

Article

Strategic human resource management: developing competencies and team interaction in the context of digital transformation and global changes

Iryna Mykolaichuk^{1,*}, Olha Trut², Viktoriia Borshch³, Oksana Svatiuk⁴, Olena Kakhovska¹

¹ Department of Management, State University of Trade and Economics, Kyiv 02156, Ukraine

² Department of Management, Lviv University of Trade and Economics, Lviv 79005, Ukraine

³ Department of Healthcare Management and Psychology, Odesa National Medical University, Odesa 65082, Ukraine

⁴ Department of Human Resource Management and Administration, National University "Lviv Polytechnic", Lviv 79013, Ukraine

*Corresponding author: Iryna Mykolaichuk, i.mykolaichuk@knute.edu.ua

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Abstract: The aim of the study is to identify and substantiate strategic approaches to human resource management in the context of organizational digital transformation, with emphasis on developing employees' professional and digital competencies and improving teamwork efficiency. The research addresses the gap in the literature concerning the insufficiently explained integration of competency development, digital HR platforms, HR analytics and teamwork models within strategic HRM. The study was conducted in 2024–2025 through secondary documentary analysis of corporate documents from private technology and service companies operating in the European information technology, financial technology, digital platform, and electronic services sectors. The empirical base included 42 corporate documents from 18 companies employing between 150 and 3,000 workers. The documents regulated HR management policy, employee competency development, implementation of digital HR platforms, and organization of teamwork. The materials were processed using thematic coding and grouped into analytical categories. The findings revealed that professional and digital competency development was recorded in 36 documents (85.7%), digital learning systems and corporate educational platforms in 31 documents (73.8%), HRIS and HR analytics in 29 documents (69.0%), and digital team collaboration in 27 documents (64.3%). The results demonstrate that digital transformation changes strategic HR approaches by prioritizing competency development, digital HR systems, and new teamwork models. The study proposes an integrated socio-technical interpretation of digital HR transformation, showing that the strategic value of digital HRM emerges through feedback relationships between digital infrastructure, employee competencies, analytics and team interaction. Since the study is based on corporate documents, the findings should be interpreted as evidence of formal corporate representation rather than direct measurement of HR practice effectiveness.

Keywords: strategic human resource management; digital HRM; competency development; HR analytics; teamwork; digital transformation; organizational adaptability.

1. Introduction

Digital transformation has substantially changed the logic of human resource management (HRM), as the introduction of digital technologies, process automation, data-driven decision-making and new forms of work organization require companies to revise traditional approaches to employee competency development and team interaction. In modern companies, strategic HR management is increasingly focused on the development of digital skills, flexibility, and the ability of employees to work in cross-functional teams, which has become an essential condition for the successful implementation of technological change. At the same time, practical experience

indicates that many organizations face difficulties in aligning technological innovation with human capital development, since existing HR management systems are not always able to take into account new requirements for competencies, digital literacy, and coordination of teams. Therefore, there is a scientific and practical need to identify strategic HRM mechanisms that integrate competency development and teamwork within the broader process of organizational digital transformation.

In the current scientific paradigm, enterprise digitalization is regarded not only as a technological upgrade, but also as a broader reconfiguration of the HRM system, in which strategic HR decisions influence organizational sustainability, adaptability and long-term competitive advantage. In particular, Nastase et al. [1] showed that strategic HRM in the digital age must be aligned with technological development, organizational transformation and mechanisms for creating sustainable competitive advantage. The HR function is no longer relegated to a support role, but rather becomes part of the strategic fabric of the enterprise. This position is further developed by Ekhsan et al. [2], who contend that the success of digital transformation is predicated on strategic HR capabilities, particularly talent development, leadership, competency formation and employees' readiness to adopt technology. They place the outcome of digital transformation not in the mere implementation of digital tools, but in the extent to which employees are able to adopt, understand and use these tools in everyday organizational practice.

Another area of modern research concerns the employee's competence profile. Thus, Piwowar-Sulej et al. [3] proved that digitalization changes not only the tools of work but also the very content of future competencies, increasing the importance of continuous professional development, flexibility, digital literacy, and the ability to interact across functions. At the same time, Poulouse et al. [4], summarizing current studies on digital HRM, systematized the main drivers of these changes and showed that the digital transformation of HRM is governed by technological, organizational, and behavioral factors. Accordingly, competency development cannot be separated from the wider context of HR policy transformation, management structures and internal collaboration. Against such a backdrop, Borshch et al. [5] argued that investment in human capital is not an additional organizational burden but a strategic condition for renewal, innovation, quality improvement and performance in an unstable environment.

Despite a significant number of studies on the digital transformation of human resources management, the literature still does not sufficiently explain how employee competency development, digital HR systems and teamwork models are strategically integrated within one HRM framework. Existing works are mostly focused either on technological modernization of HR processes or on the formation of digital competencies of staff, while the issue of a comprehensive combination of these elements within the framework of strategic HR management has been studied in a fragmented manner. In addition, many publications consider human capital development mainly at the individual level, while the transformation of team cooperation models that ensure the effective use of digital tools in teamwork is not sufficiently analyzed. This creates a more specific research gap: the lack of an integrated socio-technical explanation of how strategic HRM simultaneously connects digital HR infrastructure, professional and digital competency development, and team-based collaboration in digitally transforming organizations.

This study is guided by a socio-technical perspective on strategic HRM. From this standpoint, digital HR platforms, HR analytics, competency development

programs and teamwork models are not treated as separate managerial instruments, but as interdependent elements of one organizational system. Such a perspective makes it possible to examine how technological infrastructure, human capital development and team interaction mutually reinforce or constrain one another during digital transformation. The conceptual contribution of the study is therefore linked to the integrated socio-technical cycle model, which explains the feedback relationships between digital HR systems, employee competencies, teamwork practices and organizational adaptability.

The purpose of the study is to identify and substantiate strategic approaches to human resource management in the context of digital transformation of organizations, taking into account the development of professional and digital competencies of employees and improving the effectiveness of teamwork.

To achieve this goal, the following research objectives have been identified: to clarify theoretical approaches to strategic HRM in the context of digital transformation; to identify how corporate documents reflect changing requirements for employees' professional and digital competencies; to determine how digital HR platforms and HR analytics are positioned within human capital management practices; to examine how teamwork and collaboration models are incorporated into strategic HR policies; and to develop an integrated socio-technical interpretation of strategic HRM in digitally transforming organizations.

2. Literature review

2.1. Digital transformation and strategic HRM

Modern HR management research increasingly considers digital transformation as a complex process that changes the structure of organizations, requirements for employee competencies, and models of strategic human capital management. In this context, researchers emphasize that the integration of digital technologies into HR processes is becoming a key factor in improving the efficiency of organizational management and adaptation to dynamic market and technological conditions. In particular, El Garem [6] emphasizes that the digitalization of HR functions contributes to the efficiency of HR management through the use of technology platforms, process automation and data analytics. The strength of this research direction is that it demonstrates the operational value of digital HR tools. However, its limitation is that digital HRM is often discussed mainly as a set of technological instruments, while its strategic connection with employee development and team interaction remains less explicit.

