DIGITAL TRANSFORMATION AND EMERGING HR COMPETENCIES: AN EMPIRICAL STUDY OF SLOVENIAN ORGANIZATIONS

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Abstract: The accelerating pace of digitalization is fundamentally redefining the role, competencies, and strategic importance of human resource management (HRM). This study investigates how digital technologies—such as artificial intelligence (AI), analytics, and automation—transform human resource (HR) functions and generate new competency requirements, including digital agility, data fluency, and strategic capability. Building on theories of digital HRM, competency-based management, and sustainable HRM, the study develops an integrated conceptual framework linking digital transformation, HR competencies, and organizational sustainability. Empirical data were collected through a survey of more than 100 Slovenian organizations across different sizes and industries, yielding 82 valid responses for analysis. The findings indicate a relatively high level of HR formalization, alongside persistent difficulties in recruiting qualified HR professionals. Key competency gaps were identified in employee development, HR analytics, and strategic HRM. The results further show that larger organizations are significantly more likely to have established HR functions, while organizations with more mature HR structures recruit HR specialists more frequently and attribute greater importance to developing a national HR management system. Moreover, organizations that recruit HR professionals more intensively report greater difficulty in identifying suitable candidates, pointing to a growing skills mismatch in the HR labor market. Overall, the findings demonstrate that successful digital transformation in HRM depends not only on technology adoption but also on the integration of digital, analytical, and ethical competencies. The study contributes to HRM theory and practice by offering a combined conceptual and empirical model linking digital agility, HR analytics, and sustainable HRM outcomes, providing practical insights for organizations and policymakers seeking to strengthen HR capability development in the digital era.

Keywords: Digital transformation, Human resource management (HRM), HR competencies, Digital agility, HR analytics, Competency-based HRM (CBHRM), Sustainable HRM, Future of work, Slovenia.

1 Introduction

The accelerating pace of digital transformation is redefining the nature of work and reshaping how organizations manage people, processes, and performance. Industry 4.0—marked by automation, AI, data analytics, and interconnected systems—has placed HRM at a strategic turning point (Adeosun & Adegbite, 2022; Herman et al., 2024). No longer limited to administrative tasks, HR departments are increasingly expected to drive innovation, organizational adaptability, and resilience, where the capacity to use technology and data becomes a source of competitive advantage in the digital economy (Folarin, 2021; Timane & Wandhe, 2023).

As organizations transition to technology-enhanced structures, new competencies are critical for survival and growth in volatile environments. Rakowska and Cichorzewska (2016) highlight digital literacy, adaptability, collaboration, and innovation as core future competencies, while Coetzee and Veldsman (2025) identify digital agility—the capacity to anticipate and respond to technological

change—as essential for HR professionals. Alongside technological proficiency, HR leaders must also demonstrate strategic insight, ethical awareness, and emotional intelligence to manage the human element of digital transformation (Ren et al., 2023).

The integration of AI and machine learning (ML) into HR processes intensifies these demands. Automated systems increasingly support recruitment, training, performance evaluation, and workforce planning (Okatta et al., 2024), offering efficiency and precision but also raising concerns regarding privacy, transparency, and fairness. Consequently, modern HR professionals must combine digital expertise with human-centric management, ensuring that technological innovation aligns with ethical responsibility and sustainable people practices.

Within this context, competency-based human resource management (CBHRM) has re-emerged as a strategic approach that aligns organizational performance with clearly defined competencies (Aungsuroch et al., 2021; Judrups et al., 2015). McCartney, Murphy, and McCarthy (2021) propose a six-dimensional model for HR analysts—encompassing consulting, technical expertise, analytical fluency, research skills, business acumen, and communication—illustrating a hybrid competency profile that merges data science with human insight. Yet, the extent to which HR professionals possess these emerging competencies varies significantly across regions and organizational settings.

In Central and Eastern Europe, research on HR digital transformation remains limited. While multinational corporations are increasingly adopting digital HR tools, many local organizations, especially SMEs, continue to rely on traditional personnel practices. Slovenia exemplifies this discrepancy: despite strong technological infrastructure and a well-educated workforce, numerous organizations report challenges in developing advanced HR capabilities, particularly in HR analytics, digital tools, and strategic workforce planning.

