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Strategic Flexibility and Social Networks in the Effect of High-Performance Work Systems on Organizational Performance

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A B S T R A C T

Objective: This study aimed to investigate the effect of high-performance work systems on organizational performance through the mediating role of strategic flexibility and the moderating role of social networks among engineers working in construction and urban development projects in District 4 of Isfahan Municipality.
Methods and Materials: This applied study employed a descriptive-survey and cross-sectional design. The statistical population consisted of 250 civil and urban development engineers and engineers employed by construction companies undertaking projects within District 4 of Isfahan Municipality. Based on the Morgan and Krejcie sample-size table, a minimum sample of 148 participants was determined, and data from 151 completed questionnaires were ultimately included in the analysis. Data were collected using a structured questionnaire measuring high-performance work systems, organizational performance, strategic flexibility, and social networks. Construct validity was assessed through factor analysis. The measurement and structural models were evaluated using structural equation modeling. Statistical analyses were conducted using SPSS version 24 and SmartPLS version 4.
Findings: The inferential analyses supported all proposed hypotheses. High-performance work systems had a positive and statistically significant direct effect on organizational performance. High-performance work systems also exerted a positive and significant effect on strategic flexibility, while strategic flexibility demonstrated a positive and significant effect on organizational performance. The mediation analysis further indicated that strategic flexibility significantly mediated the relationship between high-performance work systems and organizational performance, demonstrating that part of the organizational performance benefits associated with high-performance work practices operates through enhanced strategic adaptability and responsiveness. Moreover, the moderation analysis confirmed that social networks significantly moderated the effect of high-performance work systems on strategic flexibility, indicating that stronger social

networks reinforced the capacity of high-performance work systems to promote strategic flexibility.

Conclusion: The findings demonstrate that high-performance work systems can enhance organizational performance both directly and indirectly by strengthening strategic flexibility. Strategic flexibility therefore constitutes an important organizational mechanism through which integrated high-performance human resource practices are translated into improved performance outcomes. Furthermore, the significant moderating role of social networks suggests that relational and social resources can strengthen the contribution of high-performance work systems to organizational adaptability. Organizations, particularly those operating in dynamic construction and municipal environments, may therefore improve performance by integrating high-performance work practices with initiatives that enhance strategic flexibility and foster effective professional and organizational networks.

Keywords: *High-Performance Work Systems; Organizational Performance; Strategic Flexibility; Social Networks; Structural Equation Modeling.*

1 Introduction

Organizations today operate in environments characterized by accelerating technological change, intense competition, fluctuating stakeholder expectations, digital transformation, and growing uncertainty in resource allocation and market conditions. Under such circumstances, sustained organizational performance depends not only on access to financial and technological resources but also on the organization's capacity to configure, develop, and mobilize its human resources in ways that support adaptation and strategic responsiveness. Human resources therefore represent a central source of competitive advantage when employees possess the competencies, motivation, opportunities, and behavioral flexibility required to respond effectively to environmental demands. Contemporary human resource management has consequently moved beyond isolated personnel practices toward integrated systems in which recruitment, training, performance appraisal, participation, compensation, empowerment, and career development reinforce one another. High-performance work systems represent one of the most prominent manifestations of this systems-oriented approach because they are designed to create a coherent bundle of human resource practices capable of improving employee capabilities, motivation, commitment, and contribution to organizational goals. Research has increasingly emphasized that the effects of such systems extend beyond immediate employee outcomes to broader organizational capabilities, including adaptability, innovative behavior, digital readiness, and sustainable performance (Hosseini et al., 2022; Nazem, 2022; Sheikhi et al., 2026; Shekari & Kamanchi, 2026). Recent evidence also suggests that high-performance work systems can influence how employees engage with emerging technologies and proactively manage their work and careers, reinforcing the strategic significance of integrated human resource systems in contemporary organizations (Liu & Zhang, 2026; Zhang et al., 2025).

A high-performance work system may be understood as a coordinated configuration of mutually reinforcing human resource practices designed to enhance employees' knowledge, skills, motivation, participation, and discretionary effort. Unlike conventional human resource management approaches that may evaluate practices independently, the high-performance perspective assumes that complementarities among practices generate synergistic effects that are greater than the effects of isolated interventions. For example, selective staffing can attract competent employees, extensive training can develop their capabilities, participative mechanisms can create opportunities to apply those capabilities, and performance-based incentives can strengthen motivation to contribute toward organizational goals. These mechanisms collectively establish an employment system that can support superior organizational outcomes. Empirical research has repeatedly connected high-performance work systems with performance-related consequences, although the mechanisms underlying these effects remain an important area of inquiry. In public and municipal settings, earlier evidence has shown that high-performance work systems can positively contribute to organizational performance, particularly when they interact with relational resources such as social capital (Akbarzadeh Kakhki et al., 2016). Similarly, research conducted in organizational and banking contexts has indicated that high-performance work systems enhance organizational outcomes through capabilities such as human resource flexibility and organizational ambidexterity (Keshavarzi, 2020). The mediating role of human resource flexibility has also been emphasized in explaining how high-performance work systems translate human resource

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practices into improved organizational performance (Tahmasbi & Farhadi Mahalli, 2018; Xing et al., 2015).

