

Designing a Human Resource Management Model in Public Organizations for Alignment with the Principles of Society 5.0

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ABSTRACT

Although Society 5.0 is centered on the integration of technology, modern policymaking, and broad human-centered stakeholder participation, many public organizations face various obstacles in implementing these principles. Accordingly, the aim of this article is to design a human resource management model in public organizations to align with the principles of Society 5.0. The research adopted an exploratory mixed-methods design. In the qualitative phase, thematic analysis was used to identify the components shaping the alignment of human resource management with the principles of Society 5.0. Data collection in this phase was conducted through interviews. Sampling was carried out using theoretical saturation, and twelve participants took part in the interviews. In the quantitative phase, confirmatory factor analysis and interpretive structural modeling were employed to design the alignment model of human resource management with the principles of Society 5.0 in public organizations. Data collection in the quantitative phase was conducted using two questionnaires, which were distributed among the sample population after the validity and reliability were examined and confirmed. The statistical population in the model validation phase consisted of all managers of public and governmental organizations at various managerial levels in East Azerbaijan Province, with a sample size of 214 respondents. The findings of the qualitative phase indicated seven main themes and thirty-four sub-themes. In the quantitative phase, the results of interpretive structural modeling showed that the alignment model of human resource management with the principles of Society 5.0 in public organizations is structured across six levels. Within this model, the strategic–cognitive component demonstrated the highest level of influence, while evaluation and feedback exhibited the highest level of dependence.

Keywords: human resource management; Society 5.0; public organizations

Introduction

The rapid acceleration of digital technologies and the convergence of advanced analytics, artificial intelligence, and cyber–physical systems have fundamentally transformed the way societies organize economic, social, and administrative activities. In recent years, this transformation has been conceptually framed through the notion of *Society 5.0*, a paradigm that goes beyond technology-driven efficiency and explicitly emphasizes human-centered development, social well-being, and sustainable value creation. Unlike earlier stages of digital transformation that prioritized automation and productivity, Society 5.0 places human needs, social inclusion, and ethical governance



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at the core of technological progress, seeking to balance economic advancement with societal resilience and quality of life (1-3).

Society 5.0 emerged initially from Japanese policy discourse but has rapidly evolved into a globally relevant framework for rethinking governance, innovation ecosystems, and organizational design. At its core, Society 5.0 advocates the intelligent integration of cyberspace and physical space in ways that augment human capabilities rather than replace them. This vision requires not only technological readiness but also profound institutional, cultural, and managerial transformation, particularly within public organizations that play a central role in policymaking, service delivery, and social regulation (4-6). As governments worldwide confront complex challenges such as demographic shifts, climate change, digital inequality, and increasing citizen expectations, the alignment of public-sector organizations with the principles of Society 5.0 has become a strategic imperative.

Human resource management (HRM) occupies a pivotal position in this transformation process. In public organizations, HRM systems shape workforce capabilities, organizational culture, leadership practices, and institutional adaptability. Traditional HRM models in the public sector have often been characterized by rigid structures, rule-based procedures, and limited flexibility, which may hinder responsiveness to rapid technological and societal change. In the context of Society 5.0, such approaches are increasingly inadequate, as organizations must cultivate digital competencies, foster continuous learning, ensure ethical use of data, and promote employee well-being alongside performance and accountability (7-9).

The transition from Industry 4.0 to Industry 5.0 further reinforces the need to reconsider HRM paradigms. While Industry 4.0 emphasized automation, smart manufacturing, and data-driven optimization, Industry 5.0 re-centers the human role by emphasizing collaboration between humans and intelligent machines, trust in AI systems, and the complementarity of human creativity and technological capabilities (10-12). This shift has direct implications for HRM, particularly in terms of talent management, leadership development, ethical governance, and organizational learning. Public organizations, which often lag behind private-sector counterparts in adopting advanced HRM practices, face additional challenges in operationalizing these principles due to bureaucratic constraints and institutional inertia (13, 14).

Scholarly literature increasingly highlights that effective HRM in the digital era must move beyond administrative efficiency toward strategic integration with organizational goals and societal values. Strategic human resource management in digitally enabled environments requires alignment between workforce strategies, technological infrastructure, and long-term sustainability objectives (15, 16). In the context of Society 5.0, this alignment becomes even more critical, as HRM must simultaneously support innovation, inclusiveness, ethical responsibility, and resilience. This multidimensional role positions HRM as a key enabler of public-sector transformation rather than merely a support function.

