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Presenting a Model of Ambidextrous Human Resource Management in Project-Oriented Organizations

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A B S T R A C T

Objective: The objective of this study was to develop and empirically validate a comprehensive model of ambidextrous human resource management (A-HRM) tailored to the structural and behavioral requirements of project-oriented organizations.
Methods and Materials: This study employed a mixed-methods sequential exploratory design consisting of qualitative and quantitative phases. In the qualitative phase, semi-structured interviews were conducted with 20 experts in ambidextrous HRM using purposive and snowball sampling until theoretical saturation was achieved. The interviews were analyzed through open, axial, and selective coding using MAXQDA, and thematic structures underlying motivational, empowering, and opportunity-creating HRM practices were extracted. In the quantitative phase, a researcher-developed questionnaire was administered to 213 employees of a large project-oriented organization. Measurement reliability was assessed through Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE), while normality was examined using the Kolmogorov–Smirnov test. Structural equation modeling (SEM) was applied to examine path coefficients, t-values, predictive relevance (Q^2), coefficient of determination (R^2), and overall model fit (GOF).
Findings: The Kolmogorov–Smirnov results indicated all variables were non-normal ($p < 0.05$), supporting the use of SEM with non-parametric assumptions. All main constructs—motivational practices ($R^2 = 0.836$), empowering practices ($R^2 = 0.813$), and opportunity-creating practices ($R^2 = 0.733$)—showed strong explanatory power. Path coefficients exceeded significance thresholds ($t > 1.96$), confirming meaningful relationships among variables. Predictive relevance values indicated strong model validity ($Q^2 > 0.35$). The overall model demonstrated excellent global fit (GOF = 0.56), confirming strong structural integrity and predictive capability.
Conclusion: The validated model demonstrates that ambidextrous HRM—comprising motivational, empowering, and opportunity-creating practices—provides a robust conceptual and operational foundation for enhancing exploration–exploitation balance in project-oriented organizations, thereby supporting adaptability, innovation, and sustained organizational performance.

Keywords: *Human Resource Management, Ambidexterity, Project-Oriented Organizations*

1 Introduction

Organizational ambidexterity has emerged as one of the most influential constructs in contemporary management research, capturing the ability of organizations to simultaneously pursue exploration and exploitation in dynamic, complex, and highly competitive environments. In settings characterized by rapid technological change, unpredictable project cycles, and escalating stakeholder expectations, ambidexterity has become a strategic imperative rather than a discretionary choice. Organizations must innovate while maintaining operational excellence; they must explore emerging opportunities while efficiently exploiting existing capabilities. This dual capacity is especially critical in project-oriented environments, where uncertainty, time constraints, and cross-functional interdependencies intensify the tension between adaptability and efficiency (Turner et al., 2015). As such, understanding the microfoundations and enabling mechanisms of ambidexterity has become a central topic within strategic management and human resource management (HRM) research.

Scholars have widely argued that ambidexterity is not solely a structural phenomenon but is deeply rooted in individual skills, leadership behaviors, and organizational processes that balance contradictory yet complementary activities (Pertusa-Ortega et al., 2021). Project-based organizations face the unique challenge of integrating temporary structures with long-term strategic learning, requiring deliberate mechanisms for knowledge creation, sharing, and integration. The work of Eriksson emphasizes that exploration and exploitation unfold at different organizational levels in project contexts—ranging from individual learning to team-level routines and project-to-project knowledge diffusion (Eriksson, 2013). This multilayered complexity demonstrates that project-based settings require tailored HRM systems that support ambidextrous behaviors through appropriate recruitment, training, evaluation, and reward mechanisms.

Human resource management thus plays a critical role in shaping, enabling, and sustaining ambidexterity. High-performance work systems, knowledge-based HR practices, and strategic HR architectures create behavioral capacities that facilitate the integration of exploratory and exploitative performance outcomes (Patel et al., 2013). Huang and Kim's conceptualization of structural ambidexterity in HR architectures suggests that HR systems must simultaneously promote flexibility, innovation, and efficiency through differentiated yet aligned practices (Huang & Kim, 2013). In this regard, Garaus et al. provide empirical evidence that ambidextrous HRM systems enhance knowledge bridging and learning in complex organizations, particularly among "hidden champion" firms that compete based on innovation and specialized expertise (Garaus et al., 2015). These insights collectively demonstrate that human resource ambidexterity is foundational for organizational ambidexterity.

In project-oriented organizations, human capital serves not merely as a resource but as a strategic asset that determines adaptability, resilience, and innovation capacity. Research indicates that human capital characteristics—including skills, experience, and cognitive diversity—significantly influence organizational learning ambidexterity (Diaz-Fernandez et al., 2017). Ambidextrous HRM practices such as job rotation, dual-skilling, cross-functional team formation, and development-oriented performance evaluations further enhance employees' ability to engage in both exploratory and exploitative tasks (Asili et al., 2015). Prior studies have shown that HRM frameworks in such environments must be explicitly designed to support the dynamic needs of project phases, the interdependencies between roles, and the requirement for knowledge integration across projects (Asili, 2014). Therefore, project-oriented organizations require specialized HRM models that integrate ambidextrous recruitment, training, development, compensation, and performance appraisal mechanisms.

