



# The Role of HRM Strategies in Enhancing Employee Performance Through Digital Skills Development

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**Abstract.** This research aims to determine the role of Human Resource Management (HRM) strategies in enhancing employee performance through digital skills development within the Indonesian public sector. This study addresses the urgent need for Civil Servants to possess effective digital skills in implementing e-government and facing the challenges of the Industrial Revolution 4.0 era. This research employed a qualitative approach with a case study design to provide an in-depth understanding of digital skills development among employees. The Department of Population and Civil Registration of Parepare City was selected as the study location. Data was collected through in-depth interviews and document analysis of relevant institutional documents. The findings indicate that the organization actively utilizes information technology in public services, necessitating employee digital proficiency. The HRM strategy for developing these skills successfully integrates formal methods (education, technical training, and workshops) and non-formal methods (self-directed learning). This development is significantly supported by conducive work environments, adequate infrastructure and applications, and strong leadership support. The study concludes that the implemented HR strategy successfully improved employee performance in public service delivery. Theoretically, the findings enrich the literature on HRM in the digital public sector, particularly regarding skill internalization. Practically, this research provides a model for public organizations to adopt in effectively developing digital skills and overcoming bureaucratic challenges in the digital era.

**Keywords:** Digital skills, employee performance, human resource

## 1 Introduction

The challenges of the era of industrial revolution, which is synonymous with the dominance of technology and digitalization, have fundamentally changed the framework of government services. This transformation is realized through the implementation of e-government, which requires the bureaucracy to adapt to being fully technology-based and online. In this context, developing the competencies of Civil Servants becomes a necessity so that they possess digital skills that enable them to function effectively in the new digital environment. This increase in digital skills is not merely an adaptation, but a prerequisite for creating a bureaucracy that is adaptive, agile, and efficient.

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In Indonesia, in line with the vision of bureaucratic transformation, efforts to improve the quality of public services and the effectiveness of civil servants' work are a priority. This is in line with the government's commitment to improve Indonesia's ranking in the UN e-government survey. Recent developments show that Indonesia is now ranked 64th out of 193 countries, placing 4th best in Southeast Asia after Singapore, Thailand, and Malaysia, with an e-government development index (EGDI) score of 0.7991. However, despite this progress, challenges remain, particularly regarding the digital divide in terms of regulation and technological literacy, which is not evenly distributed among bureaucrats.

To address this gap, this research aims to provide insights into how the development of digital skills for civil servants supports public services, focusing on a case study at the Department of Population and Civil Registration of Parepare City. This office was selected as a case study because it successfully received recognition as a Public Service Provider Unit and was awarded the public service role model award by the Ministry of Administrative and Bureaucratic Reform. Furthermore, Department of Population and Civil Registration of Parepare City has demonstrated a commitment to improving its service delivery through the implementation of digital technologies. Their ability to adapt and optimize digital tools in administrative services makes them a valuable subject for understanding the practical applications of digital skills development for civil servants.

## **2 Literature Review**

### **2.1 Strategic Human Resource Management (SHRM)**

Strategic Human Resource Management (SHRM) has increasingly gained attention as a significant factor in improving employee performance, particularly through the development of digital skills. This literature review focuses on the reciprocal relationship between HRM strategies and the necessity for sustainable employee development in the digital age. Kosasih [1] discusses the importance of SHRM in creating a competitive advantage amid the challenges of the industrial revolution 4.0. The author argues that effective HRM strategies must adapt to foster an environment where employees can develop the digital competencies required for the modern workplace. This adaptation not only helps in achieving organizational goals but also encourages employee satisfaction and engagement [1]. In line with this, Humairah et al. [2] highlight the role of recognition and career advancement opportunities as important HRM practices that significantly contribute to increased employee engagement and performance.

Alolayyan et al. [3] explain the relationship between SHRM practices and human capital development, emphasizing that a committed workforce is crucial for enhancing organizational productivity. Specifically, they show that organizations investing in comprehensive training and development programs foster an environment where employees are encouraged to improve their skills, especially in the digital domain. This commitment drives performance outcomes, indicating that successful SHRM must account for dynamic skill development in the ever-evolving digital landscape. Zhang [4] also reinforces this idea, showing that effective HRM practices—including talent management and performance management—positively influence organizational

performance by nurturing employee capabilities. Consistent with this, the findings of Mirzayi and Motaghi [5] underscore the value of integrating information technology into HRM strategies, which can serve as a catalyst for employee skill development, leading to improved organizational performance.