To further explore these challenges, an empirical survey was conducted among 82 Slovenian organizations of different sizes and industries. The findings indicate that a substantial proportion of organizations operate with a formally established HR function, reflecting a relatively high level of HR professionalization. At the same time, a considerable share of respondents report difficulties in recruiting qualified HR professionals, with a notable number also identifying critical skill gaps in areas such as HR analytics and strategic HR management. Legal expertise and digital literacy emerge as core HR competencies, while emotional intelligence and change management are increasingly recognized as essential for managing complexity and organizational change. Moreover, there is strong and consistent agreement across respondents regarding the importance of developing a systematic national HR management framework. Based on the descriptive statistics obtained from the survey, this article proposes five hypotheses examining the relationships between company size, HR function maturity, recruitment practices, and perceived competency shortages:

- Hypothesis 1: Larger companies (with more than 250 employees) are statistically more likely to have an established independent HR function compared to smaller companies (with fewer than 250 employees).
- Hypothesis 2: Organizations with an established HR function are statistically more likely to recruit HR specialists.
- Hypothesis 3: Respondents from organizations with an established HR function attribute statistically significantly greater importance to the development of a national HR management system in Slovenia.
- Hypothesis 4: Organizations that have recruited HR professionals more frequently over the past five years perceive significantly greater difficulty in finding suitable HR personnel than organizations that have recruited HR professionals less frequently.

These hypotheses reflect a broader concern about the maturity of HR functions and digital readiness across Slovenian organizations. They suggest that the capacity to adapt to digital transformation is not evenly distributed and may depend on structural characteristics such as size, professionalization, and strategic orientation. Consequently, this study contributes to the growing

literature by connecting the macro-level dynamics of digital transformation with micro-level organizational competencies relevant to HRM. The novelty of this research lies in its integration of theoretical perspectives on digital agility, HR analytics, and sustainable HRM with empirical evidence from a post-transition European economy. It offers a context-sensitive analysis of how HR competencies evolve under digital pressure and how these competencies relate to organizational preparedness for the future of work. The results provide both academic and practical implications: academically, they extend existing models of HR competency development by incorporating regional and structural factors; practically, they inform HR practitioners and policymakers about the areas requiring targeted capacity building.

In summary, as organizations navigate the complexities of technological disruption, HRM stands at the forefront of enabling adaptive, data-driven, and ethically responsible change. Understanding the relationship between organizational characteristics, HR function maturity, and competency development is essential for designing effective strategies that ensure both digital competitiveness and human sustainability. The following sections of this paper therefore develop a comprehensive theoretical framework linking digital transformation, HR competencies, and organizational outcomes, and present the empirical results that validate this model within the Slovenian context.

2 Theoretical Framework

Understanding the future of HRM requires examining how digital technologies, emerging competencies, and sustainability jointly reshape the profession. This study builds on complementary perspectives, including digital transformation theory, agility models, competency-based HR frameworks, and sustainable HRM principles. Together, they provide an integrated lens for analyzing how organizations and HR professionals respond to technological disruption and how related competencies evolve.

The following sections address four core dimensions of this framework: (1) the digital transformation of HRM, (2) digital agility as a key HR competence, (3) HR analytics and competency-based HRM (CBHRM), and (4) sustainability and ethics as foundations of future HR practices.

2.1 Digital Transformation and the Rise of Digital Agility in HRM

The starting point of this framework lies in understanding how digital transformation reconfigures organizational structures and managerial paradigms. Digital transformation refers to the integration of advanced technologies — such as AI, ML, big data analytics, and automation — into all areas of business operations, fundamentally altering how value is created and delivered (Adeosun & Adegbite, 2022; Herman et al., 2024).

For HRM, this shift brings both opportunities and challenges. While HR traditionally focused on administrative tasks such as compliance, recruitment, and payroll, it is now expected to function as a strategic partner that drives innovation, talent development, and organizational adaptability (Folarin, 2021; Timane & Wandhe, 2023). This evolution requires HR professionals to master digital tools, apply analytics, and contribute to strategic decision-making. Consequently, HR becomes a leader of digital change, promoting technological advancement while protecting the human dimension of work, ensuring technology supports rather than replaces people.

Digital transformation depends on agility. Digital agility reflects the ability of individuals and organizations to adapt rapidly to technological change while maintaining strategic direction and a human-centered approach. Coetzee and Veldsman (2025) define it as a dynamic blend of digital literacy, adaptive learning, innovation orientation, and collaboration skills.

For HR professionals, digital agility means integrating technology into daily practice, responding to emerging challenges, and supporting continuous improvement. Herman et al. (2024) note that it functions as a performance multiplier, strengthening decision-making, employee

engagement, and organizational resilience. This competence requires not only technical expertise but also experimentation, tolerance for uncertainty, and the ability to quickly learn and unlearn. Rakowska and Cichorzewska (2016) stress that agility must also be built at the organizational level through leadership, flexible structures, and collaborative cultures.

