Beyond Technical Project Management: Human Resource Management Factors and Perceived Construction Project Success in Sri Lanka -A Qualitative Multi-Case Study

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ABSTRACT

The successful delivery of construction projects remains a significant challenge in developing economies, where project outcomes are influenced by technical, financial, organizational, and human resource-related factors. Although previous studies have extensively examined conventional project success criteria, relatively limited attention has been directed towards understanding how Human Resource Management (HRM) factors collectively contribute to construction project success within the Sri Lankan context. This study investigates the HRM factors perceived to influence construction project success in Sri Lankan C1-grade construction companies. Adopting a mono-method qualitative research approach, the study draws on evidence from ten C1-grade construction companies involving 102 participants. Data were examined using content analysis, narrative analysis, Interpretative Phenomenological Analysis (IPA), and cross-case analysis, complemented by the Nominal Group Technique (NGT) for prioritizing HRM factors. The findings identified seven particularly important factors: recruitment and selection, communication, training and skill development, proper leadership, reward management, work-life balance, and health and safety. The findings suggest that these factors contribute to perceived project success through workforce competency, coordination, employee motivation, organizational commitment, and continuity of project operations. The study extends the understanding of HRM within project-based organizations by contextualizing the Ability–Motivation–Opportunity framework and Resource-Based View within the Sri Lankan construction industry. Practical implications include the need for structured recruitment, project-specific HRM planning, leadership development, and integrated performance monitoring.

Keywords: Construction Project Success; Human Resource Management; Qualitative Research; Project-Based Organizations; Sri Lanka; Workforce Management

1. INTRODUCTION

The construction industry contributes significantly to economic development through infrastructure creation, employment generation, and the development of residential and commercial facilities. However, the successful implementation of construction projects remains challenging due to project complexity, workforce mobility, resource limitations, and coordination difficulties. Traditionally, construction project success has been assessed through the achievement of time, cost, and quality objectives. Nevertheless, contemporary research increasingly recognizes that project success is multidimensional and influenced by organizational capabilities, stakeholder relationships, and human factors (Chan et al., 2004).

Human Resource Management plays an important role in addressing these challenges because construction projects depend on the effective coordination of individuals possessing different professional qualifications, technical competencies, and organizational responsibilities. Unlike organizations characterized by relatively stable operational structures, construction companies frequently establish temporary project teams, transfer employees between sites, and operate under changing project requirements. Consequently, conventional HRM practices may not adequately address the dynamic workforce requirements of project-based organizations (Huemann et al., 2007).

Previous research has emphasized the importance of training, communication, leadership, workforce motivation, and employee commitment in influencing construction project outcomes. However, the existing literature also reveals inconsistencies concerning the relative importance of HRM factors and their contribution to project performance. Belout and Gauvreau (2004) highlighted the need for further investigation into HRM within project management, while Yong and Mustaffa (2012) emphasized the importance of human-related factors in construction project success.

Within Sri Lanka, research examining the collective contribution of HRM factors in large-scale construction companies remains comparatively limited. This is particularly important because construction companies operate within an environment characterized by skilled workforce shortages, changing project demands, and the need to maintain coordination across multiple professional groups.

Accordingly, this study investigates the HRM factors perceived to contribute to construction project success in Sri Lankan C1-grade construction companies. Particular attention is directed towards identifying and prioritizing these factors and explaining the mechanisms through which they may influence project outcomes.

2. LITERATURE REVIEW AND THEORETICAL FOUNDATION

2.1 Human Resource Management and Construction Project Success

Construction project success has traditionally been evaluated through the achievement of cost, time, and quality requirements. However, researchers have increasingly emphasized the importance of broader organizational and human-related dimensions, including stakeholder satisfaction, communication effectiveness, safety, and team performance (Chan et al., 2004).

HRM contributes to these dimensions by ensuring the availability of appropriately qualified employees, developing workforce competencies, improving motivation, and strengthening organizational coordination. Tabassi and Bakar (2009) examined the contribution of training and development to workforce productivity.

The project-based nature of construction requires HRM practices to respond to changing workforce demands across different project phases. Recruitment, training, leadership, communication, and reward management should therefore be considered interconnected organizational practices rather than independent administrative functions.

2.2 Theoretical Foundation

The Ability–Motivation–Opportunity (AMO) framework provides a useful theoretical perspective for explaining how HRM practices may contribute to project performance. Under this framework, employee performance is influenced by the capabilities employees possess, their motivation to perform, and the opportunities available to participate effectively in organizational activities (Appelbaum et al., 2000).