It is also important to consider the broader context of employee development strategies within SHRM. Kareem and Mijbas [6] assert that integrating dynamic capabilities into HR development initiatives can enhance organizational effectiveness, implying an indirect path where focused skill development can improve overall company performance. This perspective highlights the need for flexible and adaptive HRM strategies that align with employee needs and organizational goals, especially in a rapidly changing environment. Further explanation comes from Azzukhruf et al. [7], who explored the relationship between strategic HRM practices and employee performance through the lens of organizational commitment. Their findings indicate that when HRM practices are aligned with employee development goals, organizations can expect higher levels of commitment and performance from their workforce.

## **2.2 Digital Skill and Employee Performance**

Digital skills are increasingly recognized as an essential component in improving employee performance in today's digital age. In this context, the role of Human Resource Management (HRM) strategies becomes crucial, especially in developing digital skills that can support employee performance and productivity. Research by Mazurchenko and Maršiková [8] emphasizes that digital skills are a fundamental requirement in HRM that is more responsive to the demands of modern technology. This aligns with research by Jayabalan et al. [9], who identified that digitalization plays a significant role in HRM practices such as recruitment, training, and performance appraisal, ultimately having a positive impact on employee performance.

Developing digital skills through HRM strategies can help organizations face challenges related to digitalization, as outlined by Fokina et al. [10]. In this context, digital HRM not only serves as an administrative tool but also facilitates continuous learning and professional development [11]. This is important because a study by Kambur and Yıldırım [12] showed that the adoption of digital technology in HRM can significantly improve both individual and overall organizational performance. Additionally, digitalization in HRM supports more efficient collaboration and communication among employees, which also contributes to the improvement of digital skills [13]. In a more specific study, Haque and Nishat [14] showed that digitized HRM practices such as e-recruitment and e-training have a direct impact on employee performance.

Overall, the connection between digital skills and HRM strategies implies that organizations investing in the development of these skills through planned and integrated practices will be able to improve their employees' performance. Research by Setyaningrum et al. [15] further shows that the implementation of digital HRM can drive supply chain performance by increasing green orientation and innovation within the organization, demonstrating that digital skills impact not only individual performance but also the sustainability of the organization.

### **2.3 The Relationship between HRM, Digital Skills, and Employee Performance in the Public Sector**

Digital skills have been identified as a critical factor influencing job performance. A study by Štofková et al. [16] showed that digital skills not only improve performance quality but also contribute to higher incomes and better job opportunities, as well as aiding in the emancipation and self-realization of employees. This research aligns with the findings of Ujwary-Gil and Godlewska-Dzioboń [17], who demonstrated a direct influence of digital skills on internal task performance among employees.

In the public sector, adopting HRM strategies focused on digital skills development appears increasingly important. Agafonova et al. [18] noted that the public sector's mission, which focuses on public service, requires appropriate skills upgrading to enable employees to adapt to the evolving needs of digitalization. Abdul et al. [19] also highlighted the importance of employee-oriented digital transformation initiatives, where digital skills training plays a key role in empowering and enhancing employee capabilities in the workplace.

Furthermore, research by Fan [20] emphasizes the need for an optimization strategy in human resource management in the public sector, which includes accelerating digital transformation and developing a digital-driven mindset among employees. This aligns with findings from Drydakis [21], who provided insight that digital skills training is also closely related to successful employee performance in a sector experiencing rapid technological change. With data demonstrating the need for a deep understanding of digital skills and competencies, the study by Laar et al. [22] confirms that digital skills development is a crucial attribute in an increasingly advanced information society.

Noor [23] explains that the transformation from traditional to digital HRM practices is crucial for current workforce development. This innovation in HRM includes training and digital skill development, as well as the use of technology for all HRM tasks to support work effectiveness [23]. Innovative HRM practices help improve employee skills and productivity, leading to better performance. Sari et al. [24] highlight that employee performance appraisals must consider environmental and work ability factors. In this context, the application of technology to enhance employee skills, such as digital training, can change the work environment and support better performance. Furthermore, this study's finding that employees with good digital skills tend to have higher performance reinforces the notion that enhancing employee abilities is crucial for performance improvement.

