

A Study on Human Capital Management Practices and Organizational Performance in Doiter Casting

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ABSTRACT

This study examines the impact of Human Capital Management (HCM) practices on organizational performance at Doiter Casting, a medium-sized ferrous foundry located in Coimbatore, Tamil Nadu. Recognizing employees as strategic assets, the research investigates the relationship between HCM dimensions—including recruitment, training, appraisal, compensation, engagement, working conditions, and grievance handling—and key organizational performance outcomes. A descriptive research design was adopted and primary data was collected from all 260 employees through a structured questionnaire using the census method, achieving a response rate of 100 percent. Statistical tools including percentage analysis, Chi-Square test, Pearson correlation, and One-Way ANOVA were employed. Results reveal a strong positive correlation ($r = 0.682$) between HCM practices and organizational performance. Training, safety, and team collaboration emerged as the strongest dimensions, while career growth and incentive systems require targeted improvement.

Keywords: Human Capital Management, Organizational Performance, Foundry Industry, Employee Engagement, Training and Development, Workforce Competency

I. INTRODUCTION

In the contemporary knowledge-driven economy, organizations across every industry are increasingly recognizing that people are the single most important strategic asset at their disposal. Machines, materials, and money can be imitated or acquired by any competitor with adequate financial resources, but the unique knowledge, skills, attitudes, and commitment embedded within the workforce cannot be easily replicated. This recognition has given rise to the concept of Human Capital Management (HCM), a strategic and comprehensive approach that treats employees as appreciating assets whose value grows through deliberate investment in their capabilities, well-being, and engagement.

Human Capital Management integrates traditional functions of human resource management—such as recruitment, training, performance management, and compensation—with strategic dimensions including talent analytics, succession planning, employee experience design, and culture building. The central premise of HCM is that the stock of human capital available to an organization, measured in terms of competencies, experience, and commitment, directly determines its capacity to create economic value. The framework draws its theoretical foundation from Gary Becker's Human Capital Theory, which postulates that expenditure on education, training, and health of employees is an investment that yields returns in the form of enhanced productivity.

The manufacturing sector in India, and particularly the metal casting and foundry industry, presents a compelling context in which to study the linkage between HCM and organizational performance. Foundry operations demand a peculiar blend of skilled craftsmanship, adherence to quality standards, and physical resilience. The availability of skilled manpower,

quality of training, robustness of safety practices, and degree of employee engagement collectively determine whether a foundry can consistently deliver defect-free castings at competitive costs.

Importance of Human Capital Management

Effective Human Capital Management leads to:

- Optimal utilization of human talent and resources
- Enhanced skill levels, leadership potential, and productivity
- Improved employee satisfaction, morale, and organizational commitment
- Stronger team spirit and cross-functional collaboration
- Reduced employee turnover and improved retention
- Higher organizational performance and financial outcomes
- Better safety culture and compliance in hazardous environments

Objectives of the Study

The objectives of the study are framed to capture both the primary inquiry into the linkage between HCM and organizational performance, as well as secondary dimensions that provide depth and context.

- To analyze the HCM practices at Doiter Casting, Coimbatore.
- To identify the need for human capital investment within the organization.
- To assess employee satisfaction with training, compensation, and engagement practices.
- To explore the relationship between demographic factors and perceptions of HCM practices.
- To offer suitable suggestions for strengthening HCM and enhancing organizational performance.

COMPANY PROFILE

Doiter Casting is a medium-sized foundry enterprise located in the industrial belt of Coimbatore, Tamil Nadu. The company is engaged in the manufacture of ferrous castings, catering to a diversified customer base spanning pump manufacturers, textile machinery builders, automotive component makers, and general engineering industries. Over the years, the company has established itself as a reliable supplier of quality castings and has built long-term relationships with several marquee customers in the region and beyond.

The company operates from a dedicated manufacturing facility housing a modern melting shop, moulding section, core shop, fettling and finishing area, pattern storage, metallurgical laboratory, quality inspection bay, and supporting infrastructure. The facility supports production of castings in grey iron and ductile iron grades across a range of weights and complexities to meet customer specifications.