Extant literature also highlights that ambidexterity is influenced by contextual and leadership factors. Ambidextrous leadership—marked by flexibility, adaptability, and the ability to promote both alignment and adaptability—significantly fosters innovation in project-based construction organizations (Haider et al., 2023). Parallel findings indicate that paradoxical leadership styles, which balance control and autonomy, strengthen organizations' capacity for Industry 4.0 adoption, strategic flexibility, and sustainable performance (Hossain et al., 2024). Leadership, therefore, acts as an orchestrator of ambidextrous HRM by aligning individual abilities with organizational-level strategic goals. Strategic leadership also enhances the effects of organizational agility and ambidexterity on performance outcomes, underscoring leadership's mediating role (Faten Ahmed Mohammed Abd El & Ahmed, 2024).

In addition, recent studies show that ambidexterity contributes directly to organizational performance through its impact on innovation, adaptability, and strategic

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flexibility. Organizational agility has been found to significantly enhance performance through the mediating role of ambidexterity (Ardabili et al., 2025). Similarly, digital business transformation facilitates both operational efficiency and strategic renewal by promoting ambidextrous capabilities that enhance competitiveness in volatile markets (Nasution et al., 2025). Digitization also offers new pathways for achieving ambidexterity by enabling the reconfiguration of processes, data-driven decision-making, and enhanced cross-functional coordination (Park et al., 2020). These findings collectively highlight the importance of designing HRM systems that enable digital readiness, knowledge sharing, and continuous learning.

Organizational ambidexterity is further shaped by cultural, structural, and environmental contingencies. Pro-innovation culture and organizational memory jointly influence new product development performance through the mediating effect of ambidexterity (Haghighi et al., 2018). Quality-oriented HR practices also foster ambidextrous cultures, strengthening the capacity for both incremental and radical innovation (Moreno-Luzon et al., 2024). The relevance of strategic orientations—such as frugality, environmental responsiveness, and entrepreneurialism—has been emphasized in emerging markets, where digitalization intensifies competition and innovation pressures (Sengura et al., 2024). In such contexts, organizational ambidexterity acts as a bridging mechanism that transforms strategic intent into innovative outcomes.

The importance of ambidexterity extends to green management, sustainability, and corporate responsibility. Studies have identified strong relationships between ambidexterity, green entrepreneurial orientation, and environmental performance in SMEs (Shafique et al., 2021). Similarly, perceived corporate social responsibility enhances the effectiveness of ambidextrous strategies by strengthening stakeholder trust and organizational legitimacy. In the global push toward sustainability, HRM systems must therefore support both exploitation-driven efficiency and exploration-driven environmental innovation.

In public and non-profit organizations, ambidexterity plays a crucial role in balancing service delivery with innovation. Peng's work highlights both the potential and the limits of ambidexterity in public organizations, noting that institutional constraints require specialized HRM and leadership frameworks (Peng, 2019). Complementary research shows that employee ambivalence—when strategically managed—can enhance organizational learning, decision-making, and performance (Sanai et al., 2023). Thus, ambidexterity is not merely a structural or strategic phenomenon but also a behavioral and psychological construct influenced by contextual ambivalence and employee perceptions (Membini, 2014).

Project-based information technology firms also demonstrate the importance of multi-level ambidexterity when handling specialized projects characterized by complexity, interdependencies, and technological uncertainty (Sohani & Singh, 2017). These organizations rely heavily on HR systems that support ambidextrous project tagging, specialized team formation, and continuous learning. The ability to dynamically shift between exploration and exploitation is thus embedded in the fabric of project-based work, making ambidextrous HRM indispensable to project success.

Furthermore, flexible organizational structures and strategic planning approaches have been found to influence ambidexterity in meaningful ways. Organizational flexibility enhances responsiveness and adaptability, as demonstrated in higher education institutions in Iraq (Zebari, 2024). Strategic planning, depending on contingencies, may either support or hinder ambidexterity, suggesting that planning must be aligned with HRM practices that encourage creativity and controlled innovation (Posch & Garaus, 2020). These insights reinforce the notion that ambidextrous HRM must be integrated with organizational strategy, structure, and planning systems.

Knowledge management processes—including knowledge creation, transfer, and integration—serve as essential enablers of ambidexterity. Studies have demonstrated that ambidextrous strategies enhance competitive excellence when supported by effective knowledge creation and organizational agility (Waseel et al., 2024). Additionally, relationship learning plays a foundational role in building exploration and exploitation capabilities, particularly in high-tech environments requiring rapid innovation cycles (Wang & Hsu, 2014). These findings highlight the need for HRM frameworks that explicitly support dual learning pathways.