Within construction projects, ability may be developed through competency-based recruitment, technical training, and professional development. Motivation may be strengthened through leadership, recognition, reward management, and employee well-being. Opportunity may be enhanced through effective communication, employee involvement, role clarity, and collaborative decision-making.

The Resource-Based View (RBV) further explains how organizational capabilities and valuable human resources may contribute to sustained organizational performance (Barney, 1991). In construction organizations, technical expertise, leadership capabilities, project experience, and accumulated organizational knowledge represent important resources that can support project delivery.

However, the temporary and dynamic nature of construction projects suggests that these theoretical perspectives should be interpreted within the specific operational conditions of project-based organizations.

3. RESEARCH METHODOLOGY

This study adopted a mono-method qualitative research design to explore the perceptions and experiences of construction industry professionals regarding HRM factors contributing to construction project success.

The research focused on ten C1-grade construction companies operating in Sri Lanka, with 102 participants representing professional and administrative functions associated with construction project management. Participants included project managers, construction managers, engineers, supervisors, quantity surveyors, and HR-related personnel.

Primary data collection involved in-depth interviews, observations, and group-based professional input. The Nominal Group Technique was employed to identify and prioritize important HRM factors through structured expert participation.

The qualitative evidence was examined using content analysis, narrative analysis, and Interpretative Phenomenological Analysis. Cross-case analysis was undertaken to identify recurring patterns and differences across the participating construction companies.

The combination of these analytical approaches enabled the study to examine both the frequency of HRM-related themes and the contextual explanations provided by industry professionals. Triangulation across analytical approaches supported interpretation of the findings.

3.1 Research design and case selection

The study used a qualitative multiple-case design to investigate how professionals interpret the role of HRM in construction project success. The ten C1-grade construction companies constituted the organizational cases. The focus on this contractor grade provided a defined setting in which projects involve multiple professional roles, workforce coordination and changing site-level requirements. This was a context-specific case selection rather than a probability sample of all Sri Lankan construction companies; consequently, the findings are intended to support analytical understanding rather than statistical generalization.

3.2 Participants and sources of evidence

The study reports 102 participants overall, drawn from professional and administrative roles associated with the ten participating companies and the expert prioritization exercise. Professional perspectives included project managers, construction managers, engineers, supervisors, quantity surveyors and HR-related personnel. Interviews, site observations and document review provided complementary forms of qualitative evidence. The nominal group comprised ten HR experts. The original research records should be consulted to confirm the precise distribution of the 102 participants across interviewees and NGT members, the recruitment procedure, experience bands and whether any individual participated in more than one activity; these details are not specified in the submitted manuscript.

3.3 Data collection and analytical integration

Interview accounts were used to examine participants' explanations of existing HRM practices and their perceived consequences for project work. Observations and organizational documents supplied contextual evidence against which those accounts could be considered. The analytical techniques served distinct, complementary purposes within a single qualitative design: content analysis organized recurring HRM topics; narrative analysis attended to participants' descriptions of workplace events and sequences; IPA informed interpretation of individual experiences; and cross-case analysis compared the patterns across companies. These approaches were used to interpret different dimensions of the same qualitative evidence rather than to claim independent quantitative tests. Triangulation involved comparing interview interpretations with observational and documentary indications, and examining whether themes remained coherent across cases.

3.4 Nominal Group Technique and interpretation of ranking

The NGT exercise involved ten HR experts who considered the relative priority of HRM factors. The seven retained factors were assigned weighted priorities using a seven-to-one ranking scale, with higher scores representing stronger collective prioritization. The aggregate weighted totals, rather than statistical effect sizes, were used to order the factors. This structured expert prioritization complements the qualitative cross-case findings; it does not establish causal relationships or predict objective project outcomes. The submitted manuscript does not contain the individual ranking sheets, the exact wording of the elicitation prompt or the full sequence of discussion and voting rounds, so those procedural particulars should be verified against the original NGT records before final publication.

3.5 Trustworthiness, scope and saturation

The use of multiple companies, professional perspectives and evidence types supports the credibility of interpretation by allowing convergence and disagreement to be considered. Cross-case comparison provides a basis for assessing whether a theme is confined to a single setting or recurs more widely. Nevertheless, the manuscript does not document a formal saturation decision rule, coding audit trail, intercoder agreement procedure or participant-level demographic distribution. No such procedure is claimed here without supporting records. The study's conclusions concern professionals' perceived links between HRM and project success, not measured effects on completion time, cost, quality or safety outcomes.