At the same time, much attention in modern research is paid to the transformation of the organizational environment and the formation of new models of interaction between employees. In particular, Fedulova et al. [7] note that the formation of a positive employer image in an unstable economic environment is becoming an important factor in attracting young workers, in particular representatives of Generation Z, which requires updating HR strategies and adapting organizational culture. In turn, Hrynash et al. [8] emphasize that the innovative development of enterprises largely depends on the effectiveness of human capital management and the ability of organizations to support the innovative activity of employees. These studies are important because they connect HRM with organizational adaptability and innovation. Nevertheless, they focus more on human capital and employer attractiveness than on the internal mechanisms through which digital HR systems, competency development and teamwork are strategically integrated.

Studies also show that digital transformation is changing the very nature of HR processes and requires the adaptation of management approaches. In particular, Huang [9] demonstrates that the digital transformation of organizations contributes to the emergence of new forms of adaptive HR management based on flexible organizational structures and the use of digital tools. A similar position is supported by Kakhovska et al. [10], who emphasize the importance of investing in human capital development as a strategic factor in ensuring the socio-economic efficiency of enterprises. Previously published studies also emphasize the importance of intellectualizing the economy and developing a system of continuous learning to improve the quality of human capital, which is becoming a prerequisite for the successful digital transformation of organizations [11]. Taken together, these works show that strategic HRM in the digital environment should be understood not only as a managerial response to technological change, but also as a mechanism for building organizational learning capacity.

2.2. Competency development in the digital era

A separate and highly relevant stream of literature concerns the transformation of employees' competency profiles under the influence of digitalization. Digital transformation changes not only HR tools but also the content of work, the rhythm of organizational communication and the requirements for professional development. In this context, competency development becomes a central element of strategic HRM rather than a supplementary training function. The development of digital literacy, analytical thinking, flexibility, learning ability and cross-functional interaction is increasingly interpreted as a condition for organizational resilience and long-term competitiveness.

The literature also shows that human capital development is closely related to the ability of organizations to renew their business models and respond to external instability. Kakhovska et al. [10] and Kakhovska et al. [11] demonstrate that investment in human capital and lifelong learning contributes to the socio-economic efficiency of enterprises and the improvement of workforce quality. However, these studies mainly emphasize the macro-organizational importance of human capital, whereas less attention is paid to the specific strategic HR mechanisms through which competencies are translated into digital teamwork and operational adaptability.

This limitation is particularly important for the present study, because digital competencies do not operate only at the individual level. In practice, they acquire organizational value when employees use them in collaborative settings, project teams, distributed communication systems and cross-functional problem-solving. Therefore, the literature on competency development needs to be connected more directly with research on digital HR infrastructure and teamwork models.

2.3. Digital HR systems, HR analytics and algorithmic HRM

A separate area of research is related to the impact of digital technologies on the functioning of HR systems. In particular, Kerwin [12] notes that the integration of digital technologies into the HR system creates new opportunities for improving the efficiency of management processes and developing organizational competencies. In turn, Khatoon et al. [13] emphasize that technology-driven changes significantly transform talent management and organizational design processes, forming new requirements for strategic HR management. Similar trends can be observed at the level of transformation of business models of enterprises, where digital technologies act as a catalyst for changes in the development strategies of organizations [14].

Studies also emphasize the importance of the role of HR management in

the digital transformation of organizations. Lowndes and Fu [15] argue that the effectiveness of digital change largely depends on the ability of HR systems to ensure that employees adapt to new working conditions. In this context, the concept of algorithmic HR management, which involves the use of digital systems to make HR management decisions, is gaining special attention [16]. At the same time, the development of employees' digital competencies, including digital literacy and understanding of data privacy policies, is becoming an important condition for the effective functioning of organizations in the digital environment [17]. These findings are significant because they show that digital HRM is not limited to automation. It also changes the logic of decision-making, the role of HR analytics and the distribution of managerial responsibility between human experts and digital systems.

At the same time, the expansion of HR analytics and algorithmic HRM creates new research questions. Digital systems may improve the speed, transparency and consistency of HR decisions, but they also require employees and managers to interpret data correctly, protect personal information and avoid reducing human capital management to purely technical indicators. Therefore, digital HR platforms should be analyzed as socio-technical systems in which technology, organizational rules and human judgment interact. This point is especially relevant for strategic HRM, since HR analytics becomes valuable only when it supports competency development, team coordination and long-term organizational adaptability.

2.4. Teamwork and collaboration in digital environments

Modern literature also addresses the issues of implementing digital HR practices in various sectors of the economy. In particular, Olojigwo and Nhari [18] emphasize that the digital transformation of HR management in the public sector contributes to increased transparency of management and efficiency of human resources.

This sectoral argument is also supported by Shostak [19], who shows that innovations in human resource management in the public sector of Ukraine are associated with the modernization of administrative procedures, the renewal of competency requirements and the gradual transition from traditional personnel administration to more flexible and digitally supported HR practices.

In turn, Sakarina et al. [19] note that in the context of Industry 4.0, the digital transformation of HR management is becoming an important factor in increasing the competitiveness of enterprises. In addition, the results of a systematic literature review show that digital transformation is closely related to the development of knowledge, professional mobility, and ensuring sustainable employment of employees in the long term [20]. These studies broaden the sectoral understanding of digital HRM, but they also show that the effects of digital transformation may differ across organizational contexts. This means that findings obtained from technology and service companies should not be automatically generalized to manufacturing, traditional services or the public sector without considering sectoral differences.

A further development of these approaches can be found in works that deal directly with the restructuring of HR systems in the digital organizational environment and the strategic importance of HR in building competencies and supporting teamwork. Empirical findings show that the introduction of HR process models linked to digital integration not only strengthens the alignment of HR policy and business strategy, but also supports the development of adaptive employee competencies, cross-functional interaction and faster decision-making in a rapidly changing environment [21]. At the same time, in changing business environments, staff loyalty remains significant. As relevant research shows, it is not only an indicator

of organizational effectiveness but also a basis for forming sustainable teams capable of maintaining business continuity under increased external pressure [22]. In the service sector, the digitalization of HR management transforms the structure of professional competencies: alongside traditional skills, digital analytics, knowledge management and the ability to work in digital teams become increasingly important [23]. This, in turn, changes the organization of collective activity and increases the importance of horizontal communication, trust and coordinated decision-making within teams.

The reviewed literature indicates that teamwork is not merely an outcome of digital HRM but one of its core mechanisms. Digital platforms can support distributed collaboration, but their effectiveness depends on whether employees possess the necessary competencies and whether HR policies create conditions for coordinated team interaction. This confirms the need to study strategic HRM as an integrated system that connects digital HR infrastructure, competency development and teamwork practices.

