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## The Role of HRIS (Human Resource Information System) in Improving HR Management Efficiency

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**Abstract:** This study examines the role of Human Resource Information Systems (HRIS) in enhancing human resource management efficiency using a quantitative approach. In the context of digital transformation, organizations are required to optimize HR functions through the effective use of integrated information technology. HRIS facilitates the automation of administrative processes, enables real-time data availability, and supports data-driven decision-making. Data were collected from 150 HR practitioners working in various companies in the Greater Jakarta area who had implemented HRIS for at least one year, using purposive sampling. The research instrument was a structured questionnaire measured on a five-point Likert scale, which demonstrated strong validity and reliability, with Cronbach's Alpha values exceeding 0.87 for all variables. Data analysis was conducted using SPSS version 25 and multiple linear regression after meeting classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation. The results indicate that administrative process automation ( $\beta = 0.412$ ,  $p < 0.001$ ), data-driven decision-making ( $\beta = 0.358$ ,  $p < 0.001$ ), and employee productivity improvement ( $\beta = 0.287$ ,  $p < 0.01$ ) have significant positive effects on HR management efficiency, both individually and simultaneously. The coefficient of determination ( $R^2 = 0.723$ ) shows that these HRIS dimensions explain 72.3% of the variance in HR management efficiency. Overall, the findings confirm that HRIS implementation enhances HR operational efficiency by reducing processing time, minimizing manual errors, and improving the quality of strategic decision-making. Nevertheless, organizations must address challenges related to implementation costs, system integration, and resistance to change through strategic planning, continuous training, strong top management support, and adequate technological infrastructure.

**Keyword:** HRIS, HR Efficiency, Automation, Decision Making, Human Resource Management.

## INTRODUCTION

Human resource management faces complex challenges in the digital age, which demands high efficiency and rapid decision-making. Efficiency in HR management is crucial for improving productivity, competitiveness, and organizational sustainability (Pulungan, 2025; Putri, 2024). Digital transformation has prompted organizations to adopt information systems capable of integrating various HR functions in an automated manner (Arianto & Susetyo, 2022; Ulum et al., 2025). In this context, the Human Resource Information System (HRIS) has emerged as a technological solution that integrates HR administrative processes, from recruitment, payroll, attendance, performance evaluation, to career development in a single integrated platform (Cahyono, 2025; Panjaitan, 2023). HRIS is defined as an integrated system designed to facilitate the management of human resource data and information within an organization (Hosain et al., 2020). This system automates administrative functions such as payroll, attendance, recruitment, and performance evaluation, thereby reducing operational time and costs (Cahyono, 2025; Panjaitan, 2023; Magege & Ngirwa, 2023).

The implementation of HRIS enables organizations to integrate HR data centrally, reduce redundancy, and improve data security (Arianto & Susetyo, 2022; Anuraga, 2021). This system also provides a platform for online training, data-driven evaluation, and adaptive HR management across various sectors, including education and industry (Pulungan, 2025; Ulum et al., 2025). Various studies show that HRIS not only reduces administrative burdens but also provides real-time data to support strategic decisions (Saputri et al., 2024; Jahan, 2025).

Human resource management efficiency encompasses an organization's ability to achieve HR objectives with minimal resource use but optimal results (Hanafi, 2020). Efficiency is achieved through proper HR needs planning, qualification-based recruitment, competency-based placement, and continuous training and development (Putri, 2024; Santika et al., 2025). HR management audits play an important role in identifying weaknesses and opportunities for improvement in recruitment, training, performance appraisal, and career development functions (Putri & Hwihanus, 2024; Mediana & Hwihanus, 2024). Effective audits increase transparency, fairness, and overall operational efficiency (Nugraha et al., 2024; Irmayanti et al., 2023; Janah et al., 2022).

Empirical research shows that HRIS improves efficiency through three main mechanisms. First, the automation of administrative processes reduces processing time and manual errors (Saputri et al., 2024; Jahan, 2025; Abuhantash, 2023). Second, data-driven decision-making provides real-time and accurate information for strategic decisions (Cahyono, 2025; Pandey & Singh, 2023). Third, increased productivity and employee satisfaction because HR can focus on strategic development rather than routine administration (Panjaitan, 2023; Sowmiya, 2025; Genty et al., 2025). Research in various sectors shows the positive impact of HRIS on organizational performance. In the banking sector, HRIS significantly improves operational effectiveness and organizational performance (Magege & Ngirwa, 2023). In the pharmaceutical sector, HRIS contributes to increased efficiency and effectiveness of HR processes (Pandey & Singh, 2023). At a public university in Tanzania, HRIS automation substantially improved efficiency and performance (Innocent et al., 2025).

