

# Digital Transformation of Human Resource Management: The Role of Competencies in Driving Organizational Performance

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**Abstract**—Digital transformation has transformed the role of human resource management from an administrative function to a strategic function that contributes directly to the performance and competitiveness of the organization. This study aims to systematically examine the development of Learning and Development (L&D) studies in the context of digital human resource management, with a focus on digital competencies and organizational performance. The method used is systematic literature review with reference to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Literature searches were conducted on reputable international and national databases with a publication range of 2020-2025. From the gradual selection process, 35 articles were obtained that met the inclusion criteria for further analysis. Bibliometric analysis is used to map the conceptual structure, thematic clusters, and research developments related to L&D and digital MSDM transformation. The results of the study show that L&D has a strategic role in improving employees' digital competencies which in turn has a positive impact on individual performance and organizational performance. In addition, the current literature confirms that the integration of digital technologies in L&D programs drives the effectiveness of human resource development and strengthens the strategic role of the HRM function. This research makes a conceptual contribution through mapping the digital-based L&D literature and identifying opportunities for further research, especially in the context of organizations in developing countries.

**Keywords:** Learning and Development; Digital Human Resource Management; Digital Competence; Organizational Performance; Digital Transformation

## 1. INTRODUCTION

Digital transformation has become a global phenomenon that fundamentally changes the way organizations operate, including in Human Resources (HR) management. This shift is not just the adoption of information technology, but includes structural and strategic changes in human resource functions that affect organizational competence, performance, and adaptation to the demands of the digital era (Indra Bratamangala, 2025).

Organizations that are able to utilize digital technology in HR management practices not only improve operational efficiency, but also improve the quality of data-driven decision-making and strengthen competitiveness in an increasingly competitive market (Indrianto et al., 2021).

In this context, employee digital competence is one of the key elements in supporting human resource transformation. Digital competencies include the technical and behavioral skills required to work effectively in a digital environment, including the ability to use technology, understand data, virtual collaboration, and adaptability to new technological innovations (Wijil Nugroho & Tambunan, 2024).

Research shows that increased digital competencies correlate with improved individual and organizational performance, as these competencies improve employees' ability to respond to challenges and opportunities arising from rapid technological developments (Devya Prameswari & Samsudin, 2025). According to empirical studies in Indonesia, digital transformation in HR management has affected various important functions such as recruitment, training, performance appraisals, career development, and internal communication (Firlana, 2025).

This transformation is different from traditional HR practices that rely more on manual and administrative processes. The adoption of digital systems in recruitment and performance evaluation allows organizations to measure results more accurately as well as minimize bias in the decision-making process (Maryto Maretis et al., 2025). Another study highlights the importance of synergy between digital transformation and HR competency development strategies. Such strategies include the implementation of ongoing training, mentoring, and career development programs tailored to the digital needs of organizations (Kristanti & Hariyanti, 2025).

Without strategic intervention, employees' digital competencies tend to stagnate, so organizations face the risk of skills gaps that can hinder the effectiveness of digital transformation itself. On the other hand, digital transformation presents no small challenges. Some organizations face cultural barriers that are resistive to change, low technological literacy at the managerial and operational levels, and limited supporting infrastructure that supports the optimal implementation of digital technology (Indra Bratamangala, 2025).

These challenges have direct implications on the level of organizational adaptation and HR performance achievements, especially in an immature environment in the adoption of digital technology. In addition, concerns about personal data security and privacy are also important issues that need to be addressed in the HRM digital transformation process (Eprianto et al., 2025).

Digital transformation also requires a change in the role of HR from an administrative function to a strategic partner for top management. HR not only plays a role in managing data and processes, but also in formulating and executing organizational strategies that are oriented towards digital capabilities (Meijerink et al., 2021). In a digital HRM model, HR must be the main motor in creating an adaptive, collaborative, and innovative work culture so that organizations can survive in an environment full of uncertainty and rapid change. Furthermore, international literature shows that the integration of digital technologies in HR management practices improves overall organizational performance. Digital tools such as HR information systems, digital learning platforms, and employee performance analytics applications have been proven to speed up administrative processes, increase employee engagement, and provide measurable data for strategic decision-making (Indra Bratamanggala, 2025; Yulianah, 2024).

This reflects that digital transformation is not just a replacement of old technology, but a paradigm shift that must be accompanied by investment in HR competencies and improvement of performance management processes.