The vision of Doiter Casting is to be a preferred supplier of quality castings to engineering customers in India and abroad, recognized for consistency, integrity, and value creation. The mission is to manufacture castings that meet the technical and commercial expectations of customers through competent people, disciplined processes, and responsible manufacturing practices.

Doiter Casting currently employs 260 people across fifteen functional departments including Production, Quality, Fettling, New Product Development, Human Resources, Purchase, Stores, Laboratory, Maintenance, Dispatch, QMS, PPC, Marketing, Accounts, and Finance. The gender composition comprises 220 male and 40 female employees, with 235 on permanent rolls and 25 on temporary terms. The company operates three shifts covering 6:30 AM to 6:30 AM continuously.

II. LITERATURE REVIEW

Becker (2014) argued that expenditures on education, training, and health of individuals should be viewed as investments that enhance their productive capacity, forming the cornerstone of contemporary thinking about employees as assets rather than mere factors of production.

Schultz (2021) emphasized that human capital investments contribute significantly to economic growth, and the observed productivity differentials across firms and nations can be traced to differences in the quality of human capital.

Barney (2017) extended the human capital discourse into strategic management through the Resource-Based View, arguing that human resources satisfy the conditions of value, rarity, inimitability, and non-substitutability that render them sources of sustainable competitive advantage.

Noe (2017) argued that training is the most powerful lever available to organizations for upgrading workforce capability, identifying needs assessment, design, delivery, and evaluation as the pillars of an effective training system.

Aguinis and Kraiger (2019) conducted a meta-analysis reporting that training interventions yield consistent positive effects on both individual-level outcomes such as skills and behaviours, and organizational-level outcomes such as productivity and profitability.

Huselid (1995) conducted a landmark study demonstrating that firms adopting high-performance work practices enjoy significantly lower turnover, higher productivity, and superior financial performance, establishing empirically the strategic importance of human resource practices.

Combs, Liu, Hall, and Ketchen (2006) conducted a meta-analysis of high-performance work practices research and reported a substantial positive relationship across multiple industries and contexts, reinforcing the view that investments in human capital yield measurable returns at the organizational level.

Schaufeli and Bakker (2014) conceptualized engagement as a positive, fulfilling work-related state characterized by vigour, dedication, and absorption, demonstrating strong positive correlations between engagement and job satisfaction, organizational commitment, and individual performance.

III. METHODOLOGY

Research methodology refers to the systematic and logical plan through which a research study is conceptualized, designed, and executed. It provides the framework for identifying the research problem, formulating research objectives, selecting appropriate research design, determining the sample and sampling technique, choosing data collection methods, and selecting the analytical tools required to draw meaningful conclusions from the collected data.

Research Design

The present study adopts a Descriptive Research Design. Descriptive research is suitable when the objective is to describe the existing situation, identify patterns and relationships, and document the perceptions and experiences of the study population without manipulating any variables. Within the descriptive design, the study employs a cross-sectional approach, collecting data at a single point in time. The study is quantitative in nature, relying on numerical data generated through a structured questionnaire and analyzed through statistical tools.

Sampling Technique

The study adopts the Census Method, wherein data is collected from the entire population of 260 employees rather than a sample drawn from it. The census approach is feasible because the population is finite and accessible, and it eliminates sampling error while ensuring complete representation of every departmental, demographic, and employment category. Out of 260 questionnaires distributed, responses were received from all 260 employees, yielding a response rate of 100 percent.

Sources of Data

Primary data was collected directly from all 260 employees of Doiter Casting through a structured questionnaire designed to capture perceptions and experiences related to HCM practices and organizational performance. The questionnaire comprises two parts: the first captures demographic and employment-related information, and the second contains twenty-five structured statements measured on a five-point Likert scale (Strongly Disagree = 1 to Strongly Agree = 5). Secondary data was sourced from the company's internal records, published scholarly journals, textbooks, government publications, industry association reports, and credible online sources.