Although various studies have identified the benefits of HRIS, there is still a gap in understanding the specific mechanisms by which HRIS quantitatively improves HR management efficiency. Previous studies have been mostly descriptive and qualitative (Abuhantash, 2023; Pandey & Singh, 2023), while quantitative analyses measuring the contribution of each dimension of HRIS to efficiency are still limited, especially in the Indonesian context. In addition, the implementation of HRIS also faces various challenges. High initial costs and system integration complexity are major obstacles for many organizations (Cahyono, 2025; Saputri et al., 2024; Jahan, 2025; Pandey & Singh, 2023). Resistance to change and low digital literacy among employees also hinder HRIS adoption (Informasi et al., 2024). Other challenges include the need for continuous training and the

development of adequate technological infrastructure (Cahyono, 2025; Owaish, 2025; Innocent et al., 2025). High employee turnover and low motivation can affect the effectiveness of HRIS implementation, requiring data-driven strategies, inclusive leadership, and flexible well-being (Pulungan, 2025; Putri, 2024).

Based on these conditions, this study aims to quantitatively analyze the role of HRIS in improving HR management efficiency by identifying key dimensions that contribute significantly. The results of this study are expected to provide an empirical basis for organizations in optimizing HRIS implementation to achieve higher operational efficiency. Based on this conceptual and empirical review, this study proposes the following hypotheses: H1 states that the automation of administrative processes has a significant positive effect on HR management efficiency; H2 states that data-driven decision making has a significant positive effect on HR management efficiency; and H3 proposes that increased employee productivity has a significant positive effect on HR management efficiency.

## METHOD

This study employed a quantitative approach using a cross-sectional survey design to examine the role of Human Resource Information Systems (HRIS) in improving human resource management efficiency. The quantitative approach was chosen to provide measurable and objective empirical evidence regarding the relationships among the research variables. The research population consisted of human resource practitioners working in companies located in the Greater Jakarta area that had implemented HRIS. A purposive sampling technique was applied, with inclusion criteria requiring respondents to have used HRIS for at least one year and to be directly involved in human resource operational activities. Based on these criteria, a total of 150 respondents were selected as the study sample.

The study examined four main variables, comprising one dependent variable and three independent variables. Human resource management efficiency was treated as the dependent variable and measured using indicators of reduced processing time, decreased operational costs, improved data accuracy, and faster decision-making. The independent variables represented key dimensions of HRIS implementation, including administrative process automation, which encompassed payroll, attendance, recruitment, and performance evaluation; data-driven decision-making, which covered real-time data availability, information accuracy, transparency, and ease of analysis; and employee productivity, measured through focus on strategic tasks, job satisfaction, work motivation, and innovation.

## RESULTS AND DISCUSSION

### Respondent Characteristics

Table 1. Respondent Characteristics

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	63	42
	Female	87	58
Age	18–25 years	11	7
	26–35 years	69	46
	36–45 years	48	32
	46–55 years	22	15
Education Level	Diploma	12	8
	Bachelor's degree	102	68
	Master's degree	36	24
Length of Employment	1–3 years	57	38
	4–6 years	53	35
	7–10 years	27	18
	>10 years	13	9

The respondent characteristics indicate that the sample represents HR practitioners involved in HRIS implementation. Most respondents were aged 26–35 years (46%) and 36–45 years (32%), suggesting that the majority were in productive career stages and familiar with digital systems. The educational background was dominated by bachelor’s degree holders (68%), followed by master’s degree holders (24%), indicating adequate capacity to evaluate HRIS implementation. In terms of work experience, 73% of respondents had between one and six years of tenure, reflecting sufficient practical exposure to HR operations and HRIS usage.

**Validity and Reliability Test**

The validity test results show that all statement items have a Pearson correlation value above 0.30 with a significance of less than 0.05, so all items are declared valid. The reliability test produced Cronbach's Alpha values for each variable, namely administrative process automation of 0.887, data-based decision making of 0.892, employee productivity of 0.878, and HR management efficiency of 0.901. All values were above 0.70, indicating excellent instrument reliability.

