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MANAGING BUSINESS CHALLENGES OF INDIAN AUTOMOBILE INDUSTRY - A COST BASED APPROACH

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ABSTRACT

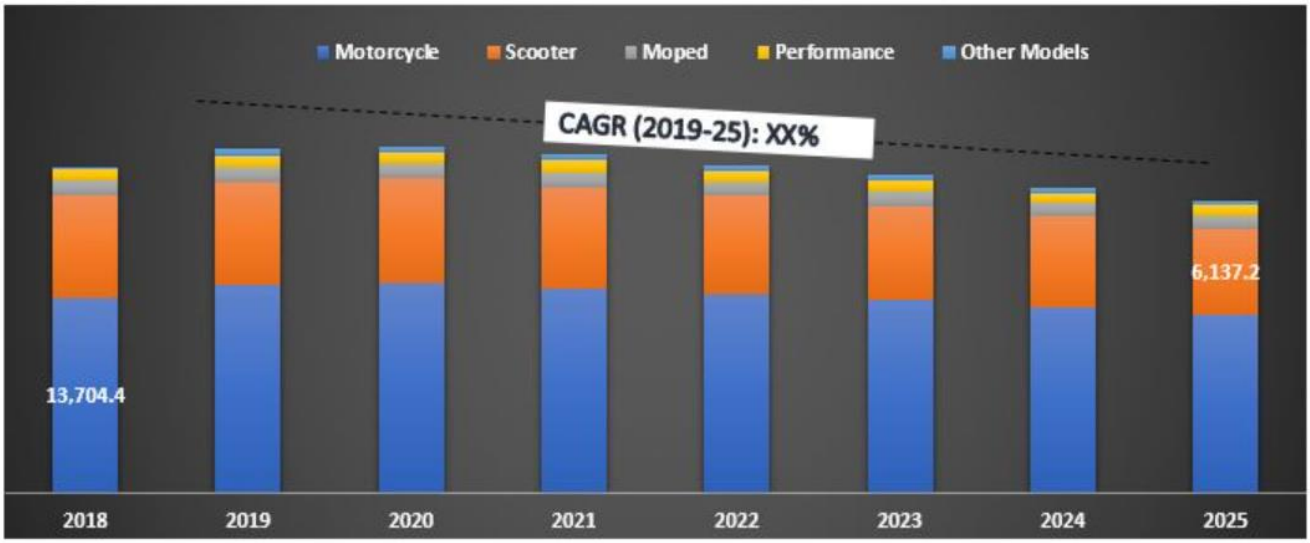
Any organization, big or small conducts its operations with profit being one of the main objectives to continue its existence and growth. As the Indian manufacturing industry has evolved through different stages since post-independence era, it has been by far observed that as the regular business takes over, internal and external problems plague a manufacturing unit in difference measures but they are hardly examined systematically to arrive at sustainable measures to address them. Automobile industry is found to be an apt example of Indian growth story as it is reflective of Indian customer sentiment through the years, hence can be appreciated better. This paper studies various constraints based on problems identified through discussions with management of Indian automobile manufacturers across different function, which have been broadly explained throughout the paper. It also offers practical solutions which are suggested as outcome of these discussions while connecting dots through top management perspective.

INTRODUCTION

Post independence, in early 1950s, India was witnessing its early modernization withindustrialization catching up and cars had just started to be seen as privately owned modes oftransport. Hindustan Motors and Fiat were the early entrants and on the two-wheeler front; itwas the legendary Bajaj Chetak, Rajdoont and Bullet. Then was the time, when the markets were manufacturer-governed and the customer had but little say in deciding the design, style or price of his vehicle, since the industry was capital intensive and hence had high entry barriers. It continued till early '90s subsequent to which, the four-stroke motorcycle made a successful foray on the Indian roads, with a lot of new players ushering in the Indian market.

The gradual and much needed drift of the market forces from being manufacturer dominated to being customer centric and favouring the demand side can be attributed to many factors including the economic liberalization policies which paved way for Indian automobile players to form JVs with their foreign counterparts. This led to R&D facilities and skills being developed in-house, which gradually caused the Indian automobile revolution driven by the customer expectations as main focus replacing the producer's economies of scale. Thus the gradual shift of Indian policies from being socialistic to favouring socio-capitalist economy that we now see, acted in the larger benefit of the Indian masses by helping them raise their standard of living.