Given these theoretical advances, scholars have recognized the need for specialized HRM models specifically tailored to ambidextrous organizations. Tahmasbi et al. proposed a human resource framework for ambidextrous organizations that supports behavioral, competency-based, and structural mechanisms for balancing innovation and efficiency (Tahmasbi et al., 2019). Similarly, Alidadi Talkhestani et al. identified ambidextrous strategic HR competencies in defensive-industrial organizations,

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emphasizing the importance of aligning HR functions with ambidexterity goals (Alidadi Talkhestani et al., 2018). These efforts underscore the growing recognition that HRM is central to ambidexterity and must be modeled accordingly to fit different organizational contexts.

Despite these contributions, there remains a significant gap in developing a comprehensive, empirically grounded model of ambidextrous human resource management specifically for project-oriented organizations, where the need for dual-capability HR systems is most pronounced. Project environments present unique conditions—temporary structures, dynamic teams, constrained timelines, and evolving skill needs—that require HRM models integrating motivation, empowerment, opportunity creation, and dual-capability workforce management. Therefore, the aim of this study is to develop and validate a comprehensive model of ambidextrous human resource management for project-oriented organizations.

2 Methods and Materials

The purpose of the present study is to develop a model of ambidextrous human resource management in project-oriented organizations. The research method is applied in nature and employs a mixed-methods design consisting of both qualitative and quantitative approaches.

In the qualitative phase, the statistical population consisted of 20 experts and faculty members specializing in ambidextrous human resource management in project-oriented organizations. Using the snowball sampling method, semi-structured interviews were conducted with participants until theoretical saturation was reached. The interview transcripts were then coded, and qualitative thematic analysis was performed with the assistance of MAXQDA software. Validity and reliability in this phase were ensured based on the criteria of credibility, member checking (verification by interviewees), data triangulation, negative case analysis, and transferability.

In the quantitative phase, data were collected through a researcher-developed questionnaire administered to 213 employees of the Khatam-al Anbia Construction Headquarters. Structural equation modeling was used to estimate and assess the relationships within the proposed model. Face validity of the questionnaire items was reviewed and confirmed by a panel of relevant experts, and reliability was calculated through a pilot test, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE).

Table 1

Cronbach's Alpha, Composite Reliability, and AVE

Variables	Cronbach's Alpha	Composite Reliability (CR)	AVE
Ambidextrous Human Resource Management in Project-Oriented Organizations	0.964	0.964	0.608
Motivational Practices	0.956	0.958	0.623
Empowering Practices	0.949	0.950	0.601
Opportunity-Creating Practices	0.893	0.895	0.660

Cronbach's alpha and composite reliability values for all research variables exceed 0.70, indicating appropriate reliability. Moreover, the results show that the AVE coefficients for all variables are above 0.50, reflecting satisfactory convergent validity.

3 Findings and Results

In this section, open, axial, and selective codes were extracted following the interviews with the experts. It is worth noting that theoretical saturation was achieved; that is, no new codes were generated in the twentieth interview, and the extracted codes were repetitive. Table 2 presents the open, axial, and selective coding of motivational practices.

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Table 2

Open, Axial, and Selective Coding of Motivational Practices

Question	Indicator Title	Contextual or Structural
Characteristics of Ambidextrous Compensation Systems in Project-Based Organizations	Creating balance between encouragement, praise, punishment, and criticism	Contextual
	Increasing motivational power through project scheduling and adherence to timelines	
	Alignment of compensation with labor market and competitor companies	
	Transparency and justice in distributing rewards and compensation	
	Use of variable pay based on employee performance	Balanced
	Allocating special job evaluation scores to research-related activities in compensation	Structural
	Use of updated compensation models such as the 4P model	
	Flexible work schedules appropriate to project needs for temporary workforce	
	Internal and external reward programs	
	Extensive support programs for employee retention	
	Paying actual—not symbolic—overtime	
	Compensation based on progress in both research and implementation domains	
	Compensation for dual-skill or multi-skill jobs	
	Special compensation for dual or multiple competencies (research- and execution-oriented)	
	Developing a comprehensive document for quantitative and qualitative compensation structuring	
	Linking compensation eligibility to all job dimensions	
	Considering both operational/executive processes and exploratory/R&D processes in pay	
	Timely and delay-free compensation	
	Flexible work schedules for organizational employees	
	Preventing issues such as credentialism, seniority bias, legalism, and uniformity in pay systems	
	Providing non-financial and symbolic rewards (e.g., recognition in prominent media, educational opportunities, scientific or spiritual trips, family trips)	
	Offering competitive salaries to create a sense of value	
	Implementing a comprehensive welfare service system for employee retention	
	Tiered compensation structure in at least three categories (basic pay, special pay, bonuses)	
Characteristics of Ambidextrous Performance Evaluation in Project-Oriented Organizations	Motivation through encouragement rather than control	Contextual
	Impact of evaluation results on employees' comprehensive promotion	
	Attention to value preservation aspects in performance evaluation by trained managers	
	Considering employees' participation level in projects	
	Attention to value preservation in performance evaluation	
	Providing periodic feedback to employees	Balanced
	Granting autonomy, discretion, and guidance for task performance	
	Justice-oriented and discrimination-free performance evaluation approaches	
	Assigning high-value evaluation scores to research activities during project implementation	Structural
	Providing progress reports in performance evaluation for timely project execution	
	Performance evaluation based on research-informed and localized job descriptions (exploration-based)	
	Evaluation based on management by objectives	
	Evaluation based on job descriptions and proper task execution	
	Use of updated and well-studied performance evaluation techniques	
	Use of 360-degree evaluation to identify employee competencies	
	Use of continuous improvement methods in performance evaluation	
	Use of appropriate evaluation methods to enhance collaboration	
	Use of an advanced interactive performance management system enabling alignment among units	