Integrating all these findings, it can be concluded that effective HRM strategies in developing digital skills in the workplace not only help employees adapt to technological changes but also enhance their motivation and performance. Therefore, it is important for organizations to implement HRM practices focused on digital skill development with the ultimate goal of improving employee performance.

## **3 Methodology**

### **3.1 Participants and Sampling**

This qualitative research involved six (6) core participants ( $n = 6$ ) from the Population and Civil Registration Office of Pare-Pare City, selected using purposive sampling.

Inclusion criteria included civil servants with work experience in service/IT units and direct involvement in the use of digital systems. Participant profiles and roles are presented in Table 1.

**Table 1.** Core Participant Profiles and Roles

Participant Role	Number (n)	Key Task Description
Head of Population Registration Division	1	Responsible for managing and implementing population registration services.
Policy Analyst	1	Develops policies related to population administration and civil registration.
Human Resource Manager	1	Manages human resource data for civil servants
Population and Civil Registration Analyst	1	Analyzes population and civil registration data and its utilization in public services.
Administrator of the Population Administration Information System (SIAK)	2	Responsible for managing and implementing the SIAK application in population administration services.

### 3.2 Data Collection Procedure

This research was conducted from March 2022 to October 2022. Primary data was collected through in-depth, semi-structured Focus Group Discussions (FGDs) in one (180minute face-to-face session at the office. The discussions focused on technology adaptation, challenges, digital competency development efforts, and organizational policy support. All sessions were audio-recorded and transcribed verbatim, including the full dialogue between participants and the researcher. Institutional and Ethical Permission (Informed Consent), including the signing of an interview certificate, was obtained before and after each session. Secondary data, including Service Standards, HR Development Policies, and the developed employee list, were used for data triangulation and to strengthen the FGD findings. Data collection was stopped after data saturation was reached, when no new information was obtained from the discussion.

### 3.3 Data Analysis and Credibility Techniques

Data were analyzed using the Miles, Huberman Interactive Model, which includes data reduction, presentation, and verification. The qualitative coding process was conducted manually using Microsoft Excel. The primary credibility strategy was a member check, conducted on-the-spot at the end of the focus group discussion (FGD) session to confirm the accuracy of the interpretation of the findings. Credibility was supported by data triangulation and peer debriefing. The trustworthiness of the study was supported by the four qualitative rigor criteria (credibility, transferability, dependability, and confirmability) through the member check and audit trail strategies.

## 4 Result

### 4.1 Implementation and Digital Skill Levels of Employees

The Department of Population and Civil Registration of Parepare City has fully adopted digital technology, implementing various integrated information systems such as SIAK Terpusat, Benroll, and Bcard to optimize public services. Nevertheless, this study found a disparity in digital skill levels among employees. This gap is particularly evident among senior staff, who showed lower digital proficiency and a lack of motivation to learn. This finding is supported by an informant's statement: "There are some employees who are about to retire, so they find it difficult to operate the applications. Based on age, they also don't really want to learn, thinking 'I'm about to retire' and are less motivated due to age factors..."

### 4.2 Digital Skill Development Strategy

This study found that the Department of Population and Civil Registration of Parepare City implemented two primary approaches to developing its employees' digital skills: formal and informal.

**Formal Development.** This method includes technical training, technical guidance (Bimtek), and seminars. Bimtek is the most frequently used method to introduce updates to the SIAK system. However, budget constraints pose a significant challenge, as expressed by one informant: "There is a budget for human resource development, participating in Bimtek when there are new applications or regulations. The Directorate General often provides Bimtek." To address this limitation, the Department of Population and Civil Registration of Parepare City implemented a "train the trainer" system, where employees who participate in training are responsible for sharing knowledge with their colleagues.

**Informal Development.** Beyond formal training, employees also actively engage in independent or self-taught learning to master the necessary applications. This is a very dominant and practical solution for them. One informant explained: "Most of my friends are self-taught, those who understand IT use their skills to produce results. They have to know all the materials and procedures or procedures for using the application, there's no training." This approach is achieved through the use of information technology such as media platforms (YouTube and Google) or peer-to-peer learning, with the consideration of cost efficiency, as another informant explained: "Everything is selftaught through Google because if you want to create an application, it's expensive. Why would we participate when we can make it cheap, useful, and economical?"

