

Proliferation of Market Share of Hydraulic Excavators and Wheel Loaders in the Stone Crusher Segment by Strategic Decisions

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Abstract: In today's business scenario, technology plays an important role in any industry. Construction

Equipment and the mining industry play a major role in the success of any developing country. These machines and crushers facilitated the construction companies with equipment and material for completion of major government projects such as the Kaleswaram Lift irrigation scheme project evaluating 1.2 Lakh crores and ongoing projects like Polavaram project with 48 open gates. In this paper, end to end survey has been implemented by deliberate fieldwork to stone crushers and quarries with a questionnaire analyzing the technical disparities of machines, premium and non-premium market share and various mining industries in Stone crushers segment. The calculations of the data collected have been graphically represented. The paper also gives a detailed view of the marketing strategies to be adopted for the sale of Excavators and Wheel Loaders in stone crushers. In this study, the sale of Excavators and Wheel loaders at different locations of Telangana state has been investigated and optimized. The data collected from different districts were analyzed using Porter's Generic strategies and an action plan is derived which will be used to enhance the market share of the company.

Keywords: Crushers, Excavators, Wheel Loaders, Suppliers

I. INTRODUCTION

The Stone Crushing Plant occupies a vital part in economy and industry development. This plant provides stones of various sizes that are required for structural building activities like highways, roads, buildings, bridges, and canals. Organizations with sturdy marketing competences should recognize and understand the wants of the customers^[1]. Firms with good marketing capabilities have always become better performers in the industry^[2]. Stone crusher plants in India are around 20,000 no's and due to urbanization, there is a need for many such plants.

Manpower requirement for these plants helps in determining skilled people from rural and backward areas where the occupation opportunities are narrow. This becomes a source of income for poor, uneducated, and unskilled rural families.

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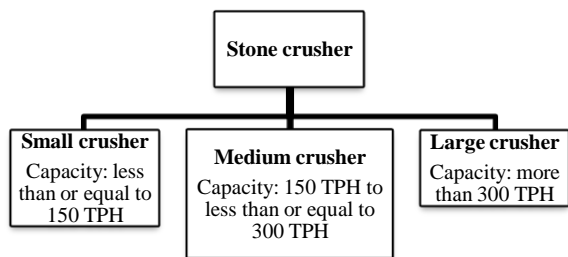
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Stone crusher is one of the important industries that exist in all parts of the country. It is one such industry that is located in the vicinity of almost all major cities/towns in all the states across the country because the construction activities are extensively carried out in such locations. Plant layout for a firm is very important^[5] as the firm will be more efficient if it can balance the higher demand and capacity in a proper manner^[4, 7]. For any company, innovation through Research & Development affects the appropriate goods that meet customer needs along with building up operational competence^[6, 8]. R & D and the marketing strategy capability enable the firm to earn stronger customer loyalty^[3].

Based on customer's demand and location, transportation of stone has to be done over long distances which significantly add to the cost of the crushed stone products. Therefore, the crusher plants need to be necessarily located nearer to the demand centers such as cities, bridges, canals, etc. thus minimizing the transportation cost. These stone crushers also need huge manpower and electricity supply for its operation. Besides necessary entities, these plants also desire access to roads for the drive of mined stone and crushed stone products. Hence most of these plants are located on the border of Cities or in the neighborhood of major construction projects.

Indian crusher industry can be divided into two major types: i) Organized crushers and ii) Unorganized crushers. Organized crushers are legally established crushers following government norms and having a large capacity and unorganized crushers are those which are usually illegal, having low capacity.

Stone crushers have a wide range of varieties. The type depends on the following factors such as geographical locations, nearness to city areas, nature of the demand for crushed products, type of raw material, accessibility of plant and machinery locally, etc. The capacity of a stone crusher is measured in TPH i.e., Stone crushed in tones per hour. Primarily the stone crusher industry sector could be divided into three categories as Large, Medium & Small crushers. The research suggests that the sales of excavators and wheel loaders used in stone crushers can be improved by implementing a marketing strategy.