The importance of high-performance work systems is also evident at the employee level. Such systems influence not only formal work outputs but also employees' psychological experiences, attitudes, and adaptive behaviors. Evidence indicates that high-performance work practices can improve employee performance and retention partly by enhancing job satisfaction, suggesting that their impact is transmitted through important attitudinal mechanisms rather than occurring only through formal organizational structures (Dorta-Afonso et al., 2025). Likewise, high-performance work systems have been associated with proactive career behavior, indicating that supportive and developmental human resource practices can encourage individuals to take greater initiative in managing their career development and responding to changing work demands (Zhang et al., 2025). Other recent evidence shows that such systems may facilitate employees' work-related use of artificial intelligence by influencing internal psychological responses to organizational stimuli, highlighting their relevance in technology-intensive environments (Liu & Zhang, 2026). Research has further demonstrated that high-performance work systems are related to innovative work behavior through knowledge-related psychological and behavioral processes (Zhu & Lee, 2026). Even in academic settings, high-performance work systems have been linked to individual performance through mechanisms such as self-efficacy and work–life balance, illustrating the applicability of the concept beyond conventional business organizations (Zami et al., 2026). Taken together, these findings support the proposition that high-performance work systems create an organizational context in which employees are better equipped and more strongly motivated to generate desirable outcomes.

Nevertheless, the existence of a high-performance work system does not automatically guarantee superior organizational performance. Organizations differ substantially in their capacity to translate sophisticated human resource practices into adaptive strategic action. This issue is particularly important in volatile environments, where rigid organizational routines can reduce the value of otherwise effective human resource systems. Strategic flexibility therefore emerges as a critical organizational capability connecting internal human resource arrangements with organizational performance. Strategic flexibility refers to an organization's ability to recognize changes in its environment, reconsider existing strategic assumptions, reallocate resources, modify courses of action, and respond rapidly to emerging opportunities and threats. From the perspective of dynamic capabilities theory, organizations achieve sustained effectiveness not merely by possessing valuable resources but by continually sensing environmental changes, seizing emerging opportunities, and reconfiguring their resource base in response to uncertainty (Teece et al., 2016). Strategic flexibility can consequently be regarded as an important manifestation of dynamic capability because it enables organizations to modify strategic commitments rather than remain constrained by established structures and routines. In this sense, a high-performance work system may contribute to organizational performance by creating a workforce capable of supporting strategic adjustment, while strategic flexibility provides the organizational mechanism through which those human resources are redeployed in response to changing conditions.

The relationship between strategic flexibility and organizational performance has received considerable theoretical and empirical attention. Flexible organizations are more capable of adjusting resource configurations, introducing innovations, revising operational priorities, and coordinating activities in response to environmental turbulence. Research has shown that strategic flexibility is closely associated with strategic and management innovation, suggesting that flexible organizations are more likely to generate and implement novel managerial and strategic responses (Han & Gao, 2017). Strategic flexibility has also been found to improve organizational performance by facilitating innovation and enabling firms to modify products, processes, and organizational arrangements according to changing market requirements (Hataminia & Abbaszadeh, 2016; Pirasteh Majd, 2025). In addition, studies have demonstrated positive relationships among strategic flexibility, organizational agility, and organizational performance, indicating that strategic responsiveness is particularly important where organizations face uncertainty and rapidly evolving competitive conditions (Asayesh et al., 2017). Contemporary research on organizational learning similarly suggests that learning-oriented strategies can strengthen organizational agility, further underscoring the broader importance of adaptive organizational capabilities (Sarfarazi et al., 2025). Strategic flexibility may therefore be viewed as a bridge between internal organizational resources and external responsiveness, allowing organizations to transform workforce capabilities into performance advantages.

High-performance work systems may be particularly important antecedents of strategic flexibility because strategic adaptation ultimately depends on people. Organizations require employees who can acquire new knowledge, develop multiple skills, collaborate across functional boundaries, assume new responsibilities, and participate constructively in decision-making processes. A system that emphasizes employee development, participation, communication, performance feedback, and empowerment can create precisely these conditions. Human resource practices that develop broad and transferable competencies increase the range of actions available to organizations, while employee involvement allows organizations to draw on dispersed knowledge when responding to unexpected problems. Accordingly, the relationship between high-performance work systems and organizational performance may operate indirectly through enhanced flexibility. Earlier studies have demonstrated that human resource flexibility mediates the relationship between high-performance work systems and organizational performance (Tahmasbi & Farhadi Mahalli, 2018; Xing et al., 2015), while organizational ambidexterity and flexibility have also been identified as mechanisms through which such systems generate performance improvements (Keshavarzi, 2020). More directly, research has provided evidence that strategic flexibility mediates the relationship between high-performance work systems and organizational performance, indicating that organizations derive greater benefits from high-performance human resource practices when those practices contribute to adaptive strategic capacity (Wang et al., 2021). This mediating perspective provides a more comprehensive explanation of organizational performance than models based exclusively on a direct relationship between human resource systems and performance.

The effectiveness of high-performance work systems in building strategic flexibility, however, may depend on the relational context in which employees operate. Social networks constitute an important organizational resource because they determine patterns of interaction, information exchange, knowledge access, cooperation, and resource mobilization among organizational members and external stakeholders. Strong and diverse networks can facilitate the rapid circulation of information, reduce barriers between organizational units, improve access to specialized knowledge, and support coordination across formal boundaries. These characteristics are particularly important for strategic flexibility because flexible responses require organizations to recognize emerging environmental signals and mobilize resources rapidly. Where employees are strongly connected through social networks, the skills and motivation generated by high-performance work systems may be more effectively translated into collective adaptation. Conversely, weak or fragmented networks may limit the circulation of knowledge and reduce the organization's ability to convert human resource capabilities into coordinated strategic action. Prior research in municipal settings has suggested that social and relational resources can strengthen the organizational benefits of high-performance work systems (Akbarzadeh Kakhki et al., 2016), while direct evidence has shown that social networks moderate the relationship between high-performance work systems and strategic flexibility (Wang et al., 2021). This indicates that the value of high-performance human resource practices may be contingent on the extent to which employees have access to effective networks of interaction and exchange.