Figure 1: Graph showing sales mix of two-wheelers across categories



Source: UnivDatos Market Insights (UMI)

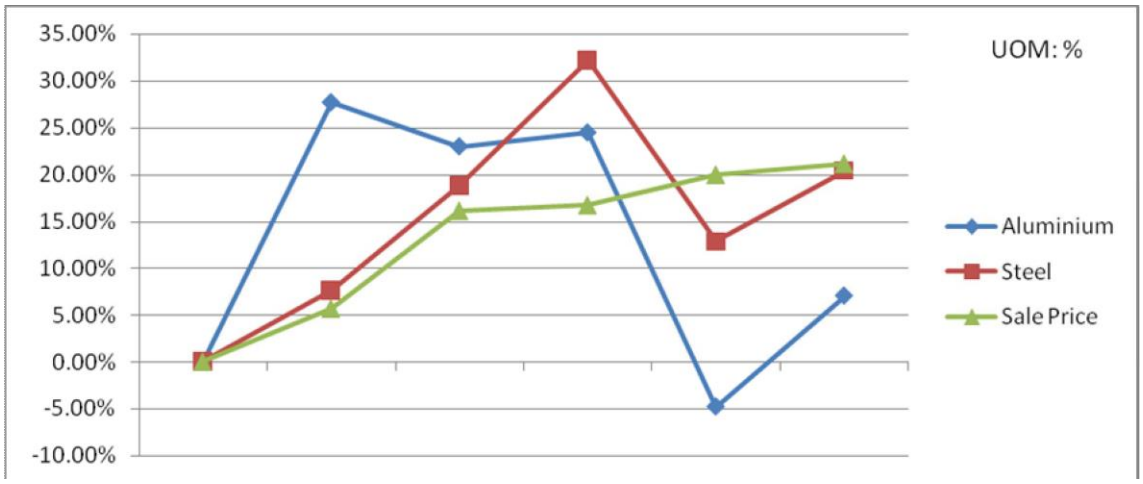
The above graph highlights the following points as regard to the consumer behaviour:

- Comparative focus - hence gradual rise in scooter and motorcycles sales witnessed, after letting enough competition to develop, with more entrants and intense competition after first decade of 21st century
- Price Consciousness – Fuel economy being the main benefit of motorcycles, over the years maximum market share is retained by this category
- Rise in the disposable income in the hands of an average Indian, hence affordability tomove up the value chain of consumption as indicated by gradual decline in CAGR anticipated of two wheelers sales

The most recent economic downturn has led many manufacturers to re-think their business strategies and look for ways to streamline supply in order to reduce costs.

The following graphs of commodity (material) price behavior and selling price movement of two-wheelers indicate extreme volatility in the commodity prices not being matched by the increase in selling prices of two-wheelers.

Figure 2 : Percentage change in Raw material prices vs Sale price of 2 wheelers



Based on the current market trends and proven time and again, below are the main factors to succeed in Indian markets is –

1. **Rising Price constraints: Control input/raw material costs**
2. **Right Product - Deliver the right thing at the right price (First time right)**

In such a scenario, the traditional methods of standard costing are no more applicable, since the Sale prices of products are determined by the market forces, and the margin is the remainder of Sale price minus costs.

Traditional Pricing: *Cost plus approach* [Costs + Margin = Sale Price]

↓ ↓

Competitive / Market Pricing: [Sale Price – Costs = Margin]

This is one of the most crucial challenges faced by Indian Manufacturing organizations.
Solution: Controlling input costs to match the expected profit levels

Input cost management doesn't mean only input cost reduction, it is a lot more than that. We need to manage the total cost of buying. We need to have a balanced approach between the attractive features of the product vs customer preferences i.e. **Value Vs cost**.
Also we need to have an effective cost tracking system in place to know the total cost. As it is said "If you cannot measure, you cannot manage".
We need to build a sustainable culture within the organization which enables effective control of two types of factors influencing costs and profits**: Internal** and **External**
Internal Controls:

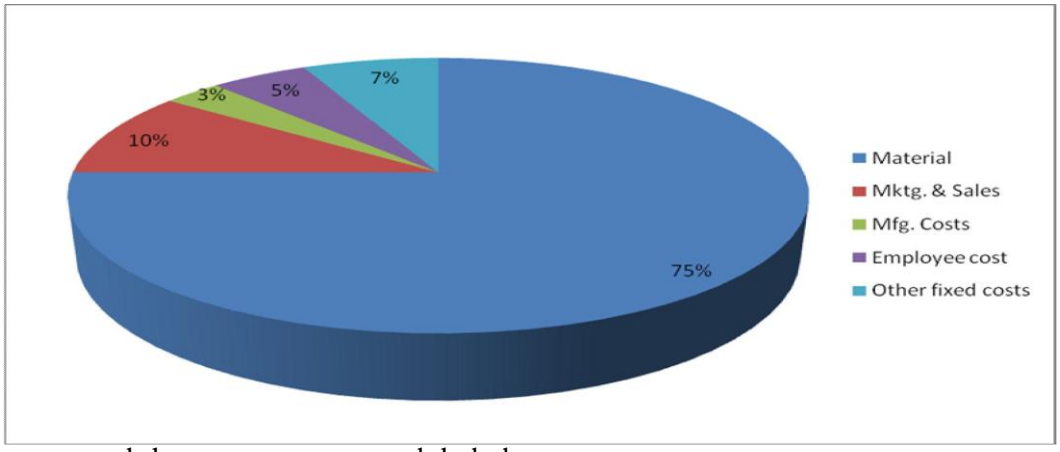
- Cost consciousness (through all the functions)
- QCD (Quality, Cost and delivery) of the product
- Lean manufacturing, focus on cost more than market price & profit
- Reconcile Dilemmas – Strategy of cost leadership
- Cost management (to optimize costs for better output) instead of cost cutting