Thus, digital agility serves as the bridge between technological disruption and human capability, enabling HR professionals to convert digital change into organizational growth.

2.2 HR Analytics and Competency-Based HRM (CHRM)

As organizations generate growing volumes of workforce data, the ability to interpret it has become essential. HR analytics applies data science and statistical techniques to support evidence-based decisions in recruitment, performance management, training, and retention (Karwehl & Kauffeld, 2021; Puli & Sagi, 2022). With predictive analytics and AI, HR can anticipate turnover, identify patterns, and design interventions that enhance employee experience (Okatta et al., 2024).

Yet analytics requires a guiding structure that defines which competencies should be developed. CBHRM provides this alignment by linking human capital to organizational strategy (Aungsuroch et al., 2021; Judrups et al., 2015). CBHRM views competencies as integrated clusters of knowledge, skills, abilities, and other characteristics (KSAOs) that drive performance.

McCartney, Murphy, and McCarthy (2021) propose a six-dimensional model for HR analysts encompassing consulting capability, technical and analytical proficiency, business and HR acumen, research orientation, communication and storytelling, and ethical awareness. This hybrid model shows that HR professionals must pair data fluency with human sensitivity—using analytics to support rather than replace judgment. Within this study's conceptual framework, HR analytics and CBHRM act as operational enablers that transform digital agility into measurable organizational performance.

2.3 Sustainable HRM and Ethical Considerations

While digital technologies enable efficiency and innovation, they also introduce ethical concerns. Sustainable HRM emphasizes not only economic outcomes but also environmental responsibility, social equity, and employee well-being (Ren et al., 2023). As automation and algorithmic decision-making expand, HR professionals must ensure that human dignity remains central to technological progress.

Ren et al. (2023) highlight that sustainable HRM requires balancing productivity with ethics by promoting fairness, inclusivity, transparency, and trust. Ethical stewardship therefore includes responsible data use, protecting privacy, and addressing algorithmic bias in recruitment and evaluation. Thus, sustainability becomes a guiding principle of digital HR transformation rather than a secondary objective.

Consequently, future HR professionals must be both digitally skilled and ethically grounded. Incorporating sustainability into HR competencies ensures that digital transformation strengthens organizational legitimacy and broader societal well-being.

### 2.4 Conceptual Model and Synthesis

Synthesizing these theoretical dimensions, the present study proposes a conceptual model that explains how HR competencies mediate the relationship between digital transformation and organizational sustainability. The model assumes that digital transformation creates new demands for HR agility and analytical competence, which, when effectively managed, lead to sustainable and innovative HR outcomes.

Specifically, the framework posits that:
- Digital transformation acts as the external catalyst, redefining HR roles and processes.
- Digital agility functions as the mediating competence that enables HR professionals to adapt to change.

- HR analytics and CBHRM serve as implementation mechanisms that operationalize digital agility into strategic HR actions.
- Sustainable HRM emerges as the desired outcome, encompassing innovation, competitiveness, and ethical governance.

Figure 1. *Conceptual framework of digital transformation and HR competencies*
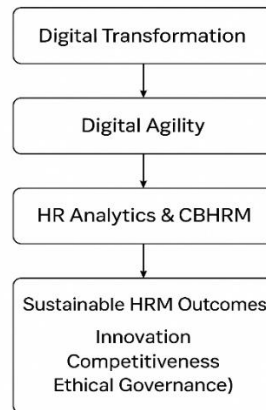
Source: Developed by the authors based on Adeosun & Adegbite (2022); Coetzee & Veldsman (2025); McCartney et al. (2021); Okatta et al. (2024); Ren et al. (2023); and Rakowska & Cichorzewska (2016).

This conceptual structure provides the foundation for the empirical analysis presented later in the paper. It connects macro-level technological change with micro-level human capabilities, offering a multidimensional explanation of how HR maturity and organizational characteristics influence readiness for digital transformation.

In summary, the theoretical framework integrates technological, behavioral, and ethical perspectives into a cohesive model of HR transformation. It suggests that the effectiveness of digital transformation depends not solely on technology adoption but on the human capacity to interpret, adapt, and act upon digital opportunities.

For this reason, HR competencies such as digital agility, analytical literacy, and ethical awareness emerge as the key determinants of organizational sustainability. The following methodological section translates this theoretical structure into a testable empirical model based on evidence from Slovenian organizations.