The relevance of social networks becomes even more pronounced in project-based and technically complex environments such as municipal construction, urban development, and civil engineering. Work in these settings generally requires extensive coordination among engineers, municipal departments, contractors, consultants, technical specialists, regulatory bodies, and other stakeholders. Organizational outcomes therefore depend not solely on the competence of individual employees but also on the efficiency with which information and expertise are shared across professional and organizational boundaries. Social networks can create channels through which employees obtain timely technical knowledge, identify emerging problems, coordinate solutions, and access resources beyond their immediate organizational units. In this context, high-performance work systems may develop capable and motivated employees, while social networks determine whether those individual capabilities can be combined and mobilized effectively. This reasoning is consistent with broader research emphasizing the importance of organizational knowledge processes and innovative behavior for organizational sustainability (Shekari et al., 2025). It is also compatible with contemporary human resource research showing that digital experience, digital literacy, and human resource agility are increasingly interconnected in determining sustainable employee and organizational performance (Shekari & Kamanchi, 2026). Thus, relational connectivity and adaptive capability should be considered complementary rather than competing explanations of organizational effectiveness.

The increasing digitalization of organizational processes further strengthens the importance of flexibility and interpersonal networks. As organizations incorporate digital platforms, artificial intelligence, data-driven systems, and new communication technologies into everyday work, employees face simultaneous demands for technological competence, adaptability, and effective collaboration. Recent studies indicate that human resource systems can shape employees' use of artificial intelligence and their behavioral responses to technological change (Liu & Zhang, 2026). At the same time, digital transformation may itself generate psychological pressure and require employees to develop coping strategies and adaptive behaviors in order to preserve creativity and effectiveness (Shekari et al., 2026). Organizations must therefore create work systems that not only promote efficiency but also enable learning, flexibility, and knowledge sharing. Regenerative approaches to human resource management similarly emphasize the need to continuously renew human resources and organizational capacities in response to changing operational requirements (Sheikhi et al., 2026). These developments suggest that high-performance work systems should increasingly be evaluated in relation to their capacity to generate adaptive organizational capabilities rather than solely through conventional indicators of productivity.

Organizational performance itself is a multidimensional construct reflecting the extent to which an organization effectively achieves its strategic, operational, and human resource objectives. In public-sector and municipal organizations, performance cannot be reduced to profitability; rather, it encompasses effective resource utilization, employee capability, service quality, adaptability, support systems, responsiveness, and achievement of organizational objectives. Consequently, factors that strengthen organizational adaptability and employee effectiveness are particularly relevant to performance in these settings. Studies of high-performance work systems in different organizational contexts have consistently emphasized their association with favorable organizational and employee outcomes (Matlabi Varkani et al., 2022; Nazem, 2022). The quality of organizational relationships and leadership conditions may further determine whether these systems produce their expected results. For instance, entrepreneurial leadership has been linked to employee organizational performance through strategic flexibility, with organizational culture acting as an important contextual condition (Arabi et al., 2025). Likewise, management practices and employee relationships can influence social and behavioral outcomes within organizations, demonstrating that formal management systems operate within a broader relational context (Shekari & Hosseini, 2020). These findings support a more integrated approach in which human resource systems, strategic capabilities, and social relationships are considered simultaneously when explaining organizational performance.

Despite the growing literature on high-performance work systems, several gaps remain. First, many studies have concentrated on the direct effects of high-performance work systems on employee attitudes or organizational outcomes, while fewer have examined the strategic capabilities through which these effects emerge. Second, although human resource flexibility has been frequently investigated as a mediating mechanism, strategic flexibility represents a broader organizational capacity that involves resource reconfiguration and strategic adaptation, and thus deserves further empirical attention. Third, the relational conditions affecting the development of strategic flexibility remain insufficiently examined. Social networks are particularly relevant because the effectiveness of high-performance work practices may depend on employees' ability to exchange information and coordinate action. Existing findings suggest that both strategic flexibility and social networks play important roles in the high-performance work system–performance relationship (Wang et al., 2021), yet replication and contextual extension remain necessary. This is particularly the case in municipal and construction-related environments where technical interdependence, project complexity, and coordination across organizational boundaries are substantial. Prior Iranian research has examined high-performance work systems in municipalities, financial institutions, educational organizations, and other settings (Akbarzadeh Kakhki et al., 2016; Keshavarzi, 2020; Matlabi Varkani et al., 2022), but relatively limited attention has been devoted to an integrated model combining high-performance work systems, strategic flexibility, social networks, and organizational performance within municipal engineering and construction contexts.

Furthermore, the changing nature of organizational competition makes it increasingly important to identify not merely whether high-performance work systems improve performance but under what conditions and through which processes this occurs. Studies emphasizing innovation, knowledge management, organizational learning, agility, and adaptive human resource capabilities indicate that sustainable performance emerges from interactions among

multiple organizational mechanisms (Han & Gao, 2017; Sarfarazi et al., 2025; Shekari et al., 2025). Recent research on employee innovation and proactive behavior likewise demonstrates that high-performance work systems influence performance-related behaviors through intermediate psychological and social processes rather than through simple direct effects (Dorta-Afonso et al., 2025; Zhu & Lee, 2026). This reinforces the need for models that integrate mediation and moderation simultaneously. Strategic flexibility can explain how a high-performance work system becomes translated into superior organizational outcomes, whereas social networks can explain when and under what relational conditions the system more effectively generates flexibility. Examining these mechanisms together may therefore provide a more precise understanding of the organizational architecture required for superior performance.