Moreover, other research in the global context emphasizes the importance of the role of digital competencies in supporting organizational adaptation holistically. These competencies are not only related to technical skills, but also include critical thinking skills, creativity, cross-functional collaboration, and data-driven decision-making — all relevant elements in the digital age (Nazarova & Rudenko, 2023). Organizations that successfully develop human resource digital competencies will be more resilient in the face of changes in the external environment and be able to maintain high performance even in the midst of crises or technological disruptions.

Against this background, this article is presented as a comprehensive literature review to summarize empirical and conceptual findings regarding the transformation of digital HR management, focusing on aspects of digital competence and organizational performance. This study aims to identify research trends, literature gaps, and practical implications that can be used as a guide for HR policymakers and practitioners in designing effective HR transformation strategies in the digital era.

## 2. RESEARCH METHODS

This study uses the Systematic Literature Review (SLR) approach with reference to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This approach was chosen because it is able to ensure that the process of searching, selection, and synthesis of literature is carried out in a transparent, systematic, and replicable manner, which is the main characteristic of internationally reputable literature review research in the field of management and human resources (Page et al., 2021). SLR is particularly relevant for examining the transformation of digital human resource management because this topic is rapidly evolving and involves a variety of conceptual and empirical approaches (Snyder, 2019).

The initial stage of the research began with the formulation of the focus of the study, namely the transformation of digital human resource management with an emphasis on digital competencies and organizational performance. Based on this focus, literature searches are carried out on reputable international and national scientific databases. The international databases used include Scopus, Web of Science, ScienceDirect, Emerald Insight, and Taylor & Francis, while national databases include Garuda, SINTA, and Google Scholar with restrictions on accredited journals. The search was carried out in the 2020-2025 publication to ensure the relevance and novelty of the study. The keywords used include a combination of terms such as digital human resource management, HR digital transformation, digital competence, organizational performance, and human resource analytics, both in English and Indonesian.

The literature selection process follows the PRISMA stages which consist of identification, screening, feasibility, and inclusion. At the identification stage, 486 articles were obtained from all databases. After the removal of duplication, the number of articles was reduced to 372 unique articles. The screening stage was carried out by examining titles and abstracts to assess their suitability with the focus of the research, so that 247 articles were eliminated because they did not directly discuss digital HR management, competencies, or organizational performance.

The next stage is the feasibility assessment through the reading of the full text of 125 articles. At this stage, articles are eliminated if they do not come from reputable journals, do not go through a peer review process, do not have a clear methodology, or are only general conceptual in nature without substantive contributions to the topic of study. As a result, 90 articles were expelled for not meeting the inclusion criteria. Thus, 35 articles were declared worthy and included in the final analysis, which consisted of highly reputable international articles and accredited national articles.

The inclusion criteria in this study include articles published in reputable journals, explicitly discussing digital transformation in HR management, digital competencies, and/or organizational performance, and using a clear empirical or conceptual approach. On the other hand, the exclusion criteria include non-scientific articles, unindexed proceedings, opinions, and publications that do not go through a peer review process. This selection approach is in line with SLR practices in the field of strategic management and human resources that emphasize the quality and validity of resources (Tranfield et al., 2020).

Data analysis was carried out using a thematic synthesis approach, which is identifying, grouping, and synthesizing the main themes that emerged from the selected literature. The themes analyzed include the role of digital technology in transforming human resource functions, developing employees' digital competencies, and the impact of these transformations on individual and organizational performance. This thematic approach allows researchers to

identify general patterns, research gaps, and relevant theoretical and practical implications for the development of digital HR management (Vial, 2021).

By applying the PRISMA framework, this study ensures that the literature review process is carried out systematically and can be accounted for academically. This methodology is expected to be able to produce a comprehensive literature synthesis and make a conceptual contribution to the development of digital human resource management studies as well as practical implications for improving organizational performance.

