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Human resource management strategies to improve organizational performance in the digital era

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ABSTRACT

The advancement of digital technology has transformed human resource (HR) management, including in Small and Medium Enterprises (SMEs) in Majalengka Regency. This study investigates the impact of digital HR strategies on organizational performance using a quantitative survey of 50 SMEs. Results show a strong positive correlation ($r = 0.78$; $p < 0.05$) between digital adoption and performance, with an average 25% efficiency increase. Despite benefits in recruitment, training, and evaluation, key challenges include employee skill gaps (54%) and budget constraints (48%). The study recommends digital training, infrastructure support, and incentives to help SMEs enhance competitiveness and productivity in the digital era. To address the research foundation more explicitly, this study is guided by the following problem formulation: *How do digital technology-based human resource management strategies influence organizational performance among SMEs in Majalengka Regency?* Accordingly, the research seeks to answer three key questions: *(1) What is the extent of digital technology adoption in HR functions within SMEs? (2) What challenges are commonly encountered in implementing digital HR practices? (3) How significantly does the adoption of digital HR strategies contribute to improvements in organizational performance?* These questions form the analytical basis of the study and ensure a focused investigation aligned with the research objectives.

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1. INTRODUCTION

The rapid development of digital technology in recent years has profoundly influenced various aspects of human life, with one of the most significant impacts observed in the field of human resource (HR) management within organizations. In the digital era, organizations are not only expected but required to manage their human resources effectively and efficiently to remain competitive in an increasingly challenging and dynamic global market. (Urdea & Constantin, 2021; Zhang et al., 2022). Effective HR management now encompasses more than traditional practices such as recruitment and training; it also demands the strategic use of advanced digital technologies to enhance

employee productivity, streamline operations, and optimize overall organizational performance. As a result, formulating an appropriate HR management strategy that leverages digital tools has become essential for organizations to meet these challenges head-on (Mayer et al., 2023; Zhang et al., 2022).

A wealth of prior research underscores the positive relationship between HR management strategies and organizational performance(Boccoli et al., 2024). For instance, a study conducted by (Aboramadan et al., 2020; Virgiawan et al., 2021) demonstrated that the adoption of information technology in HR management could significantly boost organizational performance, particularly in improving operational efficiency and fostering employee competency development(Hakami, 2024). However, despite the growing evidence of these benefits, research gaps remain, particularly in understanding the implementation of digital technology in HR management within the public sector and regions with historically low rates of technology adoption, such as Majalengka Regency. A related study by (Olafsdottir & Einarsdottir, 2024; Purwanto et al., 2023) further highlighted that while many organizations have begun integrating digital technologies into their HR practices, substantial challenges persist, especially in more remote and under-resourced areas where access to technology and infrastructure is limited.

The situation in Majalengka Regency exemplifies these challenges, as many organizations, especially within the public sector and small and medium enterprises (SMEs), continue to struggle with adopting digital-based HR management strategies. Although some government agencies have made strides in implementing digital systems for certain operational tasks, these efforts remain fragmented, with significant gaps in HR training and information technology utilization. These shortcomings directly affect organizational performance, manifesting as inefficiencies in work processes and insufficient progress in HR competency development (Al-Ayed, 2022; Al Naqbi et al., 2024; Hakimah et al., 2019). As a result, both public institutions and SMEs in the region face difficulties in achieving optimal performance and keeping pace with technological advancements.

The urgency of addressing these challenges cannot be overstated, as effective HR management is a cornerstone of organizational success in the digital era (McCartney & Fu, 2021). This research aims to explore and identify actionable HR management strategies tailored to the specific needs of organizations in Majalengka Regency, with a particular focus on leveraging digital technologies to enhance organizational performance. Additionally, the study seeks to analyze the critical factors influencing the successful implementation of digital technology in HR management, particularly within the context of SMEs and the public sector in this region (Aboramadan et al., 2020; McCartney & Fu, 2021).

Despite the increasing number of studies on digital HR practices, most existing research tends to focus on large organizations in urban areas with robust infrastructure, leaving a notable gap in understanding how SMEs in rural regions like Majalengka adapt to digital HR transformation. Specifically, limited attention has been given to the readiness, constraints, and strategic responses of SMEs facing low digital literacy and resource limitations. This study addresses that gap by focusing on localized challenges and proposing context-sensitive solutions. The analysis is grounded in the Technology–Organization–Environment (TOE) framework, which serves as the theoretical foundation to evaluate digital HR adoption through three dimensions: technological capability, organizational readiness, and environmental influence. By applying this model, the study contributes both theoretically and practically: it enriches the application of the TOE framework in HRM studies within rural SMEs, and offers actionable insights for policy and capacity-building programs tailored to under-resourced business environments. This dual contribution highlights the study's novelty and relevance in addressing current gaps in literature and practice.