### 4.3 Digital Innovation and Its Impact on Performance Improvement

The digital skills possessed by employees at the Department of Population and Civil Registration of Parepare City have proven to extend beyond routine operations, significantly contributing to the development of digital innovations that directly enhance the

quality of public services and organizational performance. Some of the notable innovations developed include Mappadeceng, a service utilizing social media platforms (WhatsApp, Email, Facebook) and websites to facilitate public access to population administration document issuance; Zaskia (Strategy for Children to Get Child Identity Cards Immediately), a service that enables the public to upload required documents via WhatsApp; and Lapor Hati (Birth and Death Event Reporting Service), a collaboration with health institutions allowing for the reporting of vital events through a dedicated application on the Department's website.

These developments demonstrate the employees' ability to effectively apply new knowledge and ideas to problem-solve, ultimately improving work effectiveness in the field of population administration.

#### **4.4 The Key Role of Leadership and Infrastructure Support**

The successful implementation of the digital strategy at the Department of Population and Civil Registration of Parepare City is inseparable from the crucial role of leadership, specifically the Head of the Office, who functions as a digital leader. Leadership, in this instance, does not merely provide instructions but actively engages in operations and innovation, setting a direct example for the staff. This is corroborated by the testimony of an informant, who stated: "He leads by example. He doesn't just talk, he sets the example. For example, if he comes in person on Sunday, it would be uncomfortable for us employees to just order things around. It's easy, but the leader sets the example, so we feel uncomfortable." Furthermore, the findings indicate that adequate infrastructure support, such as providing closed internet access for internal use and open access for the public, is a crucial prerequisite for success. However, the study also identified significant challenges in the form of frequent internet network disruptions and power outages that hamper smooth service delivery.

## **5 Discussion**

### **5.1 Implementation gaps: technology adoption versus human capability**

This finding indicates that the success of e-government implementation in the public sector depends not only on the availability of technology but also on the capability of the human resources who utilize it. The adoption of digital systems in Parepare aligns with the view of Agafonova et al. [18], who assert that the public sector needs to adapt to digital innovation to carry out its mission. Furthermore, this supports Fan's [20] argument regarding the need for an optimal and proactive HRM strategy to accelerate digital transformation.

Despite this, the skill gap revealed in this study represents a significant challenge. The lack of motivation linked to age factors demonstrates that internal barriers, not just external ones, can impede the success of transformation. This finding underscores the importance of digital skills as a vital factor in enhancing performance and internal task execution, consistent with the views of Štofková et al. [16] and Ujwary-Gil and Godlewska-Dzioboń [17]. Academically, this lack of motivation can be analyzed

through the HRM literature that emphasizes the importance of employee commitment, fostered through SHRM practices [3], [7]. Therefore, these findings imply that an effective HRM strategy must go beyond providing technical tools and training and also proactively address the behavioral and motivational challenges of employees to ensure the maximum adoption and utilization of technology.

## **5.2 Interpreting the development strategy: formal systems and informal pragmatism**

This finding illustrates the comprehensive approach of the Civil Registration Office in addressing skills demands in the digital era. The formal strategies implemented, such as technical guidance, align with the views of Haque and Nishat [14], who stated that digitized HR practices, such as e-training, have a direct impact on employee performance. This approach reflects the organization's commitment to facilitating continuous learning and professional development, as emphasized by Fokina et al. [10].

Nevertheless, the most significant finding was the dominance of informal approaches, which indicates budgetary constraints and personal initiative among employees. The statement that “there is no training” for certain applications confirms that informal development is a pragmatic solution under these circumstances. This aligns with research by Nurhasanah and Sinambela [13], who stated that digital HRM encourages efficient collaboration and communication, which indirectly supports digital skill development through knowledge sharing among colleagues. Furthermore, the “train the trainer” model implemented was a highly effective strategic adaptation. This practice not only addressed resource constraints but also created a culture of knowledge sharing, which in turn enhanced collective capabilities.

Overall, this combination of formal and informal strategies demonstrates that the Department of Population and Civil Registration of Parepare City has integrated digital skills development as an integral part of its HRM framework. This aligns with the findings of Kambur and Yildirim [12], who showed that adopting digital technology in HRM can significantly improve individual and organizational performance, albeit with a pragmatic approach tailored to the realities of the field.