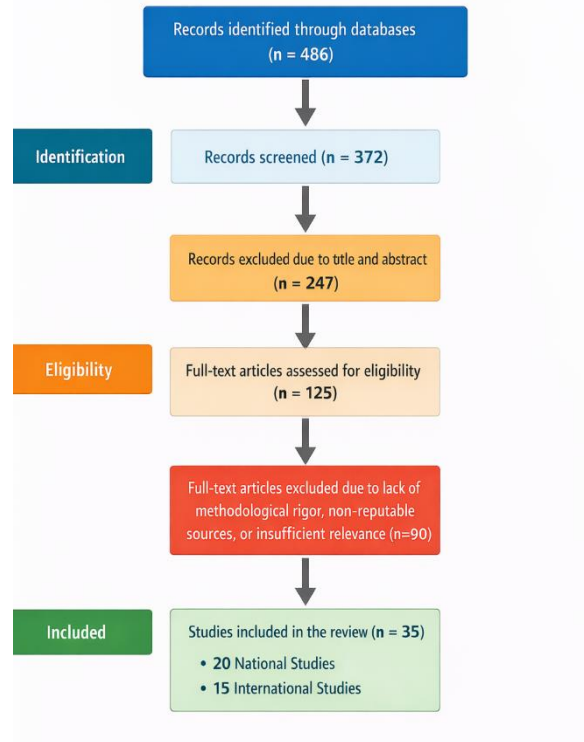


Figure 1. Prisma Flow Diagram

### 3. RESULTS AND DISCUSSION

#### 3.1 Result

Bibliometric analysis using VOSviewer was carried out on 35 selected articles that had passed the PRISMA selection stage. This analysis aims to map the conceptual structure, the relationship of the research theme, and the temporal development of studies related to the transformation of digital human resource management, with a focus on digital competencies and organizational performance. The results of the analysis were visualized through three main types of maps, namely network visualization, overlay visualization, and density visualization, each of which provides a different perspective on the dynamics of research in this field.

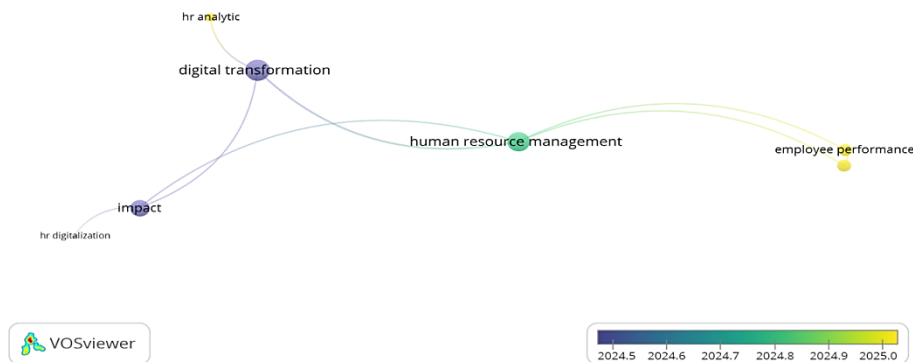


Figure 2. Network Visualization

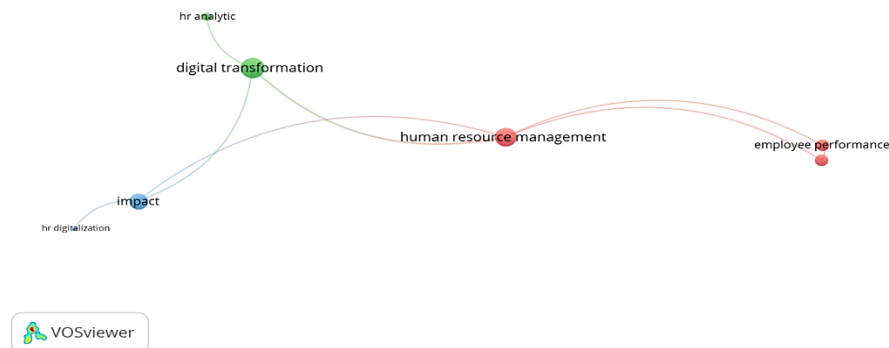
Based on the network visualization in Figure 2, it can be seen that the literature on digital HR management transformation forms several main interconnected clusters. The first cluster is dominated by the keywords digital human resource management, HR digital transformation, and human resource information systems, which represent the

conceptual and technological foundations of digital transformation in HR functions. This cluster shows a high level of connectivity, indicating that the digitization of HR processes is a core theme that is the starting point for various researches.

The second cluster is centered on the keywords digital competence, digital skills, and employee capability. This cluster has a strong relationship with the first cluster, indicating that HRM's digital transformation cannot be separated from the development of employees' digital competencies. This is in line with the findings of the literature that emphasize that the success of HR technology adoption is highly dependent on the readiness and capability of human resources in utilizing this technology (Bratamangala, 2023; Zhang & Liu, 2025).

Furthermore, the third cluster focuses on organizational performance, employee performance, and productivity. This cluster is closely connected to the digital competency cluster, showing that digital competencies act as a mediation mechanism between digital HRM practices and organizational performance improvement. This linkage reinforces the argument that digital HR transformation not only impacts administrative efficiency, but also on the overall strategic performance of the organization.