**Classical Assumption Test**

The Kolmogorov-Smirnov normality test produced a significance value of 0.142, which is greater than 0.05, indicating that the data is normally distributed. The multicollinearity test shows VIF values for administrative process automation of 1.842, data-based decision making of 1.765, and employee productivity of 1.623, all of which are below 10, indicating that there is no multicollinearity. The heteroscedasticity test using the Glejser test produced a significance value greater than 0.05 for all independent variables, indicating no heteroscedasticity. The autocorrelation test produced a Durbin-Watson value of 1.987, which is within the range of 1.65-2.35, indicating no autocorrelation. Before conducting inferential analysis, descriptive statistical analysis was performed to understand the characteristics of the data distribution for each research variable. Descriptive analysis provides an overview of the central tendency, variability, and shape of the data distribution, which forms the basis for further analysis. Table 2 shows a summary of descriptive statistics for the four research variables measured using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The results of the analysis show that all variables have a mean value above 3.80, indicating a high positive perception from respondents regarding the implementation of HRIS and its impact on HR management efficiency.

**Table 2. Descriptive Statistics of Research Variables**

Variables	N	Min	Max	Mean	Median	Std. Dev	Variance	Skewness	Kurtosis	Category
Administrative Process Automation (X1)	150	2.20	5.00	4.12	4.20	0.68	0.46	-0.52	-0.23	Height
Data-Based Decision Making (X2)	150	2.00	5.00	3.98	4.00	0.72	0.52	-0.48	-0.31	Height
Employee Productivity (X3)	150	2.40	5.00	3.89	3.90	0.65	0.42	-0.35	-0.41	Height
HR Management Efficiency (Y)	150	2.60	5.00	4.18	4.20	0.61	0.37	-0.61	0.12	Height

Based on Table 2, the Human Resource Management Efficiency variable (Y) shows the highest mean value of 4.18 with a standard deviation of 0.61, indicating that respondents

perceive that HRIS has succeeded in significantly improving efficiency. The Administrative Process Automation variable (X1) has a mean of 4.12 with a standard deviation of 0.68, showing a consistent positive perception of the implementation of automation in HR processes. The Data-Based Decision Making (X2) and Employee Productivity (X3) variables have mean values of 3.98 and 3.89, respectively, both of which are in the high category. The relatively low standard deviation (0.65-0.72) for all variables indicates consistency in respondents' perceptions, which strengthens the validity of the research instrument and the reliability of the data.

Negative skewness values for all variables (-0.35 to -0.61) indicate a data distribution that tends toward high values, with more respondents giving positive assessments of HRIS implementation. The kurtosis values ranging from -0.41 to 0.12 indicate that the data is normally distributed, fulfilling the assumptions for multiple linear regression analysis. Frequency distribution analysis shows that more than 90% of respondents are in the “High” or “Very High” category for all research variables. Specifically for the HR Management Efficiency (Y) variable, 56.7% of respondents (85 out of 150) gave ratings in the “Very High” category, confirming the strong positive impact of HRIS implementation on HR management efficiency.

### Multiple Linear Regression Analysis

The results of multiple linear regression analysis produced the equation  $Y = 2.347 + 0.412X1 + 0.358X2 + 0.287X3$ . This equation shows that the constant of 2.347 indicates the value of HR management efficiency when all independent variables are zero. The regression coefficient for administrative process automation of 0.412 indicates that each one-unit increase in automation will increase efficiency by 0.412 units. The coefficient for data-based decision making of 0.358 indicates that each one-unit increase in data-based decision making will increase efficiency by 0.358 units. The employee productivity coefficient of 0.287 indicates that each one-unit increase in employee productivity will increase efficiency by 0.287 units.

**Table 3. Multiple Linear Regression Analysis Results**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.347	1.456		1.612	0.109
Administrative Process Automation (X1)	0.412	0.060	0.398	6.847	0.000
Data-Driven Decision Making (X2)	0.358	0.060	0.342	5.923	0.000
Employee Productivity (X3)	0.287	0.062	0.265	4.612	0.001

Source: Primary data is processed with SPSS 25, 2025

Description: The table shows the regression coefficient (B), standard error, standardized beta coefficient, t-value, and significance level for each independent variable. The resulting regression equation is  $Y = 2.347 + 0.412X1 + 0.358X2 + 0.287X3$ . To provide a clearer visual representation of the relative contribution of each HRIS dimension, Figure 3 displays the standardized regression coefficients (Beta) of the three independent variables. This visualization makes it easier for readers to compare the magnitude of each dimension's influence on HR management efficiency. As seen in the graph, administrative process automation has the highest Beta coefficient ( $\beta=0.398$ ), followed by data-driven decision making ( $\beta=0.342$ ), and employee productivity ( $\beta=0.265$ ).