2.5. Synthesis of the literature and research gap

Thus, the analysis of modern scientific publications shows that researchers pay considerable attention to the problems of digital transformation of HR management, human capital development and adaptation of HR systems to new technological conditions. At the same time, most studies focus on separate components of digital HRM: the digitalization of HR processes, the development of employee competencies, the use of HR analytics, or the transformation of collaboration models. What remains insufficiently developed is an integrated explanation of how these components function together within strategic HRM.

This gap is not only empirical but also theoretical. Existing research documents the importance of digital tools, competencies and teamwork, but it does not always explain the feedback relationships between them. In particular, it remains unclear how digital HR platforms influence competency development, how new competencies change team interaction, and how teamwork experience feeds back into strategic HR decisions. For this reason, the present study builds on the socio-technical perspective and examines strategic HRM as an interconnected cycle of digital infrastructure, human capital development, team collaboration and organizational adaptability.

3. Materials and methods

The study was conducted in 2024–2025 and was aimed at examining the mechanisms of strategic HR management in the process of digital transformation of organizations, in particular, the development of employee competencies and the organization of effective teamwork in the digital environment. The research design was based on secondary documentary analysis of publicly available corporate materials. This design was selected because the purpose of the study was not to measure employees' individual attitudes, but to identify how strategic HRM, competency development, digital HR systems and teamwork practices are formally represented in corporate documents. The empirical material of the study is based on corporate documents of companies operating in the information technology, financial services, and digital services sectors. More precisely, the sample covered companies operating in the European digital business environment, including international companies whose HR policies, digital services or corporate reports are publicly available and relevant to European organizational practice. The study covered organizations whose activities involve the active use of digital technologies in internal

management processes and teamwork.

The research was based on corporate documents that regulate HR policies and human capital development. The research corpus included strategic HR documents of enterprises, corporate programs for developing employees' competencies, internal regulations for teamwork, as well as materials of corporate training and development programs. The corpus also included annual and integrated reports, sustainability or people-related reports, descriptions of digital learning initiatives, HR analytics materials, digital collaboration guidelines and publicly available corporate documents describing HR platforms or teamwork practices. In total, the study used 42 corporate documents obtained from official corporate websites, open corporate reporting systems and publicly accessible company materials. All documents included in the corpus were attributed to the 18 selected companies or their official corporate information channels.

The study analyzed documents belonging to 18 private technology and service companies positioned within the information technology, financial technology, digital platform and electronic services sectors. The sampled companies were medium-sized and large organizations employing approximately 150 to 3,000 workers. Their activities included digital product development, online platform management, financial technology services, electronic services and digital customer support. The study framework covered companies operating within an international and European digital environment and using modern HR management technologies, including HRIS, HR analytics, digital learning systems and teamwork platforms.

The sample was selected based on the principle of non-random purposive sampling. The study included companies that met the following criteria: the use of digital human resource management systems (HRIS), the use of HR analytics systems for human capital management, and the use of digital teamwork platforms (corporate communication systems, project management and collaboration tools). In addition, a prerequisite for inclusion in the sample was the availability of corporate programs for the development of employees' professional and digital competencies, implemented as part of the strategic HR policy. The inclusion criteria were as follows: (1) the company operated in a technology-intensive or digitally mediated service sector; (2) publicly available corporate documents described HR strategy, competency development, digital learning, HR analytics or teamwork practices; (3) the documents were accessible through official or verifiable corporate sources; and (4) the documents were current, active or publicly available during the 2024-2025 period of data collection.

Companies without strategic documentation on HR, without evidence of digital HR management systems, without competency development programs, or without publicly available documents describing teamwork or collaboration practices were excluded from the sample. Promotional materials were used only when they contained verifiable information on HR systems, competency programs or teamwork practices and were supported by official corporate reporting or platform documentation. Documents with unclear authorship, outdated status, duplicate content or insufficient relevance to HRM were excluded. The purpose of this selection strategy was to focus on companies for which digital transformation of the HR function was explicitly presented as part of strategic HR management.

The authenticity and completeness of the documents were checked through several procedures. First, only documents published on official company websites, corporate reporting portals or official platform documentation pages were included.

Second, each document was checked for source attribution, publication or update date where available, and relevance to HRM, competency development, digital HR systems or teamwork. Third, when several documents from the same company covered similar content, they were compared to avoid duplication and to identify the most complete version of the relevant information. This procedure did not eliminate all possible limitations of corporate reporting, but it reduced the risk of including unverifiable or purely promotional materials.

The research procedure consisted of several consecutive stages. At the first stage, corporate documents regulating HR policy, human capital development, digital HR infrastructure and teamwork in the digital environment were identified and screened. At the second stage, the documents were categorized by the types of HR policies related to the development of professional and digital competencies of employees, organization of corporate training, and use of digital tools for teamwork. At the third stage, relevant textual fragments were extracted from the documents and assigned to thematic categories. The main coding categories included: (1) strategic HR policy and human capital development; (2) professional competency development; (3) digital skills and digital literacy; (4) corporate learning, upskilling and reskilling; (5) HRIS and HR analytics; (6) talent management and performance management platforms; (7) digital teamwork and collaboration tools; and (8) distributed, cross-functional or hybrid teamwork models.

The collected materials were processed using Microsoft Excel software. The documents were coded into thematic categories that reflect the key areas of strategic HR management in the digital environment, including the development of professional competencies, the development of employees' digital skills, the use of digital HR platforms, and the organization of teamwork. The unit of coding was a document fragment that contained a clear reference to HR policy, competency development, digital HR infrastructure, analytics, learning systems or teamwork practices. Coding decisions were made according to the semantic meaning of each fragment rather than only by keyword frequency. For example, references to corporate academies, digital learning platforms or structured reskilling initiatives were coded as competency development, whereas references to HR dashboards, workforce analytics, people data or reporting systems were coded as HR analytics. References to project management platforms, remote work playbooks, communication systems and cross-functional collaboration were coded as digital teamwork.

The coding procedure was iterative. After the initial coding, the categories were reviewed and refined to ensure that similar document fragments were assigned consistently. An internal coding log was maintained to record category definitions, borderline cases and coding decisions. Since the study was conducted as a documentary analysis and did not include interviews or surveys, no primary data were collected. In addition, no statistical inter-coder reliability coefficient was calculated because the coding was performed as a single-coder procedure. This circumstance is acknowledged as a methodological limitation of the study. To reduce interpretive subjectivity, the documents were reviewed repeatedly, coding categories were defined before final grouping, and ambiguous fragments were checked against the broader document context.

The obtained data were grouped into thematic tables, which allowed us to reflect the main directions of HR policy transformation in the surveyed organizations and prepare a generalized analytical framework for further presentation of the research results. The quantitative indicators reported in the Results section therefore reflect the

frequency with which specific HRM themes appeared in the analyzed documentary corpus. They should not be interpreted as direct measures of the actual effectiveness of HR practices or employees' perceptions. Rather, they show how digital HRM, competency development and teamwork are formally represented in the corporate documents of the sampled companies. This limitation is important because corporate documents may contain self-selection bias and reporting bias: companies tend to disclose successful, strategically desirable or reputationally beneficial practices more actively than problematic or unsuccessful ones.