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	Use of an interactive performance management process including coaching, counseling, feedback, follow-up, and appreciation focused on development	
	Use of multiple sources of evaluation	
	Repeated testing of research-based evaluation methods before implementation	
	Implementation of an advanced interactive performance management system	
	Simultaneous emphasis on research and execution in performance evaluation	
	Integrating, combining, and comparing evaluation results with customer feedback regarding employees	

Table 3

Open, Axial, and Selective Coding of Empowering Practices

Question	Indicator Title	Contextual or Structural
Characteristics of Ambidextrous Training and Development in Project-Oriented Organizations	Modeling capable, respected, and accepted individuals for training programs	Contextual
	Providing research opportunities	
	Using experts and veterans to share and document experiences	Balanced
	Using trainers with technical knowledge and operational experience in trainings	
	Training based on evaluation results to compensate for weaknesses	
	Training aligned with the organizational vision and goals	
	Extensive and diverse training and development for managers, key experts, and technicians	
	Short-term training to explain all dimensions and procedures of project implementation before work begins	
	Managerial training to change attitudes and strengthen a research culture	
	Skills training focused on opportunity utilization	
	Courses on effective communication between managers and employees	
	Collaboration with leading scientific centers and universities inside and outside the country to update technical knowledge	Structural
	Using advanced technologies in training	
	Using simulations, models, and prototypes for employee briefings	
	Limited use of traditional teaching styles	
	Training in repair, maintenance, and machinery construction	
	Training in skills for both research and execution domains	
	Training in the use of high-technology machinery	
	Specialized and applied empowering trainings to enhance skills using advanced technology	
	Preparing training content based on experiences in previous projects	
	Documenting past project experiences in written format	
	Replacing traditional training with interactive online learning	
Characteristics of Ambidextrous Recruitment and Selection in Project-Oriented Organizations	Adding research skills to key positions	Contextual
	Emphasizing teamwork capability and managerial coordination	
	Giving importance to specific educational backgrounds, useful skills, specialized knowledge, or work experience	
	Accelerating employee socialization through initial onboarding training	
	Emphasizing innovation and efficiency simultaneously	
	Preservation of lasting experiences and tacit knowledge	
	Possessing specialized knowledge, work experience, and creativity	
	Ensuring fairness for all applicants	
	Prioritizing personality traits such as conscientiousness, cognitive ability, and operational commitment	
	Coordination with senior managers during recruitment	
	Hiring responsible individuals with strong motivation and determination	Balanced
	Recruiting qualified local individuals or those introduced by other organizations	
	Recruiting creative, innovative, and talented individuals	
	Recruiting individuals with strong skills in both execution and research	
	Retaining employees to improve the work environment and attract top talent	

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	Using integrated and accessible recruitment tools	Structural
	Using outsourcing to meet part of HR needs	
	Using dual-skilled employees	
	Administering psychological and personality assessments for job fit	
	Conducting specialized job interviews alongside value-based interviews	
	Recruiting from elite foundations and academic centers	
	Avoiding excessive hiring	
	Facilitating staff transfer across projects in crisis conditions	
	Recruiting or releasing staff based on the project's WBS	