Recent studies have explored various aspects of HRM adaptation to digital transformation and Society 5.0-related frameworks. Research on digital HRM strategies emphasizes the importance of data analytics, AI-supported decision-making, and integrated HR information systems for enhancing organizational agility and performance (9, 17, 18). At the same time, scholars caution that technological adoption without adequate attention to human factors may lead to ethical risks, employee resistance, and diminished trust (19, 20). These findings underscore the need for HRM models that systematically integrate technological, cultural, and ethical considerations.

Another stream of research focuses on leadership and organizational culture as critical determinants of successful transformation toward Society 5.0. Transformational and participatory leadership styles have been

shown to foster learning, innovation, and employee engagement in AI-driven and human-centric environments (21, 22). In public organizations, where hierarchical leadership structures are prevalent, redefining leadership roles to support empowerment, collaboration, and change readiness is particularly challenging yet essential. HRM systems must therefore incorporate leadership development mechanisms aligned with the values of Society 5.0.

Public-sector readiness for Society 5.0 has also been examined from an institutional and governance perspective. Studies indicate that many government organizations lack coherent frameworks for integrating digital technologies with human resource policies, resulting in fragmented initiatives and limited impact (13, 14). Furthermore, issues such as data governance, cybersecurity, and legal accountability pose significant constraints on the adoption of advanced HRM practices in public settings (5, 20). These challenges highlight the necessity of comprehensive HRM models that address not only internal organizational processes but also external regulatory and societal contexts.

The concept of human-centricity, which lies at the heart of Society 5.0, further expands the scope of HRM in public organizations. Human-centric HRM emphasizes employee well-being, work-life balance, social inclusion, and meaningful participation in decision-making. Empirical evidence suggests that such approaches contribute to organizational resilience, innovation capacity, and sustainable performance, particularly in complex and uncertain environments (23-25). Integrating these principles into public-sector HRM requires a shift from compliance-oriented practices to value-driven and learning-oriented systems.

Despite the growing body of literature, significant gaps remain in understanding how public organizations can systematically design HRM models aligned with the principles of Society 5.0. Much of the existing research focuses on conceptual discussions or isolated practices, with limited attention to integrative frameworks that capture the interdependencies among strategic, technological, cultural, and policy-related dimensions of HRM. Moreover, empirical studies that specifically address public organizations, particularly in developing and emerging economies, are relatively scarce (26-28). This gap underscores the need for context-sensitive models that reflect the unique structural and institutional characteristics of public-sector organizations.

In addition, the complexity of Society 5.0 transformation calls for methodological approaches capable of capturing both qualitative insights and quantitative validation. Exploratory mixed-methods designs are increasingly recommended for studying emerging and multidimensional phenomena, as they allow for the identification of context-specific constructs and the testing of their structural relationships (8, 29). Such approaches are particularly relevant for HRM research in public organizations, where formal structures coexist with informal practices and where stakeholder perspectives play a crucial role.

Given these considerations, there is a clear need to develop and validate a comprehensive human resource management model that enables public organizations to align effectively with the principles of Society 5.0. Such a model should integrate strategic-cognitive foundations, process-oriented mechanisms, cultural and social enablers, technological and cybersecurity infrastructure, organizational learning and capacity-building processes, evaluation and feedback systems, and policy-managerial implementation pathways. By doing so, it can provide both theoretical insights and practical guidance for policymakers and public-sector managers seeking to navigate the transition toward human-centric, digitally enabled governance.

Accordingly, the aim of this study is to design and validate a comprehensive human resource management model for public organizations to align with the principles of Society 5.0.

Methods and Materials

From the perspective of purpose, this study is developmental–applied, and in terms of research design, it follows an exploratory mixed-methods approach.

In the qualitative phase, thematic analysis was employed to identify the research variables and the indicators of the human resource management model in public organizations aligned with the principles of Society 5.0. The primary data collection instrument in this phase was semi-structured interviews.

In this study, experts familiar with the research topic were used to conduct the thematic analysis. Accordingly, considering the case-oriented nature of the research, the experts met the following criteria.

First, managers of public organizations in East Azerbaijan Province with more than 20 years of managerial experience, familiarity with human resource management issues and the requirements of Society 5.0, and holding at least a master's degree in management-related fields.

Second, university faculty members with experience in teaching and publishing scholarly articles in the field of human resource management.

To select these participants, repeated visits were made to public organizations in East Azerbaijan Province, and individual profiles were compiled from various sources, resulting in an initial list of domain experts.