4. Results

4.1. Strategic approaches to HR management in the process of digital transformation

An analysis of 42 corporate documents from 18 technology and service companies showed that strategic HR management in the process of digital transformation is based on the integration of competence development, digital HR systems, and teamwork mechanisms. In accordance with the documentary design of the study, the results presented in this section reflect the frequency and content of HRM themes recorded in publicly available corporate documents, rather than direct measurements of the effectiveness of HR practices or employees' perceptions. In most organizations, HR strategies are formalized through human capital development programs, talent management, and regulation of digital HR practices. The documents most often represented strategic HRM as a system that connects workforce capability building, digital HR infrastructure and new forms of collaboration.

The coding of documents allowed us to identify the key areas of HR policies: competence development was recorded in 36 documents (85.7%), digital learning systems and corporate educational platforms in 31 (73.8%), use of HR platforms and analytics in 29 (69.0%), and organization of digital teamwork in 27 (64.3%). These indicators should be interpreted as the presence of specific thematic categories in the documentary corpus. They do not indicate that all companies implemented these practices with the same level of maturity or practical effectiveness.

In corporate reports of international companies, strategic HR management is seen as a critical factor in digital transformation. The analyzed documents indicate a tendency to describe HRM through skills-based management, digital learning, talent development and people analytics. In particular, the Accenture documents included in the corpus emphasize the transition toward skills-driven organizational models and the alignment of HR strategy with workforce analytics and learning systems [24–26]. Similar approaches are illustrated through large-scale competency development programs, such as Amazon Upskilling 2025 and Microsoft's digital skills development initiatives [27,28].

SAP and Siemens strategies emphasize the integration of HR policies with digital HR management platforms. The use of SAP SuccessFactors provides real-time HR analytics and talent management support, while Siemens emphasizes the combination of competence development with the formation of an inclusive work environment [29–32]. These examples are not treated as separate case studies; rather, they illustrate the types of corporate documents that were coded within the broader corpus of 42 documents.

The generalized results of the analysis of strategic HR policies in the surveyed companies are presented in **Table 1**.

Table 1. Main directions of strategic HR policies in the companies studied (n = 42 documents).

HR Policy Direction	Number of documents	Share, %
Development of professional and digital competencies	36	85.7
Digital learning systems and corporate educational platforms	31	73.8
Use of HRIS and HR analytics	29	69.0
Organization of digital team collaboration	27	64.3

Source: Compiled by the authors based on an analysis of corporate documents from Accenture [24–26], Amazon [27,33,34], Microsoft Corporation [28,35], SAP SE [29,30], and Siemens AG [31,32,36].

Note: The indicators are based on the coding of the full corpus of 42 corporate documents; the companies cited in the source note are illustrative examples.

The results obtained show that strategic HR policies in digital organizations are primarily aimed at developing employees' competencies and integrating digital HR systems. The most common direction is the formation of competency development systems, which are recorded in more than 85% of the studied documents. This pattern indicates that, at the level of formal corporate representation, human capital development is positioned as the central element of strategic HR management during digital transformation. At the same time, the slightly lower frequency of teamwork-related categories suggests that team interaction is less consistently formalized in corporate HR documents than competency development or digital learning. This asymmetry is important for the further interpretation of digital HRM as a socio-technical system.

4.2. Development of professional and digital competencies of employees

The analysis of 42 corporate documents showed that the development of professional and digital competencies is a key element of strategic HR management in the process of digital transformation. In most cases, it is seen as a prerequisite for adapting to technological changes, implementing digital business models, and transforming organizational processes. The documentary corpus represented competency development not only as a training activity, but also as a strategic mechanism for maintaining organizational adaptability in a changing digital environment.

The coding of documents showed that professional skills development programs were recorded in 34 documents (81.0%), digital competence development in 30 (71.4%), internal corporate training systems in 28 (66.7%), and upskilling and reskilling initiatives in 22 (52.4%). The difference between these categories is analytically important. Professional competency development appeared as the broadest and most frequently documented category, whereas upskilling and reskilling were represented less often, which may indicate that not all companies explicitly connect digital transformation with structured workforce retraining.

Specific corporate reports included in the corpus confirm the scale of these approaches. In particular, Amazon documents describe investments through its Upskilling 2025 program, which covers more than 300 thousand employees, while Microsoft materials describe initiatives aimed at preparing people for work in the digital economy [27,28]. Relevant programs are implemented through corporate educational platforms like Microsoft Learn, which provide systematic development of digital competencies [35]. In the logic of the present study, these materials were coded as documentary evidence of formalized competency development rather than

as independent proof of program effectiveness.

In IBM, competence development is part of long-term human capital strategies, particularly through the SkillsBuild platform that covers training in digital technologies, artificial intelligence, and data analytics [37–39]. The same applies to Google Career Certificates and Deloitte University, which support continuous development of employees' professional and digital skills within corporate educational ecosystems [40–42]. These examples show that competency development is increasingly institutionalized through digital learning infrastructures, corporate academies and skills-based programs.

The generalized results of the analysis of the areas of competence development in the studied companies are presented in **Table 2**.

Table 2. Main areas of employee competency development in the companies studied (n = 42 documents).

Competency development area	Number of documents	Share, %
Development of professional competencies	34	81.0
Development of digital skills	30	71.4
Corporate learning platforms	28	66.7
Upskilling and reskilling programs	22	52.4

Source: Compiled by the authors based on an analysis of corporate documents from Amazon [27,33,34], Microsoft Corporation [28,35], IBM Corporation [37–39], Google [40], and Deloitte [41,42].

Note: The analysis considered only those documents that explicitly describe competency development programs or corporate educational initiatives. The source note provides examples of the corporate materials used for coding; the percentages reflect the full corpus of 42 documents.

The results obtained show that the development of employees' competencies in digital organizations is systemic and is implemented through a set of corporate training programs, educational platforms, and staff retraining programs. The most common area is the development of professional competencies, which is mentioned in more than 80% of the documents studied. However, the findings also show that digital skills, corporate learning platforms and reskilling initiatives are not represented with equal frequency. This suggests that corporate HR documents tend to articulate competency development as a broad strategic priority, while more specific mechanisms of retraining and reskilling are less consistently documented.

4.3. Digital HR platforms and HR analytics systems

The analysis of 42 corporate documents has shown that the introduction of digital HR platforms and HR analytics systems is one of the key elements of the transformation of HR management systems in the companies studied. The documents of international technology organizations consider digital HR systems as a tool for improving the efficiency of human capital management, automating HR processes, and supporting strategic management decisions. In methodological terms, these findings reflect how digital HR infrastructure is represented in corporate documents, not how its performance was technically measured.

