# Designing an Adoption Model for Electronic Human Resource Management in Service-Oriented Organizations: A Case Study of Tehran Municipality

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## Abstract

This study aims to develop an adoption model tailored for service-oriented organizations and then evaluate its effectiveness within the specific context of Tehran Municipality, Iran's foremost service-oriented institution. Utilizing a mixed-method research approach integrating qualitative and quantitative methodologies, this study delineated the dimensions, categories, and indicators pertinent to the adoption of Electronic Human Resource Management (EHRM) systems in service-oriented organizations. Qualitative methodologies were employed to identify and develop the adoption model, which was subsequently evaluated within Tehran Municipality using a quantitative approach. In the qualitative segment of this study, in-depth interviews were conducted using a snowball sampling technique until theoretical saturation was achieved. For the quantitative phase, a sample of 310 experts affiliated with Tehran Municipality's EHRM system was surveyed. Structural equation modeling and Smart PLS 4.0 software were employed for data analysis. Ultimately, this research extracted five dimensions,

14 categories, and 94 indicators for the proposed adoption model. Notably, experts accorded the highest priority to the technological dimension in the adoption model, with specific emphasis on "adaptive architecture, security and privacy of employees, trialability and reliability, organizational citizenship behavior, organizational dynamic capabilities, digital Leadership Policy and Actions, cloud computing, etc…", as pivotal factors in EHRM adoption. The organizational dimension assumed the second-highest priority, while the individual dimension was assigned a third-place ranking. Micro and macro-environmental factors followed in subsequent priority order.

**Keywords:** Adoption, Technology Adoption Model, EHRM

# Introduction

Electronic Human Resource Management (EHRM) represents an interdisciplinary field of scientific inquiry concerned with the convergence of information technology and human resource management. EHRM is characterized as a dynamic iteration of human resource management, introducing digital solutions to facilitate the implementation of strategies, policies, and human resource activities in the contemporary era (Ruel & Bondarouk, 2014). Bondarouk et al. reviewed the research literature of seven studies between 2007 and 2015. They showed that the extant literature reveals a conspicuous lacuna in the comprehensive understanding of the determinants and consequences of EHRM adoption (Bondarouk et al., 2017). Moreover, previous research predominantly emphasizes the constructs of "success" and "acceptance" instead of "adoption" at various stages of system development without contextualizing the organization's level of maturity, such as operational, relational, or transformational stages.

Efforts by Davis, Tornatzky & Fleischer, Yusliza Mohd. Yusoff, Mangwani & Mampilo, and Shahreki have made substantial contributions to the adoption of EHRM. Nevertheless, existing models have often overlooked organizational mission and type and pay little attention to technological categories, because management and human resources experts primarily develop those. Prior research has proven insufficient to offer a comprehensive model intending to guide human resource planners in setting standards for their future workforce, fostering the development of cognitive and behavioral traits among human resources personnel, and enhancing organizational managerial capabilities.

Furthermore, the resulting EHRM adoption model equips senior managers to orchestrate technological advancements, resource allocation, and organizational process refinement. It aids in selecting a proficient digital leader in human resources, mitigating organizational resistance, and furnishing recommendations to IT and HR department colleagues.

While most prior research in the field has been quantitative, focusing on factors influencing EHRM adoption, there exists a pressing need for comprehensive mixed-method research to develop a specific model for service-oriented organizations and validate it quantitatively. Tehran Municipality serves as an ideal testbed, given its extensive implementation of the EHRM system in its subsidiary organizations.

The senior managers of the Tehran municipality aim to gain insight into the variables influencing the adoption of EHRM. This information will enable them to anticipate future problems in implementing and improving the system, as well as mitigate any existing resistance within the organization toward its deployment. This organization aims to strategically incorporate the findings of the current research into the Kick-off Meeting (KOM) and actively manage the identified elements that influence adoption on an ongoing basis.

Hence, it is imperative to develop a model for the implementation of EHRM in a service-oriented business. This research aims to address the aforementioned requirements using a mixed methodology. The primary research questions underpinning this study are: (1) What categories comprise the adoption of EHRM in service-oriented organizations, and what is their prioritization? (2) What value-creation consequences emanate from these adoption categories, and what moderating variable influences that? (3) How does the adoption model perform when tested within Tehran Municipality, a service-oriented entity focused on 50 deployment points of EHRM?

## Literature Review

Theoretical foundations: Extensive research has examined the theories and models about acceptability and the adoption of technology. Taherdoost (2017) compiled a comprehensive chart encompassing all the established models and frameworks, with concise explanations for each. He asserts that multiple models and frameworks have been developed to elucidate the use of novel technologies by users. These models incorporate various factors that can influence user acceptance, such as the technology acceptance model (TAM), theory of planned behavior, diffusion of innovations theory, theory of reasoned action, model of PC utilization, motivational model, unified theory of acceptance, and use of technology, social cognitive theory, and other studies that have utilized these established frameworks for their research or have integrated previous models and introduced new components to their developed models for their studies. In the field of social psychology, Davis (1989) introduced TOM's model, which is widely regarded as one of the most significant models for