Given that sampling in thematic analysis is theoretical and the sample size is determined based on theoretical saturation, saturation was achieved at the tenth expert interview in this study. However, to ensure greater rigor, two additional interviews were conducted. Out of the twelve experts participating in the study, eight were managers and four were university faculty members.

The quantitative phase consisted of two stages. In the first stage, confirmatory factor analysis was used to validate the findings of the qualitative phase, ensuring that the empirically derived data supported the validity of the models extracted from the qualitative phase for the main themes. The statistical population in this stage included all managers at various levels of public and governmental organizations in East Azerbaijan Province. Due to the lack of precise statistics on the number of managers at different levels, a detailed review of public and governmental organizations was conducted, resulting in the identification of 465 managers across different levels. The sample size was determined using the Krejcie and Morgan table, according to which a sample of 214 respondents was deemed appropriate for a population of 465.

In the second stage of the quantitative phase, the experts from the qualitative phase were used to determine the relationships among the main components. Sampling in this stage was relatively random. Data collection in this stage was carried out using a researcher-developed questionnaire based on the sub-themes. In the specialized items of the questionnaire, the level of agreement of each respondent was measured using a five-point Likert scale ranging from “strongly disagree” to “strongly agree.”

To assess the validity of the questionnaire, face validity was examined, and construct validity was evaluated and confirmed using confirmatory factor analysis. To assess reliability, Cronbach's alpha coefficients were calculated separately for each main theme, and the results are presented in Table 1. Based on the obtained Cronbach's alpha values for each main theme, the reliability of the questionnaire was confirmed.

Table 1. Cronbach's Alpha Coefficients for the Main Themes

Main Theme	Cronbach's Alpha
Strategic–Cognitive	0.982
Process-Oriented–Operational	0.985
Cultural–Social	0.917
Technology and Cybersecurity	0.953
Educational and Organizational Capacity Building	0.941
Evaluation and Feedback	0.906
Policy–Managerial Implementation	0.977

To analyze the quantitative data, confirmatory factor analysis was applied in the first stage, and in the second stage of the quantitative phase, interpretive structural modeling (ISM) was used to design the human resource management model in public organizations aligned with the principles of Society 5.0. Data collection in this phase was conducted using a pairwise comparison questionnaire based on the ISM methodology. Since ISM relies on expert judgment, the questionnaire in this phase was administered to the same twelve experts from the qualitative phase, who determined the influence of each variable (main theme) on the other variables in the model through pairwise comparisons.

Findings and Results

In this phase, thematic analysis was used to extract the indicators of the human resource management model in public organizations aligned with the principles of Society 5.0. According to the stages of thematic analysis, in the first stage, the collected datasets were examined, and in the subsequent stage, initial coding was conducted. In total, 249 initial codes were extracted from the interviews. The coding process was carried out using key-point-based coding.

The extracted initial codes, based on the key points of the interviews, were either directly considered as sub-themes or were grouped into sub-themes based on conceptual proximity. In the third stage, selective coding was performed, during which attention was given to how the various codes from the previous stage could form overarching themes. At this stage, preliminary themes were developed, totaling 42 initial themes. In other words, from the 249 initial codes, after removing repetitive and irrelevant codes during the selective coding stage, 42 initial sub-themes were obtained. In the fourth stage, the preliminary themes identified in Stage 3 were reviewed and refined, resulting in 34 finalized sub-themes. Finally, in the fifth stage, the main themes were identified, and the underlying concepts that the sub-themes addressed were determined. Table 2 presents the sub-themes and main themes of the study.

Table 2. Main and Sub-Themes of the Human Resource Management Model for Alignment with the Principles of Society 5.0

Dimension	Indicator	Frequency	Code
Strategic–Cognitive Dimensions	Digital human resource strategic framework	9	CoOF1
	Transformational leadership and change governance	7	CoOF2
	Digital roadmap for human resources	8	CoOF3
	Strategic alignment of human resources with Society 5.0	11	CoOF4
Process-Oriented–Operational Dimensions	Redesign of critical human resource processes	6	PrOF1
	Human resource data analytics and artificial intelligence	10	PrOF2
	Employee experience management	4	PrOF3
	Competency-based rewards, appraisal, and professional development	8	PrOF4
	Level of automation of human resource processes	10	PrOF5