## **5.3 Digital innovation as evidence of capability-driven performance gains**

The findings strongly support the literature linking HR strategy to organizational performance through the maturation of digital capabilities. Innovations such as Mappadeceng, Zaskia, and Lapor Hati are not just technical adjustments; they are tangible representations of the dynamic capabilities generated by a skilled workforce. This is consistent with the view of Kareem and Mijbas [6], who assert that integrating dynamic capabilities into HR development initiatives can enhance organizational effectiveness. Furthermore, these findings reinforce Zhang's [4] argument that effective HR practices, specifically digital skills development in this context, positively impact organizational performance by nurturing employee capabilities. The employees' ability to leverage familiar platforms like WhatsApp to create efficient services demonstrates how information technology integration, as emphasized by Mirzayi and Motaghi [5], can serve

as a catalyst for improved performance. Overall, these digital innovations confirm the tangible impact of investing in digital skills development. Their adoption and implementation have increased service efficiency and effectiveness, aligning with Kambur and Yıldırım's [12] finding that digital technology adoption in HRM can significantly improve individual and overall organizational performance. These results demonstrate that employee digital skills are a strategic asset that not only supports operations but also triggers innovation that drives substantial performance improvements in the public sector.

#### **5.4 Leadership and infrastructure as critical enablers (and constraints)**

These findings highlight two external factors essential to the success of digital transformation in the public sector: strategic leadership and supporting infrastructure. Leadership that leads by example aligns with the views of Azzukhruf et al. [7], who explored how strategic HRM practices and committed leadership indirectly foster employee commitment to organizational goals. This leadership approach also reflects efforts to create a competitive advantage, as expressed by Kosasih [1], by cultivating an environment where employees feel supported and encouraged to develop their digital competencies. Meanwhile, the availability of infrastructure, such as internet access, is a fundamental foundation of any digital HRM initiative. This supports the views of Mirzayi and Motaghi [5], who underscore the value of information technology integration as a catalyst for employee development. The provision of internet access at the Department of Population and Civil Registration of Parepare City represents a concrete implementation of this practice, enabling employees to carry out increasingly technology-dependent tasks. Conversely, findings regarding infrastructure challenges like network disruptions and power outages indicate that physical barriers can significantly hamper the effectiveness of otherwise ideal digital HRM practices. Although Noor [23] explains the importance of transformation to digital HR, this finding adds that unstable infrastructure readiness can be a major obstacle preventing the achievement of optimal work effectiveness and productivity.

## **6 Conclusion**

This study demonstrates that the Human Resource Management (HRM) Strategy, particularly through the employee competency development function, plays a crucial and central role in facing the demands of digital transformation (e-government), and directly contributes to improving the digital skills of State Civil Apparatus (ASN).

The study results show that the Population and Civil Registration Office of Parepare City has effectively implemented a digital development strategy through two main approaches. The first approach is Formal Development, which includes structured activities such as technical training, technical guidance (bimtek), and seminars/workshops. The second approach is Non-Formal Development, which actively encourages individual initiative through independent learning (autodidact), indicating strong internal motivation among employees to advance.

The success of HRM development strategies in producing digitally competent employees is supported by three key elements: the creation of digital innovation in public

services (e.g., Mappadeceng, Zaskia, and Lapor Hati), the availability of adequate network infrastructure, and full support from agency leadership. Overall, improving digital skills is an absolute prerequisite that significantly supports improved employee performance.

Theoretically, the findings of this study provide a significant contribution to the development of Human Resource Management Science, particularly within the framework of civil servant HRM amidst the Industrial Revolution 4.0. These findings strengthen and enrich Human Resource Development Theory, specifically emphasizing that digital skills are a competency dimension that must be systematically integrated into every training program, both formal and informal. This study positions digital skills development as a strategic HRM operative function to ensure human resource capabilities align with the organizational transformation toward e-government. Furthermore, the results of this study can serve as a contribution to the study and a reference for future researchers who wish to further examine the mediation or moderation relationship between HRM strategy and performance through the variables of digital skills and technological support.

In terms of practical implications, this study provides clear guidance for HR managers, government agency leaders, and policymakers. HRM managers are advised to maintain and increase investment in development programs that combine structured training with an emphasis on self-learning initiatives, while ensuring the minimum requirement of 20 hours of instruction per year for civil servants is met. The findings of this study also indicate an urgent need for policymakers to revise or clarify regulations on civil servant job competencies to explicitly include digital skills and competencies as mandatory prerequisites. Finally, agencies should prioritize investment in adequate digital infrastructure and the creation of an innovative work environment, as these two factors have been shown to be key determinants of the success of employee digital skill development and, ultimately, improved organizational performance.

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