understanding technological acceptance. This theoretical model continues to be actively utilized by researchers. The "theory of rational action" and the "theory of planned behavior" are fundamental theories in social psychology that have a significant impact on the development of TOM's model. According to this concept, an individual's decision to utilize technology is influenced by two specific behavioral beliefs: "perceived usefulness" and "perceived ease of use" (Venkatesh et al., 2003). In 1990, Tornatzky & Fleischer introduced an additional model for technology adoption. Amiri et al. (2016) introduced a framework comprising technology, organization, and environment to examine the adoption of new technologies. They asserted that the decision to embrace these technologies is influenced by organizational factors, which pertain to the characteristics and preparedness of the organization. Additionally, environmental factors, such as competitive pressure and business partner coercion, play a role in this decision-making process. Technological factors, encompassing both existing and emerging technologies within and outside the organization, are also considered. Yusliza Mohd et al. introduced a definition of the adoption model of EHRM after providing the aforementioned broad models to the scholarly community. The researchers successfully synthesized and showcased a theoretical framework for understanding the adoption of EHRM. They achieved this by integrating Davis' Technology Acceptance Model (TAM) from 1986 and Ulrich's HR Role Model from 1997 (Yusliza Mohd et al., 2010). However, Magaro et al. said in their study titled "EHRM: A Proposed Theory Based on the Social Cognitive Theory (SCT)" that the idea of social cognition is widely accepted in the field of behavior. They ultimately unveiled their model, comprising three distinct steps. The initial phase of the model illustrates the elements and determinants that support the fields influencing the adoption of EHRM. The second phase demonstrates further behaviors following adoption, which culminate in the implementation of human resource management methods (Magaro et al., 2019). Shahreki et al. employed the technology acceptance model (TAM) as well. The study by Shahreki et al. (2020) demonstrated a favorable correlation between all structures. Bondarouk and Furtmueller have proposed a categorization of elements that influence the adoption of EHRM. Table No. 1 consists of three sections that encompass technological, organizational, and people (TOP) elements:

**Table 1**

*TOP factors (Bondarouk et al., 2017)*

| Technology factors | Organizational factors | People factors |
|---|---|---|
| Current IT architecture | Demographics knowledge, skills | Employee and management attitudes |
| Digitalizing HR data | Project management | Employee demographics |
| Technology project management | Organizational policies and practices | Employee and management skills versus training needs |
| | Resources | Employee and management involvement |
| | | Communication qualities |
| | | Organizational culture and leadership |
| | | Psychological factors |

Research background: In their research, Burbach and Royle identified several key adoption factors that contribute to successful project management. These factors include: organizing the project team and employing a project management hero, effectively managing change and preventing resistance to change, ensuring adequate resources (such as money, time, and personnel), assessing the organization's readiness for change, promoting effective communication and stakeholder engagement, aligning the organization's vision and support strategies with human resources, evaluating the organization's readiness to re-engineer business processes, and fostering user engagement throughout the implementation and operation phases (Burbach & Royle, 2014). Magoro and Phahlane assert that the social cognition theory holds significant adoption as a prominent paradigm in the realm of behavior. This theory can elucidate the factors contributing to the adoption of EHRM and the subsequent behaviors exhibited by employees. Mr. Magoro and his colleagues ultimately provided a three-step model that encompasses both pre-adoption and post-adoption behavioral characteristics. The researchers identified several factors that were considered in their study, including organizational and national culture, staff IT competence, top management support, self-efficacy, age, attitudes and beliefs, gender, perception, personal qualities (personal innovativeness), cognitive abilities, emotional factors, task difficulty, and IT knowledge (Magaro et al., 2019).

De Alwis et al. categorize adoption factors into two primary groups: internal environmental factors and external environmental influences. The key external influencing variables, according to their beliefs, include government, policies and support, social effects, industry, and market structure. De Alwis identified and ranked five internal environmental factors that influence the adoption of EHRM. These factors include management expectations, organizational dynamic capabilities, organization structure, management commitment and corporate culture, and the socio-demographic characteristics of the CEO.

Iliyas, S. Mohamed conducted a study on the effects of implementing EHRM on the human resource management function in 30 major firms across various industries. Ilyas demonstrated in this study that several factors play a role in the implementation of EHRM. These factors include employee attitudes, which have a 100% impact, organizational characteristics and culture, which have a 67% impact, collaboration between HR and IT units, which has a 60% impact, top management commitment, which has a 43% impact, and individual IT skills, which have a 32% impact. The research also addressed the factors that impact the performance of the EHRM system, including the suitability of the installed system, the company's IT infrastructure, and the correctness of the received data (Iliyas, 2019). According to Subhashree et al. (2020), the adoption of EHRM in organizations in India is mostly influenced by the organizational IT infrastructure and the skills of the people in IT. Shahreki et al. conducted a study to examine the correlation between the clarity of goals in

EHRM, social impact, perceived utility, user satisfaction, user support, and perceived ease of use, facilitating conditions for users, and the attitude towards utilizing EHRM.

To conduct their research, the researchers chose a sample of 167 human resource units from Fortune Global 500 firms in Malaysia. They picked these units based on specific parameters. To demonstrate these connections, Shahreki et al. employed the technology acceptance model (TAM). Shahreki determined that all structures have a positive correlation with one another. Within the realm of TOE (Technology-Organization-Environment) aspects, the findings from the data analysis indicate that the adoption of EHRM is significantly influenced by factors such as IT infrastructure, IT competency, top management support, and normative pressure (Alam, & Islam, 2021). Vui et al. have examined the role of factors such as social influences, facilitating conditions, perceived ease of use, and perceived utility on the desire to adopt electronic human resources management (Vui et al., 2022). Sharma et al. demonstrated that employee attitude is affected by factors such as employee perks and user-friendliness, whereas employer attitude is influenced by employer benefits, IT infrastructure, and cost. Furthermore, factors such as the dimensions and nature of an organization, such as its scale and corporate structure, have a crucial role in determining the choices made about the incorporation of technology in HRM practices (Sharma, & Ahmad, 2022).