By addressing these objectives, the research aspires to contribute meaningfully to the development of HR management policies that are both practical and impactful for Majalengka Regency. Furthermore, the study intends to provide evidence-based recommendations that organizations can adopt to improve efficiency, productivity, and competitiveness in the digital era (Alshahrani, 2023; Virgiawan et al., 2021). Specifically, the objectives of this study are threefold: (1) to identify HR management strategies that effectively improve organizational performance in Majalengka Regency within the digital context; (2) to analyze the factors that influence the successful implementation of digital technology in HR management for SMEs and public sector organizations in the region; and (3) to provide targeted recommendations for digital-based HR management approaches that can enhance efficiency and productivity across diverse organizational settings.

This research holds the promise of advancing the understanding of digital HR practices, reducing barriers to technology adoption, and fostering a culture of innovation and efficiency that can drive sustained organizational growth in Majalengka Regency. Through its findings and recommendations, it aims to not only address the existing gaps but also pave the way for strategic advancements in HR management that align with the evolving demands of the digital era.

2. RESEARCH METHOD

This study adopts a quantitative approach, utilizing an analytical descriptive design to investigate the role of digital technology in human resource (HR) management within Small and Medium Enterprises (SMEs) in Majalengka Regency. Data collection was conducted through a structured survey by distributing questionnaires to respondents directly involved in the HR management processes of these SMEs. The data obtained will undergo analysis using both descriptive and inferential statistical techniques. Descriptive analysis will provide an overview of the current state of HR management practices in the region, while inferential statistics will explore and quantify the relationship between the adoption of digital technology and improvements in organizational performance.

The sample for this study consists of 50 SMEs in Majalengka Regency that have actively implemented digital technology in their HR management systems. The sample selection employed a purposive sampling technique to ensure relevance and alignment with the study's objectives. The inclusion criteria for SMEs were threefold: (1) SMEs must have adopted digital technology in at least one HR management function, such as recruitment systems, employee data management, training, or performance evaluation. This criterion ensures that the study captures the specific impact of digital technology. (2) SMEs must have been operational for a minimum of two years and have a workforce of more than 10 employees. This criterion ensures that the selected SMEs have sufficient experience with technology usage and an organizational scale that warrants structured HR management. (3) SMEs must represent diverse industry sectors, including manufacturing, trade, services, and food and beverages. This diversity aims to provide a comprehensive picture of how digital technology is utilized across different industries and contexts.

The primary respondents for this study are HR managers, heads of HR departments, or other individuals within each SME who possess substantial knowledge and experience in technology-based HR management. The questionnaires were meticulously designed to collect in-depth information on various aspects, including the extent of technology adoption in HR management, the strategies implemented, and the perceived challenges and benefits of integrating digital solutions. The questions aim to uncover insights about how digital technology is applied in recruitment, training, and performance evaluation, as well as the impact on operational efficiency and employee productivity.

This approach not only ensures the collection of reliable and relevant data but also provides a strong foundation for understanding the broader implications of digital technology in HR management. The findings are expected to shed light on best practices, highlight common obstacles faced by SMEs, and offer actionable recommendations for improving HR strategies in the context of a rapidly digitalizing economy. By encompassing a wide range of industries and experiences, this study seeks to contribute to the growing body of knowledge on the transformative potential of digital technology in enhancing organizational performance in regional contexts.

The survey was conducted face-to-face to ensure better understanding of the questions and minimize misinterpretation, especially considering varying levels of digital literacy among respondents. Organizational performance in this study is defined based on key performance indicators (KPIs) relevant to SMEs, including operational efficiency, employee productivity, and HR process accuracy, which were measured using a 5-point Likert scale in the questionnaire. The study relied primarily on questionnaire data; however, data triangulation was achieved through informal follow-up interviews with selected respondents to validate and deepen insights. The sample size of 50 SMEs was chosen based on accessibility, representativeness across sectors, and resource constraints, with a purposive sampling method ensuring that all participants had adopted digital HR technology to some degree. To ensure instrument validity, the questionnaire underwent expert validation and was tested in a small pilot study. Reliability was confirmed using Cronbach's Alpha, with values above 0.70 indicating acceptable internal consistency. Measures were also taken to minimize respondent bias, such as ensuring respondent anonymity and clarifying that responses would be used solely for academic purposes. The use of regression analysis is justified due to its ability to quantify relationships between digital adoption and performance outcomes, aligning with the study's explanatory objectives.

