CUSTOMER VALUE PERCEPTION AND BUYING BEHAVIOUR TOWARD CONSTRUCTION EQUIPMENT

SARAVANAN S, DARSHANA B

Saravanan S, Assistant Professor Department of Management Studies, Sona College of Technology, Salem, Tamil Nadu, India
saravanan@sonabusinessschool.com
Darshana B, Department of Management Studies, Sona College of Technology, Salem, Tamil Nadu, India
darshanababu2@gmail.com

ABSTRACT

Heavy equipment procurement in the construction sector is a high-stakes, multi-layered process that extends well beyond price-based comparisons. This study investigates how four distinct value perception dimensions functional value, economic value, emotional and brand value, and after-sales service value shape the purchase decisions of construction equipment buyers across Indian project sites. Survey data were collected from 112 active procurement professionals including contractors, project managers, procurement officers, and site engineers using a structured Likert-scale questionnaire. Descriptive statistics and Pearson correlation analysis were applied to examine the linkages between each value dimension and observed buying behaviour. Results show that functional value primarily equipment performance, durability, and reliability is the strongest predictor of procurement decisions. After-sales service support and total cost of ownership follow as the next most significant influences. Emotional and brand value, though secondary in the ranking, still demonstrates a meaningful statistical association with buying behaviour. Procurement in this sector is also inherently collective, with multiple stakeholders routinely involved in final decisions. The study closes with practical recommendations for manufacturers, dealers, and marketers to better align their value propositions with what buyers actually prioritise.

Keywords: *After-Sales Service Value, Buying Behaviour, Construction Equipment, Customer Value Perception, Economic Value, Functional Value.*

I. INTRODUCTION

Few sectors in India have seen as dramatic an expansion in machinery demand as the construction industry. Infrastructure-led government programmes spanning national highways, metro rail corridors, urban water supply, and mass housing have sustained high procurement volumes for excavators, graders, compactors, cranes, and batching plants. Industry data from 2023 place India among the top five global markets for construction equipment by unit volume, with compound annual growth projected above nine percent through the remainder of this decade.

Yet the act of purchasing construction equipment is far more complex than a routine transaction. When a contractor or procurement team commits several crores of rupees to a piece of heavy machinery, the evaluation process spans weeks or months, pulling together assessments of expected site productivity, projected maintenance costs, manufacturer service commitments, brand standing, and available financing. Each of these threads maps to a distinct dimension of customer value perception the buyer's mental weighing of what they stand to gain versus what they must give up.

Customer value perception is a well-established construct in marketing theory, broadly defined as the buyer's overall judgement of product utility in light of perceived benefits and sacrifices. In capital goods settings, it acquires added complexity because value unfolds gradually across the asset's operational life and because purchase authority is rarely concentrated in a single individual. Grasping how buyers in India's construction equipment market form and act upon these value judgements is the central purpose of this paper. Existing research on value perception has focused heavily on consumer goods and retail; empirical work in capital goods procurement remains limited, creating the knowledge gap this study addresses.

II. REVIEW OF LITERATURE

Zeithaml (1988) established that perceived value is best understood as the buyer's overall utility assessment, arrived at by mentally weighing received benefits against costs incurred. Though rooted in service marketing, this framework has been applied widely across industrial and capital goods contexts. Woodruff (1997) extended the thinking by introducing a three-tiered value hierarchy: product attributes, the operational consequences those attributes produce, and the higher-order business goals those consequences serve. For equipment buyers, this means evaluation goes beyond machine specifications to encompass project productivity and, ultimately, business profitability.

Sheth, Newman, and Gross (1991) added nuance by identifying functional, social, emotional, epistemic, and conditional forms of consumption value recognising that even technically driven industrial buyers are influenced by brand prestige, peer endorsement, and supplier familiarity. Kumar and Reinartz (2016) argued that value co-creation, where suppliers actively involve buyers in configuration and service design, generates superior perceived value and loyalty. This is visible in the construction equipment sector through customised fleet management contracts and performance-linked service programmes. Kotler and Keller (2016) reinforced that firms delivering superior value reliably secure stronger purchase intentions and repeat business.