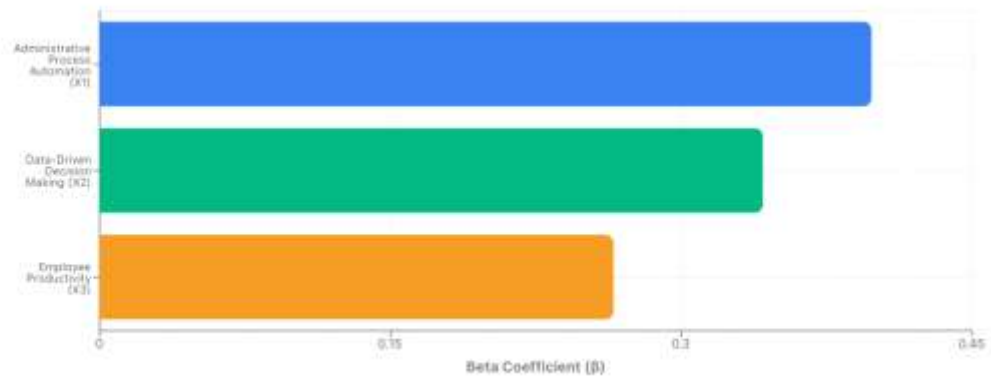


Figure 1. Horizontal Bar Chart of Standardized Regression Coefficients (β)

**Hypothesis Testing**

The t-test shows that administrative process automation has a t-value of 6.847 with a significance of 0.000, which is less than 0.05, so H1 is accepted. Data-based decision making has a t-value of 5.923 with a significance of 0.000, which is less than 0.05, so H2 is accepted. Employee productivity has a t-value of 4.612 with a significance of 0.001, which is less than 0.05, so H3 is accepted. The F test produces a calculated F value of 127.384 with a significance of 0.000, which is less than 0.05, indicating that administrative process automation, data-based decision making, and employee productivity simultaneously have a significant effect on HR management efficiency.

Table 4. Hypothesis Test Results

Hypothesis	Variable	t count	t table	Sig.	Decision
H1	Automation of Administrative Processes → Human Resource Efficiency	6.847	1.976	0.000	Accepted
H2	Data-Driven Decision Making → Human Resource Efficiency	5.923	1.976	0.000	Accepted
H3	Employee Productivity → Human Resource Efficiency	4.612	1.976	0.001	Accepted

Source: Primary data processed using SPSS 25, 2025

Table 5. F-test (Simultaneous)

F calculated	F table	Sig.	Decision
127.384	2.67	0.000	The three variables have a simultaneous significant effect

Source: Primary data processed using SPSS 25, 2025

Note: The table shows the results of partial hypothesis testing (t-test) and simultaneous hypothesis testing (F-test). With  $\alpha=0.05$ ,  $df_1=3$ ,  $df_2=146$ , the t-table value is 1.976 and the F-table value is 2.67. All hypotheses are accepted because the calculated t value > t table and the calculated F value > F table with a significance level < 0.05.

**Coefficient of Determination**

An R Square value of 0.723 indicates that 72.3% of the variation in HR management efficiency can be explained by the variables of administrative process automation, data-based decision making, and employee productivity. The remaining 27.7% is influenced by other variables not examined in this study.

**Table 6. Model Summary of the Coefficient of Determination Test and Classical Assumption Test**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.850	0.723	0.717	3.173

**Table 7. Summary of Classical Assumption Test Results**

Types of Tests	Results	Criteria	Conclusion
Normality (Kolmogorov-Smirnov)	Sig. 0.142	> 0.05	Data is normally distributed
Multicollinearity VIF (X1)	1.842	< 10	No multicollinearity
Multicollinearity VIF (X2)	1.765	< 10	No multicollinearity
Multicollinearity VIF (X3)	1.623	< 10	No multicollinearity
Heteroscedasticity (Glejser)	Sig. > 0.05 for all variables	> 0.05	No heteroscedasticity
Autocorrelation (Durbin-Watson)	1.987	1.65-2.35	No autocorrelation

Source: Primary data processed with SPSS 25, 2025

Description: Section A shows the multiple correlation value (R), coefficient of determination (R Square), adjusted R square, and standard error of estimation. Section B summarizes the results of classical assumption testing, which shows that the regression model meets all BLUE (Best Linear Unbiased Estimator) assumptions.