It is important to note that there has been a lack of extensive research on the factors that influence the adoption of EHRM. Ms. Bondarouk, Mr. Ruel, Yusliza Mohd, Shahreki, and other individuals have exclusively examined a systematic review of the research endeavors conducted by others, as well as a concise overview of the constituent elements of earlier investigations. Furthermore, inside a service-oriented organization, there is no comprehensive research about EHRM adoption factors, and the researchers did not focus much on technology components. Additionally, they did not use qualitative research to define the model and enhance the theoretical depth of EHRM adoption. The aforementioned studies are inadequate to provide priority to the aspects of adoption, making it challenging for companies to effectively formulate a strategy for adoption control without this prioritization. Furthermore, the research backdrop fails to take into account the moderating variable and the repercussions of adoption.

## Methodology

The current study employs a "mixed-method" research design, utilizing both qualitative and quantitative techniques to delineate the dimensions, categories, and indicators for EHRM adoption within service-oriented organizations. Qualitative methodologies were employed initially to identify the adoption model, followed by an evaluation of the model within Tehran Municipality using a quantitative approach. The research adheres to a pragmatic paradigm, employing a deductive method and utilizing a phenomenological strategy based on participants' experiences to identify recurring themes.

In the qualitative phase, data collection was conducted through in-depth interviews with experts, and thematic analysis was utilized to describe and rationalize the deployment of EHRM adoption in service-oriented organizations. Subsequently, a quantitative and empiricist methodology was employed to assess five dimensions and 14 components derived from the adoption model within the Tehran Municipal Organization.

To accomplish this objective, seven hypotheses were derived from the qualitative stage model, formulated as causal statements, and subjected to hypothesis testing. Structural equation modeling and Smart PLS version 4 software were used for data analysis, with confirmatory tetrad analysis employed to ascertain the direction of associations in the study.

The qualitative component utilized semi-structured interviews to gather data from service-oriented businesses with prior experience in EHRM. Snowball sampling was used to select samples, which included managers and specialists in human resources and information technology, as well as managers of pioneer and service-oriented organizations familiar with EHRM concepts.

Theoretical sufficiency was reached when no new data could be added to the EHRM adoption titles, achieving theoretical saturation by the 18th interview. The qualitative phase involved consultation with university professors and human resources experts to validate the model.

The reliability of the qualitative part was assessed using the agreement between two coders, while the Analytical Hierarchy Process (AHP) method was employed to prioritize and determine each factor's importance.

In the quantitative stage, the statistical population comprised senior, middle managers, and experts related to Tehran Municipality's EHRM system, with a sample of 170 individuals selected using random sampling. Composite reliability and convergent validity index were used to confirm the reliability and validity of the measurement tool, respectively, both of which were approved.

**Data Gathering and Analysis**

During the qualitative data analysis, the researcher explored the research background and integrated the perspectives of Bondarouk & Furtmueller (2017) within the "TOP" framework and Tornatzky and Fleischer (1990) within the TOE framework. This synthesis revealed that various frameworks, including technologies, individuals, organizations, and environments, contribute to the adoption of EHRM.

In terms of the demographic profile of experts in the qualitative interviews, it was found that 8 out of 13 managers from pioneer and service-oriented organizations, who possessed

experience in human resources or information technology and were acquainted with EHRM concepts, held doctoral degrees. Additionally, five individuals held master's degrees, and all had 10 to 25 years of experience.

Moreover, among the eight professionals specializing in human resources and information technology, one individual held a doctorate, three were Ph.D. candidates, and four held master's degrees. The group comprised three women and five men.

In total, 665 primary codes were identified from the interview transcripts. The process of code identification followed an iterative and recursive approach, involving the extraction of fundamental and overarching concepts through a thorough examination of the research subject's context and orientation.

Based on the delineated coding process, samples of the code, subcategories, categories, and themes are presented in Table. 2 for illustrative purposes.

**Table 2**

*Part of the analysis results (themes, main categories, subcategories, codes)*

| Themes | category | subcategories | codes |
|---|---|---|---|
| **Individual factors** | Subjective norms of employees | • Good habits and positive mentality of people towards the usefulness of the EHRM system<br>• Suitability of people's moods and interests in working with the EHRM system<br>• Employees' and managers' mentality of e-work<br>• Cultural commitment to digital transformation values | □□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□ |
| | The accumulated experience of employees | • Employees' satisfaction with existing (previous) systems<br>• The pleasant experience and the trust of the human resources department in the team setting up the previous systems<br>• Inconvenience and insecurity of users in working with previous systems<br>• Engaging users with system details and their participation during development and deployment<br>• The digital experience of employees in their personal life | □□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□ |