4. RESULTS AND FINDINGS

4.1 Prioritization of HRM Factors

The Nominal Group Technique identified seven important HRM factors perceived to contribute to construction project success. Recruitment and selection received the highest weighted score, followed by communication, training and skill development, proper leadership, reward management, work-life balance, and health and safety.

Table 1. Prioritization of HRM Factors Based on the Nominal Group Technique

RANK	HRM FACTOR	WEIGHTED SCORE
1	Recruitment and Selection	63
2	Communication	61
3	Training and Skill Development	60
4	Proper Leadership	55
5	Reward Management	54
6	Work-Life Balance	47
7	Health and Safety	44

Source: Researcher's NGT findings. These scores indicate relative expert priorities, not statistically estimated effects on project success.

The seven factors received weighted totals of 63, 61, 60, 55, 54, 47 and 44, respectively. On the stated seven-to-one ranking scale, the scores represent the relative ordering of priorities expressed by the expert group. Recruitment and selection ranked first, but the narrow differences among the top three factors should not be interpreted as proof of materially different effects on project performance. The NGT rankings are therefore read together with the interview, observation and cross-case themes, rather than treated as a stand-alone measure of project success.

4.2 Recruitment and Selection

Recruitment and selection emerged as the highest-priority HRM factor. The findings suggest that selecting

employees with appropriate technical competencies, professional experience, and project-specific capabilities is particularly important for effective construction project delivery.

Inadequate recruitment practices may contribute to mismatches between employee competencies and project requirements, potentially increasing supervision demands, operational inefficiencies, and rework. These findings support the need for structured, competency-based recruitment procedures tailored to construction project requirements.

4.3 Communication

Communication emerged as the second-highest-priority factor. The qualitative findings indicated that communication plays a central role in coordinating project activities, clarifying responsibilities, communicating technical instructions, and addressing operational challenges.

Communication difficulties between management, engineers, supervisors, and other project participants may contribute to misunderstandings and delays. Effective communication therefore represents both an HRM capability and an essential mechanism for coordinating project execution.

4.4 Training and Skill Development

Training and skill development were identified as essential for strengthening technical competencies and workforce adaptability. The findings suggest that informal and inconsistent training arrangements may limit the ability of employees to respond effectively to changing construction technologies, safety requirements, and project demands.

Structured training and continuous professional development may improve employee confidence, technical knowledge, and the capacity to undertake increasingly complex project responsibilities.

4.5 Leadership and Reward Management

Leadership and reward management were identified as important factors influencing employee motivation, accountability, and project coordination.

The findings suggest that effective project leadership involves not only technical decision-making but also communication, employee engagement, conflict management, and the ability to respond to changing project conditions.

Reward management contributes to employee motivation by recognizing individual and team contributions. Transparent and appropriately designed reward practices may support employee commitment and workforce stability.

4.6 Work-Life Balance and Health and Safety

Work-life balance and health and safety were also identified among the seven prioritized HRM factors. Construction projects frequently involve demanding schedules, operational pressure, and exposure to workplace hazards.

The findings suggest that excessive workload and inadequate attention to employee well-being may affect motivation, attendance, and continuity of project operations.

Similarly, effective health and safety practices contribute to a more supportive working environment and may reduce disruptions associated with unsafe conditions.

4.7 Cross-Case Synthesis

The cross-case findings suggest that the seven prioritized factors are not equally prominent in every aspect of

organizational practice. Communication and leadership emerged as important recurring themes, while recruitment and selection, training, and reward management were also associated with workforce capability and motivation.

Table 2. Synthesis of Qualitative HRM Themes

HRM theme	Reported prominence	Interpretation
Communication and alignment	High	Coordination and information flow
Leadership effectiveness	High	Direction, engagement and decisions
Recruitment and role fit	High	Competency alignment
Reward and performance management	High	Motivation and accountability
Training and mentorship	Moderate to high	Capability development
Work-life balance and workload	Moderate to high	Well-being and continuity
Role clarity and staff allocation	Moderate	Responsibility and deployment
Organizational culture	Moderate	Cooperation and shared practices
Change management support	Moderate	Adaptation to project demands
Diversity and inclusion	Low prominence	Area for further investigation
Psychological contracts and trust	Low prominence	Area for further investigation

Source: Synthesis of the researcher's reported cross-cutting qualitative findings. Prominence describes thematic emphasis and does not establish statistical significance.

