: Administrative digitalization has a partial effect on employee performance.

H2: HR data management has a partial effect on employee performance.

H3: Work system has a partial effect on employee performance.

H4: Administrative digitalization, HR data management, and work system simultaneously affect employee performance.

2. Materials and Methods

This research employed a quantitative, explanatory survey design to examine the relationships between administrative digitalization (X1), HR data management (X2), work systems (X3), and employee performance (Y) (Sugiyono, 2019). Primary data were collected via a structured questionnaire distributed to employees of Puskopal Koarmada II Surabaya.

2.1. Population and Sample

The population consisted of all 155 active employees. Proportionate stratified random sampling was used, with sample size determined via the Slovin formula: $n = N / (1 + N.e^2)$. With N = 155 and e = 10%, $n = 155 / (1 + 155 \times 0.1^2) = 60.78$, rounded to 61 respondents (15 from central divisions, 46 from operational units).

2.2. Operational Definition of Variables

Administrative Digitalization (X1) was measured through 8 indicators covering ease of data access, processing speed, data accuracy, reduction of paper-based documentation, and process efficiency. HR Data Management (X2) was measured through 7 indicators covering completeness, documentation quality, accessibility, accuracy, periodic updating, cross-unit integration, and processing speed. Work System (X3) was measured through 8 indicators covering procedural clarity, task comprehension, workflow smoothness, technology use, coordination, information flow, and SOP compliance. Employee Performance (Y) was measured through 7 indicators covering work quality, error minimization, output quantity, timeliness, time management, and accountability. All indicators were adapted from established HR literature (Mangkunegara & Hasibuan, 2017; Robbins & Judge, 2015).

2.3. Data Collection and Measurement

Data were collected using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Mean scores were categorized using a class-interval technique, with interval width = (highest − lowest) / number of classes = (5 − 1) / 5 = 0.8, producing the ranges in Table 1.

Table 1. Class Interval Criteria for Mean Score Interpretation

Interval Range	Category	Score
$4.20 < x \leq 5.00$	Strongly Agree	5
$3.40 < x \leq 4.20$	Agree	4
$2.60 < x \leq 3.40$	Neutral	3

$1.80 < x \leq 2.60$	Disagree	2
$1.00 < x \leq 1.80$	Strongly Disagree	1

Source: Ghozali (2020)

2.4. Data Analysis Technique

Data were analyzed with IBM SPSS v25 through the following stages:

1. Validity Testing: Conducted via Pearson product-moment correlation; an item was considered valid when its significance value was below 0.05.
2. Reliability Testing: Conducted via Cronbach's Alpha; a construct was considered reliable when its coefficient exceeded 0.60.
3. Descriptive Statistics: Used to summarize respondent characteristics and the tendency of each research variable.
4. Classical Assumption Testing: Comprising normality (One-Sample Kolmogorov-Smirnov), multicollinearity (Tolerance/VIF), heteroscedasticity (scatterplot), and autocorrelation (Durbin-Watson).
5. Regression and Hypothesis Testing: Multiple linear regression followed by the partial t-test and simultaneous F-test at the 5% significance level, alongside the coefficient of determination (Ghozali, 2020).

3. Results

3.1. Respondent Characteristics and Instrument Testing

Of the 61 respondents, most were male (67.21%), aged 25-34 years (72.13%), worked in operational units (75.41%), and had 1-3 years of tenure (65.57%). All 30 questionnaire items produced Pearson correlation significance of 0.000 (valid), and Cronbach's Alpha exceeded 0.60 for every variable (X1 = 0.919; X2 = 0.841; X3 = 0.801; Y = 0.849), confirming reliability, as summarized in Table 2.

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Remark
Administrative Digitalization (X1)	0.919	Reliable
HR Data Management (X2)	0.841	Reliable
Work System (X3)	0.801	Reliable
Employee Performance (Y)	0.849	Reliable

Source: Primary data processed with SPSS v25 (2026)

3.2. Descriptive Analysis of Research Variables

Table 3 presents the mean response for each variable with its interpretive category. Administrative digitalization, work systems, and employee performance were rated "Agree" (item means 3.91, 4.03, 3.51), while HR data management was rated "Disagree" (item mean 2.30), markedly below the other three constructs.

Table 3. Descriptive Statistics of Research Variables

Variable	Min	Max	Mean	Item Mean	Category
Administrative Digitalization (X1)	20.00	40.00	31.26	3.91	Agree
HR Data Management (X2)	7.00	25.00	16.11	2.30	Disagree
Work System (X3)	22.00	40.00	32.28	4.03	Agree
Employee Performance (Y)	17.00	32.00	24.54	3.51	Agree

Source: Primary data processed with SPSS v25 (2026)

3.3. Classical Assumption Tests

The Kolmogorov-Smirnov test produced Asymp. Sig. = 0.200 (> 0.05), confirming normally distributed residuals. The Durbin-Watson statistic (1.822) fell between the dU and 4-dU thresholds, indicating no autocorrelation. Tolerance values above 0.10 and VIF below 10 for all variables (Table 4)

indicated no multicollinearity, and the residual scatterplot showed a random dispersion confirming homoscedasticity.