External Controls:
Figure 3: Porter's five-forces model sdnksjndj

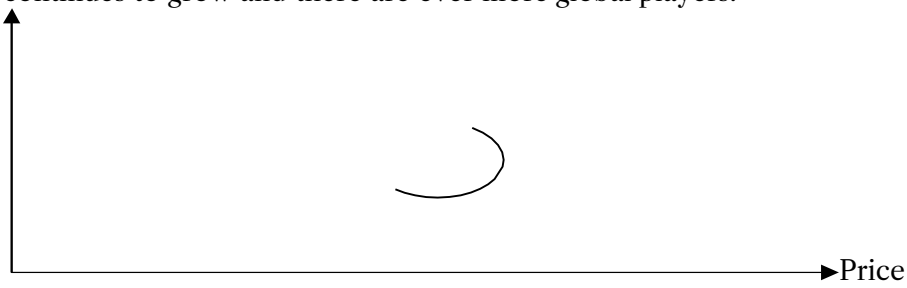
Golden Rule: Higher the volume, greater the influence and hence lower the costs

- Identify the potential substitutes which threaten the market and carve out a gradual replacement plan for old products - Cannibalize your own products before your rivals
- Recognition of Market Signals: Constant changes based on market demands is the way forward. Denial to changes must be replaced by scientific way of thinking and decision-making
- Have a healthy portfolio mix with defensive products (Business cycles are not the same) so that in case of a sudden loss in one of the product lines, the overall profitability does not suffer heavily
- Speed of change – First Mover Advantage

Getting products to the market quickly has become even more important for manufacturers as competition



continues to grow and there are ever more global players.



Time of launch (Competitive edge)
(Willingness to pay)

PPM/Six Sigma = ***Perceived Customer Quality***
(Hygiene Factor)
Unlike the traditional business models of yore, wherein complete focus was on productivityand quality alone (Produce more and Produce cheap), these have become hygiene factors now and the management concepts now encompass the concept of ***'Running before the Market'*** – One needs to be the first mover and get the product designed exceeding the customer expectations, much before the competition. Those who follow the erstwhile productivity focused approach, emerge as 'Outsourcing partners' similar to erstwhile Chinese manufacturers, losing independence of operating value chain end-to-end, to the 'bigger' firms or Original Equipment Manufacturers (OEMs) who concentrate on technology development & precision areas and hence emerge as successful players with complete control on the value chain.

There are many difficulties today in streamlining the process:

- Product engineers and designers need to communicate with suppliers around the worldfor developing cost-effective part(s) that serves or exceeds the specific function(s) which increases time lag and upstream working cost in plan to produce.
- Logistics - Actual production may take place in multiple locations while sourcing is centralized
- Regulations must be adhered to, in sourcing as well as finished goods markets.
- Launches are planned in multiple markets, depending on the market readiness hence increasing the marketing costs
- Diversified promotion - Marketing activities being region specific and customized to address the demand differently based on customer tastes, require substantial planning and execution with unplanned expenses

The fundamental undercurrent flowing through all of these challenges that needs to be dealtwith from the grass root level is nothing but **'Cost Control'.**
Figure 4: A typical example of cost structure in automobile industry
Out of the total cost, material cost contributes to 75 % (approx.) followed by Marketing & Sales. This indicates the importance of managing the input costs.