5. DISCUSSION

The findings reinforce the importance of considering HRM as a strategic component of construction project management rather than primarily as an administrative function.

The prominence of recruitment and selection, communication, and training suggests that construction project performance depends substantially on the availability of appropriate competencies and the ability to coordinate them effectively. These findings are consistent with the broader literature emphasizing workforce capability, communication, and management effectiveness in construction projects (Tabassi & Bakar, 2009).

From an AMO perspective, recruitment and training contribute to employee ability, leadership and reward management influence motivation, and communication creates opportunities for employee participation and coordination. Work-life balance and health and safety provide supporting conditions that enable employees to maintain effective performance.

From an RBV perspective, the findings suggest that professional competencies, leadership capabilities, and organizational knowledge represent valuable resources. However, their effective utilization requires coordinated HRM practices that accommodate the temporary and changing nature of construction projects.

The study therefore supports a more integrated understanding of HRM, in which individual practices operate collectively to influence perceived construction project success.

5.1 Integrating the findings with AMO and RBV

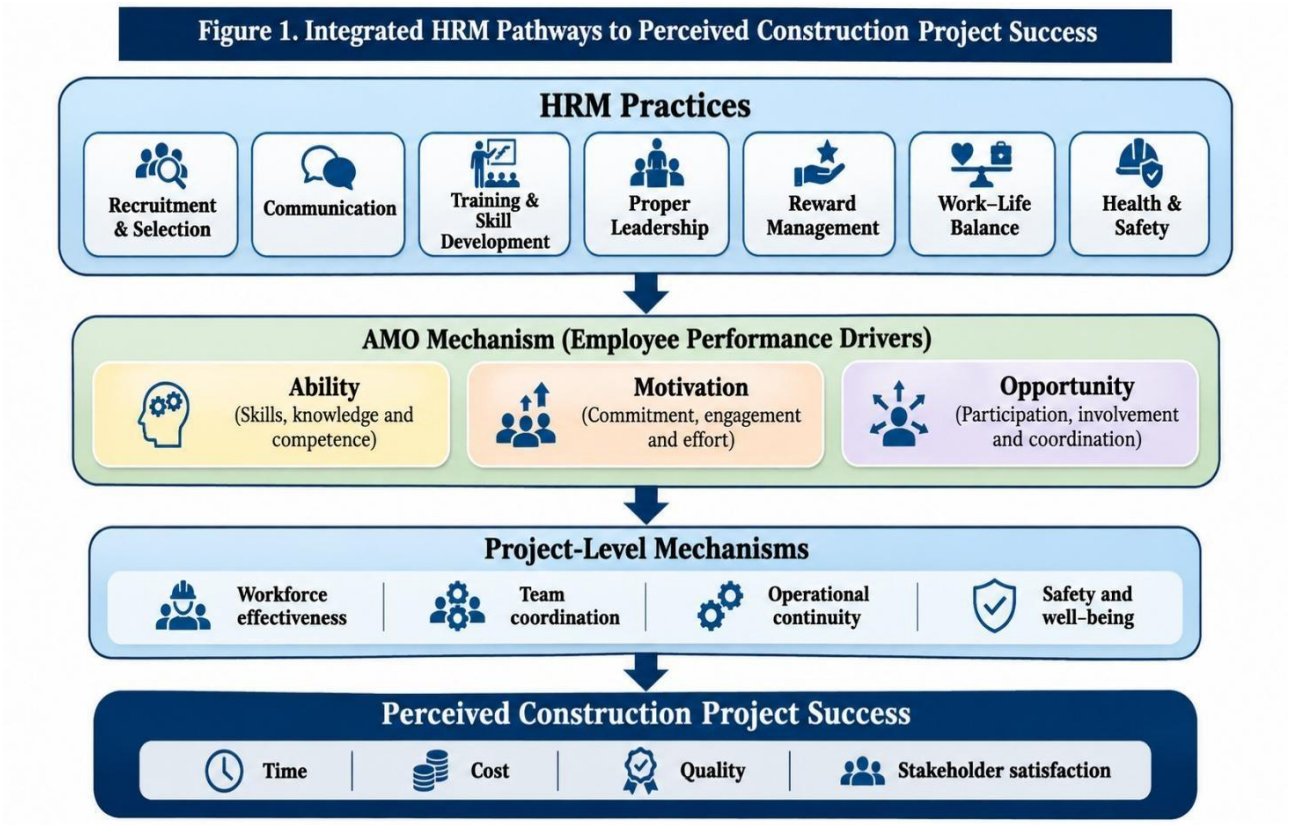
The proposed explanation is that recruitment and training primarily strengthen ability by improving technical