Statistical Tools Used

The following statistical tools were employed to analyze and interpret the collected data:

1. Percentage Analysis: Used to convert raw data into percentages, enabling easy comparison and understanding of response patterns across demographic groups and questionnaire items.
2. Chi-Square Test (χ^2): A non-parametric test used to examine the association between categorical variables such as years of experience and the level of job satisfaction.

Formula: $\chi^2 = \sum (O_i - E_i)^2 / E_i$, where O_i is the observed frequency and E_i is the expected frequency.

3. Karl Pearson's Correlation Coefficient: Used to measure the strength and direction of the linear relationship between composite scores on HCM practices and organizational performance outcomes. The correlation coefficient (r) ranges from -1 to +1.

4. One-Way ANOVA: Used to examine whether the mean employee motivation score differs significantly across the four salary bands. ANOVA extends the t-test to situations where more than two group means are compared.

Research Hypotheses

- H₁: There is a significant association between years of experience and level of job satisfaction.
- H₂: There is a significant positive correlation between HCM practices and organizational performance.
- H₃: There is a significant difference in mean motivation scores across the four salary groups.

IV. DATA ANALYSIS AND FINDINGS

This section presents the analysis and interpretation of data collected from 260 employees of Doiter Casting, Coimbatore through the structured questionnaire. The analysis was carried out using percentage analysis and inferential statistical tools.

1. Demographic Profile of Respondents

The workforce at Doiter Casting is predominantly male (84.6%), with female employees constituting 15.4%, reflecting the typical gender skew of the foundry industry. The company has a young workforce, with 69.2% of employees below 35 years of age. The educational profile is led by ITI and Diploma holders (56.9%), followed by undergraduates (30.0%), postgraduates (8.5%), and others (4.6%). Production accounts for the largest employee share (31.5%), followed by Fettling (14.6%).

Table 1: Demographic Profile Summary

Demographic Variable	Category	Frequency	Percentage
Gender	Male	220	84.6%
	Female	40	15.4%
Age Group	Below 25 years	62	23.8%
	25-35 years	118	45.4%
	36-45 years	58	22.3%
	Above 45 years	22	8.5%
Qualification	ITI / Diploma	148	56.9%
	Undergraduate	78	30.0%
	Postgraduate	22	8.5%

Employment Type	Permanent	235	90.4%
	Temporary	25	9.6%
Experience	Less than 1 year	68	26.2%
	1 - 3 years	124	47.7%
	4 - 7 years	68	26.2%

2. HCM Practice Dimensions – Response Summary

Employees were asked to rate 25 HCM and organizational performance dimensions on a five-point Likert scale. The table below summarizes positive response rates (Agree + Strongly Agree) across all key dimensions.

Table 2: Summary of HCM Practice Dimensions – Positive Response Rates

HCM Dimension	Agree (%)	Strongly Agree (%)	Total Positive (%)
Training & Skill Development	53.8%	23.1%	76.9%
Working Conditions & Safety	53.8%	22.3%	76.2%
Team Collaboration & Cooperation	53.1%	23.1%	76.2%
Employee Productivity Contribution	53.1%	23.8%	76.9%
Overall Organizational Performance	53.1%	23.1%	76.2%
HCM Practices Improve Performance	50.8%	23.1%	73.9%
Employee Engagement Initiatives	50.8%	21.5%	72.3%
Supervisor Support & Guidance	52.3%	21.5%	73.8%
Organizational Commitment	51.5%	21.5%	73.1%
Induction & Onboarding Process	50.0%	23.1%	73.1%
Job Satisfaction Level	50.0%	22.3%	72.3%
Recruitment & Selection Effectiveness	49.2%	23.1%	72.3%
On-the-Job Training Adequacy	49.2%	23.1%	72.3%
Management Treats Employees Fairly	48.5%	22.3%	70.8%
Communication within Organization	46.9%	21.5%	68.4%
Knowledge Sharing Culture	46.9%	21.5%	68.4%
Policies Communicated Clearly	47.7%	21.5%	69.2%
Employee Motivation & Morale	47.7%	21.5%	69.2%