3 Methodology

Understanding the evolving role of HR competencies in the context of digital transformation requires a methodological approach that captures both organizational characteristics and behavioral patterns in workforce management. To achieve this, the present study employed a quantitative research design using a structured online questionnaire administered to organizations operating in Slovenia. The methodology was designed to test the relationships between company size, HR function maturity, recruitment behavior, and perceived competency gaps in line with the proposed hypotheses.

3.1 Research Design and Instrument Development

The study employed a descriptive and correlational quantitative design, appropriate for examining associations between organizational characteristics and HRM practices. The questionnaire incorporated both closed-ended and open-ended questions to gather statistical as well as contextual information. The research aimed to determine whether the digital readiness and HR competency structures of Slovenian organizations differ according to company size and the formalization of the HR function, in line with the hypotheses developed and justified in the introductory section of the article.

The survey was conducted over a period of four weeks in May 2025. Data were collected using a structured questionnaire created in the 1KA survey platform, which is widely used for academic research in Slovenia. The instrument consisted of 15 questions organized into three main sections:

1. Organizational profile: sector, size, ownership type, and presence of a formal HR function;
2. HR practices and recruitment behavior: frequency of HR hiring, challenges in recruiting qualified HR professionals, and areas of perceived skill shortages;
3. Perceptions and attitudes: perceived importance of HR development for Slovenia and assessment of key HR competencies.

Most questions were closed-ended and used Likert-type scales (from 1 = "strongly disagree" to 5 = "strongly agree"), along with categorical response options to enable quantitative analysis. Several items also included optional open comments to provide additional qualitative context

3.2 Sample and Population

A non-probability purposive sampling approach was applied to reach organizations across different industries and sizes. The questionnaire was distributed via professional HR networks, industry associations, LinkedIn groups, and direct email invitations.

The final sample consisted of 102 responses, of which 82 valid responses were retained after excluding incomplete entries. The sample structure was as follows:

- Large companies (>250 employees): 51.2%
- Medium-sized companies (50–249 employees): 34.1%
- Small companies (10–49 employees): 12.2%
- Micro companies (<10 employees): 2.4%

Organizations operated in diverse sectors, including manufacturing, IT services, education, telecommunications, energy, and pharmaceuticals, ensuring a representative cross-section of the Slovenian economy.

3.3 Data Analysis, Reliability, and Validity Procedures

Participation was voluntary and anonymous. Before distribution, the questionnaire underwent pilot testing with five HR experts to ensure clarity, face validity, and relevance of items. Minor adjustments were made based on feedback regarding wording and sequencing.

Data were analyzed using IBM SPSS Statistics software. The following statistical techniques were applied:

- Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize the data.
- Chi-square tests of independence (χ^2) were applied to test relationships between categorical variables (e.g., company size and existence of HR function, HR function and recruitment frequency).
- Cross-tabulations were performed to examine conditional relationships among variables relevant to hypotheses 1–4.
- Significance level ($p < 0.05$) was adopted for hypothesis testing.
- Internal consistency reliability was evaluated using Cronbach's alpha, yielding a coefficient of 0.726 for the broader attitudinal scale and 0.854 for the HR competency assessment scale, indicating acceptable to high reliability of the measurement instruments.

Content validity was established by expert review during the instrument development phase, and construct validity was assessed by comparing empirical trends with established theoretical expectations from the literature (Aungsuroch et al., 2021; McCartney et al., 2021).

3.4 Ethical Considerations

The study adhered to ethical research principles, including voluntary participation, anonymity, and confidential data handling. Ethical approval was obtained from the institutional research board at B2 Ljubljana School of Business. Respondents were informed that the data would be used exclusively for academic research purposes and that no individual or organizational identifiers would be disclosed. All participants provided electronic informed consent before completing the questionnaire.

4 Results

This section presents the empirical findings derived from the applied methodological approach. By integrating descriptive and inferential statistical analyses, the study provides robust empirical evidence for examining relationships between HR function maturity, recruitment practices, and competency development in Slovenian organizations. The results reported below directly address the proposed hypotheses and translate the theoretical framework into data-driven insights.

4.1 Descriptive Statistics

The majority of surveyed organizations (86.4%) reported having a formal HR function, while only 8.6% did not have one, and 4.9% had it partially established. With respect to recruitment activity, 30.9% of organizations had frequently or occasionally recruited HR professionals in the past five years, whereas 22.2% did not recruit HR staff at all. More than half of the organizations (55.6%) reported difficulties in finding qualified HR professionals. The most significant skill gaps were identified in employee development (40%), HR analytics (36%), strategic HR management (36%), and labor law expertise (34%).