Dwyer and Tanner (2009) documented the structured, multi-stage character of B2B buying from need recognition through evaluation, negotiation, and post-purchase review noting that diverse internal stakeholders complicate the process. Industry reports from CII-KPMG (2022) and ICEMA (2023) confirm that total cost of ownership, fuel efficiency, product longevity, and after-sales responsiveness dominate purchase drivers in the Indian construction equipment market.

III. OBJECTIVES OF THE STUDY

1. To identify and examine the principal dimensions of customer value perception among construction equipment buyers in India.
2. To analyse dominant factors shaping buying behaviour in this procurement context.
3. To measure the statistical relationship between each value dimension and buying behaviour.
4. To identify value dimensions with the greatest influence on final purchase decisions.
5. To formulate actionable recommendations for manufacturers, dealers, and marketers to better align offerings with buyer priorities.

IV. RESEARCH METHODOLOGY

4.1 Research Design

A descriptive cross-sectional design was adopted, appropriate for characterising an existing phenomenon without variable manipulation. A structured self-administered questionnaire served as the data collection instrument, with fieldwork completed between January and March 2024.

4.2 Population and Sampling

The study population comprised contractors, project managers, procurement officers, and site engineers involved in active construction equipment procurement across Karnataka, India. Convenience sampling was used given the absence of a formal sampling frame. Of 120 questionnaires distributed, 112 valid responses were retained a 93.3 percent response rate, adequate for the planned correlation analyses.

4.3 Measurement Instrument

Four constructs were measured: functional value, economic value, emotional and brand value, and buying behaviour. Each was captured through multiple Likert-scale items rated 1 (strongly disagree) to 5 (strongly agree). A pilot test involving 15 respondents refined item wording. Cronbach's alpha of 0.86 confirmed satisfactory internal consistency.

4.4 Statistical Methods

SPSS version 26 was used for all analyses. Descriptive statistics (means and standard deviations) mapped the relative importance of each value item. Pearson correlation quantified associations between value dimensions and buying behaviour. Simple regression additionally assessed predictive significance. Statistical significance was evaluated at the five percent level throughout.

V. DATA ANALYSIS AND INTERPRETATION

5.1 Respondent Profile

Table 1 summarises the demographic profile of the 112 respondents included in the final analysis.

Table 1: Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	96	85.7
	Female	16	14.3
Age Group	Below 30 years	22	19.6
	30 – 40 years	54	48.2
	41 – 50 years	28	25.0

	Above 50 years	8	7.1
Designation	Contractor / Owner	38	33.9
	Project Manager	34	30.4
	Procurement Officer	24	21.4
	Site Engineer	16	14.3
Experience	Below 5 years	18	16.1
	5 – 10 years	46	41.1
	11 – 20 years	32	28.6
	Above 20 years	16	14.3
Equipment Type	Earthmoving (Excavators, Dozers)	52	46.4
	Lifting Equipment (Cranes)	24	21.4
	Road Construction Equipment	22	19.6
	Concrete Equipment	14	12.5

Male respondents constitute 85.7 percent of the sample, mirroring the sector's prevailing gender composition. Nearly half (48.2%) fall in the 30–40 age bracket, indicating that procurement authority rests predominantly with mid-career professionals. Contractors and project managers together account for 64.3 percent of responses, confirming their role as primary decision agents. The largest experience cohort 41.1 percent with 5–10 years in the industry suggests a sample well-acquainted with equipment lifecycle realities. Earthmoving machinery leads procurement activity at 46.4 percent, consistent with the centrality of site preparation work in most project types.

5.2 Descriptive Analysis of Value Perception

Table 2 reports mean scores and standard deviations across all value perception items.