Cultural–Social Dimensions	Organizational culture and technological acceptance	9	SoOF1
	Justice and inclusion	3	SoOF2
	Privacy protection and ethics in the use of technologies	6	SoOF3
	Participation and alignment with stakeholders	7	SoOF4
	Social resilience and employee well-being	2	SoOF5
Technology and Cybersecurity Dimensions	Data sustainability and security	9	TeOF1
	Systems architecture and data integration	5	TeOF2
	Predictive analytics capability and artificial intelligence	6	TeOF3
	Security and privacy protection	8	TeOF4
Educational and Organizational Capacity-Building Dimensions	Development of organizational learning capacities	9	TrOF1
	Change management and organizational readiness	5	TrOF2
	Speed of employees' digital learning	4	TrOF3
	Talent management and succession planning	8	TrOF4
	Empowerment and human capital development aligned with Society 5.0 requirements	9	TrOF5
Evaluation and Feedback	Intergenerational coherence and knowledge transfer	4	TrOF6
	Effectiveness evaluation and feedback to macro-level policymaking	3	AsOF1
	Citizen–employee satisfaction with digital human resource services	1	AsOF2
	Transparency and accountability in data-driven human resource decision-making	3	AsOF3
	Data-driven and competency-based performance evaluation	4	AsOF4
Policy–Managerial Implementation	Alignment with legal and ethical frameworks	2	PoOF1
	Legal–ethical–sustainability risk management	2	PoOF2
	Technological sustainability and energy consumption in human resource systems	6	PoOF3
	Socioeconomic sustainability of digital human resource projects	5	PoOF4
	Results-based financing and budget allocation	3	PoOF5
	Gradual and pilot-oriented implementation policies	2	PoOF6

In naming the main themes, the research literature was used based on the nature of the sub-themes. Accordingly, seven main themes—strategic–cognitive dimensions, process-oriented–operational dimensions, cultural–social dimensions, technology and cybersecurity dimensions, educational and organizational capacity-building dimensions, evaluation and feedback, and policy–managerial implementation—were identified as the core themes of the human resource management model in public organizations aligned with the principles of Society 5.0.

After naming the main themes through the sub-themes and forming thematic categorizations, confirmatory factor analysis was employed to ensure the adequacy of the models derived from empirical data. The results of the confirmatory factor analysis of the models extracted based on the themes are presented in Table 3.

Table 3. Results of Confirmatory Factor Analysis of the Main Themes of the Human Resource Management Model for Alignment with the Principles of Society 5.0

Dimension	Indicator	Factor Loading	t-value
Strategic–Cognitive Dimensions	Digital human resource strategic framework	0.97	19.59
	Transformational leadership and change governance	0.93	18.07
	Digital roadmap for human resources	0.98	19.61
	Strategic alignment of human resources with Society 5.0	0.95	18.68
Process-Oriented–Operational Dimensions	Redesign of critical human resource processes	0.96	18.99
	Human resource data analytics and artificial intelligence	0.96	19.05
	Employee experience management	0.97	19.29
	Competency-based rewards, appraisal, and professional development	0.98	19.66
	Level of automation of human resource processes	0.95	18.82
Cultural–Social Dimensions	Organizational culture and technological acceptance	0.93	18.09

Technology and Cybersecurity Dimensions	Justice and inclusion	0.96	18.98
	Privacy protection and ethics in the use of technologies	0.97	19.41
	Participation and alignment with stakeholders	0.94	18.15
	Social resilience and employee well-being	0.97	19.25
	Data sustainability and security	0.97	20.07
	Systems architecture and data integration	0.93	19.04
	Predictive analytics capability and artificial intelligence	0.91	18.99
	Security and privacy protection	0.96	19.10
Educational and Organizational Capacity-Building Dimensions	Development of organizational learning capacities	0.93	17.91
	Change management and organizational readiness	0.96	18.97
Evaluation and Feedback	Speed of employees' digital learning	0.97	19.48
	Talent management and succession planning	0.95	18.64
	Empowerment and human capital development aligned with Society 5.0 requirements	0.91	17.30
	Intergenerational coherence and knowledge transfer	0.98	19.65
	Effectiveness evaluation and feedback to macro-level policymaking	0.93	18.11
	Citizen–employee satisfaction with digital human resource services	0.96	19.23
	Transparency and accountability in data-driven human resource decision-making	0.98	19.63
	Data-driven and competency-based performance evaluation	0.99	20.08
Policy–Managerial Implementation	Alignment with legal and ethical frameworks	0.96	19.06
	Legal–ethical–sustainability risk management	0.93	18.11
	Technological sustainability and energy consumption in human resource systems	0.97	19.49
	Socioeconomic sustainability of digital human resource projects	0.94	18.48
	Results-based financing and budget allocation	0.97	19.42
	Gradual and pilot-oriented implementation policies	0.96	19.02

Each factor loading represents the relationship between the main component and its corresponding indicators. From an empirical perspective, factor loading values greater than 0.50 are considered acceptable and adequate. The results related to the factor loadings in Table 3 indicate that all factor loadings were calculated to be greater than 0.50, demonstrating appropriate relationships between the main components and their respective indicators.