II. METHODOLOGY

A. Location of Crusher Zones

Based on location, the crusher was chosen. A study on districts where crusher zones are located in Telangana state was done and had collected data from each crusher zone about the existing machines. Assessment of the company’s awareness of the excavators and the wheel loaders was done. Depending on the data, an action plan was prepared for individual districts.

B. Conduct Surveys for Research

An initial survey was made to assess the awareness of customers about Caterpillar Company and products using the following questionnaire as in Table-I.

Table-I: Initial survey Questionnaire

Sl. No	Questions
1	Do you know about CATERPILLAR?
2	Do you know about GMMCO?
3	Do you know about the CAT 20 ton excavator & its model?
4	Do you know about the HINDUSTAN 3 ton wheel loader & its model?
5	Do you know about the CAT 13 ton excavator & its model?
6	Do you know that GMMCO is a CAT Dealer?

Based on the customer’s voice, we were able to assess the awareness as:

- Almost 95% of the customers are not aware of CAT 13 ton excavator & its model
- 85% - 90% of the customers are aware of CAT 20 ton excavators& its model (CAT 320D2)
- 65% - 70% of the customers are not aware that HINDUSTAN is owned by CATERPILLAR
- Only a few customers are not aware that GMMCO is a CAT dealer
- 80% - 85% of the customers are familiar with CAT machines
- Almost all the customers are very much familiar with HINDUSTAN wheel loaders

C. Collection and Analysis of Data

The following data was collected from each crusher zone to identify potential customers.

Table-II: List of sample data collected

Sl. No	Sample
1	The existing fleet that is using in crushers

2	Crusher owners & other employees details
3	Crusher’s capacity & brand
4	Year of purchase of machines
5	Fuel consumption of their machines
6	Major Component failures of competitive machines

In this research work, a total of 178 stone crushers in different regions of Telangana state were surveyed and it was found that major players in crusher segment are Puzzolana, Sandvik, Metso, Nova, Marshman, Samyoung,& Oil crushers. The following graph shows the details of crushers.

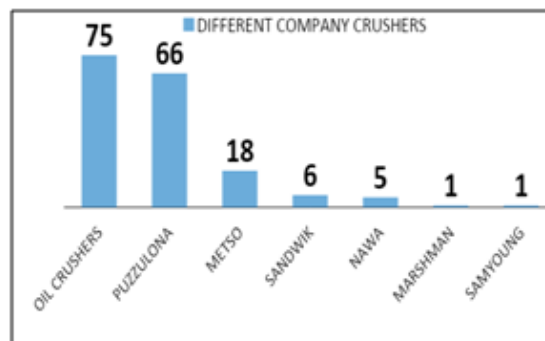


Fig.1. Population of crusher companies using field survey

From the initial survey, it was found that oil crushers had the maximum share of all the other players in crushers, but nowadays many of the customers are not willing to keep an oil crusher because of its high maintenance & less capacity. The action plans which were taken by this initial survey were to be in touch with Puzzolana and other crusher brands so that we can know the upcoming crusher plants, thereby identifying new customers and targeting our excavators & wheel loaders sales. This survey revealed that there are 94 small crushers, 70 medium crushers, and 8 large crushers with 4%, 41%, and 55% respectively.

Also, this survey revealed that the total number of excavators and wheel loaders used in 178 crushers are 289 and 115 respectively. From this survey, we have also identified the total fleet of excavators & wheel loaders used in the crushers of individual districts. Details are furnished in Table-III.

Table-III: Details of district and number of Excavators and Wheel Loaders

District Name	Excavators	Wheel Loaders
Hyderabad & RangaReddy	185	87
Warangal	43	15
Nalgonda	43	15
Medak & Nizamabad	16	2

In all the four district crushers which were studied, major excavator suppliers were from L&T Komatsu, Kobelco, Caterpillar, JCB, Volvo, Sany, Hyundai, Hitachi(Zaxis), TataHitachi, BEML, Doosan.