| | | | |
|---|---|---|---|
| **Organizational factors** | | Organizational citizenship behavior | • Sense of commitment; Working conscience, and thinking of doing things correctly and optimally<br>• The sense of civic virtue and the idea of improving the brand of the organization (better visibility of the organization)<br>• The thought of establishing justice and equality in the service through the expansion of the system<br>• Thinking of speeding up other people's work and creating comfort for others | □□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□<br>□□□□□□□□□□<br>□□<br>□□□□□□ |
| | | Individual competencies | • Communication skills and communication quality of the human resources department and software deployment department<br>• Technical competencies and the level of familiarity of the organization's employees with technology<br>• The innovative spirit of employees<br>• Responsibility of human resources employees<br>• The skill of persuasion and building trust in users by the human resources department | □□□□□□□□□□<br>□□<br>□□□□□□□□□□<br>□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□<br>□□□□□□□□□□<br>□□<br>□□□□□□□□□□<br>□□□<br>□□□□□□ |
| | | brand of the human resources department | • The prevailing atmosphere in the organization regarding the human resources department<br>• Being a supporter of the human resources unit and not an obstacle<br>• The justification and acceptability of management and deployment by the human resources department<br>• Maturity of the organization's human resources department | □□□□□□□□□□<br>□□□<br>□□□□□□□□□□<br>□□<br>–□□□□□□□□□ |
| | | Digital leadership policy and actions | • Support of organization leaders for the implementation of EHRM<br>• Drawing clear strategies, goals, and plans in the necessity of having an HRM system<br>• Orchestrating and maintaining compatibility between different organization approaches in digitalization and attracting the cooperation of other departments for integration.<br>• Vision creation, awareness, and excitement in the people of the organization<br>• Estimation of current and future technologies | □□□□□□□□□□<br>□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□<br>□□□□□□□□□□<br>□□□<br>□□□□□□□□□□<br>□□□<br>□□□□□□□□□□<br>□□□□□<br>□□□□□□□□□□<br>□□□<br>□□□□□□□□□ |
| | | Organizational dynamic capabilities | • Learned organization; Agile and committed to digital transformation<br>• Organizations ready to attract electronic services<br>• The organization is prepared to attract opportunities and create internal changes to align with opportunities<br>• Alignment of individual goals with organizational goals<br>• simultaneous changes in the rules; Processes, services, technology, and leadership institution | □□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□□□□□□□<br>□□□□<br>□□□□□□□□□□<br>□□□□□<br>□□□□□□□□□□<br>□□<br>□□□□□□□□□□<br>□□□<br>□□□□□□□□□□<br>□□□□ |

During the quantitative data analysis phase, descriptive statistics revealed that among the 174 managers and employees of Tehran Municipality surveyed, 66.5% were male and 33.5% were female. Out of the total sample, 17.9% held a Ph.D., 47.4% possessed a master's degree, and 34.7% had a professional degree.

The initial focus of the study was on assessing the dependability of the measurement tool. According to Azar et al. (2012), composite reliability is considered a more robust measure compared to Cronbach's alpha. The composite reliability value for the measurement models surpassed 0.7, indicating adequate dependability.

To validate the measurement tool, a convergent validity index was employed. Convergent validity necessitates that the indicators of each concept exhibit a moderate level of correlation with each other. As proposed by Fornell and Larcker, achieving an Average Variance Extracted (AVE) above 0.5 indicates satisfactory validity, suggesting that a latent variable can explain over 50% of the variation in its indicators (Azar et al., 2012).

Upon analyzing the convergent validity results, it was found that the average variance of the variables related to strategic practices in human resources management, organizational citizenship behavior, individual competencies, and organizational dynamic skills fell below 0.5. Consequently, reagents with factor loads below the threshold were eliminated. Specifically, variables such as strategic practices in human resources management (Q93), organizational citizenship behavior (Q43), individual competencies (Q51), and dynamic organizational capacities (Q38) were excluded. After the removal of unnecessary variables, the convergent validity and composite reliability were reaffirmed.

## Results

Findings of the qualitative phase: The qualitative phase reveals the research findings of the research, which include the development and explanation of the final model called the "Adoption model of EHRM in service-oriented organizations" (Figure 1). Additionally, a summary of the categories and themes is provided. This approach has distinct dimensions, including individual, technological, organizational, microenvironment, and macro environment, which collectively encompass 14 areas that influence adoption. The diagram depicted in Figure 1 illustrates that the adoption of EHRM leads to five value-creation consequences. The strategic practices in the organization's management as moderating variables affect the intensity of the consequences of adoption. The compiled model's validity was assessed and verified by a questionnaire, with the active involvement of 8 university professors and specialists. The subsequent model serves as the foundation for formulating the next phase hypothesizes:

**Figure 1**

*Adoption model of EHRM*
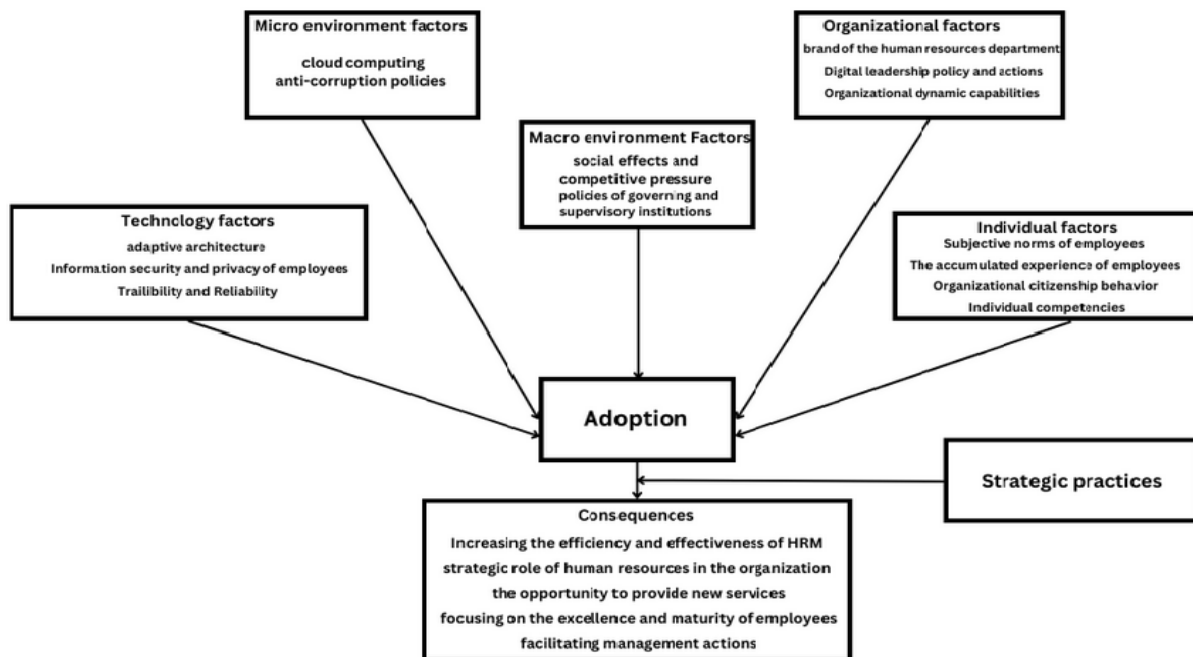
Individual Factors: The individual dimension encompasses "subjective norms of employees", which pertain to the perceived cultural and societal pressures that influence an individual's decision to engage in or abstain from certain actions. These norms are typically shaped during childhood and are influenced by close relationships. Ruel and Bondarouk (2014) previously highlighted the significance of managers' and employees' attitudes and mindsets as influential variables in the adoption and implementation of EHRM. The subsequent classification pertains to the "cumulative experience of staff members". The collective cognitive experiences of individuals constitute a shared "attitude," which is a cognitive process. Typically, habits have transformed into ideas and established themselves in our conscious brains. Another discovery made by Burbach and Royle (2014) is that the employee's prior experience with different systems and their recollection of encountering similar systems are valuable. They stressed the importance of engaging users from the initial implementation phase to the full deployment of the system. "Organizational citizenship behavior" is a distinct category within the individual dimension, encompassing the voluntary actions of employees that are not required as part of their official responsibilities. These activities are not explicitly endorsed by the organization's formal reward system but have a positive impact on the overall effectiveness of the organization. Lather et al. (2019) examined this particular category. The third category within the individual dimension is referred to as "individual competencies". Assume that the employees lack adequate behavioral abilities and expertise regarding information technology. Under such circumstances, these personnel may likely exhibit opposition towards the implementation of the systems and refrain from utilizing them, as elucidated by Subhashree and Vasantha (2020).

Technology Factors: The technology dimension encompasses the concept of "adaptive architecture", which refers to a system's ability to modify individual components without negatively impacting other software elements. Additionally, an adaptive architecture should effectively handle user and environmental changes, while minimizing the associated costs. Ruel and Bondarouk (2014) have introduced information technology architecture as a novel aspect influencing the deployment of EHRM for the first time. The second category mentioned by Anjum is "Information security and privacy of employees". Anjum highlights that one of the issues in this category is the need to maintain confidentiality of information (Anjum, 2017). When the server is hacked, the personal and private information of the organization's people would be accessible which is entered and documented in the EHRM. The last category pertains to the "trialability and reliability" of the subject. This key determinant for the adoption of the EHRM system includes the capacity to evaluate EHRM in its beta iteration as a Minimum Viable Product (MVP), offering a demonstration of its functionalities before deploying the alpha version and conducting a pilot on a smaller, controlled scale. By engaging in trial and error and making future improvements and modifications to the alpha version, user happiness can be greatly enhanced. Iliyas (2020) examined the influence of this factor on a sample of 30 prominent organizations across several industries.

Organizational Factors: The initial category in this dimension pertains to the "brand of the human resources department". The human resources department within the firm demonstrates effectiveness in adopting EHRM when it exhibits a helpful attitude, avoids an aggressive approach, and is not only acknowledged as a leader in digital transformation but also maintains a favorable reputation among employees. Thus, Kossek et al. (1994) highlighted the significance of factors such as effective communication between the human resources department and other departments, as well as the establishment of outstanding collaboration among different organizational units during the deployment of EHRM. The subsequent category is "Digital Leadership Policy and Actions." In numerous instances, the prosperity of prominent corporations hinges on the adoption of a digital leadership approach in the modern day, despite limited resources. (Klein, 2020). "Organizational dynamic capabilities" form the third category within the organizational dimension. Organizational dynamic capabilities constitute a spectrum of capabilities that serve as the bedrock for performance enhancement and the creation of competitive advantage for the organization, a concept previously addressed by Seyed Naqvi et al. (2021). De Alwis et al. (2019) have made a clear reference to organizational dynamics as a significant element in the adoption of EHRM.

Microenvironment factors: Microenvironment elements refer to the specific components of an organization's environment that Michael Porter identified as the competitive environment. The microenvironment of the adoption of EHRM has two portions, including

"information and communication technology" and "administrative and employment in the country". The initial category is "cloud computing" and firms are increasingly seeking human resources services or ERP solutions based on cloud computing so the global economy would be transitioning towards a platform-based economy. The second category refers to "anti-corruption policies", which serve as a means to compel service-oriented firms to digitize their human resource operations. Making obligation the anti-corruption policies, transparency oriented, and data-driven, the organization's opposition to using EHRM technology would be diminished, while their desire to adopt EHRM is increasing.

Macroenvironment Factors: Macroenvironmental factors can be classified into various categories, one of which is the "impact of social factors and competitive pressure". Shahreki et al. (2020) and Al-Alawi (2023) recognized the importance of "social impact" in the adoption of EHRM. The subsequent category pertains to the "policies of governing and supervisory institutions". De Alwis asserts that the government's policies have a significant role in the adoption of electronic human resources management (De Alwis et al., 2019).