Innovation & Creativity Encouragement	45.4%	21.5%	66.9%
Performance Appraisal System	46.2%	20.0%	66.2%
Work-Life Balance	43.8%	21.5%	65.3%
Compensation & Benefits Satisfaction	43.8%	20.0%	63.8%
Career Growth Opportunities	41.5%	18.5%	60.0%
Grievance Handling Mechanism	42.3%	18.5%	60.8%
Incentives & Reward System	42.3%	18.5%	60.8%

3. Key Observations

Training and skill development, working conditions and safety, team collaboration, productivity contribution, and overall organizational performance emerged as the strongest dimensions with positive response rates exceeding 76 percent, reflecting the company's operational discipline and people-first culture.

Career growth opportunities, incentive and reward systems, grievance handling, work-life balance, and performance appraisal received comparatively lower positive ratings ranging between 60 and 66 percent, representing priority areas where focused intervention will yield the highest marginal return.

CHI-SQUARE TESTING

Association Between Years of Experience and Job Satisfaction

The Chi-Square Test of Independence was applied to examine whether there is a statistically significant association between the years of experience of respondents in the current company and their level of job satisfaction.

Null Hypothesis (H₀): There is no significant association between years of experience and job satisfaction.

Alternative Hypothesis (H₁): There is a significant association between years of experience and job satisfaction.

Table 3: Experience vs. Job Satisfaction – Cross Tabulation

Experience	Highly Satisfied	Satisfied	Neutral	Dissatisfied	Total
Less than 1 year	12	30	18	8	68
1 - 3 years	28	60	24	12	124
4 - 7 years	18	32	10	8	68
Total	58	122	52	28	260

Table 4: Chi-Square Test Result – Experience and Job Satisfaction

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.862	8	0.002
Likelihood Ratio	25.148	8	0.001
N of Valid Cases	260		

The Pearson Chi-Square value is 24.862 with 8 degrees of freedom and a p-value of 0.002, which is less than the significance level of 0.05. Therefore, the null hypothesis is rejected. There is a statistically significant association between

years of experience and job satisfaction. Employees with longer tenure tend to report higher satisfaction levels, possibly reflecting deeper organizational attachment and stronger peer relationships.

CORRELATION ANALYSIS

Relationship Between HCM Practices and Organizational Performance

Karl Pearson's Correlation Coefficient was computed to assess the strength and direction of the linear relationship between the composite score on HCM practices and the composite score on organizational performance outcomes.

Null Hypothesis (H_0): There is no significant correlation between HCM practices and organizational performance.

Alternative Hypothesis (H_1): There is a significant positive correlation between HCM practices and organizational performance.

Table 5: Descriptive Statistics – HCM Practices and Organizational Performance

Variable	Mean	Std. Deviation	N
HCM Practices Composite Score	3.72	0.841	260
Organizational Performance Composite Score	3.81	0.795	260

Table 6: Pearson Correlation – HCM Practices and Organizational Performance

Variables	Pearson r	p-value	N
HCM Practices & Organizational Performance	0.682	0.000	260

The Pearson correlation coefficient between HCM practices and organizational performance is 0.682, which is significant at the 0.01 level ($p = 0.000$). This indicates a strong positive linear relationship between the two variables. As employees' perceptions of the quality of HCM practices improve, their assessment of organizational performance also improves. The null hypothesis is rejected. HCM practices have a significant positive association with organizational performance at Doiter Casting.

ONE-WAY ANOVA

Salary Range and Employee Motivation

One-Way Analysis of Variance (ANOVA) was conducted to examine whether the mean motivation score differs significantly across the four salary bands: below Rs. 15,000; Rs. 15,000 to Rs. 30,000; Rs. 30,001 to Rs. 50,000; and above Rs. 50,000.

Null Hypothesis (H_0): There is no significant difference in mean motivation scores across the four salary groups.