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF
Administrative Digitalization (X1)	0.856	1.169
HR Data Management (X2)	0.987	1.013
Work System (X3)	0.853	1.172

Source: Primary data processed with SPSS v25 (2026)

3.4. Multiple Linear Regression and Hypothesis Testing

Multiple linear regression produced the coefficients in Table 5, yielding the equation:

$$Y = 3.161 + 0.485X1 - 0.077X2 + 0.231X3 + e$$

Table 5. Multiple Linear Regression and Partial (t) Test Results

Model	B	t	Sig.	Remark
(Constant)	3.161	1.146	0.257	-
Administrative Digitalization (X1)	0.485	8.110	0.000	Significant
HR Data Management (X2)	-0.077	-1.226	0.225	Not significant
Work System (X3)	0.231	2.747	0.008	Significant

Source: Primary data processed with SPSS v25 (2026)

The F-test produced F = 34.769 with sig. = 0.000 (< 0.05), indicating that the three variables jointly and significantly affect employee performance (H4 accepted), explaining 62.8% of its variance (Adjusted $R^2 = 0.628$), as shown in Table 6. Based on the t-test, H1 and H3 are accepted while H2 is rejected.

Table 6. Simultaneous (F) Test and Coefficient of Determination

F	Sig.	R Square	Adjusted R Square
34.769	0.000	0.647	0.628

Source: Primary data processed with SPSS v25 (2026)

4. Discussion

4.1. Effect of Administrative Digitalization on Employee Performance

Administrative digitalization had the strongest positive, significant effect on employee performance (t = 8.110; sig. = 0.000). Given that roughly 80% of administrative work is still processed manually, incremental digitalization yields proportionally large performance gains. This is consistent with evidence that digitalization of public services improves employee performance (Ilyas & Bahagia, 2021) and accelerates transparency and information access (Hasbi & Syahputra, 2025; Maulidini et al., 2024).

4.2. Effect of HR Data Management on Employee Performance

HR data management showed a negative, insignificant effect (t = -1.226; sig. = 0.225), so H2 is rejected. Personnel data remain fragmented across divisions, and as a back-office function its influence on frontline performance is less directly perceptible than digitalization or work systems employees interact with daily. This is consistent with evidence that HR information systems contribute only a marginal share of performance variance absent complementary factors (Amarullah & Martini, 2023; Ubaidillah, 2024), differing from studies in more mature, integrated systems (Adila & Putri, 2024; Zulkifli et al., 2024).

4.3. Effect of Work System on Employee Performance

Work systems had a positive, significant effect (t = 2.747; sig. = 0.008), so H3 is accepted. With five of eight units still operating conventionally, a standardized, digitally supported work system reduces ambiguity and operational error. This aligns with evidence that digital work systems increase productivity (Novita et al., 2023b; Sinambela & Depari, 2025) and that high-performance work systems positively affect public-sector performance (Qureshi & Tasneem, 2021).

4.4. Simultaneous Effect

The three variables jointly explain 62.8% of the variance in employee performance (F = 34.769; sig. = 0.000). Administrative digitalization's dominance (B = 0.485) reflects its direct relevance to nearly all employees' daily tasks, consistent with evidence that digital HRM affects performance both directly and through mediating variables (Al-kharabsheh et al., 2023) and that combining HR information systems with digital technology yields greater gains than any single initiative alone (Manunggal et al., 2022). Notably, although HR data management shows no significant partial effect, its presence alongside the other two variables still contributes to strong overall explanatory power, suggesting administrative digitalization and work-system improvements can partly compensate for current HR data weaknesses.

5. Conclusions

This study examined the effect of administrative digitalization, HR data management, and work systems on employee performance at Puskopal Koarmada II Surabaya (n = 61). Administrative digitalization has the strongest positive, significant effect (t = 8.110; B = 0.485), reflecting substantial room for improvement given that most administrative work remains manual. HR data management shows a negative, insignificant effect (t = -1.226), attributable to fragmented, non-integrated personnel systems and its back-office nature. Work systems have a positive, significant effect (t = 2.747), underscoring the importance of standardized, coordinated procedures. All three variables jointly and significantly affect employee performance (F = 34.769; sig. = 0.000), explaining 62.8% of its variance, with the remainder attributable to factors such as motivation, leadership, and organizational culture.

Management should prioritize accelerating administrative digitalization and standardizing work systems across all units, while treating HR data integration as a necessary medium-term investment, consistent with findings that HR information systems only yield performance gains when paired with adequate user competence and discipline (Ubaidillah, 2024). This study is limited by its cross-sectional design and single-organization sample (n = 61); future research should employ a longitudinal design, incorporate mediating variables such as motivation or job satisfaction, and extend the sample to comparable public-sector organizations.

References

Adila, N., & Putri, L. D. M. (2024). Digitalisasi tata kelola SDM aparatur di Indonesia. *Jurnal ISO: Jurnal Ilmu Sosial, Politik dan Humaniora, 4*(2).