Table 4

Open, Axial, and Selective Coding of Opportunity-Creating Practices

Question	Indicator Title	Contextual or Structural
Characteristics of Ambidextrous Job Design in Project-Oriented Organizations	Emphasis on autonomy and broad employee participation	Contextual
	Emphasis on extensive workgroups and teams	
	Considering technological changes that modify work nature (e.g., reducing supervision or organizational dependency)	
	Job flexibility and implementability in the work environment	Balanced
	Flexibility in research-oriented job roles	
	Establishing a deep link between job design and job activation	
	Using the G20 model for job scoring and evaluation	Structural
	Increasing diversity and job rotation for research employees	
	Creating continuous promotion paths for high-performing employees	
	Reviewing and updating job designs with new methodologies	
	Identifying clear career paths by reviewing job interdependencies	
	Identifying clear career paths for research employees	
	Job analysis and design using updated methods	
	Job development, enrichment, and extensive job rotation	
	Measuring job productivity using indicators in job descriptions	
	Designing project jobs using scientific, motivational, systemic, and ergonomic approaches	
	Designing jobs based on employee ideas	
	Designing all job aspects to ensure long-term job duration	
	Assigning suitable individuals to suitable positions	
	Aligning job design with technological changes and evolving job nature	
Characteristics of Ambidextrous Employee Participation in Project-Oriented Organizations	Creating opportunities for cooperation, collaboration, and reconciliation based on respect	Contextual
	Creating shared motivation and interest	
	Building stronger coordination	
	Increasing participation and creativity using social networks and Q&A platforms	
	Improving morale and teamwork	
	Strengthening human respect and social status	
	Enhancing sense of participation through mutual benefits	
	Hard work toward achieving personal and organizational goals	
	Emphasizing effective communication, avoiding authoritative requests	
	Solving operational issues in a friendlier atmosphere	
	Resolving issues amicably using non-union frameworks	
	Supporting organizational missions and goals	
	Activating creativity and initiative	
	Creating belonging and responsibility, leading to innovation	
	Increasing participation reduces rumors and increases morale, performance, and commitment	
	Commitment-based system with extensive staff–manager interactions	
	Establishing a commitment system to resolve issues through management	Balanced
	Creating a positive work environment free of stress, ethical issues, and discrimination	
	Enhancing participation with internal charity programs	

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	Creating constructive conflict for problem clarification	
	Employee participation leads to better decisions and creativity activation	
	Organizing employees into teams and groups	Structural
	Holding problem-solving dialogue sessions	
	Incentive programs for participation in project activities	
	Having an employee suggestion system	
Characteristics of Ambidextrous Team-Building in Project-Oriented Organizations	Team effectiveness through process optimization to improve performance	Contextual
	Building trust through strong relationships	
	Team members' pride in their role and contributions	
	Increasing cross-boundary communication with institutions and organizations	
	Creating a sense of importance and value in employees	
	Creating memorable experiences from team success	
	Strategic development through team dialogue	
	Achieving agility by combining individual strengths	
	Facilitating free flow of information to build trust	
	Finding effective solutions through collaboration and combining perspectives	
	Creating loyalty and higher job satisfaction	Balanced
	Forming strong relationships between colleagues	
	Creating teams based on interests, knowledge, and experience	Structural
	Creating and using self-managed and expert problem-solving teams	
	Optimizing processes for effective team management	
	Assigning diverse roles within teams	
	Organizing quality circles as problem-solving teams	

In this study, the one-sample Kolmogorov–Smirnov test was used. If the significance level is greater than 0.05, the variable is considered normal; otherwise, the data are non-normal. Therefore, according to Table 5, all variables are non-normal..

Table 5

Results of the Kolmogorov–Smirnov Test for Examining Data Distribution

Variables	Sample Size	Test Statistic	*p*-value
Ambidextrous Human Resource Management in Project-Oriented Organizations	213	0.090	0.000
Motivational Practices	213	0.140	0.000
Characteristics of Compensation	213	0.217	0.000
Characteristics of Performance Evaluation	213	0.190	0.000
Empowering Practices	213	0.154	0.000
Characteristics of Training and Development	213	0.214	0.000
Characteristics of Recruitment and Selection	213	0.239	0.000
Opportunity-Creating Practices	213	0.191	0.000
Characteristics of Job Design	213	0.156	0.000
Characteristics of Employee Participation	213	0.212	0.000
Characteristics of Team-Building	213	0.207	0.000

Several criteria were used to evaluate the goodness-of-fit of the structural model, the first and most fundamental of which is the t significance coefficient. The structural model is considered acceptable based on t-values when these coefficients exceed 1.96, confirming significance at the 95% confidence level. The significance of the coefficients was reported based on the t-value statistic. Thus, if the t-value exceeds 1.96, one can conclude with 95% confidence that the independent variable significantly affects the dependent variable. A path coefficient above 0.40 is also considered acceptable.