Accordingly, the aim of the present study was to investigate the effect of high-performance work systems on organizational performance through the mediating role of strategic flexibility and the moderating role of social networks among engineers working in civil engineering, urban development, and construction projects in District 4 of Isfahan Municipality.

2 Methods and Materials

The present study was applied in terms of purpose, cross-sectional in terms of time horizon, and descriptive-survey in terms of data collection method. The statistical population consisted of engineers working in the civil engineering and urban development departments of District 4 of Isfahan Municipality, as well as engineers employed by construction companies undertaking projects in District 4 of Isfahan Municipality during 2022–2023, totaling 250 individuals. Using the Krejcie and Morgan sample size table, the required sample size was determined to be 148 participants, and ultimately, 151 completed questionnaires were included in the analysis. Convenience sampling was employed. The study was conducted through field research. Data were collected using four questionnaires, the details of which are presented in Table 1. It should be noted that organizational performance was measured across seven dimensions: validity, motivation, feedback, ability, support, adaptability, and recognition.

Table 1

Questionnaire Information

Source	Items	Variable
Kristaliz and Risuchu (2013)	1–5	Social Networks
Wijand et al. (2012)	6–10	Strategic Flexibility
Chin Jutsai (2007)	11–36	High-Performance Work Systems
Hersey and Goldsmith (2003)	37–62	Organizational Performance

Descriptive analyses of the research data were conducted using SPSS version 26, whereas analyses related to testing the research hypotheses were performed through structural equation modeling using SmartPLS version 4.

3 Findings and Results

The results of the descriptive analyses of the demographic variables showed that, among the 151 participants in the study, the largest age group consisted of individuals aged 35–45 years (51%). Among the respondents, the highest proportion, 58.3%, held a master's degree, whereas the smallest proportion, 4.6%, held a doctoral degree. Regarding work experience, the categories of 10–15 years and 15–20 years had the highest frequencies, each accounting for 35.1% of the respondents. The Kolmogorov–Smirnov test was used to examine the distribution of the variables, and the results are presented in Table 2. Given that the significance level for all variables in the Kolmogorov–Smirnov test was below .05, it can be concluded that none of the variables followed a normal distribution (Shekari & Hosseini, 2020).

Table 2

Results of the Assessment of Variable Distributions

Research Variable	Kolmogorov–Smirnov Statistic	*p*-value
High-Performance Work Systems	190.8079	.002
Social Networks	9.9801	< .001
Strategic Flexibility	9.8874	< .001
Validity	11.6424	< .001
Motivation	11.2252	< .001
Feedback	11.3709	< .001
Ability	17.7219	< .001
Support	14.9205	< .001
Adaptability	11.9669	< .001
Recognition	14.4768	< .001

The reliability of the questionnaires was assessed using Cronbach's alpha and composite reliability, with the results presented in Table 3. The values of both Cronbach's alpha and composite reliability exceeded .70 for all variables; therefore, the questionnaires demonstrated satisfactory reliability (Shekari et al., 2026). Questionnaire validity was examined using two approaches: average variance extracted (AVE) and the Fornell–Larcker criterion. The results of the AVE assessment are reported in Table 3. The AVE value for each variable exceeded .50, thereby confirming satisfactory convergent validity for the measurement instruments (Shekari et al., 2025).

Table 3

Assessment of Validity and Reliability

Latent Variable	Cronbach's Alpha	Composite Reliability	AVE
High-Performance Work Systems	.815	.886	.642
Strategic Flexibility	.885	.916	.785
Social Networks	.882	.915	.783
Organizational Performance	.794	.837	.624

The results of the discriminant validity assessment using the Fornell–Larcker criterion are presented in Table 4. Because, in all cases, the square root of the extracted variance values located on the main diagonal of the matrix was greater than the corresponding values below and to the right of the diagonal, the discriminant validity of the model was confirmed (Davari & Rezazadeh, 2013).

Table 4

Discriminant Validity Matrix Based on the Fornell–Larcker Criterion

Research Variables	High-Performance Work Systems	Strategic Flexibility	Social Networks	Organizational Performance
High-Performance Work Systems	—			
Strategic Flexibility	.897	—		
Social Networks	.837	.847	—	
Organizational Performance	.174	.094	.076	—
Social Networks × High-Performance Work Systems	.171	.303	.260	.084

Structural equation modeling using SmartPLS version 4 was employed to examine the conceptual model of the present study.

Figure 1

Structural model of the study based on path coefficient values.