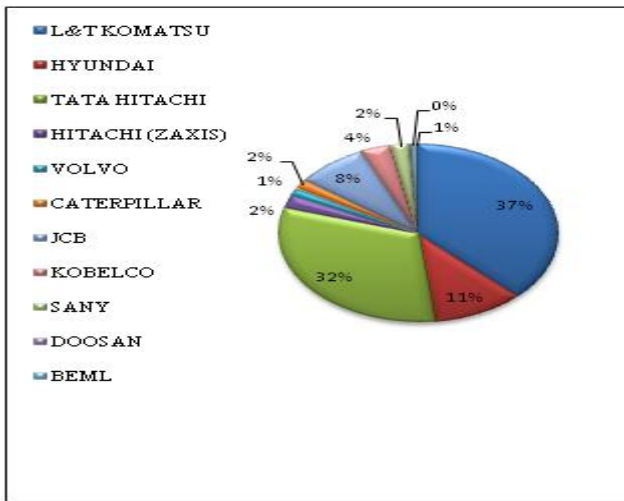


Fig.2. Percentage share of Excavators suppliers in all the surveyed crushers.

L&T Komatsu and Tata Hitachi were the top two brands of the excavators who had about 37% and 32% market share respectively followed by Hyundai (11%) & JCB (8%) whereas the other brands were under 5%. From this, an action plan was suggested in which 20 ton Komatsu customers need to be targeted with CAT-320D2 providing additional benefits. Also, efforts have to be made to target Tata Hitachi customers with CAT-313D2 (thereby leading to targeting 69% of total customers). Another interesting fact we spotted out from our study is that there is no market for VOLVO excavators in crushers because of its high price constraint.

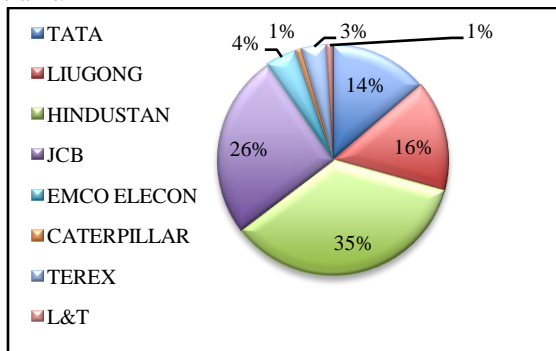


Fig.3. Percentage share of wheel loaders in all the surveyed crushers.

Among the wheel loaders which were used in crushers, major wheel loader suppliers were from Tata, Liugong, Hindustan, JCB, EimcoElecon, Caterpillar, Terex. From the pie chart shown in Fig 3, Hindustan is the market leader with a 35% share; JCB in 2nd place with 26%, while Tata & Liugong are 14% & 16% respectively. From the data available, it is clear that JCB customers need to be targeted with HM2021. Coverage plans to be made to attract loyal, prospective & mid-tier customers. As Caterpillar is the market leader in this segment, we have to use our existing customers to refer others and increase our contacts in these zones.

Classification of customers

Customers were separated based on their fleet into two types:

1) **Prospective Customers:** The customers who are using world-class machines are considered as prospective customers.

2) **Pool Customers:** The customers who are using non-world class machines are considered as pool customers.

The customers who use pool-one specific brand are considered as loyal customers.

D. Study on Customer Loyalty

Table-IV illustrates the different manufacturers of Excavator and Wheel Loader machines.

Table-IV: List of manufacturers of Excavators and Wheel Loaders

TYPE	EXCAVATORS	WHEEL LOADERS
World-class machines	Caterpillar Volvo Komatsu Hitachi(zaxis) Kobelco	Caterpillar Hindustan 2021 JCB L&T Liebherr
Non-world class machines	Sany JCB Tata Hitachi Doosan Hyundai	Terex Liugong Xemg Sdlg Emcoelecon

A study of loyal prospective customers and loyal pool customers for Excavators and Wheel Loaders was conducted in all the four districts of Telangana, the details of which are plotted in the form of pie charts shown in Fig 4, 5, 6 and 7 respectively.