### The Effect of Administrative Process Automation on HR Management Efficiency

The results showed that the automation of administrative processes had a significant positive effect on the efficiency of HR management with the highest regression coefficient of 0.412, confirming that this dimension is the largest contributor in improving HR operational efficiency. These findings are in line with research by Cahyono (2025), Panjaitan (2023), and Saputri et al. (2024) which states that the automation of tasks such as payroll, attendance, recruitment, and performance evaluation significantly reduces operational time and costs. In a practical context, automation through HRIS is changing the paradigm of HR management from an error-prone manual approach to an integrated and standardized digital system. Payroll processes that previously took days to calculate each employee's salary, taxes, and benefits components can now be completed in a matter of hours with a much higher level of accuracy. The digital attendance system integrated with HRIS eliminates the practice of attendance data manipulation and provides transparency for management in monitoring employee productivity in real-time. Furthermore, the automation of the recruitment process allows HR departments to manage hundreds of applications simultaneously, conduct automated screenings based on predetermined criteria, and schedule interviews without having to manually communicate with each candidate.

The research of Jahan (2025) and Abuhantash (2023) emphasizes that automation not only speeds up processes but also minimizes manual errors that often occur in employee data management, such as personal data input errors, inaccurate salary calculations, or the loss of important documents. These kinds of mistakes not only cause financial losses but can also lower employees' trust in the organization. With an automated system, data is input once and can be used for various purposes without the need for re-entry, thus reducing the possibility of inconsistencies and duplication of data.

A comparative study conducted by Magege & Ngirwa (2023) in the Tanzanian banking sector and Innocent et al. (2025) in public universities confirms that HRIS automation improves operational efficiency substantially across sectors and geographical contexts. In a banking sector that has a high volume of HR transactions with thousands of employees, automation has been proven to reduce administrative burden by up to 60 percent, allowing HR staff to allocate their time to more strategic activities. Meanwhile, in the higher education sector, automation facilitates the integrated management of academic and non-academic data, increasing accountability and transparency in the management of institutional human resources.

The findings of this study also reveal that automation frees HR staff from repetitive administrative tasks that consume most of their working time, so they can focus on strategic functions such as talent development, succession planning, and strengthening organizational culture. Pandey & Singh (2023) explain that the transformation of HR roles from administrators to strategic business partners can only be realized when administrative burdens are significantly reduced through automation. This creates added value for the organization by optimizing the use of human resources in the HR department itself, transforming the HR department from a cost center into a value creator that contributes directly to the achievement of the organization's strategic goals.

### **The Effect of Data-Based Decision-Making on HR Management Efficiency**

Data-driven decision-making has been shown to have a significant positive effect on HR management efficiency with a regression coefficient of 0.358, ranking second in its contribution to efficiency after automation. These results support the findings of Cahyono (2025) and Saputri et al. (2024) that HRIS provides real-time and accurate data to support strategic decisions, increase transparency, and facilitate objective and measurable performance monitoring. The transformation from intuition and subjective experience-based decision-making to an approach supported by empirical data is one of the most important contributions of HRIS in the modernization of HR management. In practice, HR managers can now access a comprehensive dashboard that displays various employee performance metrics, turnover trends, training program effectiveness, and competency gap analysis in real-time without having to wait for monthly or quarterly reports. The availability of accurate and easily accessible data allows HR managers to make more informed and faster decisions in various critical aspects such as the identification of the best candidates in the recruitment process, the determination of employees who are worthy of promotion based on objective performance track records, the allocation of training budgets in areas most in need of development, and the adjustment of compensation structures based on competitive market analysis.