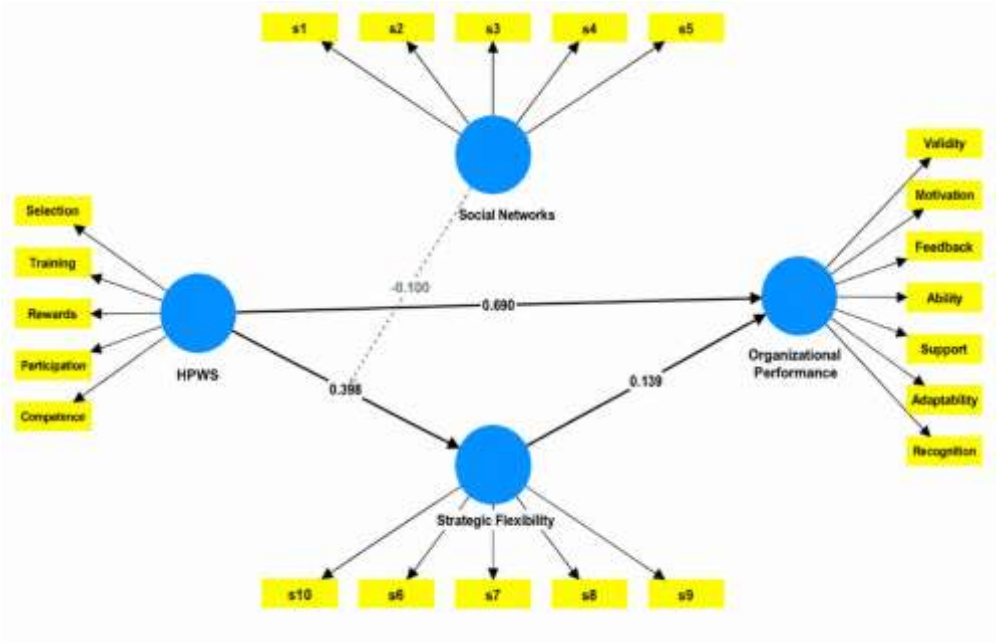
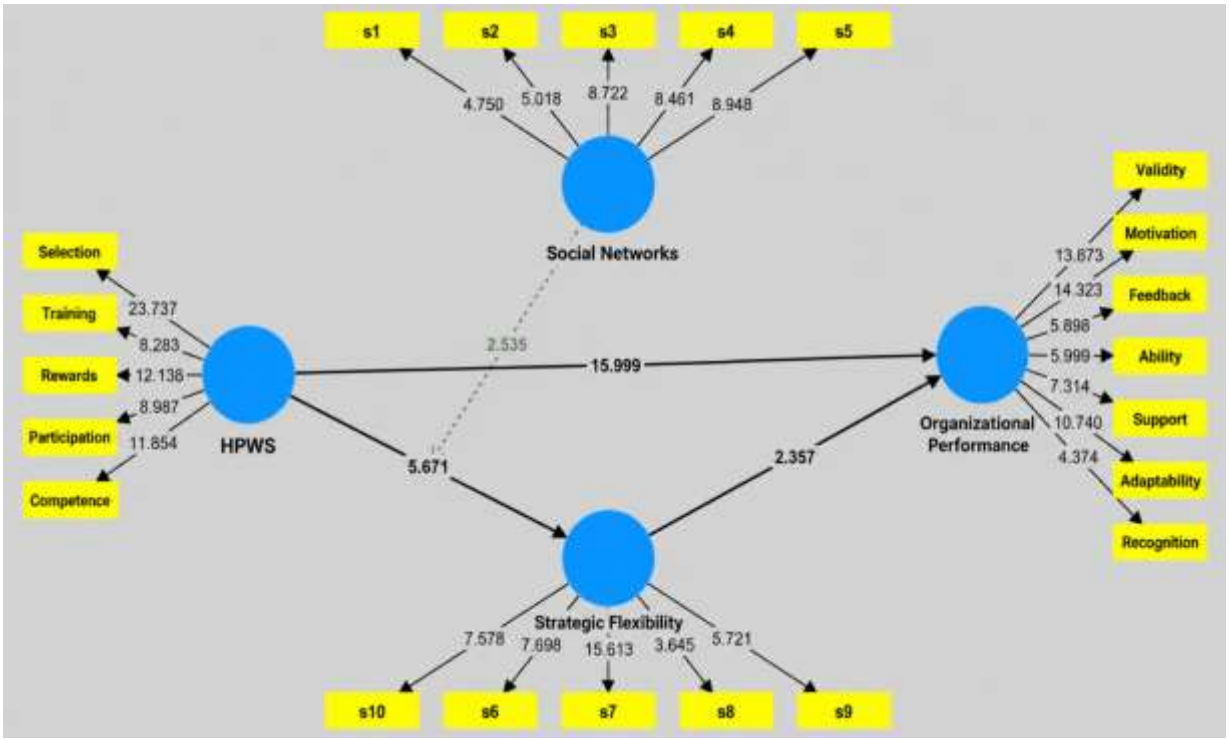


Figure 2

Structural model of the study based on t-statistics for path significance.



As shown in Figures 1 and 2, all factor loadings were greater than .40, and the absolute values of all significance coefficients exceeded 1.96. Therefore, all relationships were statistically significant, and the construct validity of the measures was confirmed (Shekari & Kamanchi, 2026). Accordingly, no item needed to be removed when estimating the structural model and testing the research hypotheses. Based on the results of the structural model, the research

hypotheses were subsequently examined. The results for the direct paths are presented in Table 5.