The fourth cluster covers the themes of human resource analytics, data-driven decision making, and artificial intelligence in HR. Although this cluster is relatively smaller than other clusters, it is strategically positioned because it connects digital HRM practices with data-driven decision-making. This reflects a new trend in the literature that places HR analytics as a key element in improving the effectiveness of HR functions in the digital age.

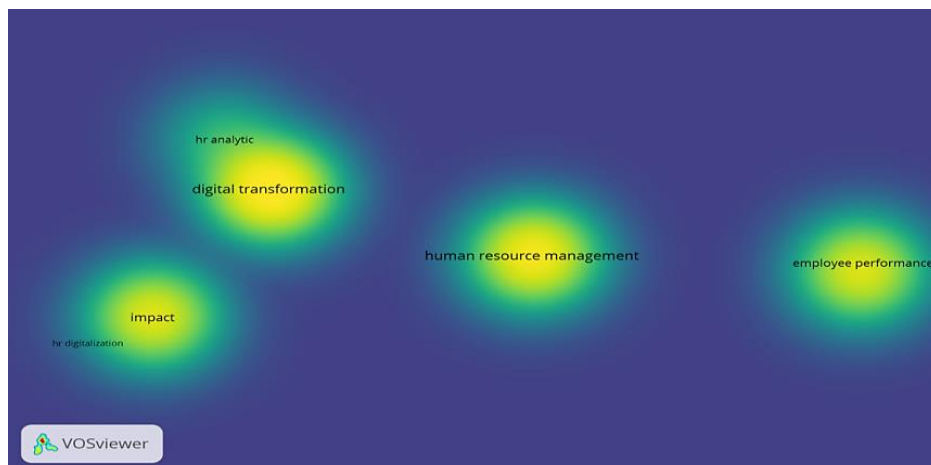


**Figure 3.** Overlay Visualization

The visualization overlay in Figure 3 provides an overview of the temporal development of the research based on the year of publication. Darker colors represent earlier articles (around 2020-2021), while lighter colors indicate more up-to-date research (2024-2025).

The results of the visualization show that the initial theme of the research focuses more on digital HRM and HR information systems as an initial form of digitization of human resource functions. Over time, the focus of research shifted to more specific issues, such as digital competence, HR analytics, and AI-driven HR transformation. The themes of organizational performance and employee performance appear to be increasingly dominant in recent publications, which indicate increasing academic attention to the strategic impact of digital HR transformation on performance outcomes.

In addition, keywords such as organizational agility and adaptation began to appear in the most recent publication period, indicating that current research no longer only highlights technological aspects, but also the ability of organizations to adapt in a dynamic digital environment. This pattern shows the evolution of the literature from a technical-operational approach to a strategic approach and organizational capabilities.



**Figure 4.** Density Visualization

The density visualization in Figure 4 shows the intensity of the occurrence of keywords in the overall literature analyzed. The areas with the lightest colors show the most researched themes and have the highest levels of density. The visualization results show that digital human resource management and digital transformation are the themes with the highest density, confirming its position as a center of study in the literature. Around it, the themes of digital competence and organizational performance also show high density, which indicates that these two variables are consistently studied as the main consequences of digital HR transformation.

In contrast, themes such as HR analytics, AI in HR, and data-driven HR decision-making have a relatively lower density. This indicates that although the topic is becoming increasingly relevant, in-depth empirical research is still limited. These findings reveal further research opportunities, particularly in exploring how HR analytics and artificial intelligence can strengthen the relationship between digital competencies and organizational performance.

The results of the VOSviewer analysis as a whole show that the literature on digital HR management transformation has developed significantly and formed a relatively mature conceptual structure. However, there are still research gaps, especially in integrating aspects of HR analytics and artificial intelligence empirically into organizational performance models. These findings provide a solid basis for the development of a conceptual framework and further research agenda in the field of digital human resource management.

### 3.2 Discussion

The results of the literature mapping show that Learning and Development (L&D) is a central theme in the study of modern human resource management, especially in the context of organizational transformation and performance improvement. Recent literature confirms that L&D is no longer positioned as a short-term training activity, but rather as a strategic instrument that contributes directly to strengthening organizational competence, productivity, and sustainability (Armstrong & Taylor, 2020; Becker & Huselid, 2021). These findings reinforce the argument that investment in human resource development is the main foundation of organizational value creation.