Regarding key competencies, respondents attributed the highest importance to understanding labor legislation (mean = 4.7), followed by skills in selection processes, ethics and diversity, digital literacy, and change management (all mean = 4.3). Business acumen received the lowest, yet still above-average rating (mean = 3.9). A strong majority (97%) believe that developing a national HR management system is important or very important for Slovenia.

4.2 Results of Hypothesis Testing

Testing Hypothesis 1: HR Function Formalization by Company Size

To examine whether company size is associated with establishing an independent HR function (Hypothesis 1), a chi-square test was performed. In the sample, 51.2% of organizations were large and 48.8% were small.

Table 1 shows that all large companies reported having a fully established HR function, whereas among smaller companies, only 72.5% had one, 17.5% had none, and 10% had it partially established, indicating greater HR formalization in larger organizations.

Table 1. *Relationship between Company Size and Presence of an HR Function*

			Do you have an established HR function?			
			Yes	No	Partly	Total
Company Size	Small (fewer than 250 employees)	Count	29	7	4	40
		Expected Count	34,6	3,5	2,0	40,0
		% within Company Size	**72,5%**	17,5%	10,0%	100,0%
	Large (more than 250 employees)	Count	41	0	0	41
		Expected Count	35,4	3,5	2,0	41,0
		% within Company Size	**100,0%**	0,0%	0,0%	100,0%
Total		Count	70	7	4	81
		Expected Count	70,0	7,0	4,0	81,0
		% within Company Size	86,4%	8,6%	4,9%	100,0%

The chi-square test in Table 2 confirms a statistically significant association between company size and the likelihood of having an independent HR function ($\chi^2 = 13.047$; $p = 0.001$). Since $p < 0.05$, Hypothesis 1 is supported, indicating that larger companies are significantly more likely to establish an independent HR function than smaller companies. This suggests that organizational size plays a key role in the formalization of HR processes.

Table 2. *Chi-Square Test Results*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13,047[a]	2	**,001**
Likelihood Ratio	17,304	2	<,001
Linear-by-Linear Association	11,264	1	<,001
N of Valid Cases	81		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is 1,98.

Since $p < 0.05$, Hypothesis 1 is supported, meaning that larger companies are significantly more likely to establish an independent HR function than smaller companies. This indicates that organizational size plays an important role in the formalization of HR processes.

Testing Hypothesis 2: HR Specialist Recruitment and Presence of HR Function

To examine whether organizations with an established HR function recruit HR specialists more frequently, a Kruskal–Wallis test was applied (Table 3). The results indicate a statistically significant difference in recruitment frequency across organizations with a fully established HR function, a partially established function, and no HR function ($H = 8.110$; $p = 0.017$).

Table 3. *Kruskal–Wallis Test Results for HR Recruitment Frequency by HR Function Status*

Test	Sig.[a,b]
Independent-Samples Kruskal-Wallis Test	,017

a. The significance level is ,050.
b. Asymptotic significance is displayed.

Independent-Samples Kruskal-Wallis Test Summary	
Total N	81
Test Statistic	8,110[a]
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	,017

a. The test statistic is adjusted for ties.

The post hoc analysis revealed a statistically significant difference in the frequency of recruiting HR professionals between organizations with an established HR function and those without one ($p = 0.005$), as seen in Table 4, while no significant differences were observed between organizations with a partially established HR function and the other groups.

Table 4. *Pairwise Comparisons by HR Function Status and Recruitment Frequency*

Sample 1 - Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Yes-Partly	-7,689	11,667	-,659	,510	1,000
Yes-No	-25,279	8,996	-2,810	,005	,015
Partly-No	17,589	14,225	1,237	,216	,649

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,050.
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Table 5 indicates clear differences in the frequency of recruiting HR professionals depending on whether organizations have an established HR function.

Table 5. *Mean Rank Values of HR Recruitment Frequency by HR Function Status (Last 5 Years)*

Established HR function	N	Mean Rank
Yes	70	38,44
No	7	63,71
Partly	4	46,13
Total	81	

Organizations without an HR function show the highest mean rank (63.71), indicating the most frequent recruitment of HR specialists. In contrast, organizations with a fully established HR function have the lowest mean rank (38.44), suggesting a lower need to seek external HR professionals due to internally managed HR activities. Organizations with a partially established HR function occupy an intermediate position (46.13), supporting the pattern that less formalized HR structures rely more on external HR support. These findings are consistent with the results of the Kruskal–Wallis test, confirming statistically significant differences between groups.