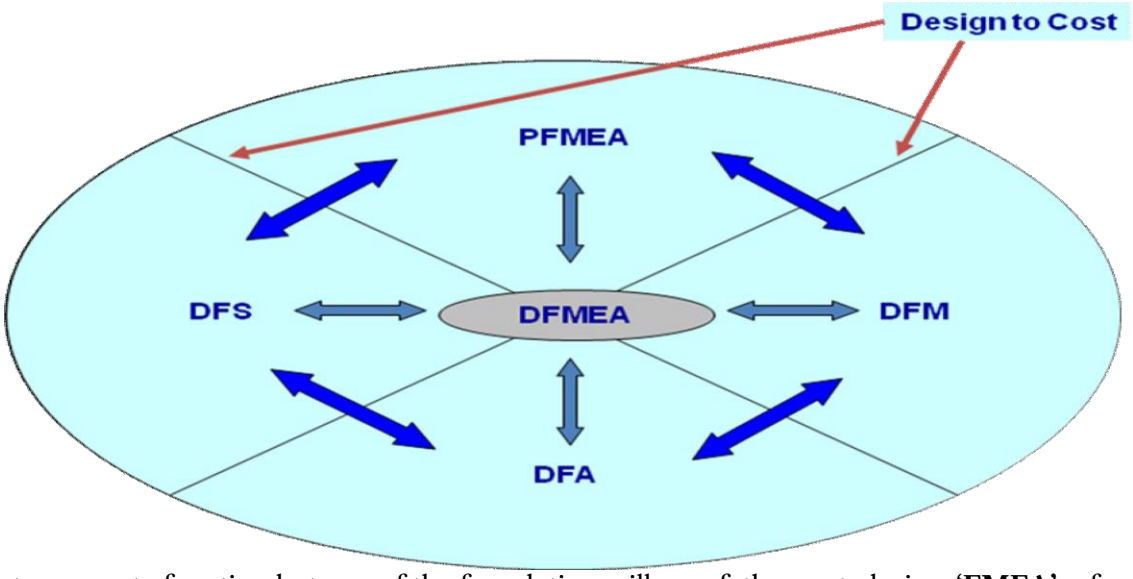
Let us discuss about the **Strategies to manage input costs.**
The strategies can be divided into three categories -
Design strategies
Sourcing strategies.
Manufacturing strategies

1. Design strategies

1.1 Design to cost:

Design to cost is a concept that establishes cost elements as management goals to best balance between lifecycle cost and acceptable performance of the product within a scheduled time frame. It is a process that constrains design options to a specified cost limit. The cost limit is usually what the buyer can pay or what the marketplace demands. Once the design is frozen, 90 % of the cost is fixed, so we need to concentrate on the design to achieve the target cost.

Figure 5: Designing a new product|part in connection with all concerned functions



Costing is not a separate function but one of the foundation pillars of the part design. **'FMEA'** refers to **'Failure Mode Effect Analysis'** and the concept is reflective of the fact that the higher the failure or defects, higher is the cost of the product (through waste generation). In a new product design, the results obtained from simulation tests and past performance of a similar product (meant for performing a similar function) are significant inputs for deciding upon the design. **DFMEA** or 'Design FMEA' takes care of the designing errors due to which part(s) designed in the past failed to meet the required standards and the same are avoided in building the current design. While **PFMEA** or 'Process FMEA' is analysis of errors due to which the part faces operational or processing difficulties.

Part design so developed should be such that it satisfies all the three aspects viz.

A. DFM = Design for **Manufacturability**
B DFA = Design for **Assembly** (of the final product)
C. DFS = Design for **Serviceability**

1.2 Standardization, as a strategy, can bring a lot more discipline & exactness than the cost benefit, as it reduces the total cost of managing the a major part of the value chain.

Standardization can be:

(i) ***Platform Standardization*** meaning producing or rolling out several different products on the same manufacturing platform through employing Flexible Manufacturing Systems (FMS)

(ii) ***Part Standardization*** or part count reduction (standardization)

1.3 Managing cost of poor quality:

Quality should be defined appropriately, keeping customer needs as the main base, which eliminates over designing

of the product –
"Specification should be the document of the results, not the recipe of the plan." Example - The European Union had a mandate to reject the supply of bent cucumbers, but when the demand surged & price went up, the EU had to compromise on its irrational mandate.

1.4 VA / VE & Waste elimination:
The concept of value analysis & value engineering can be used as a strong tool for material cost optimization. Kaizen and production teams can conduct joint brain storming sessions on shop floor to look for ways to eliminate wastes and curb excess material or process wherever it has crept in during the course of production.

2. Sourcing strategies

2.1 Localization of parts:
The sourcing strategy can be to localize the outsourced parts within the country, which can give cost benefit and also reduce the external risks such as currency fluctuations, compliance to regulatory policies of government, reduction of lead time etc.