The strong link between L&D and improving individual and organizational performance is reflected in the dominance of the themes of competence, employee performance, and work productivity in the literature. A number of studies show that competency development through structured training is able to significantly increase work effectiveness and the quality of human resource output (Hasanuddin et al., 2023; Kencana et al., 2024). In this context, L&D serves as a key mechanism for aligning individual capabilities with the strategic needs of the organization.

Literature discussions also show that the effectiveness of L&D is strongly influenced by the quality of overall human resource management. National studies confirm that human resource competence, work experience, and support for a good management system contribute to improving employee performance (Asrini et al., 2025; Silvia et al., 2024). As such, L&D cannot stand alone, but must be integrated with other HRM practices to have optimal impact.

In recent developments, the use of digital technology in L&D programs is getting more and more attention. The digitization of training, system-based learning, and the use of analytics technology in performance evaluation enable organizations to design more adaptive and targeted development programs. These findings are in line with research showing that digital transformation in HRM supports the effectiveness of competency development and HR performance improvement (Nabila et al., 2025; Rahayu et al., 2025).

From an organizational performance perspective, the literature shows that the success of L&D has an indirect impact on the financial performance and sustainability of the organization through improving the quality of human resources. Research conducted by Kurnianingsih and Rahayu (2020) and Nurhayati and Rahayu (2025) shows that organizational performance is greatly influenced by the quality of resource management, including competency development and good human resource governance. This confirms L&D's strategic role as a driver of long-term performance.

However, some studies also reveal that the implementation of L&D faces challenges, especially in organizations with limited resources and human resource readiness. National articles show that competency gaps, limited infrastructure, and low digital literacy can hinder the effectiveness of human resource development programs (Noor et al., 2023; Prameswari, 2025). This condition underscores the need for a contextual and needs-oriented L&D approach.

In addition, the relationship between L&D and performance is not always linear. Several studies confirm that without the support of a strong organizational culture and leadership, HR development programs have the potential to produce limited impact (Ramadhan et al., 2023; Vierri et al., 2023). Therefore, the effectiveness of L&D is highly dependent on management commitment and alignment of organizational strategies.

The literature on strategic human resource management places L&D as a key function that connects HR management with the achievement of organizational goals. The integration of L&D with strategic planning allows HR to play a strategic partner in improving organizational competitiveness (Delery & Roumpi, 2020; Rahayu et al., 2023). Thus, L&D contributes not only to the improvement of individual skills, but also to the strengthening of organizational capabilities collectively.

This study confirms that Learning and Development is a fundamental element in human resource management that is oriented towards performance and sustainability. The national and international literature analyzed shows consistent findings that strategically and contextually designed L&D is able to improve organizational competence, productivity, and performance. These findings provide a strong conceptual basis for the development of advanced research as well as practical implications for organizations in designing adaptive and sustainable HR development policies.

## 4. CONCLUSION

This research confirms that Learning and Development (L&D) is a strategic component in human resource management that plays an important role in improving organizational competence, productivity, and performance in a sustainable manner. Based on a synthesis of reputable national and international literature, L&D is no longer understood as an incidental training activity, but rather as a continuous development process that is integrated with organizational strategy. This paradigm shift shows that the success of modern organizations is largely determined by its ability to manage and develop human resources systematically and adaptively. The results of the study show that the implementation of L&D designed in a structured manner can improve individual capabilities, strengthen human capital, and encourage employee work effectiveness. Competency development through training programs, experiential learning, and work skills strengthening has been proven to have a positive impact on individual performance and organizational performance as a whole. These findings strengthen the strategic human resource management framework that places L&D as a link between HR management practices and the achievement of long-term organizational goals. In addition, this study also reveals that the success of L&D is greatly influenced by the organizational context, including work culture, management commitment, and human resource readiness. L&D that is not supported by a conducive organizational environment has the potential to have limited impact. Therefore, the integration of L&D with other HRM policies, such as performance management and career development, is an important prerequisite for HR development programs to run effectively. The findings of this study provide implications for organizations to design L&D strategies that are competency-based and aligned with the strategic direction of the organization. Organizations are required to focus not only on improving technical skills, but also on adaptive capacity building and continuous learning. Meanwhile, from the academic side, this research opens up opportunities for more empirical follow-up studies, especially in the context of non-corporate organizations and developing countries. Thus, L&D can continue to be developed as a strategic instrument in strengthening the competitiveness and sustainability of organizations in the future.

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