3. RESULTS AND DISCUSSIONS

Table 1. Descriptive Analysis Table

Variable	Mean	Standard Deviation	Minimum	Maximum
Efficiency Increase (%)	25	5	10	35
Employee Skill Gap (%)	54	10	30	70
Budget Constraint (%)	48	8	20	60

The descriptive statistical table provides an overview of the key variables in this study, namely Efficiency Increase, Employee Skill Gap, and Budget Constraints. Here is an interpretation of the data:

a. Efficiency Increase (%)

Mean: 25% indicates that the average increase in operational efficiency in SMEs using digital technology is 25%. Standard Deviation: 5% indicates that the variation in efficiency improvement among SMEs is relatively low, indicating that the majority of SMEs experience a similar level of efficiency improvement. Minimum and Maximum: Efficiency improvements ranged from 10% to 35%, indicating that all SMEs in the sample experienced efficiency improvements, albeit at varying rates.

b. Employee Skills Gap (%)

Mean: 54% indicates that more than half of employees in SMEs face a significant digital skills gap. Standard Deviation: 10% indicates considerable variation among SMEs in terms of their employees' skills gaps. Minimum and Maximum: The skills gap ranges

from 30% to 70%, indicating significant differences in employee digital readiness across SMEs.

c. Budget Constraints (%)

Mean: 48% indicates that almost half of SMEs face budget constraints in implementing digital technology. Standard Deviation: 8% indicates a moderate degree of variation in budget constraints among SMEs. Minimum and Maximum: Budget constraints range from 20% to 60%, indicating that these constraints are felt by most SMEs, but to varying degrees. Overall, these statistics show that while digital technologies have the potential to improve efficiency, many SMEs still face significant challenges in the form of employee skills gaps and budget constraints. Therefore, a digital-based HR management strategy must pay attention to aspects of employee training and financial support to reduce these barriers.

This study analyzes the relationship between digital technology-based human resource management strategies and organizational performance in the digital era, especially in Small and Medium Enterprises (SMEs) in Majalengka Regency. Based on the results of a survey of 50 SMEs, there are significant findings regarding the application of digital technology in various aspects of human resource management, such as recruitment, training, and performance evaluation. The data shows that SMEs that use digital technology consistently report improved operational efficiency and employee competency development, compared to SMEs that still use conventional methods.

Statistically, the results of regression analysis show that the use of digital technology in human resource management has a strong positive correlation with organizational performance, with a correlation coefficient (r) value of 0.78 ($p < 0.05$). This shows that the higher the adoption rate of digital technology, the better the performance of the organization, both in terms of productivity and work process efficiency. Descriptive analysis also showed that 72% of respondents stated that the use of digital technology helped facilitate the employee training process, while 68% of respondents reported an increase in accuracy in managing employee data.

Table 2. Regression Analysis Table

Model	Unstandardised Coefficients (B)	Standard Error	Standardised Coefficients (Beta)	t	Sig.
Constant	1.25	0.12	nan	10.42	0.0
Digital Technology Adoption	0.78	0.05	0.78	15.6	0.0

However, the study also identified some of the key challenges SMEs face in adopting digital technologies, including a lack of digital skills among employees (reported by 54% of respondents) and limited budgets for technology investments (reported by 48% of respondents). On the other hand, SMEs that successfully overcome these challenges reported significant improvements in work process efficiency, with HR administration processing time reduced by an average of 25%.

These findings support previous research by (Akpa et al., 2021; Anwar & Abdullah, 2021; Nyathi & Kekwaletswe, 2024) which stated that the application of information technology in human resource management can improve organizational operational efficiency. However, this study highlights the specific context of SMEs in remote areas such as Majalengka Regency, where infrastructure constraints and technology adoption rates are still crucial issues.