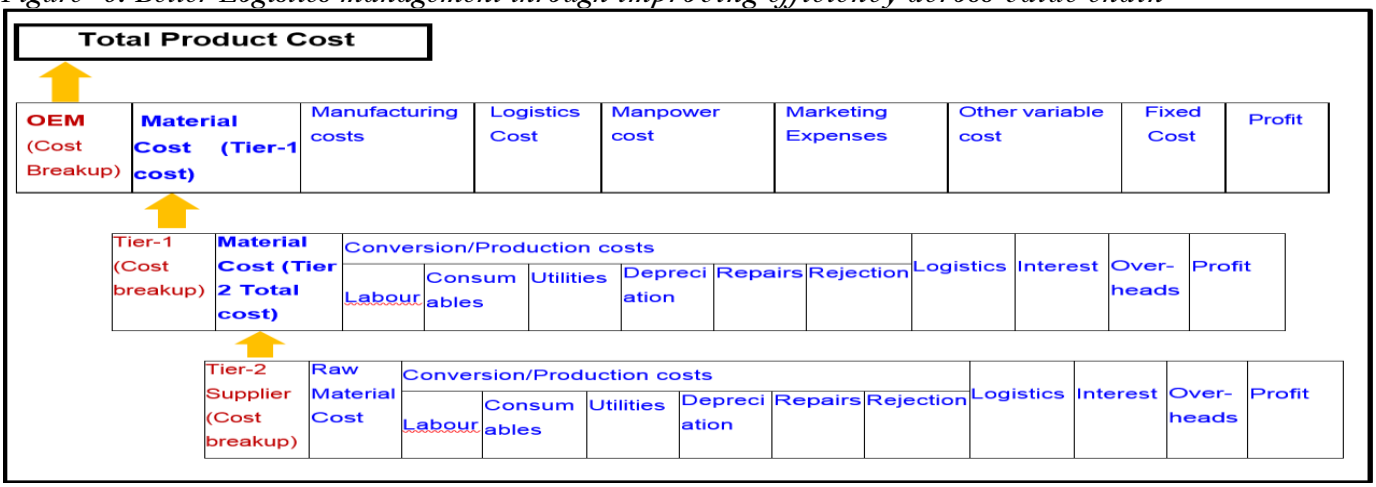
2.2 Maximization of fiscal benefits:
The sourcing strategy should be to maximize/optimize the fiscal stimulus provided by favorable government policies by planning the sourcing of material/parts based on regional benefits.

2.3 E -buying:
The other sourcing strategy is to open an E-bidding process for the materials which are proprietary in nature, by which the competition gets immense and hence the producers gets the right quality at best prices. This also has benefits like re-bidding and confidentiality.

2.4 Global sourcing:
This is a major sourcing strategy used by most of the Indian companies to leverage the benefit of FTAs, cost benefit due to economies of scale, export rebates by different governments, cheaper raw material cost, labour cost arbitrage, lower management cost, new technology etc. The material cost for an OEM is the summation of material, conversion, financial costs and profit of its tier-wise suppliers as illustrated in Figure 6. Thus, overall material cost can be managed by attacking all those cost drivers. It is inferred from the below picture that, the cost cannot be controlled only at the OEM, it should also be controlled at the supplier end.
There are certain strategies, by which we can manage the input cost by addressing all the cost drivers of the suppliers.

- **Group purchase of raw materials**: The cost gets added at the supplier end, who buys the raw material. The raw material requirement can be consolidated by the OEM/Tier-1 supplier & can be negotiated with the raw material producer for a better price due to the high volume.

Figure 6: Better Logistics management through improving efficiency across value chain