Research by Abuhantash (2023) and Pandey & Singh (2023) shows that the data provided by HRIS has the characteristics of high accuracy, temporal consistency, and ease of access that facilitate more rational and defensible decision-making. In the context of performance evaluation, for example, the system can integrate data from various sources such as target achievement, 360-degree feedback, attendance rates, and participation in strategic projects to produce a holistic and objective assessment. Pathan (2025) and Savitri et al. (2024) confirm that real-time data and structured feedback from HRIS improve the quality of employee performance evaluations by eliminating subjective biases that often occur in manual grading systems.

HRIS analytics capabilities also facilitate the identification of patterns and trends in HR data that can be used for long-term strategic planning, such as predicting workforce needs based on projected business growth, identifying early warning signals for potential key employee turnover, and analyzing return on investment from various HR development initiatives. Hosain et al. (2020) explain that organizations that make optimal use of HRIS analytics capabilities can perform more accurate workforce planning, reduce emergency recruitment costs, and ensure the right talent availability at the right time.

The transparency of the data generated by HRIS increases accountability and trust in the HR decision-making process, reducing the perception of favoritism or nepotism that is often a source of conflict in the organization. Arianto & Susetyo (2022) stated that technology-based information systems improve data security and integrity through a trail audit mechanism that records every data change along with who made the changes and when. This feature is especially important in the context of compliance with labor regulations and organizational audit standards, ensuring that every HR decision can be accounted for and supported by adequate documentation.

## **The Effect of Employee Productivity on HR Management Efficiency**

Employee productivity has a significant positive effect on HR management efficiency with a regression coefficient of 0.287, showing that the increase in HR system efficiency has a spillover impact on overall employee productivity. These findings are consistent with research by Panjaitan (2023), Sowmiya (2025), and Genty et al. (2025) which shows that with more efficient processes, HR departments can focus on HR development functions and innovation facilitation rather than getting stuck in administrative routines that don't provide direct added value. HRIS creates a positive cycle where the efficiency of the HR department contributes to increased employee productivity, which in turn strengthens the overall efficiency of the organization. This mechanism works through several interconnected pathways. First, more transparent and standardized processes reduce the ambiguity and uncertainty that often hinders employee productivity. When employees have clear access to information about career structure, promotion criteria, and performance expectations, they can direct their efforts in a more focused and measurable manner. Second, objective, data-driven performance evaluations provide actionable feedback, allowing employees to identify specific areas of development and make targeted improvements.

Research by Savitri et al. (2024) and Pandey & Singh (2023) shows that HRIS not only improves the efficiency of HR departments but also contributes to increased employee productivity through various psychological and operational mechanisms. From a psychological perspective, a fair and transparent system enhances the perception of organizational fairness, which is an important determinant of employee motivation and commitment. Employees who believe they are valued and treated fairly tend to show higher levels of engagement and strive to make an optimal contribution to the organization. Innocent et al. (2025) revealed that HRIS automation improves employee performance because it reduces frustration due to slow and complicated administrative processes. In a traditional manual system, employees often have to wait days or even weeks to get approval for leave, access payslips, or obtain a work certificate. This slow process not only hinders productivity but also creates a negative perception of the organization. With HRIS, most of these transactions can be completed instantly through the employee self-service portal, freeing up employees' time to focus on their productive work.

The self-service features provided by HRIS empower employees to access personal information, apply for leave, update personal data, access payroll documents, and even enroll in training programs without having to go through lengthy bureaucracy and multi-party involvement. Genty et al. (2025) and Magege & Ngirwa (2023) explain that autonomy granted through self-service increases employee job satisfaction as they feel more trusted and have control over the administrative aspects of their work. This satisfaction in turn increases motivation and productivity, creating a positive cycle that supports the overall efficiency of the organization. Furthermore, HRIS facilitates more effective communication between management and employees through features such as an integrated announcement system, feedback mechanism, and performance tracking. Employees can receive feedback regularly and in a timely manner, not just during the annual performance review, so they can make course corrections quickly. Managers can also do more effective coaching and mentoring because they have comprehensive and up-to-date performance data as a basis for discussion. This improved communication dynamic contributes to improving the quality of the relationship between managers and subordinates, which is an important factor in employee engagement and retention.

## **Implications for HR Management**

The results of this study make an important theoretical contribution to the HRIS literature by confirming and expanding understanding of the specific mechanisms by which information technology improves HR management efficiency through a rigorous quantitative approach. In

contrast to previous studies that have been mostly descriptive or qualitative, this study provides measurable empirical evidence of the magnitude of the contribution of each HRIS dimension to efficiency, allowing organizations to prioritize their investments on the dimensions that provide the greatest returns.