Table 6. *Kruskal–Wallis Test Results for HR Function Status and Recruitment Frequency*

Test Statistics[a,b]	Frequency of HR Specialist Recruitment (Last 5 Years)
Kruskal-Wallis H	8,110
df	2
Asymp. Sig.	,017

a. Kruskal Wallis Test
b. Grouping Variable: Presence of an established HR function

The Kruskal–Wallis test results (H = 8.110; p = 0.017) indicate a statistically significant difference in the frequency of recruiting HR professionals across organizations with different levels of HR function formalization. Since p < 0.05, the results confirm that recruitment behavior varies significantly depending on whether an organization has an established HR function. Based on these findings, the Hypothesis 2 is confirmed.

Testing Hypothesis 3: Importance of National HR System according to HR Function Presence
To examine whether perceptions of the importance of developing a national HR management system differ according to the presence of an established HR function, a chi-square test of independence was conducted. Table 7 presents the distribution of responses across organizations with fully established, partially established, and no HR function.

Table 7. *Relationship between HR Function Status and Perceived Importance of Developing a National HR Management System in Slovenia*

HR Function Status		Importance of Developing a National HR Management System in Slovenia			
		Very Important	Important	Neutral	Total
Yes	Count	49	19	0	68
	Expected Count	47,3	18,9	1,7	68,0
	% within HR Function Status	72,1%	27,9%	0,0%	100,0%
No	Count	2	3	2	7
	Expected Count	4,9	1,9	,2	7,0
	% within HR Function Status	28,6%	42,9%	28,6%	100,0%
Partly	Count	4	0	0	4
	Expected Count	2,8	1,1	,1	4,0
	% within HR Function Status	100,0%	0,0%	0,0%	100,0%
Total	Count	55	22	2	79
	Expected Count	55,0	22,0	2,0	79,0
	% within HR Function Status	69,6%	27,8%	2,5%	100,0%

The results indicate clear differences between groups. Respondents from organizations with a fully established HR function predominantly rated the development of a national HR management system as very important (72.1%), whereas organizations without an HR function showed more varied responses, including neutral positions (28,6%). Organizations with a partially established HR function rated this issue as very important.

The chi-square test results presented in Table 8 confirm that these differences are statistically significant.

Table 8. *Chi-Square Test Results for HR Function Status and Perceived Importance of a National HR Management System*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24,534ᵃ	4	<,001
Likelihood Ratio	15,116	4	,004
Linear-by-Linear Association	,768	1	,381
N of Valid Cases	79		

a. 7 cells (77,8%) have expected count less than 5. The minimum expected count is ,10.

Since $p < 0.05$, the results indicate a statistically significant association between the presence of an HR function and perceptions of the importance of developing a national HR management system. Based on these findings, the Hypothesis 3 is confirmed, demonstrating that respondents from organizations with an established HR function attribute greater importance to systematic HR development at the national level.

Testing Hypothesis 4: Recruitment Difficulties and Frequency of Hiring HR Specialists

To examine whether organizations that more frequently recruit HR professionals experience greater difficulties in finding suitable candidates, an independent samples t-test was conducted. Table 9 presents descriptive statistics comparing perceived recruitment difficulty between organizations that recruited HR professionals more frequently and those that recruited them rarely or not at all in the past five years.

Table 9. *Mean Difficulty of Recruiting HR Professionals by Recruitment Frequency*

Frequency of HR Specialist Recruitment in the Past 5 Years	N	Mean	Std. Deviation	Std. Error Mean
Recruited more frequently	40	2,17	,931	,147
Recruited rarely or never	41	3,12	1,435	,224

The results show clear differences in perceived recruitment difficulty between the two groups. Organizations that recruited HR professionals more frequently rated the difficulty of finding suitable candidates lower on average (M = 2,17; SD = 0,93) than organizations that recruited HR professionals rarely or not at all (M = 3,12; SD = 1,44).

The statistical significance of this difference is confirmed by the independent samples t-test results presented in Table 10.

Table 10. *Independent Samples t-Test Results for Recruitment Difficulty by Recruitment Frequency*

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | 95% Confidence Interval of the Difference | |
| | | | | | Significance | | | | | |
	F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	12,346	<,001	-3,514	79	<,001	<,001	-,947	,269	-1,483	-,411
Equal variances not assumed			-3,532	68,800	<,001	<,001	-,947	,268	-1,482	-,412

Levene's test indicated unequal variances (F = 12.346; p < 0.001); therefore, the adjusted t-test results were considered. Since p < 0.05, the findings demonstrate a statistically significant difference in perceived recruitment difficulty based on recruitment frequency. Organizations that more frequently seek HR professionals report greater challenges in identifying suitable candidates. Based on these results, the Hypothesis 4 is confirmed.