Table 2: Descriptive Statistics — Customer Value Perception Dimensions

Value Dimension	Survey Item	Mean	Std. Dev.
Functional Value	Performance and operational output	4.51	0.62
	Structural durability and build quality	4.48	0.65
	Fuel efficiency and operating cost	4.38	0.71

	Ease of operation and ergonomics	3.96	0.80
Economic Value	Competitive pricing and financing options	4.27	0.74
	Total cost of ownership (TCO)	4.35	0.68
	Resale and residual asset value	3.88	0.85
Emotional / Brand Value	Brand reputation and buyer trust	4.12	0.76
	Dealer relationships and service reach	4.20	0.72
	Peer endorsement and industry standing	3.74	0.90
After-Sales Value	Spare parts availability and accessibility	4.44	0.63
	Service and repair response time	4.40	0.67
	Warranty coverage and AMC support	4.18	0.75

Equipment performance tops all items at a mean of 4.51, trailed by durability at 4.48 together signalling near-universal consensus that technical capability is the primary value benchmark. Fuel efficiency (4.38) also ranks highly, reflecting fuel's substantial share of site operating budgets. Ease of operation (3.96) is rated positively but treated as desirable rather than essential. Among economic items, total cost of ownership (4.35) outscores unit pricing (4.27), revealing that buyers think in lifecycle terms rather than reacting to headline figures. Resale value (3.88) draws modest attention, limited partly by India's underdeveloped secondary equipment market. Within the brand and relationship cluster, dealer service reach (4.20) edges ahead of brand reputation (4.12), while peer endorsement scores lowest at 3.74, reflecting the evidence-driven nature of capital procurement. After-sales items dominate the upper end overall: spare parts availability (4.44) and service response time (4.40) rank among the highest in the instrument, underscoring how strongly anticipated post-sale support shapes perceived value when equipment downtime directly threatens project timelines.

5.3 Buying Behaviour Analysis

Table 3 presents the distribution of responses across five dimensions of buying behaviour.

Table 3: Summary of Buying Behaviour Responses

Buying Behaviour Dimension	Dominant Response	% Respondents
Primary information channel	Dealer demos and equipment site trials	41.1%
	Industry peers and colleague referrals	30.4%
	Online catalogues and product reviews	28.6%
Key evaluation criterion	Technical performance and dependability	52.7%

	Unit price and financing structure	26.8%
	Post-purchase service quality	20.5%
Decision-making mode	Multi-stakeholder collective process	63.4%
	Individual procurement decision	36.6%
Primary purchase trigger	New project commencement	57.1%
	Replacement of ageing machinery	28.6%
	Fleet capacity expansion	14.3%
Post-purchase satisfaction driver	Service support quality and speed	44.6%
	On-site equipment output and uptime	41.1%
	Adherence to projected ownership costs	14.3%

Dealer demonstrations and site trials are the preferred information source for 41.1 percent of buyers, reflecting the need for direct performance evidence rather than catalogue claims. Technical performance and reliability is the foremost evaluation criterion for 52.7 percent more than double the share citing price (26.8%). Over three-fifths of respondents (63.4%) describe a multi-stakeholder buying process, a structural reality that demands sales strategies engaging the full decision committee rather than a single contact. New project requirements trigger 57.1 percent of purchases, tying equipment demand closely to construction activity levels. Post-purchase satisfaction centres on service support quality (44.6%) and on-site performance (41.1%), reinforcing the centrality of after-sales delivery to the overall ownership experience.

5.4 Correlation Analysis

Table 4 presents Pearson correlation coefficients between each value dimension and buying behaviour.

*Table 4: Pearson Correlation — Value Perception vs. Buying Behaviour (n = 112, ***p < 0.001)*

Value Dimension	Pearson r (vs Buying Behaviour)	p-value
Functional Value	0.782	0.000***
Economic Value	0.714	0.000***
Emotional / Brand Value	0.631	0.000***
After-Sales Service Value	0.754	0.000***

All four dimensions yield positive, significant correlations at the 0.1 percent level. Functional value leads at r = 0.782, confirming its dominant role in purchase decisions. After-sales service value (r = 0.754) is nearly as strong, which

directly challenges the assumption that post-sale considerations are peripheral in industrial procurement buyers appear to weigh anticipated service quality almost as heavily as the machine's technical attributes themselves. Economic value (r = 0.714) remains substantial, and emotional/brand value (r = 0.631), while the lowest of the four, is far from negligible, confirming that brand trust and dealer relationships exercise a real, if secondary, influence on outcomes.