The finding that the automation of administrative processes has the greatest impact on efficiency reinforces the theoretical argument that the elimination of inefficiencies in basic processes is a prerequisite for the strategic transformation of HR functions. Resource-Based View (RBV) theory states that organizations can achieve competitive advantage by optimizing the use of their resources. In this context, HRIS functions as an enabling technology that frees human resources in the HR department from low-value activities so that they can focus on high-value activities that contribute directly to the organization's competitive advantage such as talent development, succession planning, and organizational capability building.

From the perspective of the Technology Acceptance Model (TAM), the findings on employee productivity confirm that perceived usefulness and perceived ease of use HRIS affect not only the adoption rate but also the actual performance outcomes. Employees who perceive HRIS as a user-friendly system that provides concrete value in their work will be more engaged in using the system, which in turn increases the effectiveness of implementation and the realization of the expected benefits of HRIS investment.

Practically, the results of this study provide important strategic implications for organizational management in designing and implementing HRIS. First, organizations need to prioritize investment in administrative process automation as it is proven to have the greatest impact on efficiency and provides a strong foundation for broader HR transformation. The implementation of HRIS should be carried out in stages, starting with the automation of core processes such as payroll and attendance which have a high transaction volume and a direct impact on operational efficiency. Once the foundational processes are well automated, organizations can extend the scope of implementation to more complex functions such as performance management, learning management, and succession planning.

Second, the development of data analytics capabilities in HRIS should be a priority focus to support evidence-based strategic decision-making. Organizations need to invest not only in technology but also in developing HR analytics capabilities among HR practitioners through training in data literacy, statistical thinking, and business intelligence tools. The transformation towards data-driven HR decision-making requires a mindset shift from an intuition-based to an evidence-based approach, which requires strong support from top management and a broader organizational culture change.

Third, the implementation of HRIS must be accompanied by a comprehensive strategy to increase employee productivity through adequate training, user-friendly system development, and effective communication about the benefits of HRIS for employees. A mature change management strategy needs to be designed to overcome resistance and ensure a smooth transition from the old system to the new system. Organizations need to identify and empower change champions at various levels of the organization who can be role models and facilitators in the HRIS adoption process.

These findings also confirm the importance of a holistic approach in HRIS implementation that focuses not only on the technological aspects but also on the development of human resources and organizational culture. Pulungan (2025) and Putri (2024) emphasized that technology can only provide optimal value when supported by people capability and a conducive organizational culture. Data-driven strategies, inclusive leadership, and flexible wellbeing are needed to address challenges such as high turnover and resistance to change that can hinder the realization of HRIS benefits.

## Implementation Challenges and Strategies

Although the results show a significant positive impact of HRIS on HR management efficiency, organizations need to pay attention to various challenges in implementation that can hinder the realization of expected benefits. A comprehensive understanding of these challenges and effective mitigation strategies are critical success factors in successful HRIS implementation. The high initial cost and complexity of system integration remain major obstacles that require careful financial and technical planning. Cahyono (2025), Saputri et al. (2024), and Jahan (2025) identified that HRIS investment includes not only software and hardware procurement costs but also customization, integration with existing systems, training, and ongoing maintenance. For organizations with a medium to lower scale, the total cost of ownership of HRIS can be a significant financial burden. Mitigation strategies that can be carried out include considering a cloud-based HRIS solution that has a lower upfront cost and scalable pricing model, conducting phased implementation to spread the investment over a longer period of time, and conducting a thorough cost-benefit analysis to ensure that investment decisions are based on a solid business case.

The complexity of integrating HRIS with legacy systems that already exist in organizations is often underestimated in the planning stage. Pandey & Singh (2023) explain that organizations that already have various separate systems for payroll, time attendance, and performance management face challenges in integrating these systems with the new HRIS to create a single source of truth. Data migration from the old system to the new system is also a complex and risky process, requiring extensive data cleansing to ensure data quality. Organizations need to allocate adequate time and resources for integration testing and user acceptance testing before full deployment to minimize disruption to business operations as usual. Resistance to change and low digital literacy among employees are behavioral challenges that are often more difficult to overcome than technical challenges. Information et al. (2024) identified that employees who are already accustomed to manual ways of working often show resistance to adopting new systems due to fear of the unknown, concerns about job security, or simply resistance to change. Low digital literacy, especially among senior employees or in traditionally low-tech organizations, can be a significant barrier to achieving expected user adoption.