The results of the thematic coding showed that the use of digital HR systems was recorded in 29 out of 42 documents (69.0%). Provisions related to the use of HR analytics systems were found in 25 documents (59.5%). The use of integrated talent management platforms and digital employee performance evaluation systems was described in 23 documents (54.8%). In addition, 21 documents (50.0%) mentioned

the use of digital systems for reporting and analyzing personnel data. This distribution indicates that basic digital HR infrastructure is more frequently formalized than advanced analytical or reporting functions. Therefore, the documentary corpus suggests a gradual movement from HR process digitalization toward data-driven HRM, rather than a fully completed transition to predictive HR analytics.

The corporate documents of the surveyed companies state that digital HR platforms allow integrating various HR functions into a single information system. From a technological point of view, such integration is realized through a multi-level architecture of digital HR systems, which ensures consistency between operational processes, analytical tools, and strategic management decisions (**Figure 1**).

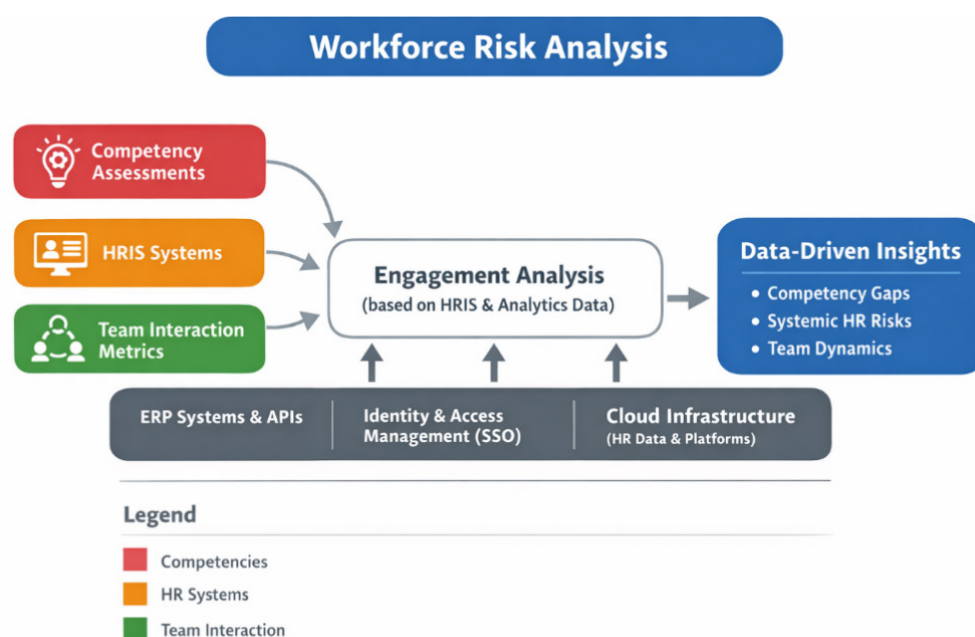


Figure 1. Architecture of the digital human resource management system in a digital transformation environment.

Source: developed by the author

The analysis of the presented architecture allows us to identify the key technological principles of digital HR systems in the digital transformation environment. First of all, the system is built on the principle of modular integration, within which separate functional subsystems (HRIS, LMS, performance and talent management systems) interact through a single information infrastructure. This approach ensures the system's scalability and the ability to flexibly expand its functionality without compromising the integrity of the architecture.

A key element of business process automation is multi-level data processing. At the first level, employee data are accumulated within HRIS and related corporate back-end systems. At the integration level, these data are synchronized across applications through APIs, ERP systems and cloud-based platforms, which makes it possible to create a unified information environment. At the analytical level, HR analytics tools transform raw personnel data into structured management information for workforce planning, competency assessment and strategic HR decision-making.

The transition to data-based HRM is especially significant. Analytical modules may perform not only descriptive functions, but also support the forecasting of HR risks, the assessment of employee performance and the identification of competency gaps. This indicates a shift from reactive HR administration to more proactive

decision-making based on analytical models. From a technological perspective, Identity and Access Management systems are also important because they support information security and regulate access to HR data. At the same time, cloud infrastructure increases system availability, enables the processing of large data volumes and supports distributed teams.

The architecture presented in **Figure 1** reflects the relationship among the three key elements identified in the study: competency development, digital HR systems and team interaction models. Their integration provides a technological basis for strategic HRM in the digital environment. Workday documents emphasize that Human Capital Management (HCM) systems enable automation of HR processes, from talent management to workforce planning and employee performance analysis [43,44]. In these systems, HR data are unified within a single analytical platform where employee performance can be assessed and workforce needs can be forecast.

A number of corporate documents also emphasize the role of HR analytics in supporting the strategic management of organizations. For example, Accenture reports note that the use of digital HR systems allows organizations to analyze the structure of employee competencies, predict skill development needs, and formulate data-driven human capital development strategies [24–26]. Such approaches reflect the general trend of transition to data-driven HR management, in which management decisions are made on the basis of analytical data.

Strada Global's corporate documents also state that the integration of HR analytics systems with payroll and HR processes allows for greater transparency of human capital management and effective preparation of corporate reporting [45]. Thus, digital HR platforms are becoming an important element of the modern HR infrastructure. At the same time, the documentary evidence indicates that digital HR platforms acquire strategic value only when they are connected with competency development, analytics and teamwork practices. This finding supports the socio-technical interpretation of HR digital transformation.

The generalized results of the analysis of the use of digital HR systems in the surveyed companies are presented in **Table 3**.

Table 3. Use of digital HR platforms and HR analytics systems in the companies studied (n = 42 documents).

Type of digital HR systems	Number of documents	Share, %
Human Resource Information Systems (HRIS)	29	69.0
HR analytics systems	25	59.5
Talent management platforms	23	54.8
HR analytical reporting systems	21	50.0

Source: Compiled by the authors based on an analysis of corporate documents from SAP SE [29,30,46–48], Workday, Inc. [43,44], Accenture [24–26], and Strada Global [45].

Note: Only documents that explicitly describe the use of digital HR platforms or HR analytics systems were included in the analysis. The cited companies are examples from the analyzed corporate corpus; the numerical distribution refers to all 42 documents.

The results show that digital HR platforms play an important role in the transformation of HR systems. The most widespread area is the use of HRIS systems, which are recorded in 69.0% of the surveyed documents. At the same time, the use of HR analytics systems and talent management platforms is also widespread, which

indicates a gradual transition of organizations to the use of digital human capital management tools in the process of digital transformation. The lower frequency of analytical reporting systems compared with HRIS suggests that the digitalization of HR infrastructure may precede the full development of analytical HR capabilities.

4.4. Organizational models of team interaction in the digital environment

The analysis of 42 corporate documents showed that organizational models of teamwork are an important element of strategic HR management in digital companies. Teamwork is increasingly being organized on the basis of digital communication platforms, project management systems, and remote interaction models that ensure coordination of distributed teams. In the present study, teamwork was analyzed as a documentary category reflected in corporate policies, remote work guidelines, collaboration playbooks and digital communication practices.