Table 5

Tests of the Direct Hypotheses

Path	Path Coefficient	*t*-Statistic	*p*-value	Result
High-Performance Work Systems → Strategic Flexibility	.398	5.671	< .001	Supported
High-Performance Work Systems → Organizational Performance	.690	15.999	< .001	Supported
Strategic Flexibility → Organizational Performance	.139	2.357	.018	Supported

The findings presented in Table 5 show that, for the path from high-performance work systems to strategic flexibility, the t-value was 5.671, which exceeded the critical value of 1.96. Therefore, high-performance work systems had a positive and statistically significant effect on strategic flexibility, with a standard deviation of .068. In other words, improvements in high-performance work systems were associated with increased strategic flexibility. For the path from high-performance work systems to organizational performance, the t-value was 15.999, exceeding 1.96, while the significance level of the t-test was below the .05 threshold. Therefore, high-performance work systems had a positive and statistically significant effect on organizational performance, with a standard deviation of .166. In other words, improvements in high-performance work systems contributed to enhanced organizational performance. For the path from strategic flexibility to organizational performance, the t-value was 2.357, which exceeded 1.96, and the significance level was below .05. Thus, strategic flexibility had a positive and statistically significant effect on organizational performance, with a standard deviation of .173. In other words, greater strategic flexibility was associated with higher organizational performance. The results for the two indirect paths are presented in Table 6.

Table 6

Results of the Assessment of the Two Indirect Paths

Mediating/Moderating Variable	From	To	Path Coefficient	Standard Deviation	*t*-Value	*p*-value	Result
Strategic Flexibility	High-Performance Work Systems	Organizational Performance	−.014	.101	2.104	.035	Supported
Social Networks	High-Performance Work Systems	Strategic Flexibility	−.100	.033	2.353	.011	Supported

The results presented in Table 6 regarding the mediating role of strategic flexibility in the effect of high-performance work systems on organizational performance show that the t-value was 2.104, exceeding the critical value of 1.96, while the significance level of the t-test was below the .05 threshold. Therefore, strategic flexibility played a statistically significant mediating role in the relationship between high-performance work systems and organizational performance.

The results presented in Table 6 regarding the moderating role of social networks in the effect of high-performance work systems on strategic flexibility show that the t-value was 2.353, exceeding the critical value of 1.96, while the significance level of the t-test was below the .05 threshold. Therefore, the moderating role of social networks was statistically significant.

4 Discussion

The present study examined the effect of high-performance work systems on organizational performance, with strategic flexibility as a mediating variable and social networks as a moderating variable. The results supported all proposed hypotheses. Specifically, high-performance work systems had a positive and statistically significant effect on strategic flexibility and organizational performance, strategic flexibility had a positive and statistically significant effect on organizational performance, strategic flexibility significantly mediated the relationship between high-performance work systems and organizational performance, and social networks significantly moderated the relationship between high-performance work systems and strategic flexibility. Collectively, these findings indicate that high-

performance work systems contribute to organizational performance not only through a direct pathway but also by strengthening the organization's adaptive and strategic capabilities. Moreover, the effectiveness of these systems in promoting strategic flexibility appears to depend partly on the relational environment in which employees interact, exchange information, and mobilize resources. These results support an integrated perspective in which human resource practices, strategic capabilities, and social relationships jointly shape organizational performance.

The first finding showed that high-performance work systems exerted a positive and significant effect on strategic flexibility. This result indicates that when organizations establish coordinated human resource practices such as selective staffing, systematic training, employee participation, performance appraisal, empowerment, information sharing, and performance-based rewards, they are better able to develop a workforce capable of responding to changes in organizational and environmental conditions. Such practices expand employees' knowledge and skill repertoires, increase their willingness to participate in organizational decision-making, and create greater opportunities for redeployment of human resources when strategic priorities change. This finding is consistent with previous studies showing that high-performance work systems strengthen different forms of organizational and human resource flexibility (Keshavarzi, 2020; Tahmasbi & Farhadi Mahalli, 2018; Xing et al., 2015). These studies suggest that integrated human resource systems create adaptive capacities by developing employees who can assume diverse roles, acquire new competencies, and respond more effectively to environmental uncertainty. The present finding is also consistent with the dynamic capabilities perspective, according to which organizations need the ability to reconfigure resources and modify strategic actions in response to changing conditions (Teece et al., 2016). From this perspective, high-performance work systems can be interpreted as an organizational infrastructure that develops the human capital necessary for strategic reconfiguration.

The positive relationship between high-performance work systems and strategic flexibility can also be explained through the role of learning, knowledge sharing, and employee involvement. Strategic flexibility requires decision makers and employees to recognize environmental changes and respond before existing routines become obsolete. High-performance work practices facilitate this process because they encourage employees to acquire knowledge, exchange information, and participate in problem solving. Research emphasizing organizational learning and agility similarly suggests that organizations become more responsive when learning processes are institutionalized and employees are given opportunities to develop and use new competencies (Sarfarazi et al., 2025). Likewise, contemporary evidence indicates that human resource systems influence employees' willingness to engage with new technologies and emerging work practices (Liu & Zhang, 2026). In technologically and operationally complex environments, the capacity of employees to adapt their skills and behavior becomes a critical prerequisite for strategic flexibility. The present finding therefore indicates that a high-performance work system should not be viewed merely as a mechanism for increasing effort or productivity; rather, it can serve as an organizational platform for developing adaptive capacity.

The second finding demonstrated that high-performance work systems had a positive and statistically significant direct effect on organizational performance. This finding is consistent with a substantial body of prior research indicating that coherent bundles of human resource practices can improve performance by increasing employee competence, motivation, commitment, and opportunities for participation. Previous research in municipal settings has similarly shown that high-performance work systems can improve organizational performance, particularly when supportive social and organizational conditions are present (Akbarzadeh Kakhki et al., 2016). The present finding is also consistent with studies showing that high-performance work systems contribute to organizational performance through increased organizational efficiency, human resource flexibility, and ambidexterity (Keshavarzi, 2020; Tahmasbi & Farhadi Mahalli, 2018). These relationships can be explained by the complementary nature of high-performance work practices. Recruitment and selection improve the quality of human capital, training strengthens employee capabilities, participation increases involvement in organizational processes, performance appraisal clarifies expectations, and reward systems align employee behavior with organizational objectives. When these practices operate as an integrated system, they can create cumulative effects on organizational effectiveness.