Al-kharabsheh, S. A., Attiany, M. S., Alshawabkeh, R. O. K., Hamadneh, S., & Alshurideh, M. T. (2023). The impact of digital HRM on employee performance through employee motivation. *International Journal of Data and Network Science, 7*(1), 275-282.

Amarullah, M. J., & Martini, N. (2023). Pengaruh Sistem Informasi Sumber Daya Manusia dan Disiplin Kerja terhadap Kinerja Karyawan pada Rumah Sakit Dewi Sri Karawang. *Jurnal Pendidikan Tambusai, 7*(3), 20124-20130.

Asrul, A. (2025). Penerapan Sistem Informasi Manajemen Digital dalam Meningkatkan Efisiensi Administratif Perusahaan. Portal Riset dan Inovasi Sistem Perangkat Lunak, 3(2), 23-27.

Ghozali, I. (2020). Aplikasi Analisis Multivariate dengan Program IBM SPSS. Universitas Diponegoro Press.

Giovany, A., & Almigo, N. (2026). Implementasi HRIS sebagai Sistem Pendukung Pengelolaan SDM di PT X. Kawanad: Jurnal Pengabdian Kepada Masyarakat, 5(1), 24-30.

Hasbi, A., & Syahputra, M. I. (2025). Analisis Tingkat Efektifitas Digitalisasi Pelayanan Administrasi. Jurnal Penelitian Inovatif, 5(2), 2269-2276.

Ilyas, A., & Bahagia, B. (2021). Pengaruh digitalisasi pelayanan publik terhadap kinerja pegawai pada masa pandemi. Edukatif: Jurnal Ilmu Pendidikan, 3(6), 5231-5239.

Mangkunegara, A. P., & Hasibuan, M. S. P. (2017). Manajemen Sumber Daya Manusia. Widyatama.

Manunggal, N., Santoso, I. T., & Wicaksana, S. (2022). Pengaruh sistem informasi sumber daya manusia (HRIS) dan kecerdasan buatan terhadap kinerja industri pertahanan. Journal of Industrial Engineering & Management Research, 3(6), 111-120.

Maulidini, A., Syuryatman, D., Suci, H., & Rian, S. H. (2024). Analisis Faktor-Faktor yang Mempengaruhi Minat Penggunaan Mobile Banking. Ekonomika45, 11(2), 1111-1117.

Novita, T., Hasan, S., & Dewi, R. (2023). Pengaruh Pengembangan Sumberdaya Manusia dan Budaya Digital terhadap Kinerja Pegawai. Paradoks: Jurnal Ilmu Ekonomi, 6(3), 187-197.

Parry, E., & Battista, V. (2023). The impact of emerging technologies on work: A review of the evidence and implications for the human resource function. Emerald Open Research, 1(4).

Permana, Y. (2026). Pengaruh Sistem Informasi Sumber Daya Manusia (SISDM) Mobile terhadap Kinerja Karyawan. Riwayat: Educational Journal of History and Humanities, 9(1), 1092-1106.

Qureshi, S. F., & Tasneem, K. A. (2021). High-performance work system & employee performance in public sector: Testing the mediating effect of job engagement. ESJ Social Sciences, 17(12), 129-159.

Robbins, S. P., & Judge, T. A. (2015). Perilaku Organisasi (Organizational Behavior). Salemba Empat.

Shamaileh, N., AlHamad, A., Al-Qudah, M., Mohammad, A., Alhalalmeh, M., Al-Azzam, M., & Alshurideh, M. (2022). The effect of e-HRM on organizational performance and talent management. International Journal of Data and Network Science, 6(4), 1043-1048.

Sinambela, J. G. A., & Depari, O. A. (2025). Transformasi Digital dalam MSDM: Peran Teknologi dalam Meningkatkan Kinerja Karyawan di Era Kerja Hibrida. RIGGS, 4(3), 1250-1254.

Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. German Journal of Human Resource Management, 34(3), 345-365.

Sugiyono. (2019). Metode Penelitian Kuantitatif. Alfabeta.

Ubaidillah, U. (2024). Meningkatkan Kinerja Karyawan di Indonesia: Dampak Sistem Informasi SDM, Kompetensi, dan Disiplin Kerja. *Jurnal Pemberdayaan Ekonomi dan Masyarakat, 1*(2), 23. https://doi.org/10.47134/jpem.v1i2.248.

Zulkifli,T., Arifin, A. and Rahmisyari, R. (2024). Pengaruh Sistem Informasi Sumber Daya Manusia Terhadap Kinerja Pegawai, Evaluasi Kerja Pegawai Sebagai Variabel Intervening Pada Lingkup Satuan Kerja Perangkat Daerah Kabupaten Tojo Una – Una. *Lokawati Jurnal Penelitian Manajemen dan Inovasi Riset, 2*(4), 216-228. https://doi.org/10.61132/lokawati.v2i4.1030.

Rosadi, A. A. S., & Purnomo, Y. J. (2020). Pengaruh sistem informasi sumber daya manusia terhadap kinerja pada pegawai PT Raudah Utama Cianjur. *Jurnal Sains Sosio Humaniora*, *4*(2), 357-367.