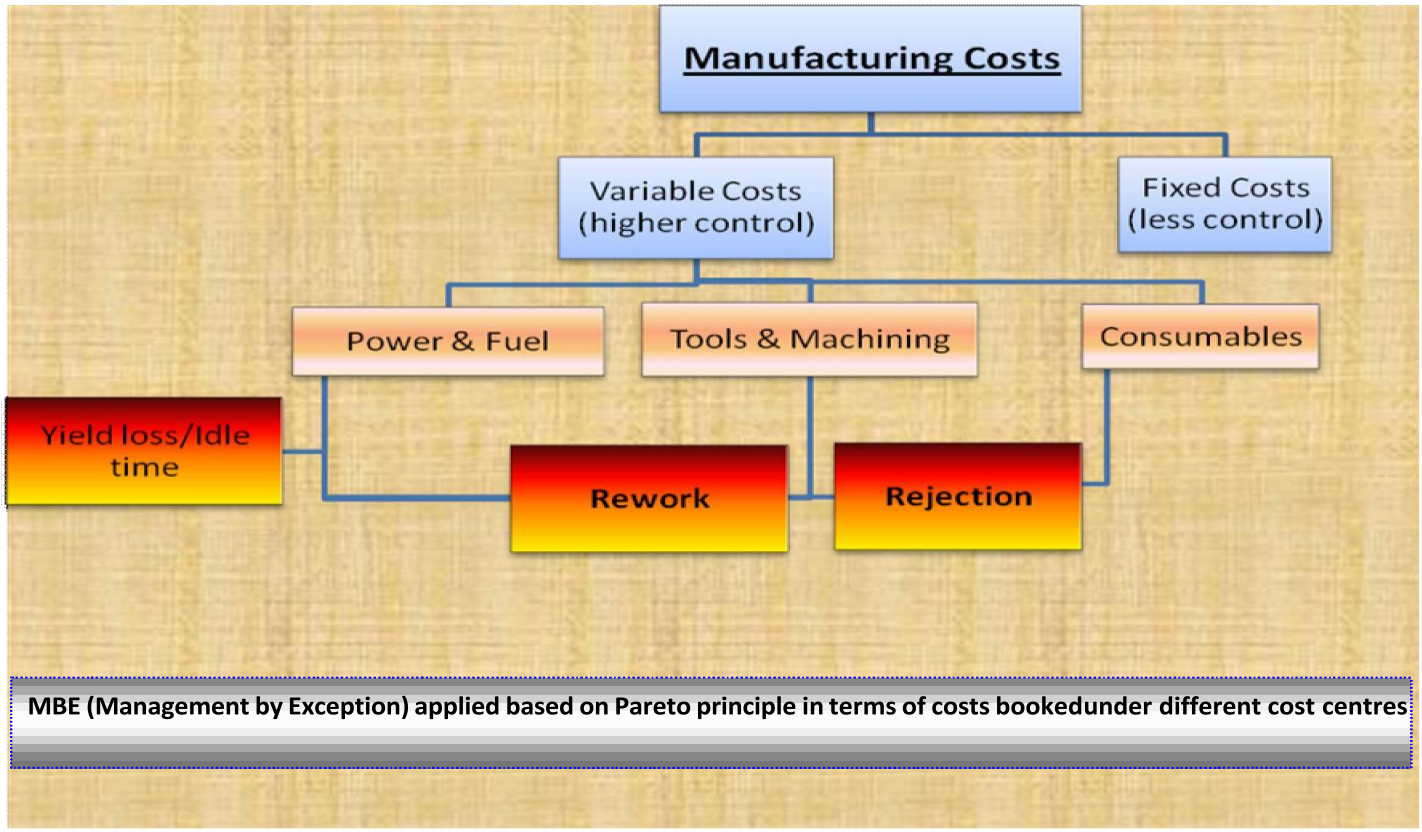
- **Integration of part development**: The supplier is involved right since the time of part design, to have the bigger picture of part functionality in the main product and match the deliverables as specified.
- **Helping the suppliers to improve** through supplier development activities, working capital assistance, supplier viability study etc. Benefits accruing from economies of scale can be shared by the OEM and its suppliers down the line.

Example – Walmart became a cost leader for several of its products by reaching out to the last level of the suppliers for raw material; in its product chain and fixing the input prices of its products right from that stage.

3. Manufacturing Strategies

Modern manufacturing and integrated cost reporting systems enables accurate cost booking in respective cost centres and hence abnormal increases in respect of wastage, rework costs and loss in productivity can be precisely identified through ERP (Enterprise Resource Planning) software.

Figure 7: Controlling Manufacturing costs



3.1 Management by Exception (MBE)

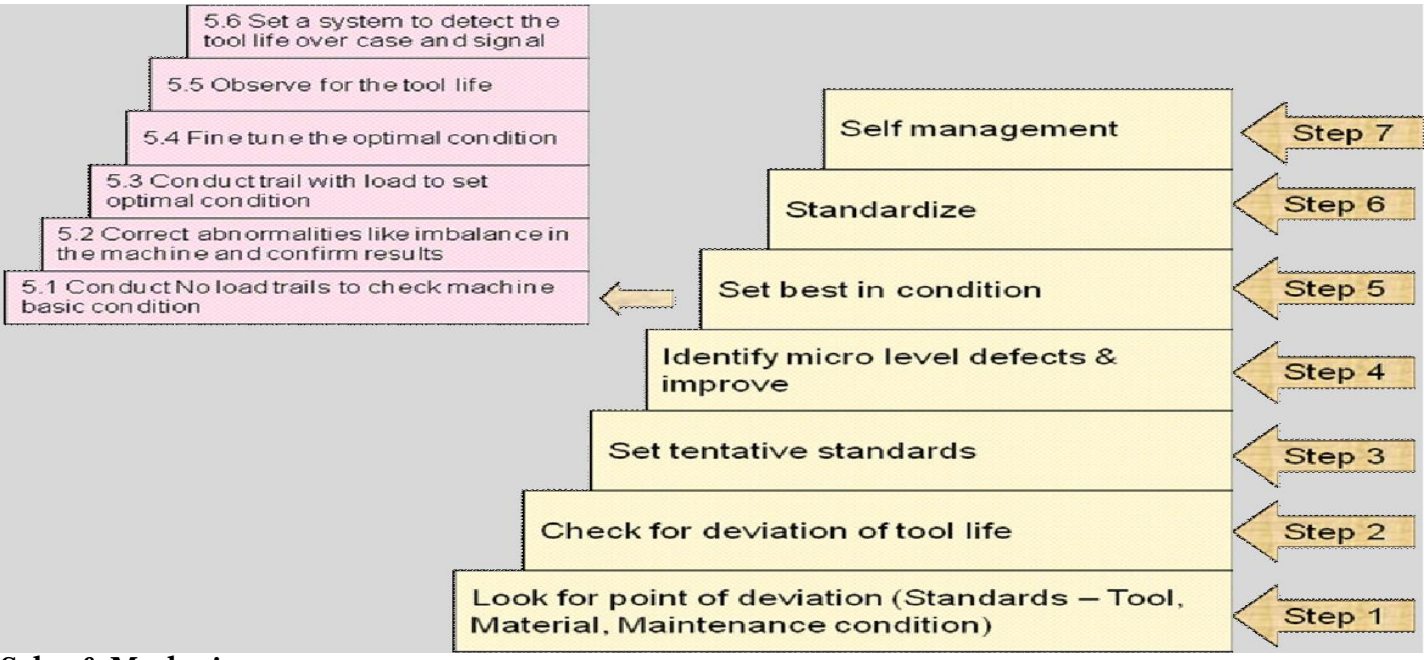
Productivity losses thus identified can further be analyzed and ranked in terms of causes (Higher the loss, the higher its significance) Factors causing maximum damage needs to be dealt first, followed by those which comes in order of the pareto (80:20 rule) prepared.