Strategic practices: This research focuses on the inadequate consideration of moderating variables in EHRM, which was identified as a challenge by Bondarouk and Ruel (2014). The strategic practices that impact the outcomes include adequate investment in digital transformation within the organization (Cronin et al., 2006), outsourcing system services, implementing incentive policies, granting authority to the human resources department during deployment, and providing early return (quick win) services.

Consequences: Increasing the efficiency and effectiveness of human resources management stands out as one of the primary consequences of EHRM adoption. This entails achieving cost-effectiveness, streamlining process efficiency (Priyashantha et al., 2023), realizing cost savings (Bondarouk et al., 2017), and enhancing administrative process efficiency (Ivan & Rico, 2020). Another significant consequence is the elevation of the "strategic role of human resources within the organization," as highlighted by Ivan and Rico, who emphasize the enhancement of HR's strategic contributions post-implementation of EHRM (Ivan & Rico, 2020). Furthermore, EHRM adoption presents "opportunities to deliver new services," enabling the improvement of service delivery for both internal and external stakeholders of the organization's HR function (Bondarouk et al., 2017). Additionally, there is a focus on "fostering employee excellence and maturity," denoting that EHRM adoption frees up considerable time and resources for strategic decision-making within the organization (Junid et al., 2010). Lastly, the adoption of EHRM facilitates "management actions," enhancing managers' capacity in planning, directing organizational efforts, and fulfilling their responsibilities toward human resources (Mansour et al., 2024).

Findings of the quantitative phase: The quantitative analysis section yields several noteworthy findings. Figure 2 illustrates the path coefficients derived from structural equation

modeling, providing insights into the strength of relationships across different categories. Notably, the individual, technological, and organizational dimensions emerge as exerting the most substantial influence on EHRM adoption, followed by the micro and macro environments. Moreover, the adoption of EHRM demonstrates a significant impact, registering at 0.38, on the value-creation consequences within the organization. It is noteworthy that the moderating variable, strategic practices in human resource management, amplifies the positive effects of EHRM adoption on value-creation consequences. Figure 3 further presents the significance values. These findings were substantiated through a bootstrap test comprising 1,000 repetitions to ascertain the statistical T.
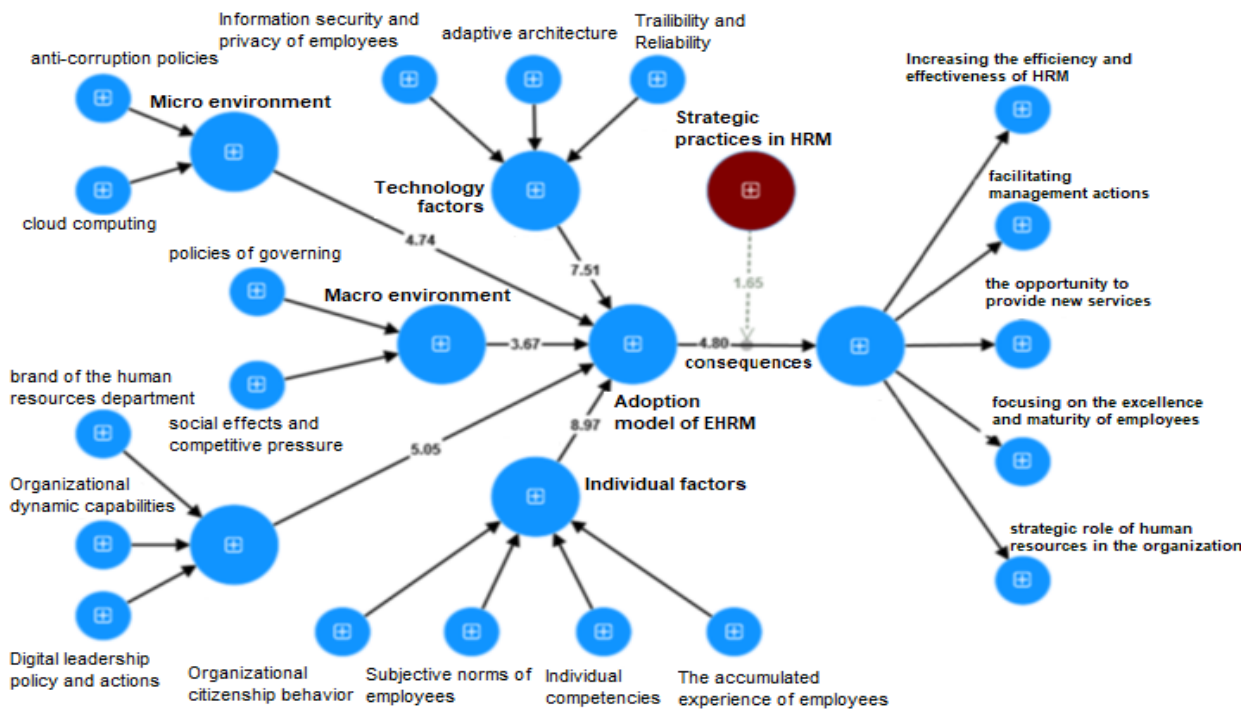
**Figure 2**