The coding of documents showed that digital teamwork was recorded in 27 documents (64.3%), the use of remote work in 23 (54.8%), digital project management tools in 21 (50.0%), and cross-functional teams in 19 (45.2%). These results show that digital communication platforms are the most frequently represented element of team interaction, whereas formalized cross-functional team structures appear less often. This difference suggests that organizations may adopt digital tools for communication faster than they redesign team structures at the organizational level.

In corporate materials of technology companies, teamwork is presented as an important performance factor. For example, Atlassian uses the Team Playbook, which includes practical guidance for organizing collaboration, planning teamwork and assessing team performance [49]. GitLab [50,51] uses the all-remote organization model, which mediates interaction through digital platforms, documented communication procedures and task management practices.

Similar approaches are confirmed by other companies. Siemens' documents emphasize the role of digital communication tools in enhancing collaboration and implementing innovative projects, while Microsoft emphasizes the use of digital platforms to support effective interaction in global teams [31,32,53]. These materials show that teamwork in digital environments is not limited to the technical availability of communication tools. It also depends on documented rules, shared routines, transparency of tasks and the ability of employees to coordinate work across organizational boundaries.

The summarized results of the analysis of teamwork models in the surveyed companies are presented in **Table 4**.

Table 4. Organizational models of team interaction in the companies studied (n = 42 documents).

Team Interaction Model	Number of documents	Share, %
Use of digital communication platforms	27	64.3
Remote work	23	54.8
Use of project management systems	21	50.0
Formation of cross-functional teams	19	45.2

Source: Compiled by the authors based on an analysis of corporate documents from Atlassian [49], GitLab [50,51], Siemens AG [31,32], and Microsoft Corporation [52].

Note: The numerical indicators are based on thematic coding of the full documentary corpus. The companies cited in the source note illustrate the documents in which the relevant teamwork categories were most explicitly represented.

The results show that organizational models of teamwork in digital companies are based on the use of digital communication platforms, project management systems and remote work practices. The use of digital communication platforms is the most common practice, recorded in 64.3% of the studied documents. This indicates the key role of digital tools in supporting employee interaction in modern organizations. However, the less frequent documentation of cross-functional teams indicates that digital communication does not automatically produce deeper organizational collaboration. For this reason, digital teamwork should be interpreted as a socio-technical process that requires both technological infrastructure and organizational routines.

Relying on the empirical results, it is possible to move from the analysis of separate components of HR digital transformation to their systemic generalization. The analysis showed that employee competency development, digital HR platforms, HR analytics and team interaction operate as interrelated components of one management process. These components are not implemented in isolation: competency development shapes the requirements for digital HR systems, HR analytics supports the adjustment of training programs, and teamwork generates new information about collaboration, productivity and competency needs.

In this context, the study proposes an integrated socio-technical cycle of digital HR transformation. The model reflects the dynamic interaction of the key components of digital HRM and interprets transformation as a continuous feedback process rather than as a one-time implementation of technology. The corresponding logic of system interaction is shown in **Figure 2**.

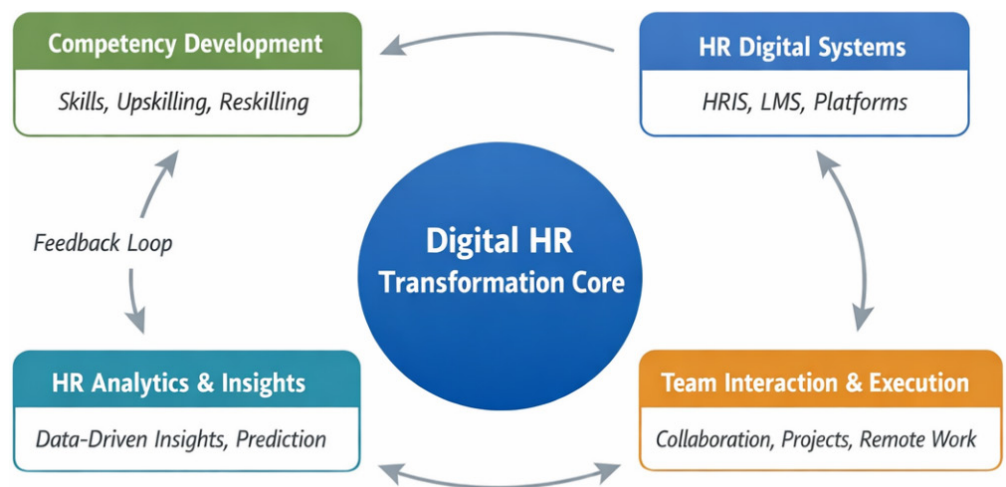


Figure 2. Integrated socio-technical cycle of digital HR transformation.

The model proposed here allows digital HR transformation to be interpreted as a socio-technical system in which human actors, technological tools, organizational processes and human capital continuously interact. Unlike a linear view of HR technology implementation, the model emphasizes the cyclical character of transformation. Each component of the system may function as both a driver of change and a potential source of disruption. Competency development forms the initial basis of the system because it determines how employees are able to use digital HR platforms, analytics tools and collaboration systems. At the same time, HRIS, LMS and analytical platforms operationalize HR processes and create conditions for more structured team interaction in the digital environment.

The next stage of the cycle is associated with the implementation of work

processes within teams. Team interaction generates data on employee activity, productivity, collaboration and competency needs. These data become the basis for HR analytics, which transforms operational information into strategically relevant insights for human capital management. Importantly, analytical results do not complete the process. They return to the system as feedback that influences the updating of competency models, training programs, teamwork practices and HR strategies.

Thus, the model shows that the quality of digital HR transformation is determined not by the isolated implementation of individual technologies, but by the integration of competency development, digital infrastructure, analytical tools and organizational collaboration practices. If the links between these dimensions are weak, HR digitalization becomes fragmented: platforms may exist without meaningful analytics, training may be disconnected from real competency gaps, and teamwork may rely on digital tools without deeper organizational coordination. In this sense, the integrated socio-technical cycle explains why feedback loops are critical for the sustainability and renewal capacity of strategic HRM.

4.5. Digital models of human resource management in the context of organizational transformation

To synthesize the empirical patterns identified in the documentary corpus, the study distinguishes four digital HRM models that reflect different ways in which organizations align HR practices with digital transformation. These models should not be interpreted as mutually exclusive types of companies. Rather, they represent recurring configurations of HRM practices identified through thematic coding.

The first model can be defined as the platform-integrated HR model. In this model, HR processes are consolidated within integrated digital ecosystems that include recruitment, performance management, learning systems and workforce analytics. The empirical findings show that such platforms reduce the fragmentation of HR processes across organizational units and support the standardization of HR operations. This model is especially visible in documents describing HRIS, HCM platforms, learning management systems and integrated reporting tools.

The second model is the data-driven HRM model. In this configuration, HR decision-making increasingly depends on workforce data, HR analytics and reporting systems. The results show that organizations use analytical tools for talent management, competency assessment, workforce planning and human capital reporting. However, the lower frequency of analytical reporting systems compared with HRIS indicates that this model is still developing. Many organizations appear to have digital HR infrastructure, but not all of them document advanced predictive or prescriptive analytics.