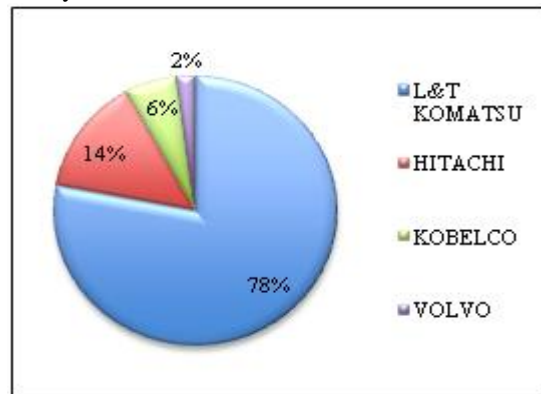


Fig.4. The number of loyal prospective customers (in percentage) of competitor Excavators.

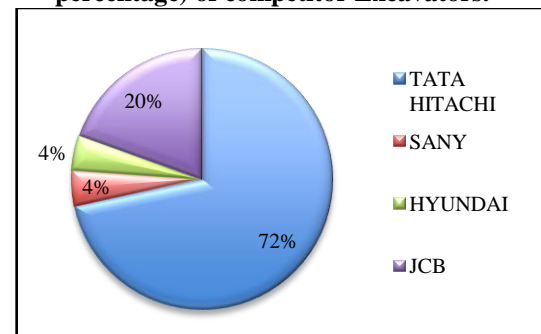


Fig.5. Percentage of loyal prospective customers of competitor Excavators.

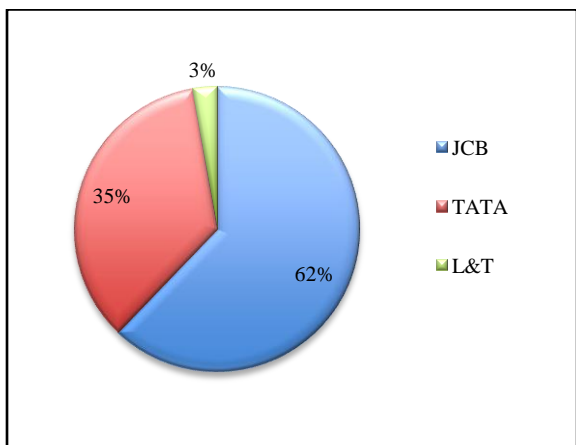


Fig.6. Percentage of loyal prospective customers of competitor Wheel Loaders.

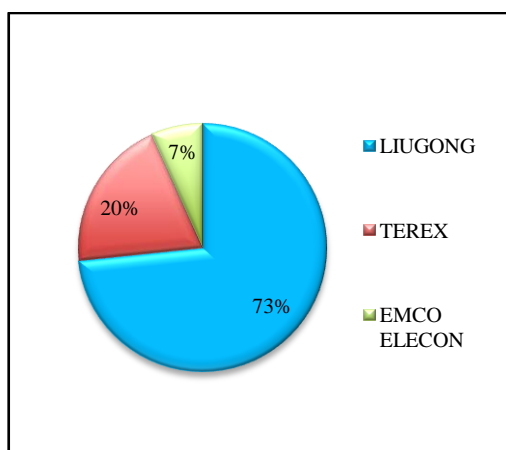


Fig.7. Percentage of loyal pool customers of competitor Wheel Loaders.

From the above graphs, we were able to trace out that in the category of excavators: L & T Komatsu is the loyal prospective customer and Tata Hitachi is the loyal pool customer whereas in the category of wheel loaders: JCB is the loyal prospective customer and Liugong is a loyal pool customer.