From a statistical perspective, at the 95% confidence level, the t-value of each positive factor loading should be greater than 1.96. The results presented in Table 3 also show that the t-values of all factor loadings exceeded 1.96, indicating the statistical significance of all factor loadings in the target population.

In addition to factor loadings and their significance, confirmatory models must be evaluated based on model fit quality indices to ensure the adequacy of each confirmatory model according to empirical data. The results related to the quality of the confirmatory models based on various indices are presented in Table 4.

Table 4. Results of Confirmatory Model Fit Indices

Confirmatory Model (Main Theme)	Code	CMIN	GFI	AGFI	CFI	RMSEA	RMR
Strategic–Cognitive	CoOF	0.03	1.00	1.00	1.00	0.000	0.00064
Process–Oriented–Operational	PrOF	0.014	1.00	1.00	1.00	0.000	0.00043
Cultural–Social	SoOF	0.008	1.00	1.00	0.99	0.000	0.00042
Technology and Cybersecurity	TeOF	0.005	1.00	1.00	1.00	0.000	0.00014
Educational and Organizational Capacity-Building	TrOF	0.033	1.00	1.00	1.00	0.000	0.001
Evaluation and Feedback	AsOF	0.02	1.00	1.00	1.00	0.000	0.00042
Policy–Managerial Implementation	PoOF	0.01	1.00	1.00	1.00	0.000	0.00040

Various criteria are available for assessing the quality of confirmatory models, the most common of which include relative chi-square, goodness-of-fit index, adjusted goodness-of-fit index, comparative fit index, root mean square

error of approximation, and root mean square residual. The necessary conditions for acceptable quality in confirmatory models include a relative chi-square value less than 2, an RMSEA value less than 0.09, an RMR value less than 0.05, and GFI, AGFI, and CFI values greater than 0.90.

The results presented in Table 4 indicate that for all main components, the values met the criteria for acceptable confirmatory model quality across the various indices. Accordingly, it can be concluded that the quality of all confirmatory models has been supported by empirical data, and all main components of human resource management for alignment with the principles of Society 5.0 can be utilized in the target population for model development.

In this section, after confirming the main themes, the human resource management model in public organizations for alignment with the principles of Society 5.0 was designed using interpretive structural modeling (ISM). Accordingly, pairwise comparison questionnaires among the main themes were administered to the same experts from the qualitative phase. In the initial step, based on the majority opinion, the initial reachability matrix was constructed. The initial reachability matrix represents the direct relationships among the components of the human resource management model in public organizations for alignment with the principles of Society 5.0. The initial reachability matrix is presented in Table 5.

Table 5. Initial Reachability Matrix of the Human Resource Management Model for Alignment with the Principles of Society 5.0

	CoOF	PrOF	SoOF	TeOF	TrOF	AsOF	PoOF
CoOF	0	0	1	1	1	0	0
PrOF	0	0	0	0	0	1	1
SoOF	0	0	0	0	1	0	1
TeOF	0	1	0	0	1	0	1
TrOF	0	1	0	0	0	0	0
AsOF	0	0	0	0	0	0	0
PoOF	0	0	0	0	0	1	0

In the next step, the final reachability matrix was computed. For this purpose, the initial reachability matrix was first added to an identity matrix of the same order, and then indirect relationships were calculated. The results related to the final reachability matrix are presented in Table 6.

Table 6. Final Reachability Matrix of the Human Resource Management Model for Alignment with the Principles of Society 5.0

	CoOF	PrOF	SoOF	TeOF	TrOF	AsOF	PoOF
CoOF	1	1*	1	1	1	1*	1*
PrOF	0	1	0	0	0	1	1
SoOF	0	1*	1	0	1	1*	1
TeOF	0	1	0	1	1	1*	1
TrOF	0	1	0	0	1	1*	1*
AsOF	0	0	0	0	0	1	0
PoOF	0	0	0	0	0	1	1

The final reachability matrix represents both direct and indirect relationships. The marked entries indicate indirect relationships in the final reachability matrix.