5 Discussion

The findings of this study offer valuable insights into how Slovenian organizations are responding to the challenges of digital transformation within human resource management. Consistent with international research (Adeosun & Adegbite, 2022; Coetzee & Veldsman, 2025), the results demonstrate that the modernization of HR functions is strongly influenced by organizational size, structural maturity, and sustained investment in human capital development.

The confirmation of the first hypothesis indicates that larger organizations are statistically more likely to have formally established HR functions than smaller enterprises. This finding is in line with previous studies by Folarin (2021) and Timane and Wandhe (2023), which emphasize that strategic HR roles are more prevalent in larger firms due to greater resource availability, operational complexity, and the need for systematic workforce planning. In contrast, smaller organizations tend to rely on more informal HR practices, often prioritizing administrative and compliance-related activities over strategic HR development.

These differences highlight the critical role of organizational scalability in digital transformation readiness. Larger organizations are better positioned to invest in HR analytics, digital learning systems, and structured competency development initiatives, whereas smaller firms frequently depend on ad hoc training and experiential learning. The findings therefore reinforce the view that successful digital HR transformation requires not only technological adoption but also adequate structural and cultural readiness—an aspect that is particularly salient in transitional and smaller-scale economies.

Furthermore, the analyses related to the second and fourth hypotheses reveal a significant association between HR function maturity and recruitment behavior, as well as between frequent HR recruitment and increased difficulty in sourcing qualified candidates. Organizations with more professionalized HR functions tend to recruit HR specialists more actively, yet simultaneously report greater challenges in attracting suitable talent. This paradox underscores the existence of a growing skills gap in the Slovenian HR labor market, particularly in areas such as HR analytics, strategic HRM, and employee development, which were identified as critical shortage domains by a substantial proportion of respondents.

These findings align with international research emphasizing the growing importance of digital and analytical competencies as prerequisites for effective HRM in the digital era (McCartney et al., 2021; Karwehl & Kauffeld, 2021). The observed gap between labor market demand and available HR expertise suggests that higher education institutions and professional bodies need to place greater emphasis on data literacy, digital agility, and strategic thinking within HR curricula. Moreover, the results underscore the critical role of lifelong learning and continuous upskilling in maintaining both individual employability and organizational competitiveness within the HR profession.

The results related to the third hypothesis indicate that respondents from organizations with established HR functions attribute significantly greater importance to the development of a national HR management system. This finding reflects an increasing recognition of HRM as a strategic infrastructure, essential not only for organizational performance but also for broader national competitiveness and workforce development.

These perceptions are consistent with the arguments of Ren et al. (2023), who emphasize that sustainable HRM extends beyond firm-level outcomes to support societal resilience, ethical governance, and long-term development. In this context, Slovenian organizations appear to

acknowledge the need for stronger institutional support mechanisms—such as coherent policy frameworks, professional HR standards, and digital infrastructure—to facilitate the transition toward a more data-driven and sustainable national HR ecosystem.

Integrating the empirical results with the proposed theoretical framework highlights digital agility as a key mediating capability between technological adoption and strategic HR performance. Organizations characterized by flexibility, a willingness to experiment, and a strong learning orientation are better positioned to translate digital technologies into effective HR practices, particularly in talent management, recruitment, and HR analytics.

However, organizational agility must be carefully balanced with ethical and sustainable HR practices. The findings suggest that many organizations remain in the early stages of developing HR analytics and digital systems, which increases the risk of prioritizing efficiency gains at the expense of employee well-being. This observation reinforces the argument of Ren et al. (2023) that digital transformation in HRM should be guided by principles of sustainable HRM, including fairness, transparency, and inclusivity, in order to avoid the dehumanization of work.

Within this context, the Slovenian experience reflects broader European challenges of advancing digitalization while safeguarding human-centered values. The results indicate that organizations best positioned for the future are those that successfully integrate technological innovation with human empathy, thereby positioning HR as a strategic driver of both organizational innovation and employee trust.

The study makes several important contributions. From a theoretical perspective, it extends existing models of HR competencies by empirically validating the relationships between organizational structure, digital readiness, and competency development within a post-transition economy. It supports the proposed conceptual model linking digital transformation → digital agility → HR analytics & CBHRM → sustainable HRM outcomes, offering an integrative framework for future research.

From a practical standpoint, the findings provide actionable insights for managers and policymakers. Organizations should:

- Strengthen HR analytics capabilities through targeted training;
- Promote digital agility and continuous learning among HR professionals;
- Develop national standards for HR competency certification; and
- Integrate sustainability and ethics into digital HR initiatives.