*Path Coefficients*
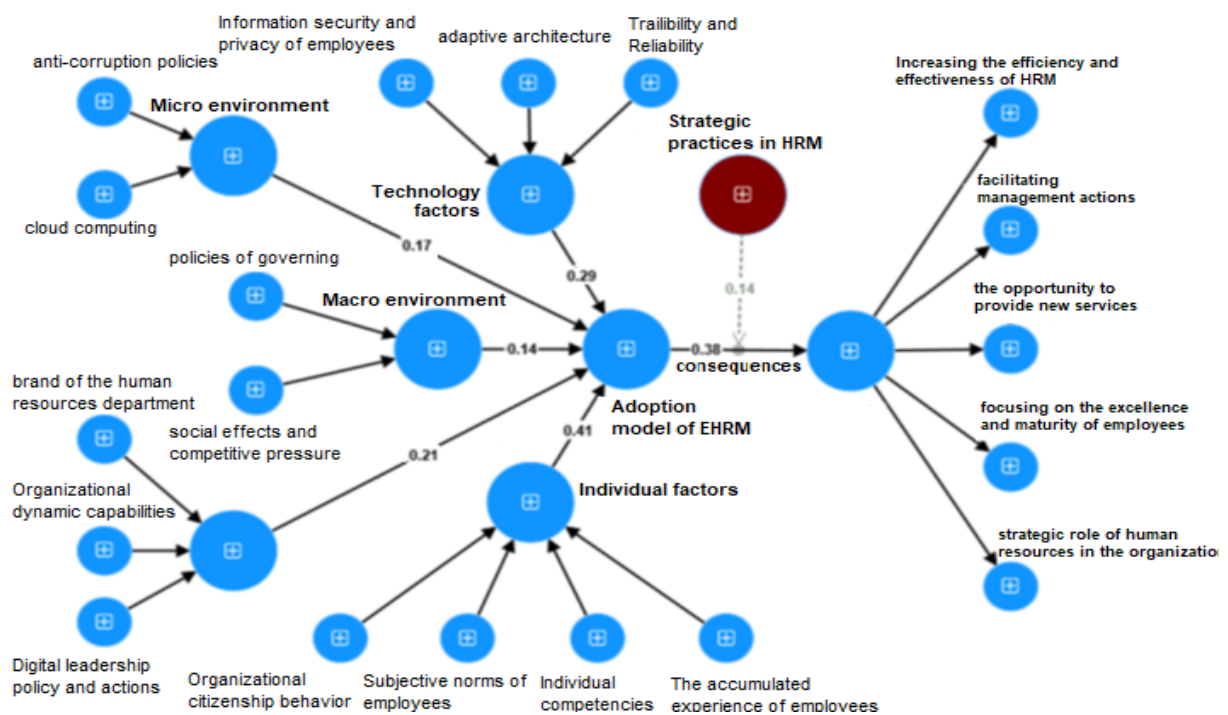


**Figure 3**

*Significant Value*

The analysis results indicate that all path coefficients are statistically significant, confirming their influence. The results of the hypothesis testing may be found in Table 3.

**Table 3**

*Result of Hypothesis Testing*

| | path coefficient | significa nce value |
|---|---|---|
| EHRM adoption Organizational factors positively related to | 0.210.21 | 5.050.20 |
| Technological factors positively related to the EHRM adoption | 0.29 | 7.51 |
| the EHRM adoption Individual factors positively related to | 0.41 | 8.97 |
| the EHRM adoption Microenvironment factors positively related to | 0.17 | 4.74 |
| EHRM adoption Macroenvironment factors positively related to | 0.14 | 3.67 |
| the value-creating organizational consequences EHRM adoption positively related to | 0.38 | 4.80 |
| Human resources strategic practices with a moderating role in the relationship between the EHRM adoption and value-creating consequences | 0.14 | 1.65 |

The adoption model dimensions (Figure 1) have been prioritized using the pair-wise comparison method in qualitative research, determining the importance of each category. The technology dimension is ranked first with a weight of 0.228, followed by the organizational dimension with a weight of 0.215. The individual dimension is ranked third with a weight of 0.214. The micro and macro environment dimensions are ranked fourth and fifth, with weights of 0.178 and 0.165, respectively.

# Discussion

To emphasize the importance of further research on the adoption and consequences of implementing EHRM, Bondarouk et al. (2017) stated that the majority of factors and consequences related to EHRM have only been identified through case studies and lack substantial evidence. Furthermore, attention and discussion surrounding the adoption of EHRM by organizations still require further investigation (Hu, 2024). Therefore, the current research is crucial as it has introduced new categories of evidence in the technological, organizational, individual, and environmental dimensions to the scientific community. Previous research in the field of EHRM adoption models has mostly focused on small organizations and foreign contexts. In addition to enhancing the theoretical depth of adoption categories, the present research has addressed these gaps.

The present study provides a comprehensive analysis of technological and environmental categories. It presents novel findings that have not been previously observed and are considered innovative in the field of research. The study introduces a new perspective to the scientific community by emphasizing the importance of technology as the primary dimension of adoption in the context of human resources. It demonstrates that technological categories have surpassed individual, organizational, and environmental categories due to the recent advancements in technology. Prioritizing these dimensions enables organizations to effectively allocate their resources to manage resistance within the organization and utilize strategic practices to enhance the value-creation consequences.

The current research has introduced new categories to the scientific community within the "Technology Dimension" that were previously less explored in the context of EHRM and were only mentioned in the studies of Ruel, Bondarouk, and Iliyas. One such category is adaptive architecture, which considers user interface and user experience according to users' needs and can host various businesses in a multi-tenancy server and database manner. This architecture is service-oriented and is logically closely related to modular programming. It is fed from the platform of an interface layer of middleware called the enterprise service bus. Information security and protecting employees' privacy are essential issues in adoption. The EHRM system server must protect confidentiality and personnel information to prevent potential risks such as competitors trying to attract talent from an organization using leaked personnel information. Trialability and reliability in the technology dimension ensure the continuity of human resources service, uninterrupted and continuous service on the servers, and 24x7 support of the EHRM system for users.