In the next step, the final reachability matrix was partitioned into different levels. At this stage, the variables were first divided into reachability and antecedent sets, and based on the intersection of these two sets, the output of each level was determined. The summarized results of the level partitioning are presented in Table 7.

Table 7. Final Results of Level Partitioning of the Main Themes of the Human Resource Management Model in Public Organizations for Alignment with the Principles of Society 5.0

Level	Main Theme	Code	Reachability Set	Antecedent Set	Intersection	Output
First	Evaluation and Feedback	AsOF	AsOF	CoOF, PrOF, SoOF, TeOF, TrOF, AsOF, PoOF	AsOF	AsOF
Second	Policy–Managerial Implementation	PoOF	PoOF	CoOF, PrOF, SoOF, TeOF, TrOF, PoOF	PoOF	PoOF
Third	Process–Oriented–Operational	PrOF	PrOF	CoOF, PrOF, SoOF, TeOF, TrOF	PrOF	PrOF
Fourth	Educational and Organizational Capacity–Building	TrOF	TrOF	CoOF, SoOF, TeOF, TrOF	TrOF	TrOF
Fifth	Cultural–Social	SoOF	SoOF	CoOF, SoOF	SoOF	SoOF
Fifth	Technology and Cybersecurity	TeOF	TeOF	CoOF, TeOF	TeOF	TeOF
Sixth	Strategic–Cognitive	CoOF	CoOF	CoOF	CoOF	CoOF

Based on the results in Table 7, the output of the first level is the main component of evaluation and feedback in the human resource management model in public organizations for alignment with the principles of Society 5.0, which is positioned at the highest level of the model. The output of the second level is the main component of policy–managerial implementation, which is positioned below evaluation and feedback in the model. The output of the third level is the process-oriented–operational component. The output of the fourth level is the main component of educational and organizational capacity-building, which is positioned below the process-oriented–operational component. The output of the fifth level includes two main components, cultural–social and technology and cybersecurity. Finally, the output of the sixth level, which represents the last level of the human resource management model in public organizations for alignment with the principles of Society 5.0, is the strategic–cognitive component, which is positioned at the lowest level of the model and is considered the most influential main component of the human resource management model in public organizations for alignment with the principles of Society 5.0. In the final step, a diagram is drawn based on the levels of the variables after removing indirect relationships, representing the human resource management model in public organizations for alignment with the principles of Society 5.0. This model is illustrated in Figure 1. In Figure 1, as one moves upward from the bottom of the diagram, the degree of influence of the components decreases, while their degree of dependence increases.