Such actions would help bridge the gap between technological potential and human capability, ensuring that digital transformation contributes to long-term organizational performance and broader societal resilience. The rapid digitalization of business environments has fundamentally reshaped the competency requirements for HR professionals, shifting the focus from administrative efficiency toward strategic adaptability, digital literacy, and ethical responsibility. The findings of this study confirm that organizational size and the maturity of the HR function significantly affect organizations' capacity to respond effectively to these evolving demands. Empirical evidence from 82 Slovenian organizations indicates that, although most companies have established HR departments, many continue to face difficulties in recruiting professionals with the analytical and strategic competencies required in the digital era. This pattern reflects a wider structural challenge: while HR digital transformation is advancing, the development of corresponding competencies is progressing at a slower pace than technological adoption.

The conceptual model developed in this study integrates four interrelated dimensions—digital transformation, digital agility, HR analytics and competency-based HRM, and sustainable HRM—into a coherent analytical framework. The model demonstrates that successful HR digitalization depends not only on technological infrastructure but also on human adaptability, learning orientation, and ethical governance. Thus, from a practical perspective, the findings underscore the importance of sustained investment in HR capability development, the promotion of data-informed decision-making, and the establishment of ethical oversight mechanisms in AI-enabled HR processes. From a research

perspective, the study offers a transferable and replicable framework that can be applied in other small open economies undergoing similar digital transitions.

In conclusion, the future of HRM does not lie in choosing between technological advancement and human-centered values, but in their effective integration. Organizations that develop digitally agile, analytically proficient, and ethically grounded HR professionals will be best positioned to navigate uncertainty and succeed in an increasingly technology-driven business environment.

6 References

1. Adeosun, L. P., & Adegbite, A. A. (2022). *Human resource professionals and readiness for the future of work.* Human Resource Management Review, 32(4), 100871. https://doi.org/10.1016/j.hrmr.2021.100871
2. Aungsuroch, Y., Gunawan, J., & Fisher, M. L. (2021). *Competency-based human resource management: Linking strategic HRM and employee performance.* International Journal of Human Resource Studies, 11(2), 56–73. https://doi.org/10.5296/ijhrs.v11i2.18532
3. Coetzee, M., & Veldsman, D. (2025). *Digital agility as a future HR competence: Rethinking the role of human resource professionals in the digital era.* South African Journal of Human Resource Management, 23(1), 1–14. https://doi.org/10.xxxx/sajhrm.v23i1.1843
4. Folarin, A. S. (2021). *Strategic human resource transformation in the digital workplace.* Journal of Organizational Management, 15(2), 45–59.
5. Herman, J., Kowalski, P., & Zając, M. (2024). *Human resource management in the digital era: Transformation, challenges, and new competencies.* Management Studies, 38(1), 33–49.
6. Judrups, J., Bicevskis, J., & Parsova, V. (2015). *Developing competency-based human resource management systems for strategic alignment.* Procedia Computer Science, 77, 247–254. https://doi.org/10.1016/j.procs.2015.12.385
7. Karwehl, S., & Kauffeld, S. (2021). *The role of HR analytics in competency development and performance improvement.* Human Resource Development Quarterly, 32(3), 319–340. https://doi.org/10.1002/hrdq.21418
8. McCartney, S., Murphy, C., & McCarthy, J. (2021). *21st century HR: A competency model for the emerging role of HR analysts.* Personnel Review, 50(6), 1495–1513. https://doi.org/10.1108/PR-12-2019-0670
9. Okatta, C. G., Ajayi, F. A., & Olawale, O. (2024). *Navigating the future: Integrating AI and machine learning in HR practices for a digital workforce.* Computer Science & IT Research Journal, 5(4), 1008–1030. https://doi.org/10.51594/csitrj.v5i4.1085
10. Puli, R., & Sagi, L. (2022). *Data-driven HRM: The role of HR analytics in shaping strategic workforce planning.* International Journal of Management Studies, 29(3), 112–130.
11. Rakowska, A., & Cichorzewska, M. (2016). *New competencies for the future labour market: A Delphi study.* Journal of European Training and Development, 40(1), 12–28. https://doi.org/10.1108/JETD-09-2015-0074
12. Ren, S., Tang, G., & Jackson, S. E. (2023). *Advancing the sustainability agenda through strategic human resource management.* Human Resource Management, 62(2), 143–161. https://doi.org/10.1002/hrm.22021
13. Timane, R. K., & Wandhe, R. (2023). *Digital HR transformation: From operational efficiency to strategic partnership.* Global Journal of Human Resource Innovation, 8(1), 24–39.