VI. MAJOR FINDINGS

6. Functional value is the most powerful predictor of buying behaviour (r = 0.782). Performance, reliability, and durability received the highest importance ratings across all respondent categories.

7. After-sales service value ranked second (r = 0.754). Spare parts availability and service response time were among the top-rated items in the entire survey, demonstrating that post-sale support is a pre-purchase value driver, not merely a post-purchase concern.

8. Economic value is significant (r = 0.714), with buyers prioritising total cost of ownership over headline unit price reflecting sophisticated, lifecycle-oriented procurement thinking.

9. Buying behaviour is predominantly collective: 63.4 percent of respondents reported multi-stakeholder involvement, with important implications for sales engagement strategy.

10. New project requirements are the leading procurement trigger (57.1%), establishing a direct demand linkage with construction activity levels.

11. Emotional and brand value (r = 0.631), though ranking fourth, is statistically significant establishing that brand equity, dealer trust, and industry reputation are genuine, if second-order, influences on purchase outcomes.

VII. SUGGESTIONS

12. Engineering and product development priorities should be anchored in documented buyer performance requirements. Since functional attributes output, durability, fuel economy most strongly predict purchase decisions, manufacturers whose development roadmaps track verified customer priorities will consistently deliver more commercially relevant products.

13. Dealers must treat after-sales infrastructure as a front-end competitive differentiator. Strengthening regional parts stocking, deploying sufficient technicians near active project sites, and committing to clearly defined service response timeframes will directly strengthen perceived value at the point of purchase.

14. TCO modelling tools should become a standard element of the sales conversation. Interactive cost comparison tools that make the full lifecycle economics of competing products transparent will support evidence-based purchasing and advantage technically superior offerings.

15. Sales strategies must be restructured to match the multi-stakeholder buying reality. Account teams should be trained to map the entire decision committee technical evaluators, finance approvers, senior principals and address each stakeholder's distinct priorities rather than focusing exclusively on a single procurement contact.

16. Digital information assets virtual demonstrations, application-specific simulators, and online configuration tools should be developed and maintained to serve the growing cohort of digitally-oriented procurement professionals.

17. Financing innovation leasing arrangements, hire-purchase schemes, and NBFC partnerships should be expanded to lower economic entry barriers for smaller contractors, directly strengthening the economic value dimension that the data identify as a significant purchase driver.

VIII. CONCLUSION

This study applied descriptive statistics and Pearson correlation analysis to primary survey data from 112 construction equipment buyers in Karnataka, India, with the aim of mapping the relationship between customer value perception and buying behaviour. The evidence consistently points to functional value anchored in performance, reliability, and durability as the paramount purchase driver, a finding well-aligned with the performance-critical realities of construction site operations.

The near-equivalent correlation strength of after-sales service value is perhaps the study's most practically significant result. It indicates that buyers do not treat anticipated service quality as an afterthought; rather, it is a substantial component of perceived value that shapes purchase intentions before any transaction takes place. Manufacturers and dealers who invest in service excellence are therefore strengthening their commercial position at the front end of the buying process, not merely improving retention at the back end.

Economic value particularly total cost of ownership confirms the lifecycle sophistication of experienced equipment buyers. Even smaller contractors appear to evaluate machinery through a long-term cost lens rather than reacting to headline pricing alone. Emotional and brand value, while ranking last among the four dimensions, maintains a statistically significant association with buying behaviour, establishing that brand credibility and relational trust are not commercially irrelevant in this primarily functional market. Competitive advantage in Indian construction equipment sales requires a holistic strategy that addresses all four value dimensions in a coordinated manner. Future research could extend this framework across different Indian regions, incorporate the emerging electric equipment segment, and examine how digital procurement channels are reshaping buyer information search behaviour.

ACKNOWLEDGMENT

The authors thank the construction professionals who participated in the survey and acknowledge the Department of Management Studies, Sona College of Technology, Salem, for institutional support throughout this research.

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