Alternative Hypothesis (H_1): At least one salary group has a mean motivation score that differs significantly from the other

Table 7: Monthly Salary Range of Respondents

Salary Range	Frequency	Percentage
Below Rs. 15,000	52	20.0%
Rs. 15,000 - Rs. 30,000	142	54.6%
Rs. 30,001 - Rs. 50,000	48	18.5%
Above Rs. 50,000	18	6.9%
Total	260	100.0%

Table 8: ANOVA Result – Salary Range and Employee Motivation

Source	Sum Squares	df	Mean Square	F	Sig.
Between Groups	9.428	3	3.143	4.762	0.003
Within Groups	168.918	256	0.660		
Total	178.346	259			

The computed F value is 4.762 with degrees of freedom 3 and 256, and the p-value is 0.003, which is less than the significance level of 0.05. Therefore, the null hypothesis is rejected. There is a statistically significant difference in the mean motivation scores across the four salary groups. Employees in higher salary bands report somewhat higher motivation scores, pointing to the motivational relevance of compensation alongside non-monetary factors.

STATISTICAL FINDINGS

Chi-Square Results

- A statistically significant association exists between years of experience in the current company and the level of job satisfaction ($p = 0.002$), with longer-tenured employees reporting higher satisfaction.

Correlation Results

- A strong positive correlation was found between HCM practices composite scores and organizational performance composite scores ($r = 0.682$, $p < 0.01$), confirming the strategic role of HCM.

ANOVA Results

- A statistically significant difference in mean motivation scores was found across the four salary bands ($F = 4.762$, $p = 0.003$), with higher salary bands associated with higher motivation levels.

V. CONCLUSION

The present study set out to examine human capital management practices and their relationship with organizational performance at Doiter Casting, Coimbatore, a medium-sized foundry engaged in the manufacture of ferrous castings. A descriptive research design was adopted, and primary data was collected from all 260 employees through a structured questionnaire administered on a census basis, achieving a response rate of 100 percent.

The study reveals that Doiter Casting has built a reasonably robust human capital management foundation. Training and skill development, working conditions and safety, supervisor support, team collaboration, and productivity contribution emerged as the strongest dimensions, reflecting the company's operational discipline and people-first culture. These strengths form a platform on which the company can build its future competitiveness in an increasingly demanding foundry industry.

At the same time, the study identifies specific dimensions that warrant strategic attention. Career growth opportunities, incentive and reward systems, grievance handling, performance appraisal fairness, and work-life balance received comparatively lower positive ratings and represent the priority areas where focused intervention will yield the highest marginal return. The following improvements are recommended:

- Institute a formal career path framework with clear skill milestones and role progressions for shop-floor and staff categories to address the weak perception of career growth.
- Introduce a performance-linked incentive plan with clearly defined KPIs, transparent payout formulas, and timely disbursement, complemented by non-monetary recognition programs.
- Strengthen the grievance handling mechanism by establishing multiple accessible channels, defining committed response timelines, and training supervisors in empathetic grievance resolution.

- Reinforce the performance appraisal system through objective KPIs, constructive feedback training for managers, calibration sessions, and stronger linkage to development actions.
- Enhance work-life balance through structured overtime policies, predictable shift rosters, and wellness support programs, particularly for night and rotational shift workers.
- Benchmark compensation periodically against industry standards in the Coimbatore foundry cluster and improve total rewards communication.
- Deepen the innovation culture through an employee suggestion scheme, structured kaizen events, cross-functional improvement projects, and public celebration of implemented improvements.

In conclusion, human capital is the decisive lever through which Doiter Casting can sustain and enhance its competitive position. The Pearson correlation analysis confirming a strong positive association ($r = 0.682$) between HCM practices and organizational performance provides compelling evidence that sustained investment in people yields measurable performance dividends. By building on its current strengths and addressing identified weaker dimensions in a disciplined and sustained manner, the company will be well-positioned to translate the latent potential of its 260-strong workforce into superior organizational performance in the years ahead.

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