After conducting regression analysis tests to identify the relationship between the adoption of digital technology in human resource management (HR) and organizational performance, the next step is to analyze the determination coefficient. This analysis aims to measure how much an independent variable, namely the adoption of digital technology, can explain the variation in the dependent variable, namely organizational

performance. The results of the determination coefficient provide an overview of the strength and contribution of the regression model in predicting organizational performance based on the level of application of digital technology. Here are the results of the determination coefficient and its interpretation(Abdelwahed et al., 2023; Lee et al., 2022; Widarko & Anwarodin, 2022).

Table 3.Determination Coefficient Table

Model	R Square (R^2)	Adjusted R Square	F Statistic	Sig. (p-value)
Digital Technology Adoption	0.6084	0.602	243.36	0.0

The coefficient of determination (R^2) of 0.6084 shows that about 60.84% of the variation in organizational performance can be explained by the adoption of digital technology in human resource management. An Adjusted R^2 value of 0.6020 adjusts the R^2 for the number of predictors in the model, indicating that the results remain robust despite considering the bias due to sample size. The F statistic of 243.36 with a significant value ($p < 0.05$) shows that the regression model as a whole is significant in predicting organizational performance.

This interpretation confirms that the adoption of digital technologies plays a crucial role in improving organizational performance. However, there are about 39.16% of other factors that also affect performance, so further research is needed to explore these factors.

The findings of this study offer several practical and strategic implications. SMEs should not only adopt digital tools but also ensure structured integration into core HR functions, such as performance tracking and employee development, to maximize outcomes. The data suggest a threshold effect, where performance improvements become statistically significant when digital adoption reaches a moderate-to-high level—particularly when digital systems are used consistently across at least three HR domains. This insight is crucial for policy and program design, as partial or fragmented adoption may yield minimal impact. Strategically, this calls for integrated digital transformation plans supported by leadership commitment, training initiatives, and budgeting mechanisms tailored to SME capacities.

From a theoretical perspective, the findings reinforce the relevance of the Technology–Organization–Environment (TOE) framework, confirming that technology adoption alone is not sufficient without organizational readiness and environmental support. The observed performance gains align with prior research (e.g., McCartney & Fu, 2021; Zhang et al., 2022), but this study expands the literature by contextualizing these effects in rural SMEs with infrastructural limitations. However, external factors—such as market demand, government support, and industry type—may also influence performance, suggesting a need for caution in generalizing results. Future research should consider these moderating variables and incorporate longitudinal data to capture dynamic changes over time.

4. CONCLUSION

This research underscores the critical role of digital technology-based human resource (HR) management strategies in enhancing organizational performance, particularly in the context of Majalengka Regency. The findings from the data analysis reveal a substantial positive correlation between the adoption of digital technology in HR management and improvements in organizational efficiency. Specifically, small and medium enterprises (SMEs) that successfully integrate digital technologies into their HR practices experience, on average, a 25% increase in operational efficiency. Despite this notable progress, significant challenges persist, with the most common obstacles being employee skills

gaps (54%) and budgetary constraints (48%), which often hamper the full realization of the potential benefits of digital technology. The adoption of digital technology offers numerous advantages in HR management, such as simplifying the processes of recruitment, training, and performance evaluation. These efficiencies not only save time but also ensure that businesses can focus on their core functions while optimizing workforce management. However, these benefits are not universally realized, as SMEs frequently struggle with two primary challenges: the low digital literacy of employees and limited financial resources to invest in technology. These barriers prevent many organizations, especially in rural and underdeveloped areas, from fully leveraging the transformative power of digital technology. From a practical standpoint, this study provides actionable recommendations aimed at addressing these barriers. First, enhancing digital skills training for employees is essential to bridge the skills gap and empower the workforce to use digital tools effectively. Second, improving access to technology infrastructure—such as stable internet connections and modern hardware—is crucial to support the adoption of these tools. Third, the provision of financial incentives, such as subsidies, grants, or tax breaks, could encourage SMEs to invest in necessary digital technologies. By implementing these measures, SMEs in remote regions like Majalengka Regency can overcome existing challenges and significantly improve their competitiveness and organizational performance in an increasingly digitalized economy. Embracing these strategies will not only help SMEs adapt to the digital era but also contribute to regional economic growth and development. This study has limitations, including a small sample size focused on Majalengka SMEs and reliance on self-reported data, which may affect generalizability. Despite this, the research contributes to the development of digital-based HR management theory by applying the TOE framework in a rural SME context. It highlights that structured digital adoption can improve performance even in non-urban areas, offering insights for both future research and practical implementation.

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