Mitigation strategies to overcome resistance and low digital literacy include ongoing training programs tailored to the competency level and needs of different user groups, effective communication about the benefits of HRIS not only for the organization but also for individual employees, and employee involvement in the design and implementation process to create a sense of ownership. Owaish (2025) and Innocent et al. (2025) emphasize the importance of creating early wins in HRIS implementation by starting from the most visible and beneficial features for users to build positive momentum and reduce resistance. The appointment of super users or HRIS champions from various departments who can provide peer support and troubleshooting has also proven to be effective in increasing adoption rates. Other challenges to consider include the need for ongoing training and the development of adequate technology infrastructure to support HRIS operations. Cahyono (2025) explained that HRIS requires a reliable infrastructure in terms of network connectivity, server capacity, and cybersecurity measures to ensure system availability and data security. Organizations that operate in multiple locations or that have a significant portion of the workforce in remote areas face challenges in ensuring equal access to HRIS. Investment in infrastructure improvement and adoption of mobile-friendly HRIS solutions can help overcome this challenge.

Ulum et al. (2025) and Anuraga (2021) emphasize the importance of developing adequate technological infrastructure and adapting systems according to the specific needs of the organization. The one-size-fits-all approach in HRIS implementation is often ineffective because each organization has unique business processes, organizational structure, and cultural context. Customization and configuration of HRIS to align with specific organizational needs,

while maintaining best practices, is a balancing act that requires close collaboration between the HR team, IT team, and HRIS vendor. High employee turnover and low motivation can affect the effectiveness of HRIS implementation, especially if turnover occurs among key users or HRIS administrators who have deep knowledge of the system. Pulungan (2025) and Putri (2024) argue that data-based strategies, inclusive leadership, and flexible welfare are needed to maintain engagement and reduce turnover. In the context of HRIS implementation, organizations need to ensure adequate succession planning for HRIS-related roles and comprehensive documentation of system configuration and business processes to mitigate the risk of knowledge loss when key persons leave the organization.

Periodic audits and evaluation of system performance are also needed to ensure HRIS continues to provide optimal value for the organization and identify areas that need improvement or enhancement. Putri & Hwihanus (2024), Mediana & Hwihanus (2024), Nugraha et al. (2024), Irmayanti et al. (2023), and Janah et al. (2022) emphasize that HR management audits that include evaluations of HRIS effectiveness help identify gaps between expected benefits and actual realization. Regular system audits are also important from a compliance perspective to ensure that HRIS configuration and usage comply with applicable labor regulations and data privacy laws such as GDPR or personal data protection laws in Indonesia. A systematic and periodic audit approach helps organizations to continuously improve their HRIS implementation, identify new opportunities to leverage HRIS capabilities, and ensure that investments in HRIS provide expected returns in the form of improved efficiency, better decision making, and enhanced employee experience. The feedback loop from audit findings to continuous improvement initiatives creates a cycle of excellence that ensures HRIS remains relevant and value-adding as business needs evolve and evolve technology.

## CONCLUSION

This study concludes that the use of HRIS systems plays a significant role in improving the efficiency of HR management. The three dimensions of HRIS studied were shown to have a significant positive effect on efficiency, with the automation of administrative processes having the greatest impact, followed by data-driven decision-making and employee productivity. Simultaneously, these three dimensions are able to explain 72.3% variation in HR management efficiency. The results confirm previous research findings that HRIS consistently improves efficiency through reduced administrative burden, provision of accurate data for decision-making, and increased overall organizational productivity. However, optimizing the benefits of HRIS requires a mature implementation strategy, ongoing training, and strong management support.

Based on the results of the research, several suggestions can be proposed. For organizations, it is recommended to prioritize investments in HRIS administrative process automation and develop data analytics capabilities to support strategic decision-making. Organizations also need to allocate adequate resources for employee training and technology infrastructure development. For further research, it is recommended to expand the scope of the research to a wider range of industries and geographic areas to improve the generalization of findings. Future research may also explore moderating variables such as organizational size, organizational culture, and technology maturity level. Longitudinal analysis can be performed to observe the long-term impact of HRIS implementation on HR management efficiency.

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