Recent research further supports the conclusion that high-performance work systems affect a wide range of employee and organizational outcomes. Such systems have been associated with stronger employee performance and retention through job satisfaction (Dorta-Afonso et al.,

2025), proactive career behavior (Zhang et al., 2025), innovative work behavior (Zhu & Lee, 2026), and improved performance through psychological and behavioral mechanisms such as self-efficacy and work–life balance (Zami et al., 2026). These findings indicate that the positive performance consequences of high-performance work systems are not restricted to one specific mechanism. Rather, these systems can simultaneously influence employee attitudes, capabilities, motivation, innovative behavior, and adaptive responses. The present study extends this reasoning to a municipal engineering and construction setting, where performance depends heavily on technical competence, coordination, responsiveness, and the ability to address complex project-related demands. In such settings, a well-designed high-performance work system can facilitate both individual effectiveness and collective organizational performance.

The third finding showed that strategic flexibility had a positive and significant effect on organizational performance. This result confirms that organizations capable of modifying strategies, reallocating resources, and adapting their activities to changing conditions are more likely to achieve superior performance. Strategic flexibility allows organizations to avoid excessive dependence on fixed routines and enables them to adjust priorities when environmental conditions change. This finding is consistent with previous research demonstrating positive relationships between strategic flexibility, innovation, agility, and organizational performance (Asayesh et al., 2017; Hataminia & Abbaszadeh, 2016; Pirasteh Majd, 2025). Strategic flexibility has also been linked with strategic innovation and management innovation, suggesting that flexible organizations are more capable of introducing new approaches when established practices become inadequate (Han & Gao, 2017). These findings reinforce the view that organizational performance in uncertain environments depends not only on the efficiency of existing operations but also on the ability to modify those operations when required.

From the perspective of dynamic capabilities, the relationship between strategic flexibility and organizational performance is theoretically expected because organizations need mechanisms for sensing change, seizing opportunities, and reconfiguring resources in response to emerging threats and opportunities (Teece et al., 2016). Strategic flexibility reflects this capacity for reconfiguration. In a municipal engineering context, such flexibility may include reallocating personnel among projects, modifying work priorities, adjusting procedures in response to regulatory or technical changes, adopting new technologies, or coordinating rapidly with contractors and external stakeholders. These capabilities can reduce delays, improve problem resolution, and increase the organization's ability to maintain performance under changing conditions. The finding is also consistent with research showing that strategic flexibility can mediate or strengthen the effects of leadership and organizational resources on performance (Arabi et al., 2025). Thus, strategic flexibility appears to be a central organizational capability through which internal resources are converted into effective responses to external demands.

The fourth finding indicated that strategic flexibility significantly mediated the relationship between high-performance work systems and organizational performance. This result is particularly important because it demonstrates that high-performance work systems do not influence organizational performance only through a direct pathway. A portion of their effect occurs because these systems create the human and organizational conditions necessary for strategic adaptation. This finding directly aligns with previous evidence showing that strategic flexibility mediates the relationship between high-performance work systems and organizational performance (Wang et al., 2021). It is also consistent with studies identifying human resource flexibility and organizational ambidexterity as mediating mechanisms connecting high-performance work systems to performance outcomes (Keshavarzi, 2020; Tahmasbi & Farhadi Mahalli, 2018; Xing et al., 2015). Together, these findings suggest that the value of high-performance work systems lies partly in their capacity to increase the range of strategic responses available to the organization.

The mediating role of strategic flexibility can be explained through several mechanisms. First, high-performance work systems increase employees' knowledge and skills, thereby giving organizations greater freedom to reassign tasks and alter responsibilities. Second, participatory practices give employees greater involvement in problem solving and make organizations more receptive to alternative courses of action. Third, effective performance management and information-sharing systems improve organizational awareness of changing demands. Fourth, training and development reduce dependence on narrow role definitions and enable employees to perform across different tasks and contexts. These mechanisms collectively strengthen the organization's ability to respond strategically. Contemporary studies on digital experience and human resource agility similarly indicate that employee capabilities

can translate broader organizational resources into sustainable performance outcomes (Shekari & Kamanchi, 2026). Likewise, research on knowledge risk management suggests that organizational sustainability is enhanced when organizational practices foster innovative employee behavior and adaptive responses (Shekari et al., 2025). The present findings therefore reinforce the argument that organizational performance is increasingly dependent on intermediary capabilities that allow human resources to be transformed into adaptive action.

The fifth finding showed that social networks significantly moderated the effect of high-performance work systems on strategic flexibility. This finding suggests that the contribution of high-performance work systems to strategic flexibility is contingent on the quality and effectiveness of employees' relational networks. High-performance human resource practices may equip employees with knowledge, skills, and motivation, but social networks determine the extent to which those resources can be exchanged, combined, and mobilized across organizational boundaries. This finding is directly consistent with the study of Wang et al., which identified social networks as a moderator of the relationship between high-performance work systems and strategic flexibility (Wang et al., 2021). It is also consistent with earlier research showing that social capital can strengthen the relationship between high-performance work systems and organizational performance (Akbarzadeh Kakhki et al., 2016). Together, these findings indicate that relational resources are critical to the effective functioning of formal human resource systems.