Tools and machines used in production are capital intensive and hence, they have substantial impact on determining the cost of a product, in terms of depreciation, amortization and running cost.

3.2 TPM (Total Productivity Management)

The seven-step tool as explained with the below diagram, is devised based on TPM (Total Productivity Management) concepts and comes to help as an effective measure to increase the tool life and optimize on running expenses to reduce production costs without compromising on product quality.

Figure 8: Seven-step tool management system



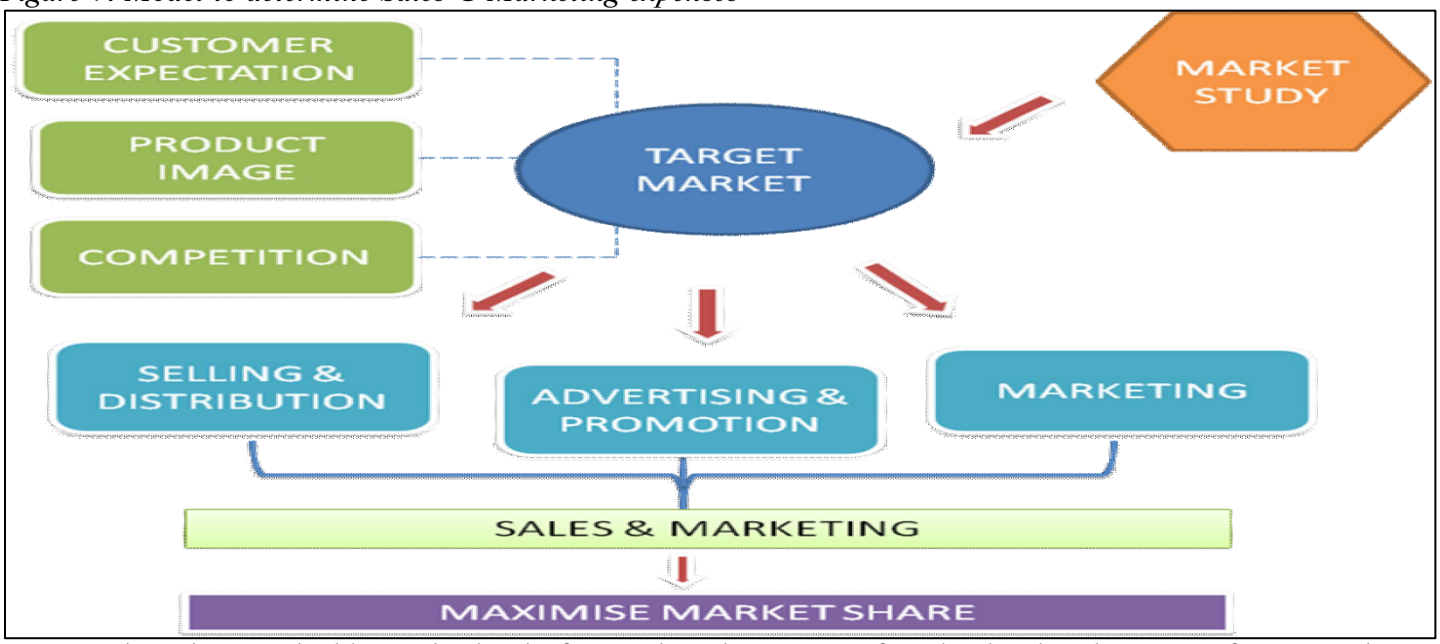
Sales & Marketing:

Sales and marketing encompass all expenses incurred with the main aim of generating and capturing the demand, and promoting sales of the product(s) and services.