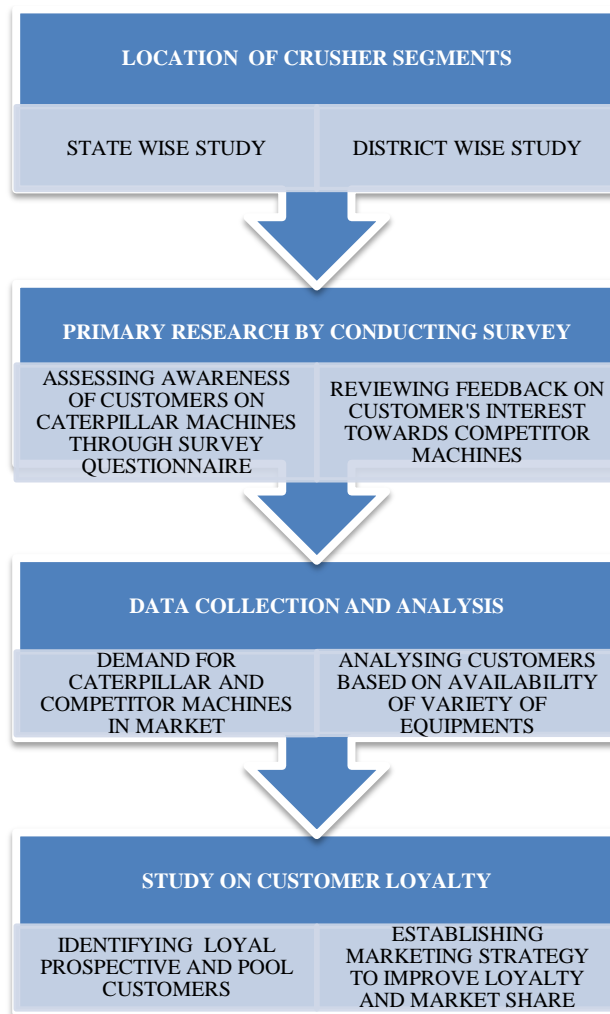
Another study was conducted to distinguish the customers under already separated customers, who are listed as Set 1, Set 2 & Set 3 customers.

- **Set1 customers:** The customers who bought Excavators and Wheel Loaders before 2013 are listed as set1 customers. They should be given **high priority** & need to be contacted immediately.
- **Set2 customers:** The customers who bought Excavators and Wheel Loaders in 2014 & 2015 are listed as set2 customers. They should be given **medium priority** and to be contacted after some period.
- **Set3 customers:** The customers who bought Excavators and Wheel Loaders in 2016 & 2017(up to Feb.) are listed as set 3 customers. They should be given the **least priority** and to be contacted after 1 or 2 years.

As many of the customers are not aware of CAT 13 ton excavators, there is a need to market this product by displaying product videos, supplying of brochures to crusher owners and other working staff of crushers, implementing demos for 13-ton excavator in quarries so that customers

will easily be able to differentiate CAT product from other machines.

Process Flow



III. RESULT AND DISCUSSION

According to the survey, a customer who bought a brand new machine would plan for another one between 3-4 years from the date of the last commissioning of the machine. It was observed practically that, a customer who bought a new machine in the year 2014 will have requirements in between 2017-18. Some of the important reasons are due to the diminish in the performance of the machine after 3-4 years from the date of commissioning, customers prefer buying a new machine which provides warranty to minimize the secondary investment on the old machine and they also make benefit out of selling the previous machine which has run 9000 hour/ 3 years at 60% of the invoice cost.

IV. CONCLUSION

As India is a developing country, stone crusher owners are making huge profits by providing materials to the government, builders, Contractors, irrigation projects etc. so they will repeatedly buy Excavators and Wheel Loaders.

- 1) The customers who brought excavators before three years utilize the machines at an approximate value of 8000-9000 Hours (HMR). The life of any utility engine would remain less than 10000-12000 hours. Rather than investing in engine top/major overall or secondary repairs, customers would choose to buy a new machine. In that scenario, focusing on such customers enhanced our Excavators sales as they remained to be a prospective pipeline for current financial year.
- 2) Customer relationship management (CRM) software with daily activities, deal participation rate, customer data entry, saving customers location, Lead & opportunity management (LOM) helped to organize a team and achieved double the market share in less than 6months down the line.
- 3) Focusing on Premium customers like Caterpillar, L&T, Volvo, etc. the market share of the premium brand market has increased from 6.5% to 11.5%.
- 4) With this study, the differences between the share market of premium brands and non-premium brands were found.
- 5) Compared the major technical component failures from brand to brand and model to model focusing primarily on Engine, Hydraulic Pump, Undercarriage, Bucket, and Ground Engaging Tools.
- 6) Production studies between competitive machines focusing on production and fuel efficiency, Operation & maintenance study, machinery downtime, reliability of engine helped to provide information in any deal.



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