fit, safety knowledge and task competence. Reward management, supportive leadership and manageable workloads may strengthen motivation through recognition, fairness and sustained engagement. Communication, role clarity and participative leadership create opportunities for employees to share information and contribute to timely decisions. These categories overlap: for example, leadership can shape both motivation and opportunity, while safety practices can support employees' ability to work effectively.

RBV complements this employee-level explanation by drawing attention to the organizational value of project-specific expertise, accumulated experience, leadership continuity and knowledge transfer. Because construction teams are assembled and redeployed across projects, the value of these resources depends not simply on possession of skills but on their coordinated deployment. The framework therefore depicts a plausible chain from HRM practices through AMO-related employee mechanisms and project-level coordination to perceived project success. It is a theoretically informed interpretation of qualitative findings, not a tested mediation model.

5.2 Proposed Conceptual Interpretation

Figure 1. Integrated HRM Pathways to Perceived Construction Project Success



Source: Proposed conceptual synthesis based on the study's qualitative findings and the AMO framework. The arrows represent hypothesized pathways, not experimentally verified causal relationships.

6. PRACTICAL AND MANAGERIAL IMPLICATIONS

The findings suggest that construction companies should strengthen competency-based recruitment, introduce structured professional development programmes, and establish clear communication procedures across project teams.

Project managers and HR professionals should jointly develop workforce plans that respond to project-specific requirements and changing operational demands. Performance management systems should recognize technical achievements alongside teamwork, communication, safety, and leadership.

Organizations should also introduce project-based HRM monitoring mechanisms to assess workforce stability, absenteeism, training participation, and employee engagement alongside conventional project performance indicators.

6.1 Proposed Practical HRM Framework

Drawing on the study's findings, a five-stage Practical HRM Framework for Construction Project Success (PHRMF-CPS) is proposed as a potential implementation approach.

Table 3. Proposed PHRMF-CPS Implementation Framework

Stage	Main activities	Expected output
1. Assessment	Audit skills, leadership, communication and safety	HRM readiness report
2. Planning	Prepare recruitment, training, reward and well-being plans	Project HRM plan
3. Implementation	Introduce structured HRM practices and development pathways	Operational HRM systems
4. Monitoring and Controlling	Track HR scorecards alongside project KPIs	Corrective action reports
5. Review and Knowledge Transfer	Evaluate HRM outcomes and record lessons learned	Knowledge repository

Source: Researcher's proposed framework. This is a recommendation arising from the research, not a framework whose effectiveness has already been validated through implementation.

6.2 Practical implementation priorities

For construction managers, the findings point to a sequence of feasible actions: define competency requirements before recruitment; formalize induction and technical mentoring; establish routine two-way site communication; align recognition with both individual and team contributions; monitor workload and safety alongside conventional project indicators; and record lessons when project teams are demobilized. These actions correspond to the five stages of the proposed PHRMF-CPS. The framework remains a practice-oriented proposal that requires prospective evaluation before claims about its effectiveness can be made.

7. CONCLUSION

This study examined the HRM factors perceived to contribute to construction project success in Sri Lankan C1-grade construction companies. The findings identified seven particularly important factors: recruitment and selection, communication, training and skill development, proper leadership, reward management, work-life balance, and health and safety.

The study contributes to the existing literature by providing context-specific qualitative evidence regarding the perceived importance of HRM factors in large-scale construction projects. It further suggests that HRM practices should be understood as an interconnected system supporting employee competencies, motivation, coordination, and organizational continuity.

The findings have implications for the application of the AMO framework and Resource-Based View within project-based organizations, where workforce requirements and organizational structures change throughout project lifecycles.

The study was limited to selected C1-grade construction companies and primarily reflected the perspectives of internal construction professionals. Future research could examine smaller contractors, incorporate additional stakeholder groups, and employ longitudinal or mixed-method approaches to investigate relationships between HRM practices and objectively measured project outcomes.

Overall, the study highlights the importance of integrating human resource management into construction project planning, implementation, and performance evaluation.

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