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Figure 1

t-Value Significance Coefficients in the Conceptual Model

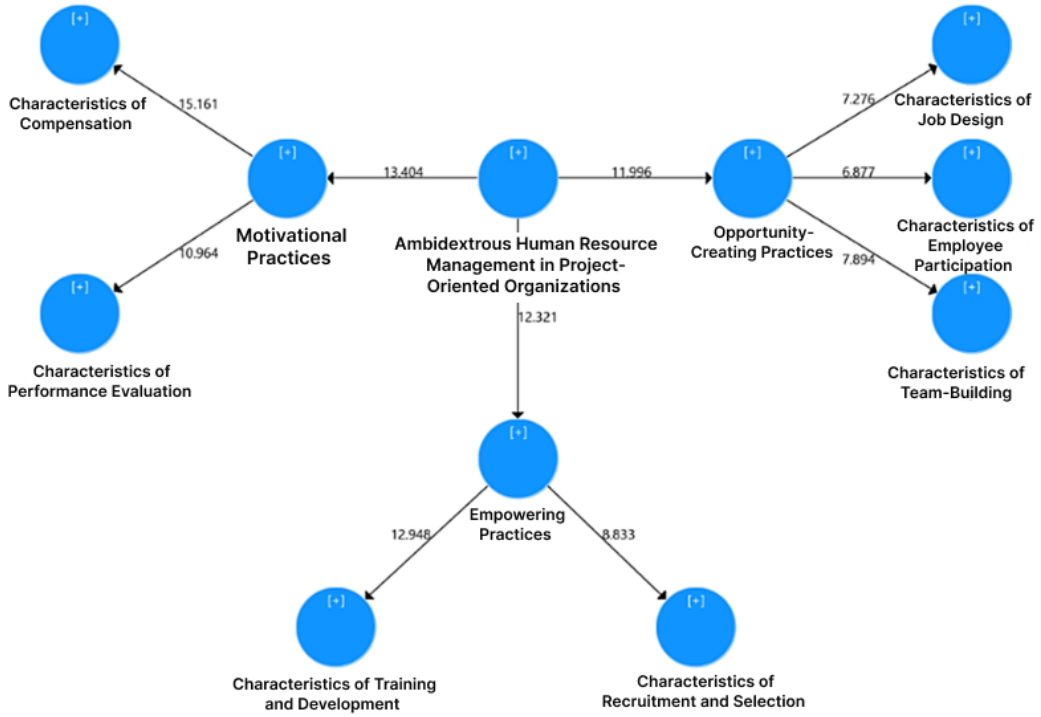
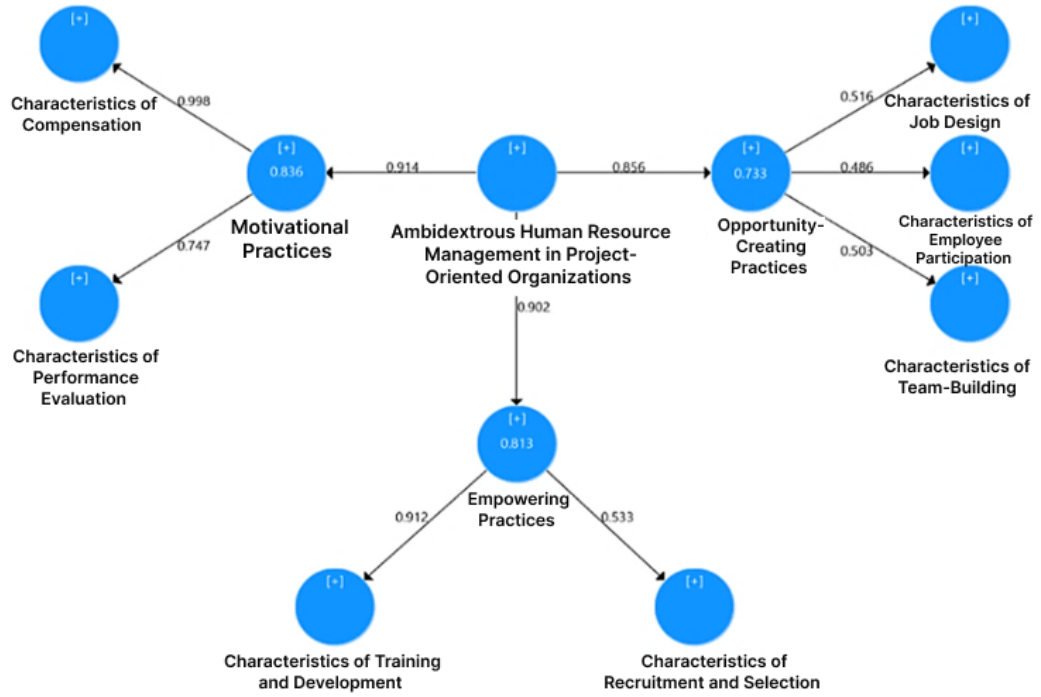


Figure 2

Path Coefficients in the Conceptual Model



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In examining the structural model, the relationships between independent and dependent variables are assessed. Based on the views of Hair, the coefficient of determination (R^2), the standardized beta path coefficient, and predictive relevance (Q^2) were examined for model evaluation. Values of R^2 are not reported for exogenous variables.

Chin introduced three values—0.19, 0.33, and 0.67—as weak, moderate, and strong levels of the R^2 criterion. Path coefficients (standardized beta) correspond to significance levels of 90%, 95%, and 99%, represented by 1.64, 1.96, and 2.58, respectively.