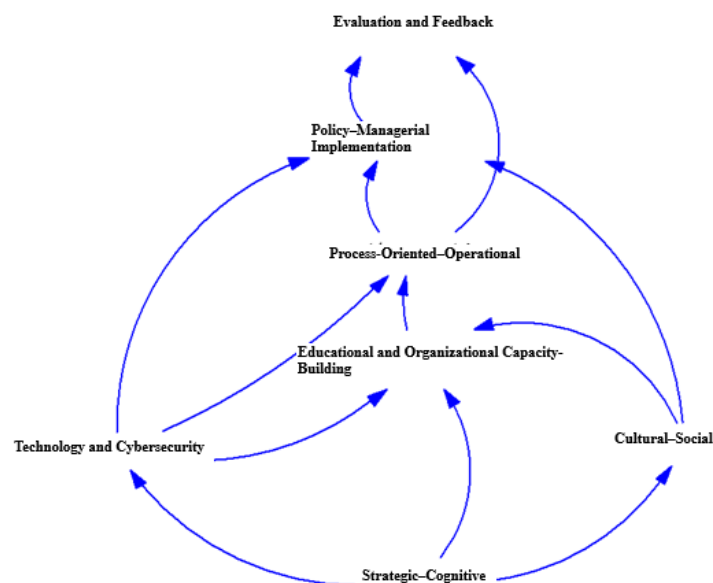


Figure 1. Final Model of the Study

The results of the interpretive structural modeling shown in Figure 1 indicate that the foundation of human resource management in public organizations for alignment with the principles of Society 5.0 lies in the strategic–cognitive dimensions. The strategic–cognitive dimensions, by considering the digital human resource strategic framework, transformational leadership and change governance, the digital human resource roadmap, and the strategic alignment of human resources with Society 5.0, define the pathway for aligning human resource management with the principles of Society 5.0 in public organizations. As the most influential main component of the alignment model, the strategic–cognitive dimensions exert a direct influence on the technology and cybersecurity dimensions and the cultural–social dimensions at the fifth level. The technology and cybersecurity dimensions at the fifth level, by considering the digital human resource strategic framework, can address systems architecture and data integration, security and privacy protection, and predictive analytics and artificial intelligence capabilities, thereby exerting a positive and direct effect on educational and organizational capacity-building at the fourth level, process-oriented–operational dimensions at the third level, and policy–managerial implementation at the second level. In essence, the technology and cybersecurity dimensions provide the appropriate technical infrastructure for each of the higher-level components and thus have a direct impact on them. In parallel, at the fifth level, the cultural–social main component emphasizes the cultural and social aspects of aligning human resource management with the principles of Society 5.0 in public organizations. This component directly affects educational and organizational capacity-building through organizational culture, technological acceptance, and participation and alignment with stakeholders. The cultural–social dimensions are also capable of directly facilitating policy–managerial implementation. At the fourth level, educational and organizational capacity-building, through the development of organizational learning capacities and the empowerment and development of human capital in line with Society 5.0 requirements, contributes to the redesign of critical human resource processes and enhances the process-oriented–operational dimensions at the third level. The process-oriented–operational dimensions at the third level, through human resource data analytics and artificial intelligence, as well as competency-based rewards, appraisal, and professional development, support policy–managerial implementation at the second level and thus have a direct effect on it. Moreover, the process-oriented–operational dimensions, through human resource data analytics and automation of human resource processes, contribute to evaluation and feedback. At the second level, policy–managerial implementation, in turn, necessitates evaluation and feedback regarding the alignment of human resource management with the principles of Society 5.0. In essence, evaluation and feedback at the first level are recognized as the outcome of aligning human resource management with the principles of Society 5.0 and enable the results of alignment to be assessed, reviewed, and fed back so that, if necessary, the required adjustments can be made to further align human resource management with the principles of Society 5.0.

Discussion and Conclusion

The purpose of this study was to design and validate a comprehensive human resource management (HRM) model for public organizations aligned with the principles of Society 5.0. The findings provide strong empirical support for a multidimensional and hierarchical model in which strategic–cognitive foundations act as the primary drivers, while evaluation and feedback emerge as the ultimate outcomes of alignment. This structure reflects the core logic of Society 5.0, which emphasizes human-centric, value-driven, and socially embedded technological transformation rather than purely efficiency-oriented digitalization (1-3).

One of the most significant findings of this study is the identification of the strategic–cognitive dimension as the most influential component of HRM alignment in public organizations. This dimension, encompassing digital HR strategic frameworks, transformational leadership, digital roadmaps, and strategic alignment with Society 5.0, forms the foundation upon which all other dimensions depend. This result is consistent with prior research emphasizing that successful digital and human-centric transformation requires clear strategic intent, cognitive readiness, and leadership commitment (6, 9, 16). In the absence of a coherent strategic–cognitive orientation, technological investments and HR innovations risk becoming fragmented and misaligned with broader societal goals.

The prominence of transformational leadership and change governance within the strategic–cognitive dimension further underscores the centrality of leadership in navigating the transition toward Society 5.0. Previous studies have shown that leadership behaviors that encourage learning, empowerment, and experimentation are essential in AI-driven and human-centric environments (21, 22). In public organizations, where hierarchical and rule-bound structures are common, the role of leadership becomes even more critical in overcoming resistance to change and fostering trust in new digital HR practices. The findings of this study align with this literature by positioning leadership not as a peripheral factor but as a core strategic driver of HRM alignment.

At the fifth level of the model, the cultural–social and technology and cybersecurity dimensions emerge as parallel and mutually reinforcing enablers. The results indicate that technological infrastructure alone is insufficient to achieve alignment with Society 5.0 unless it is accompanied by supportive organizational culture, social inclusion, ethical awareness, and stakeholder participation. This finding resonates with socio-technical perspectives that emphasize the co-evolution of technology and social systems in Industry 5.0 and Society 5.0 transitions (10–12). It also supports earlier arguments that digital transformation initiatives fail when cultural readiness and social legitimacy are overlooked (23, 25).

The technology and cybersecurity dimension plays a critical infrastructural role in the model by enabling advanced analytics, AI-driven HR processes, data integration, and secure digital platforms. The strong interconnections between this dimension and higher-level components such as organizational capacity-building and process-oriented HRM confirm prior findings that HR analytics and AI can significantly enhance decision quality, efficiency, and strategic alignment when properly governed (15, 17, 18). At the same time, the explicit inclusion of cybersecurity and privacy protection reflects growing concerns about ethical risks, data misuse, and trust in AI systems, particularly in public-sector contexts (5, 20).