Among the aforementioned categories, based on the results obtained from field data collection, adaptive architecture in the Tehran Municipality EHRM adoption model has the most significant effect on adoption. It can significantly assist service-oriented organizations in adopting EHRM systems from a technological aspect by emphasizing the layered model in the system architecture, the use of microservices, the utilization of rule engines in the business

layer, data encryption, and the development of service management standards based on ITIL 4.0.

On the other hand, the current research has highlighted the categories within the "organizational dimension" as considered by Kossek and De Alwis. This dimension underscores the importance of the human resources department's excellent reputation as one of the practical categories for adoption. It also emphasizes that the path to adopting HRM is smoother if the human resources management holds the proper position and power within the organization. Within the organizational dimension of adoption, the current research underscores the role of the digital leader, who takes on responsibilities such as training and direction, fostering a culture of awareness and purpose, ensuring strategic alignment between macro organizational strategies and system functionality, overseeing adept change management, and managing deployment-related matters comprehensively.

Additionally, the current research in the organizational dimension highlights organizational dynamic capability as one of the main dimensions in EHRM adoption. This capability can be achieved through special attention to updating the capabilities of the organization's people and emphasizing a data-driven culture at the forefront of the organization's activities and actions. Among the categories of the organizational dimension, the policy and actions of the digital leader were found to have the most significant effect (compared to the other two categories) in the test of the HRM adoption model in Tehran Municipality. The current research in the "personal dimension" had more coordination with the research background. Ruel and Bondarouk (2014), Burbach and Royle (2014), Lather (2019), and Subhashree and Vasantha (2020) all provided findings that corroborated the conclusions drawn by the researcher. This research showed that motivation, individual ability, the role of organizational citizenship, people's attitude towards technology, and the mental, psychological, and physical capacity of people using the EHRM system affect their resistance to this technology. The result of the HRM adoption model test in Tehran Municipality identified the "individual competencies" of the people involved in the deployment and operation of the system as the most influential categories among the individual dimensions. The research background has confirmed all the researcher's achievements in this field. The service-oriented organizations are suggested to strengthen the individual dimension, attract and hire people familiar with the data-driven culture, increase users' involvement during the system's deployment, and focus on designing the competency model of the system's users.

To the environmental aspects, Shahreki et al. (2020) and De Alwis et al. (2019) have corroborated the researcher's findings. Furthermore, the researcher has discovered that service-oriented organizations demonstrate sensitivity towards avoiding the physical placement of their database within their premises. It would be advisable to mitigate their unwarranted resistance by enlightening them about the advantages of cloud computing. By

emphasizing the principles of administrative justice and transparency in human resources, service-oriented organizations can be persuaded to adopt and implement the EHRM.

## Conclusion

The items mentioned in this research represent significant innovations in dimensions, categories, and consequences for the future scientific community. Conducted with 203 experts and managers from service-oriented organizations, including experts and managers from Tehran Municipality, this research has introduced new categories such as organizational citizenship behavior, organizational dynamic capabilities, digital leadership policy and actions, and cloud computing as factors influencing the adoption of EHRM to the scientific community. Participating experts favored the technology dimension over the individual dimension, emphasizing the importance of "adaptive architecture, security and privacy of employees, and trialability and reliability" in EHRM adoption. The recognition of the technology dimension marks a significant milestone in this research. By juxtaposing the findings with previous studies, it becomes evident that this research extends the understanding of these domains within service-oriented organizations, enriching the existing body of knowledge.

In the aforementioned hierarchical ordering, the organizational dimension emerges as the second priority, while the individual dimension is accorded the third rank. The micro and macro environments follow in subsequent priorities.

This achievement prompts service-oriented organizations to prioritize the technical aspects of the chosen EHRM system. This emphasis stems from the realization that the user experience and the software adoption hinge on the system architecture's ability to effectively adapt to the organizational transformation, its seamless compatibility with other organizational software, and its ability to safeguard employees' sensitive information all while ensuring uninterrupted services.

Service-oriented organizations can be defined as organizations that provide services based on information technology and innovation (Peay, 2011). So the model extracted in the present research can be applied to all organizations currently planning to take their business model on the platform and undergoing digital transformation, and its findings will be used in this specific category of organizations.

To encompass the standard processes and traditional functions of human resources, the model has been specifically created for organizations that have reached the "operational" and "relational" stages of electronic human resources management. In the future, this model can be applied to service-oriented organizations that have already undergone the "transformational" phase of electronic human resources management. Notably, It is important

to investigate the influence of fourth industrial revolution technologies, such as the Internet of Things, artificial intelligence, cloud computing, and digital twins, on the adoption of EHRM in these organizations.

The functions discussed in the research background for EHRM are largely incomplete and primarily focused on operational aspects. They do not address novel functions such as employees' physical- psychological, and behavioral health services, knowledge management services, remote work services, mobile-based services, social network creation services within the organization, internal recruitment market services, decision support services, employee information transparency services for stakeholders, socialization services, suggestion system services, and employee credit management services. The majority of research in this field concentrates on electronic recruitment and selection, electronic performance appraisal, electronic training, and electronic service compensation. It is anticipated that future research will prioritize the exploration of new human resources functions and services.

This study employs the adoption model in service-oriented organizations and recommends further investigation into commercial and manufacturing organizations in future research. Furthermore, The Tehran municipality, a service-oriented organization, had been selected as a study of the case. Future research should also consider exploring other innovative organizations that offer information technology services.

The current study examined the role of strategic practice as a moderating variable. It is advisable to further investigate the impact of other moderating or intervening variables in future research. Additionally, the current model was investigated using the phenomenological research strategy, and it would also be valuable to apply the Grounded theory method to extract the model from it.

## Conflict of interest

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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