The predictive relevance criterion (Q^2), or structural model quality index, is calculated only for endogenous constructs with reflective indicators. Threshold values are 0.02 (weak), 0.15 (moderate), and 0.35 (strong). Values greater than zero indicate that the model adequately reconstructs observed values and has appropriate predictive power; therefore, the structural model is of acceptable quality.

Based on the above theoretical criteria, the results in Table 6 indicate that the model is structurally validated and strong relationships exist among the variables.

Table 6

Coefficient of Determination (R^2) and Predictive Relevance (Q^2) for Endogenous Constructs

Variables	R^2 (Coefficient of Determination)	Q^2 (Predictive Relevance)
Motivational Practices	0.836	0.451
Empowering Practices	0.813	0.376
Opportunity-Creating Practices	0.733	0.359

Three values—0.01, 0.25, and 0.36—were introduced as weak, moderate, and strong levels for this criterion.

$$\text{GOF} = \sqrt{(\bar{\text{Communality}} \times \bar{R^2})} = \sqrt{0.395 \times 0.794} = 0.56$$

Given the results above, it can be concluded that the model demonstrates a strong goodness-of-fit.

4 Discussion and Conclusion

The purpose of this study was to develop and validate a comprehensive model of ambidextrous human resource management (A-HRM) in project-oriented organizations. The findings from both the qualitative and quantitative phases confirm that ambidextrous HRM is a multidimensional construct composed of motivational practices, empowering practices, and opportunity-creating practices. Each dimension demonstrated strong reliability, convergent validity, and structural integrity, and the structural equation modeling results showed that the proposed A-HRM model possesses strong predictive power and robust goodness-of-fit indices. The results confirm that ambidextrous HRM contributes directly to the capacity of project-oriented organizations to balance exploratory and exploitative activities, thereby enhancing organizational adaptability, innovation, and performance.

The first major finding concerns the centrality of motivational practices in enabling ambidexterity. The qualitative results indicate that project-oriented organizations must design reward and compensation systems that incentivize both research-oriented exploration and operational execution. The quantitative analysis confirmed a strong explanatory power for motivational practices ($R^2 = 0.836$), indicating that employees' motivation to engage in exploration and exploitation is highly dependent on HRM policies that ensure fairness, transparency, and alignment with organizational goals. Similar conclusions have been drawn by previous research demonstrating that HRM architectures must integrate variable pay, performance-based evaluations, and reward differentiation to support dual-capability behaviors (Huang & Kim, 2013). Scholars such as Patel et al. highlight that high-performance work systems strengthen ambidexterity by enhancing employee engagement and encouraging dual contributions across innovation and operational domains (Patel et al., 2013). This alignment between motivational mechanisms and ambidextrous behavior can also be observed in Garaus et al.'s empirical study, where ambidextrous HRM practices facilitated knowledge bridging in highly innovative firms (Garaus et al., 2015).

Furthermore, motivation emerged as a major determinant of employees' capacity to simultaneously pursue efficient project delivery and creative problem solving—an observation strongly supported by earlier work showing that ambidextrous learning hinges on both extrinsic and intrinsic motivational enablers (Diaz-Fernandez et al., 2017). The significant *t*-values and strong path coefficients obtained in this study confirm that the role of motivation in A-HRM is

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not merely supportive but foundational in shaping ambidextrous employee behavior.

The second major finding pertains to empowering HRM practices, which exhibited strong explanatory power ($R^2 = 0.813$). Empowering practices in this study included training programs, dual-skill development, cross-functional learning, and using advanced technologies for employee development. Such practices increased employee autonomy, competence, and readiness to engage in both exploratory and exploitative tasks. These findings align strongly with the work of Diaz-Fernandez et al., who argue that human capital development—particularly targeted training and knowledge-sharing—plays a pivotal role in fostering ambidextrous learning (Diaz-Fernandez et al., 2017). Similarly, in project-based organizations, knowledge diffusion and skill development have been shown to substantially influence exploration and exploitation capabilities (Eriksson, 2013). Training and empowerment activities that encourage both divergent and convergent thinking thus serve as critical enablers of ambidexterity.

The qualitative findings also point to the significance of modernizing training methods, such as simulation-based learning and interactive online platforms. This resonates with prior studies indicating that Industry 4.0 technologies create new pathways for ambidexterity through digital skill enhancement and improved organizational learning processes (Hossain et al., 2024). Empowerment through dual-competency development was also consistent with findings from strategic HR work in defensive-industrial organizations, where ambidextrous strategic HR competencies were identified as necessary for innovation and operational excellence (Alidadi Talkhestani et al., 2018). This study's findings reinforce the argument that empowering HRM practices constitute a critical mechanism for building and sustaining ambidextrous capabilities across dynamic organizational environments.