Parallel to the technological dimension, the cultural–social dimension emphasizes organizational culture, justice, inclusion, social resilience, and employee well-being. The model demonstrates that this dimension directly influences organizational learning and capacity-building, highlighting the importance of human-centric values in enabling sustainable HR transformation. This finding is consistent with studies that link employee well-being, participation, and social trust to innovation capacity and long-term organizational performance (24, 26). In the context of Society 5.0, where social well-being is a core objective, the integration of cultural and social considerations into HRM is not optional but essential.

At the fourth level, the educational and organizational capacity-building dimension acts as a bridge between foundational enablers and operational execution. The results show that organizational learning, change readiness, talent management, and human capital development aligned with Society 5.0 requirements are key mechanisms through which strategic intent and cultural–technological foundations are translated into operational capabilities. This aligns with prior research emphasizing lifelong learning, reskilling, and intergenerational knowledge transfer

as critical success factors in human-centric digital societies (11, 27, 30). For public organizations, which often face skill gaps and rigid training systems, this finding underscores the urgency of rethinking capacity-building strategies.

The process-oriented–operational dimension, positioned at the third level, reflects the practical implementation of HRM alignment through redesigned HR processes, data-driven decision-making, automation, and competency-based systems. The study's findings indicate that this dimension directly supports policy–managerial implementation and contributes to effective evaluation and feedback. This is consistent with the literature on digital HRM, which highlights that operational excellence and analytics-driven processes are necessary to realize the strategic benefits of digital transformation (8, 9, 29). Importantly, the model suggests that operational HRM does not function independently but is shaped by higher-level strategic, cultural, and learning-oriented dimensions.

At the second level, policy–managerial implementation emerges as a critical intermediary between operational HRM and ultimate outcomes. The results show that effective implementation of HR-related policies, supported by legal, ethical, and sustainability considerations, is essential for translating HRM alignment into tangible organizational outcomes. This finding aligns with studies on public-sector readiness for Society 5.0, which emphasize the importance of regulatory coherence, institutional support, and governance mechanisms (13, 14). Without such policy alignment, even well-designed HRM systems may fail to achieve their intended impact.

The highest level of the model is occupied by evaluation and feedback, which represents the final outcome of HRM alignment with Society 5.0. The positioning of this dimension highlights that evaluation is not merely a control mechanism but a learning-oriented process that informs continuous improvement and strategic recalibration. This result is consistent with human-centric governance perspectives that emphasize transparency, accountability, and evidence-based policymaking (3, 23). By placing evaluation and feedback at the top of the model, the study underscores the iterative nature of alignment, where outcomes are assessed and fed back into the system to refine strategies and practices.

Overall, the findings of this study contribute to the literature by offering an empirically validated, integrative HRM model tailored to public organizations operating in the context of Society 5.0. The model extends existing research by explicitly capturing the hierarchical and interdependent relationships among strategic, technological, cultural, learning-oriented, operational, policy, and evaluative dimensions. In doing so, it responds to calls for more holistic and context-sensitive frameworks that move beyond isolated practices and conceptual discussions (6, 10, 16). The results suggest that alignment with Society 5.0 is not a linear or technology-driven process but a systemic transformation rooted in strategic cognition and human-centric values.

Despite its contributions, this study has several limitations. First, the empirical context is limited to public organizations within a specific regional and institutional setting, which may constrain the generalizability of the findings to other countries or governance systems. Second, although the mixed-methods design strengthens validity, the quantitative phase relies on self-reported data, which may be subject to perceptual bias. Third, the interpretive structural modeling approach captures hierarchical relationships but does not account for dynamic changes over time.

Future research could replicate and test the proposed model in different national and institutional contexts to examine its cross-cultural robustness. Longitudinal studies are also recommended to explore how HRM alignment with Society 5.0 evolves over time and in response to policy or technological changes. Additionally, future studies may integrate system dynamics or agent-based modeling to capture the nonlinear and adaptive nature of HRM transformation in public organizations.

For practitioners and policymakers, the findings suggest that efforts to align HRM with Society 5.0 should begin with strengthening strategic–cognitive foundations rather than focusing solely on technology adoption. Public managers should invest in leadership development, organizational learning, and cultural readiness alongside digital infrastructure. Moreover, establishing robust evaluation and feedback mechanisms can ensure continuous learning and adaptive improvement, enabling public organizations to sustain human-centric and socially responsive transformation.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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