The third model is the competency-based HRM model. In this model, HR strategy is organized around continuous learning, upskilling, reskilling and the development of professional and digital competencies. The research findings show that competency development is institutionalized through corporate academies, digital learning platforms, skills-based programs and structured training initiatives. This model shifts the focus of HRM from administrative coordination to long-term capability building and treats human capital as a driver of organizational transformation.

The fourth model is the network-based team interaction model. This model reflects changes in the way organizations coordinate work in digital environments. It is based on digital communication platforms, project management systems, remote

work practices and cross-functional collaboration. The data show that these models support distributed teamwork and flexible coordination. At the same time, the relatively lower frequency of formalized cross-functional structures suggests that organizational redesign may lag behind the adoption of digital collaboration tools.

The four models extend the descriptive results by showing how digital HRM is organized at different levels: infrastructure, analytics, competencies and teamwork. Their value lies not in the separate implementation of each model, but in the degree of integration among them. The findings indicate that strategic HRM becomes more coherent when digital platforms provide data for analytics, analytics informs competency development, competencies support effective teamwork, and teamwork generates feedback for further HR decisions.

Collectively, the proposed models create an analytical structure that demonstrates how organizations align HR practices with the demands of digital transformation. This framework shows that sustainable organizational adaptation is not simply a result of technology adoption, but of the coordinated restructuring of competencies, digital systems, HR analytics and collaborative behavior.

5. Discussion

The study results indicate that strategic HR management in digitally transforming organizations is acquiring new characteristics. These characteristics are related to the coordinated development of employee competencies, the use of digital HR platforms, HR analytics and the formalization of team interaction models. Since the empirical base of the study consisted of 42 corporate documents from 18 companies, the findings should be interpreted with caution. They show how digital HRM priorities are represented in corporate documents. They should not be read as direct evidence of the actual effectiveness of these practices. The analysis revealed that most strategic HR policies in the corpus focused on continuous learning systems, professional and digital skills development, and the integration of digital HR infrastructure into human capital management processes. This supports the assumption that human capital is increasingly positioned in corporate HR documents as a central resource for organizational adaptation during digital transformation.

The findings are broadly consistent with Strohmeier [53], who argues that digital HRM transforms traditional HR functions by integrating them with digital technologies, data infrastructures and analytical tools. However, the present study refines this position. It shows that digital HRM is not represented in corporate documents only as a process of automation. Rather, it appears as a broader socio-technical configuration. In this configuration, HRIS platforms, learning systems, analytics and team interaction mechanisms are expected to operate together. This distinction is important. Automation may improve the efficiency of administrative HR processes. Strategic digital HRM, however, requires technological tools to be connected with competency development and organizational collaboration. Therefore, the findings extend previous conceptualizations of digital HRM by emphasizing the integration of technological, human and team-based dimensions.

The results also correspond to Sugiarto [54], who emphasizes that employee competency development is a key condition for successful digital transformation. The documentary corpus analyzed in this study showed that competency development was one of the most frequently recorded HR policy directions. Professional competency development was identified in 34 documents, while digital skills development was recorded in 30 documents. This confirms the importance of workforce capability

building in digital organizations. At the same time, upskilling and reskilling initiatives were documented less frequently than general competency development. This suggests an important nuance. Companies often declare the strategic value of competencies more broadly than they document specific mechanisms for systematic retraining. This finding refines the literature by indicating a possible gap between broad competency rhetoric and more structured reskilling practices.

The findings also develop the conclusions of Vereskliia et al. [55], who stress the role of digital management systems in improving organizational processes and coordination. In the present study, HRIS and HR analytics were frequently represented in corporate documents as mechanisms for integrating HR operations, workforce planning, performance management and employee development. Nevertheless, HRIS platforms were recorded more often than advanced HR analytical reporting systems. This pattern indicates that the digitalization of HR infrastructure may develop faster than the full analytical maturity of HRM. In other words, organizations may first introduce digital platforms for data consolidation and process standardization. Predictive analytics, workforce forecasting and evidence-based HR decision-making require a more advanced stage of transformation.

In relation to Zavidna et al. [56], the results support the view that digital transformation requires new management approaches and adaptation mechanisms aimed at sustainable organizational development. The corporate documents analyzed in this study represented HRM as a mechanism for strengthening adaptability through learning, digital skills, workforce analytics and flexible teamwork. However, the study adds that adaptability should not be understood only as a general organizational outcome. It is produced through a set of interdependent HR practices. Digital infrastructure generates data. Analytics interprets workforce needs. Competency development responds to these needs. Teamwork practices translate capabilities into coordinated action. This interpretation is consistent with the socio-technical perspective adopted in the study.

The results are also compatible with the findings of Zhang et al. [57], who link the development of the digital economy with innovation and new organizational management models. In the present study, the relationship between HRM and innovation appeared indirectly. It was reflected through competency development, digital HR systems and team collaboration. The companies' documents did not merely describe digital tools as technical solutions. They positioned them as part of broader managerial efforts to build skills, improve coordination and support organizational renewal. Thus, the study shows that the innovative potential of digital transformation depends not only on technology adoption. It also depends on the ability of HRM systems to develop human capital and organize collaborative work.

The findings further correspond to studies that emphasize intercultural, systemic and readiness-related dimensions of HR strategy in the digital era. Kakhovska [58] draws attention to cross-cultural communication in the context of the digital economy, while Mazaraki et al. [59] examine the readiness of socio-economic systems for change. The present study links these perspectives with HRM. It shows that digital teamwork requires not only platforms and project management tools. It also requires communication skills, flexibility, shared routines and employees' readiness to work in digitally mediated environments. Therefore, digital HR transformation should not be reduced to technological modernization. It should be interpreted as a managerial process in which technology, competencies, organizational culture and team interaction mutually shape one another.

One of the most important findings of the study is the uneven representation of different components of digital HRM. Competency development and digital learning were documented more frequently than formalized cross-functional teamwork. Similarly, HRIS platforms were represented more often than advanced HR analytics and analytical reporting systems. This pattern was not fully expected. Digital transformation is often described in the literature as an integrated and simultaneous process. The results suggest a more gradual and uneven transformation. Companies may first formalize learning systems and digital HR infrastructure. Deeper team redesign and advanced analytics may develop later or remain less visible in corporate documents. This observation has theoretical significance because it challenges overly linear descriptions of digital HR transformation.

The integrated socio-technical cycle model proposed in the Results section helps explain this unevenness. The model shows that digital HR transformation depends on feedback loops between competency development, digital HR infrastructure, HR analytics, teamwork practices and organizational adaptability. If one element develops more slowly than the others, the cycle becomes weaker. For example, HR platforms without analytical capacity may only automate existing processes. Analytics without competency development may identify workforce gaps without closing them. Digital communication tools without team routines may support information exchange but do not necessarily create effective collaboration. In this sense, the model contributes to the literature by explaining strategic HRM as a system of interdependencies rather than a collection of separate digital practices.