The third major finding highlights opportunity-creating HRM practices as essential for fostering ambidexterity, with an explanatory power of $R^2 = 0.733$. These practices include job design flexibility, employee participation mechanisms, team-building structures, and creating channels for idea generation and collaborative decision-making. Opportunity-creating practices help employees identify, exploit, and co-create opportunities for innovation within project settings. Consistent with prior research, designing jobs that integrate both independent exploration and structured execution facilitates ambidextrous work behavior (Sohani & Singh, 2017). Turner et al. emphasize that intellectual capital pathways—particularly those embedded in job structures and team processes—enhance ambidexterity by supporting continuous knowledge creation and application (Turner et al., 2015). The strong structural model results in this study confirm the effectiveness of job design and participation mechanisms in creating the contextual conditions for ambidextrous behavior.

Team-based opportunity creation emerged as particularly significant, echoing research showing that collaboration, boundary-spanning communication, and multi-disciplinary teamwork are essential for balancing exploration and exploitation in project environments (Turner et al., 2013). Organizational flexibility, a key factor for allowing job redesign and employee participation, has also been shown to significantly influence ambidexterity in educational institutions and project-based environments (Zebari, 2024). By focusing on opportunity creation as a structural element of HRM, this study contributes to a more nuanced understanding of how HR systems can intentionally shape employees' capacity to discover and utilize innovative solutions.

The results further affirm that ambidextrous HRM practices collectively create the infrastructure for organizational agility, a relationship well documented in contemporary management literature. Ambidexterity has been identified as a mediating mechanism between agility and organizational performance (Ardabili et al., 2025). It is therefore unsurprising that the A-HRM model in this study demonstrated a strong overall goodness-of-fit (GOF = 0.56), indicating that the interplay of motivational, empowering, and opportunity-creating practices generates a significant positive impact on organizational ambidexterity. In highly dynamic and digitalized environments, this alignment becomes even more critical. Digital transformation research shows that HR systems enabling dual learning and opportunity identification enhance competitive positioning and strategic renewal (Nasution et al., 2025). These findings reinforce the value of A-HRM within broader strategic and technological contexts.

Moreover, several references support the argument that ambidexterity is shaped by broader organizational orientations and cultural factors. For example, pro-innovation culture and organizational memory have been shown to interact with ambidextrous capabilities to influence new product development performance (Haghighi et al., 2018). Quality-oriented HR practices also strengthen ambidextrous cultures by promoting learning, experimentation, and process excellence (Moreno-Luzon et

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al., 2024). The results of this study align well with these findings, showing that A-HRM practices contribute to building cultural and structural ambidexterity in project-oriented organizations.

The study also supports previous work indicating that leadership plays a critical role in enabling ambidexterity. Ambidextrous leadership fosters innovation through knowledge sharing and strategic adaptability (Haider et al., 2023). Similarly, strategic leadership increases the effectiveness of ambidextrous HRM through its impact on agility, flexibility, and employee motivation (Faten Ahmed Mohammed Abd El & Ahmed, 2024). These findings help situate this study within a broader stream of literature emphasizing the interconnectedness of HRM, leadership, and organizational outcomes.

Finally, the results validate earlier research that HRM frameworks explicitly designed for ambidextrous organizations must integrate structural, behavioral, and strategic elements. Tahmasbi et al.'s HR framework for ambidextrous organizations emphasizes the necessity of converging competence-based mechanisms with flexible HR processes (Tahmasbi et al., 2019). The present study extends this foundation by proposing and validating a comprehensive A-HRM model specifically tailored to project-oriented contexts. Similarly, earlier work identifying the structural placement of HRM within project-oriented organizations (Asili, 2014) and the need for integration across project phases (Asili et al., 2015) aligns with this study's findings that HRM must facilitate cross-project learning, workforce flexibility, and dual-skill development.

This study has several limitations. First, the sample was drawn from a single large project-oriented organization, which may limit the generalizability of the findings to smaller firms or different industries. Second, the qualitative findings were based on expert interviews, which, despite achieving theoretical saturation, may still reflect contextual biases unique to the organization studied. Third, self-reported data from employees may be subject to common-method bias, although statistical tests were used to minimize this concern. Finally, the cross-sectional design prevents firm causal conclusions about the dynamic relationship between HRM practices and ambidexterity.

Future research should examine the proposed A-HRM model in diverse organizational contexts such as SMEs, non-profit organizations, and digital start-ups to improve generalizability. Longitudinal studies could explore how ambidextrous HRM practices evolve over time and how they impact long-term innovation and performance outcomes. It may also be valuable to investigate the moderating roles of leadership style, organizational culture, and digital maturity on the effectiveness of A-HRM practices. Additionally, future studies should consider cross-national comparisons to identify cultural variations in ambidextrous HRM implementation.

Organizations should adopt integrated HRM systems that simultaneously encourage exploration and exploitation among employees. HR managers should design compensation, training, and job-design systems that support dual-skill development and employees' ability to switch between creative and operational tasks. Leadership should promote a culture of knowledge sharing, experimentation, and continuous learning to reinforce ambidextrous behaviors. Finally, project-oriented organizations should build flexible structures that facilitate employee participation, team-based problem solving, and dynamic capability development.

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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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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