

**STRATEGIC ALIGNMENT OF HUMAN RESOURCE MANAGEMENT WITH TOTAL QUALITY MANAGEMENT: EMPIRICAL EVIDENCE FROM EEE INFRA EQUIPMENT PVT. LTD., CHENNAI****Karthika R**

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ABSTRACT This study investigates the role of Human Resource Management (HRM) as a strategic driver of Total Quality Management (TQM) within EEE Infra Equipment Pvt. Ltd., Chennai—an authorised dealership for KOBELCO heavy machinery. Using a descriptive research design, data were collected from 100 employees via a 28-item Likert-scale questionnaire. Analytical tools included percentage analysis, mean scores, chi-square testing, and Pearson correlation. The grand mean of 3.89 across 16 perception indicators affirms widespread employee confidence in HR's facilitative role. A near-perfect correlation ($r = 0.991$, $p < 0.01$) validates a strong positive relationship between HRM quality and TQM effectiveness. Chi-square results ($\chi^2 = 6.511$, $p = 0.039$) revealed a statistically significant gender-hierarchy disparity. The findings establish HRM as a foundational—rather than supplementary—pillar of quality-driven organisational performance.

KEYWORDS : Human Resource Management, Total Quality Management, Employee Engagement, Infrastructure Equipment, Organisational Excellence.

1. INTRODUCTION & BACKGROUND

In today's competitive industrial landscape, the alignment of workforce governance with quality systems has become a decisive organisational priority. HRM functions-encompassing recruitment, training, performance evaluation, motivation, and communication-collectively define how effectively employees contribute to quality objectives. Total Quality Management (TQM) extends quality responsibility beyond inspection-based functions to embrace every operational layer, driven by customer focus, continuous improvement, and process discipline.

EEE Infra Equipment Pvt. Ltd. presents a compelling context for this inquiry. Operating in the technically demanding KOBELCO heavy machinery segment, the company's service quality depends heavily on employee competence, cross-departmental coordination, and HR-supported quality culture. Prior research has focused predominantly on large manufacturing firms, leaving a gap in understanding HRM-TQM dynamics within specialised SME dealerships in South India—a gap this study directly addresses.

2. REVIEW OF LITERATURE

Dessler (2023) and Armstrong (2023) establish that strategic HRM practices—structured training, engagement, and appraisal—catalyse productivity and quality outcomes. Noe (2024) demonstrates that well-designed development programmes create the organisational soil in which TQM flourishes. Chandrasekar (2023) links participative HR environments with measurably higher quality consistency. Muchhal (2024) connects recognition mechanisms with heightened employee commitment to quality goals, while Singh (2024) confirms HRM's role in improving customer satisfaction scores. ISO 9001:2015 reaffirms that employee competence and leadership involvement are non-negotiable quality management foundations.

3. RESEARCH OBJECTIVES & METHODOLOGY

The primary objective is to assess how HRM practices support TQM at EEE Infra Equipment Pvt. Ltd. Secondary objectives include evaluating HR activities, gauging employee perceptions, and formulating actionable recommendations. Two hypotheses were tested: (H1) an association between gender and job level, and (H2) a significant relationship between HRM practices and TQM outcomes.

A descriptive research approach was adopted. Primary data were collected using a structured 28-item Likert questionnaire from 100 employees selected via simple random sampling. Secondary data drawn from organisational records and published literature supplemented the analysis. Statistical methods included percentage analysis, mean score tabulation, chi-square testing, and Pearson correlation.

4. DATA ANALYSIS & KEY RESULTS**Table 1 & 2: Respondent Profile**

Variable	Category	Count	%
Gender	Male	62	62%
	Female	38	38%
Age	20–30 yrs	20	20%
	31–40 yrs	30	30%
	41–50 yrs	25	25%
	Above 50 yrs	25	25%
Department	Sales	28	28%
	Service	25	25%
	Finance / Technical / HR	47	47%

The workforce skews male (62%) and is anchored by a mid-career cohort (31–40 years, 30%). Sales and Service departments, being closest to clients, provided the highest survey participation (53% combined).

Table 3: Selected HRM-TQM Perception Scores (16-Statement Analysis)

Statement	Mean	View
Employees can propose quality improvements	4.03	Agree
HR supports inter-departmental coordination	4.01	Agree
Training by HR enhances quality competence	3.95	Agree
HR cultivates a continuous learning culture	3.93	Agree
HR communicates TQM significance to staff	3.91	Agree
HR promotes collaborative teamwork for quality	3.92	Agree
HR incentives reward quality-driven behaviour	3.84	Agree
Grand Mean (all 16 statements)	3.89	Agree

All 16 perception statements recorded means above 3.80, consolidating a Grand Mean of 3.89—firmly within the 'Agree' band (3.50–4.49). Highest endorsement went to employee suggestion channels (4.03) and HR's cross-functional coordination capability (4.01), identifying workforce empowerment and communication as the organisation's most visible quality-support strengths.

Table 4: Chi-Square – Gender vs. Hierarchical Level

Gender	Top Level	Middle Level	Lower Level	χ^2	p-value
Male (62)	20 (52.6%)	12 (31.6%)	6 (15.8%)	6.511	0.039*
Female (38)	18 (29.0%)	23 (37.1%)	21 (33.9%)		

With $\chi^2 = 6.511$ exceeding the critical value of 5.991 ($df = 2$, $\alpha = 0.05$), H_0 is rejected. Male employees are disproportionately represented at senior levels (52.6%), while female employees cluster in lower-tier roles (33.9%), signalling a need for equitable career advancement policies.

Table 5: Pearson Correlation – HRM Practices & TQM Outcomes

Coefficient	HR Practices	TQM Outcomes	Sig. (2-tailed)
Pearson r	1.000	0.991**	0.000
Spearman rho	1.000	0.994**	0.000

Both Pearson ($r = 0.991$) and Spearman ($\rho = 0.994$) coefficients confirm a near-perfect positive association between HRM practices and TQM outcomes, significant at the 1% level. H_0 is decisively rejected, validating that stronger HR frameworks produce measurably superior quality results.

5. FINDINGS, RECOMMENDATIONS & CONCLUSION

Key Findings:

- Grand Mean of 3.89 reflects consistently favourable employee perception of HR's quality-support role across all measured dimensions.
- 74–79% of respondents confirmed HR effectiveness in training delivery, TQM communication, and participative decision-making.
- Near-perfect correlation ($r = 0.991$) establishes HRM quality as a primary predictor of TQM effectiveness.
- A statistically significant gender–hierarchy gap ($p = 0.039$) indicates males dominate senior positions, demanding equity-focused HR interventions.

Recommendations:

- Institutionalise quarterly, role-specific quality training aligned with evolving TQM standards.
- Redesign appraisal systems to embed quality-specific KPIs, linking individual performance to TQM goals.
- Establish formal quality circles, cross-functional improvement teams, and structured suggestion schemes to deepen participative governance.
- Deploy digital learning platforms to scale quality education and ensure equitable access across all functions.
- Implement targeted gender equity programmes to address career advancement disparities identified in the chi-square analysis.

This study provides robust empirical evidence that HRM is a central, not peripheral, enabler of TQM at EEE Infra Equipment Pvt. Ltd. Statistical confirmation through correlation analysis and chi-square testing strengthens the study's validity. Future research should extend this inquiry across multiple organisations and industry verticals to examine whether these dynamics hold in varied structural and cultural contexts. The organisation's continued investment in strategic HR integration will be decisive in sustaining its competitive quality advantage.

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