The moderating effect of social networks can be understood through the informational and coordination advantages provided by interpersonal connections. Employees embedded in strong professional networks have greater access to technical knowledge, organizational information, expertise, and informal support. These resources can accelerate the identification of emerging problems and facilitate rapid coordination when strategic changes are required. In contrast, where social networks are fragmented or weak, information may remain isolated within departments or professional groups, thereby reducing the organization's ability to respond quickly. This issue is particularly relevant in construction and municipal environments, where engineers frequently need to coordinate with contractors, consultants, regulatory units, project managers, and other technical specialists. Social networks therefore amplify the benefits of high-performance work practices by enabling employee capabilities to become shared organizational resources. This interpretation is compatible with research emphasizing the importance of innovative organizational climates, organizational commitment, and relational conditions in shaping the effectiveness of high-performance work systems (Matlabi Varkani et al., 2022; Nazem, 2022).

The findings also carry broader implications for contemporary human resource management. Recent evidence indicates that organizations increasingly depend on adaptive employees who can engage with artificial intelligence, digital technologies, and new forms of work (Liu & Zhang, 2026; Shekari et al., 2026). At the same time, regenerative approaches to human resource management emphasize continuous renewal of workforce capabilities rather than reliance on static competencies (Sheikhi et al., 2026). In this context, high-performance work systems may be especially valuable when they are designed to promote learning, flexibility, collaboration, and innovation rather than merely compliance with established procedures. The finding that social networks strengthen the effect of such systems on strategic flexibility suggests that organizations should avoid treating formal human resource practices and informal relational structures as separate domains. Effective organizational adaptation appears to emerge when formal systems for developing employees are complemented by strong channels for communication, knowledge exchange, and collaboration.

5 Conclusion

Overall, the results of the present study contribute to the literature by integrating direct, mediating, and moderating mechanisms within a single conceptual model. The findings confirm that high-performance work systems contribute directly to organizational performance while also strengthening strategic flexibility, which in turn improves performance. In addition, the relationship between high-performance work systems and strategic flexibility is influenced by social networks. This integrated model is consistent with prior evidence suggesting that high-performance work systems operate through complex organizational and behavioral mechanisms rather than through simple direct effects (Dorta-Afonso et al., 2025; Zhu & Lee, 2026). The results therefore support a systemic interpretation of organizational performance in which human resource practices, adaptive capabilities, and relational resources jointly determine organizational outcomes.

The present study has several limitations that should be considered when interpreting the findings. First, the study employed a cross-sectional design, which limits the ability to establish causal relationships among high-performance work systems, strategic flexibility, social networks, and organizational performance. Second, data were collected using self-report questionnaires, and therefore the results may have been affected by common method variance, social desirability, or respondents' subjective perceptions. Third, the study was conducted among engineers working in municipal and construction-related projects in District 4 of Isfahan Municipality, which limits the generalizability of the findings to other municipalities, industries, professional groups, or geographical regions. Fourth, convenience sampling was used, which may have reduced the representativeness of the sample. Fifth, the study focused on strategic flexibility as the principal mediating mechanism and social networks as the moderating factor; other organizational variables that may influence the relationship between high-performance work systems and organizational performance were not included. Finally, organizational performance was measured using perceptual indicators rather than objective operational or financial performance data, which should be considered when interpreting the magnitude of the reported relationships.

Future studies are recommended to employ longitudinal research designs to examine changes in high-performance work systems, strategic flexibility, social networks, and organizational performance over time and to provide stronger evidence regarding causal relationships. Researchers could also use multi-source data by collecting information on human resource practices from managers, strategic flexibility from employees or supervisors, and organizational performance from administrative or objective records. Replication of the model in other municipalities, private construction companies, manufacturing organizations, service firms, and public-sector institutions would help determine the generalizability of the findings. Probability sampling methods and larger samples could also improve external validity. Future studies may incorporate additional mediating mechanisms such as organizational agility, organizational ambidexterity, knowledge sharing, innovative behavior, employee engagement, psychological empowerment, and human resource flexibility. It would also be useful to examine alternative moderating factors, including organizational culture, leadership style, environmental dynamism, technological turbulence, organizational learning climate, and digital maturity. Comparative studies across industries, regions, and organizational ownership structures could further clarify the conditions under which high-performance work systems generate the strongest performance benefits.

Managers should design high-performance work systems as integrated bundles of mutually reinforcing practices rather than implementing isolated human resource initiatives. Greater attention should be given to selective recruitment, continuous technical and managerial training, participative decision-making, systematic performance appraisal, transparent reward mechanisms, employee empowerment, and regular performance feedback. To strengthen strategic flexibility, organizations should develop multi-skilled employees, encourage job rotation where appropriate, establish cross-functional teams, and create procedures that facilitate rapid reallocation of personnel and resources when project conditions change. Managers should also invest deliberately in the development of internal and external social networks by promoting interdepartmental collaboration, professional communities of practice, technical knowledge-sharing sessions, and stronger communication among engineers, contractors, consultants, and municipal units. Digital collaboration platforms can be used to facilitate information exchange and preserve organizational knowledge across projects. Finally, senior managers should evaluate human resource practices not only in terms of immediate productivity but also according to the extent to which they strengthen adaptability, knowledge exchange, coordination, and the organization's capacity to respond effectively to changing strategic and operational conditions.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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