The four digital HRM models identified in the study also have theoretical implications. The platform-integrated HR model reflects the consolidation of HR operations within digital ecosystems. The data-driven HRM model emphasizes workforce analytics and evidence-based decision-making. The competency-based HRM model focuses on continuous learning, upskilling and reskilling. The network-based team interaction model explains the transformation of collaboration through digital communication, remote work and project management systems. These models extend existing typologies of digital HRM. They show that strategic HR transformation can be analyzed simultaneously at the levels of infrastructure, analytics, human capital and teamwork. Their main contribution is not the classification itself. Rather, it lies in explaining how these models interact within a broader socio-technical cycle.

The practical implications of the study are also important. First, HR practitioners should not treat digital HR platforms as self-sufficient solutions. The implementation of HRIS, LMS or analytics systems should be accompanied by clear competency models, training programs and mechanisms for evaluating whether employees can actually use digital tools in their work. Second, organizations should connect HR analytics with practical HR decisions. Analytical dashboards become strategically valuable only when they inform workforce planning, competency development and team coordination. Third, companies undergoing digital transformation should pay more attention to teamwork models. The presence of communication platforms does not automatically create effective collaboration. Organizations also need formal rules for distributed work, decision-making routines, responsibility sharing and cross-functional coordination.

The findings also have implications for HRM policy at the organizational level. Corporate HR strategies should include not only declarations about digital transformation. They should also include measurable procedures for skills assessment,

reskilling, data governance and team interaction. In addition, organizations need to ensure that digital HR systems are transparent, secure and understandable for employees. This is especially relevant in the context of HR analytics and algorithmic HRM. In these areas, data use may affect employee evaluation, career development and workforce planning. HRM policy should therefore balance technological efficiency with employee trust, data protection and human-centered decision-making.

At the same time, the study has several limitations. The most important limitation is the exclusive reliance on secondary corporate documents. Such documents usually present official organizational narratives. They may emphasize successful, strategically desirable or reputationally positive HR practices. For this reason, the findings may be affected by self-selection bias and reporting bias. Companies that actively publish HR materials may also be more advanced in digital transformation. Alternatively, they may be more willing to present themselves as advanced. Moreover, corporate documents do not allow direct assessment of how employees perceive digital HR systems. They also do not show how effectively competency programs work in practice or how team interaction unfolds in everyday organizational routines.

A second limitation concerns the sample. The study focused on technology and service companies operating in the European digital business environment. Therefore, the findings should not be automatically generalized to manufacturing, traditional services, public administration or organizations in other regional contexts. Sectoral differences may significantly influence digital HRM. For example, manufacturing organizations may place greater emphasis on operational skills and production technologies. Public sector organizations may face stronger regulatory constraints and slower digital change. A third limitation is related to the coding procedure. No primary interviews or surveys were conducted. No statistical inter-coder reliability coefficient was calculated. Therefore, the interpretation of document categories may contain a degree of researcher subjectivity, although repeated review, predefined categories and an internal coding log were used to reduce this risk.

Future research should address these limitations through data triangulation. Semi-structured interviews with HR managers, surveys of employees and comparative case studies could help verify whether the practices represented in corporate documents correspond to actual organizational experience. Future studies could also compare technology companies with manufacturing firms, public sector organizations and traditional service companies. This would make it possible to examine how sectoral context influences digital HR transformation. Another promising direction is longitudinal research. Such research could trace how digital HR platforms, competency models and teamwork practices evolve over time. Finally, the integrated socio-technical cycle model proposed in this study should be tested and refined through empirical research involving primary data, inter-coder validation and cross-regional comparison.

Overall, the study shows that strategic HRM in digital organizations is formed through the integration of three interdependent elements: employee competency development, digital HR platforms and new models of team interaction. The combination of these elements creates the basis for a more adaptive human capital management system. However, the strategic value of digital HRM does not arise from technology adoption alone. It depends on whether organizations can ensure that digital infrastructure is connected with learning, analytics, collaboration and feedback-based renewal.

6. Conclusion

The study was aimed at identifying strategic approaches to HR management in the process of digital transformation of organizations. The analysis of 42 corporate documents from 18 technology and service companies showed that the key elements of HR policy transformation are the development of professional and digital competencies of employees, the use of digital HR platforms, and the introduction of new models of team interaction. Since the study was based on secondary documentary analysis, the findings should be interpreted as evidence of how strategic HRM practices are formally represented in corporate documents, rather than as direct measurement of their practical effectiveness or employee-level outcomes.

The findings indicate that the development of employee competencies is a central focus of strategic HR management in digital organizations. Competency development was the most frequently represented direction in the analyzed corpus, which shows that companies tend to frame human capital development as a prerequisite for organizational adaptability, digital transformation and long-term competitiveness. At the same time, it has been found that the introduction of HR analytics systems and digital HR management platforms is positioned in corporate documents as a mechanism for supporting workforce planning, competency assessment, talent management and data-driven HR decision-making. However, the results also show that HRIS and digital learning systems are represented more consistently than advanced HR analytics and formalized cross-functional teamwork. This suggests that HR digital transformation may develop unevenly: technological infrastructure and learning systems often appear before deeper analytical maturity and organizational redesign.

The scientific novelty of the study lies in the integrated interpretation of strategic HRM as a socio-technical system that connects digital HR infrastructure, employee competency development, HR analytics and team interaction. Unlike approaches that examine digital HR tools, skills development or teamwork separately, this study shows that their strategic value emerges through feedback relationships between these components. The proposed integrated socio-technical cycle model explains how digital HR platforms generate data for analytics, how analytics informs competency development, how competencies support teamwork, and how team interaction creates new feedback for HR strategy. In addition, the study systematizes four recurring digital HRM configurations identified in the documentary corpus: the platform-integrated HR model, the data-driven HRM model, the competency-based HRM model and the network-based team interaction model.

The practical significance of the results lies in the possibility of using the findings in the formation of HR strategies aimed at developing employee competencies and implementing digital HR systems. For HR practitioners, the results suggest that digital transformation should not be reduced to the implementation of HRIS, LMS or communication platforms. These tools become strategically valuable only when they are connected with clear competency models, reskilling programs, HR analytics, data governance and documented teamwork routines. Organizations undergoing digital transformation should therefore design HR policies that integrate technology adoption with human capital development and collaborative work practices.

At the same time, the study has certain limitations, since the empirical base is formed mainly from publicly available corporate documents of technology and service companies operating in the European digital business environment. This

creates the risk of self-selection bias and reporting bias, as corporate documents tend to emphasize successful or reputationally beneficial practices. The absence of interviews, surveys and statistical inter-coder reliability measures also limits the possibility of assessing how the documented practices are implemented in everyday organizational life. Further research could be aimed at expanding the sample of organizations and analyzing the impact of digital HR systems and employee competence development on organizational performance. Future studies should include primary data from HR managers and employees, compare different sectors and regions, and test the integrated socio-technical cycle model through longitudinal or mixed-method research designs.

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