A peculiar feature associated with this expenditure is that, they are industry – specific and can add up quickly, while their effectiveness is often difficult to measure, since there is no standard model to measure it scientifically.

Thus, it is important for every manager to determine specific marketing expenses necessaryto promote the business and optimize the same in terms of meeting the aforementioned marketing objectives.

Figure 9: Model to determine Sales & Marketing expenses



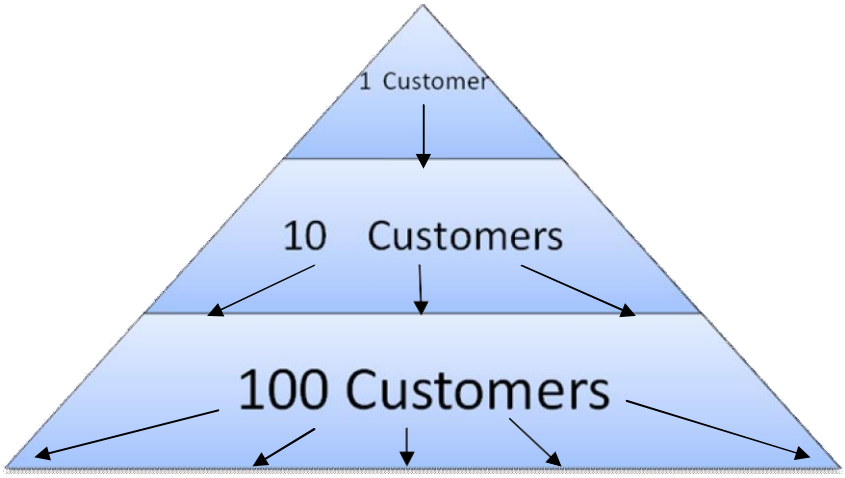
A strong brand is invaluable as the battle for market share intensifies day by day, but quiteoften marketing activities degenerates into being **'white elephants'** Therefore, in order to have a better track of the monetary resources employed, vis-a- vis the results generated, it is necessary to have Marketing & Sales costs measured and budgeted based on the expected moves in the market.

These expenses cannot be directly related to the inputs for the product, but are nevertheless necessary for selling it effectively. Hence they need to be 'optimized' and not just reduced.

All the promotion activities should be built around for delivering the intended message exactly and optimally.

"In strategy, it is important to see distant things as if they were close and to take adistanced view of close things." *- Miyamoto Musashi (The Book of Five Rings)*

Customers decide the revenue of a company. **HOW?**
Happy customer => Loyal customer



A loyal customer multiplies further customers, through word-of-mouth communication.
The very rules that define Mass production have undergone a paradigm shift over the years.

Mass Production Challenges – Then & Now
A brief comparison is given in the following table which highlights challenging differences being addressed by today's manufacturers.

Features	***Traditional theory of Mass Production***	***New ways of Mass Production***
Market dominance	• Producer – governed	• Driven by customer wants
Production	• Low-cost, consistent quality, standardised products	• Affordable, high-quality, customised products to suit demand
Market trends	• Homogeneous markets with low product variety • Stable demand • Long product life cycles	• Heterogeneous markets andsegments of one brand • Demand fragmentation • Short product life cycles

Features	***Traditional Mass Production***	***New ways of Mass Production***
Productivity and Innovation	• Operational efficiency premier – Separate Innovation & Production • Long runs - Standardization High inventories: build to plan Insulated development / Vendor is only a low-cost producer	• Total process efficiency premier - Integration of innovation and production • Lot sizes of one – Flexible production • Lean / JIT: make to order Integrated Development / Vendor is a design partner
Labour Relations	Lack of investment in worker skills Poor management /employee relations	High utilization of and investment in worker skills Sense of community

These factors along with other challenges discussed thus far, has influenced the way a business functions. **It needs**

a thorough revamp of its goals, objectives, strategies and processes to reorient itself to the changing markets, manufacturing requirements and at the end deliver substantial value to all the stakeholders. As a result, the process flows and standard operating procedures (SOP) needs to be reviewed, to check if the set objectives needto be revised and whether or not they are in line with new organizational goals.
The model (overleaf) prescribed is devised based on practical experiences and uses a combination of general management principles, Activity Based Costing (ABC) and principles of budgeting.

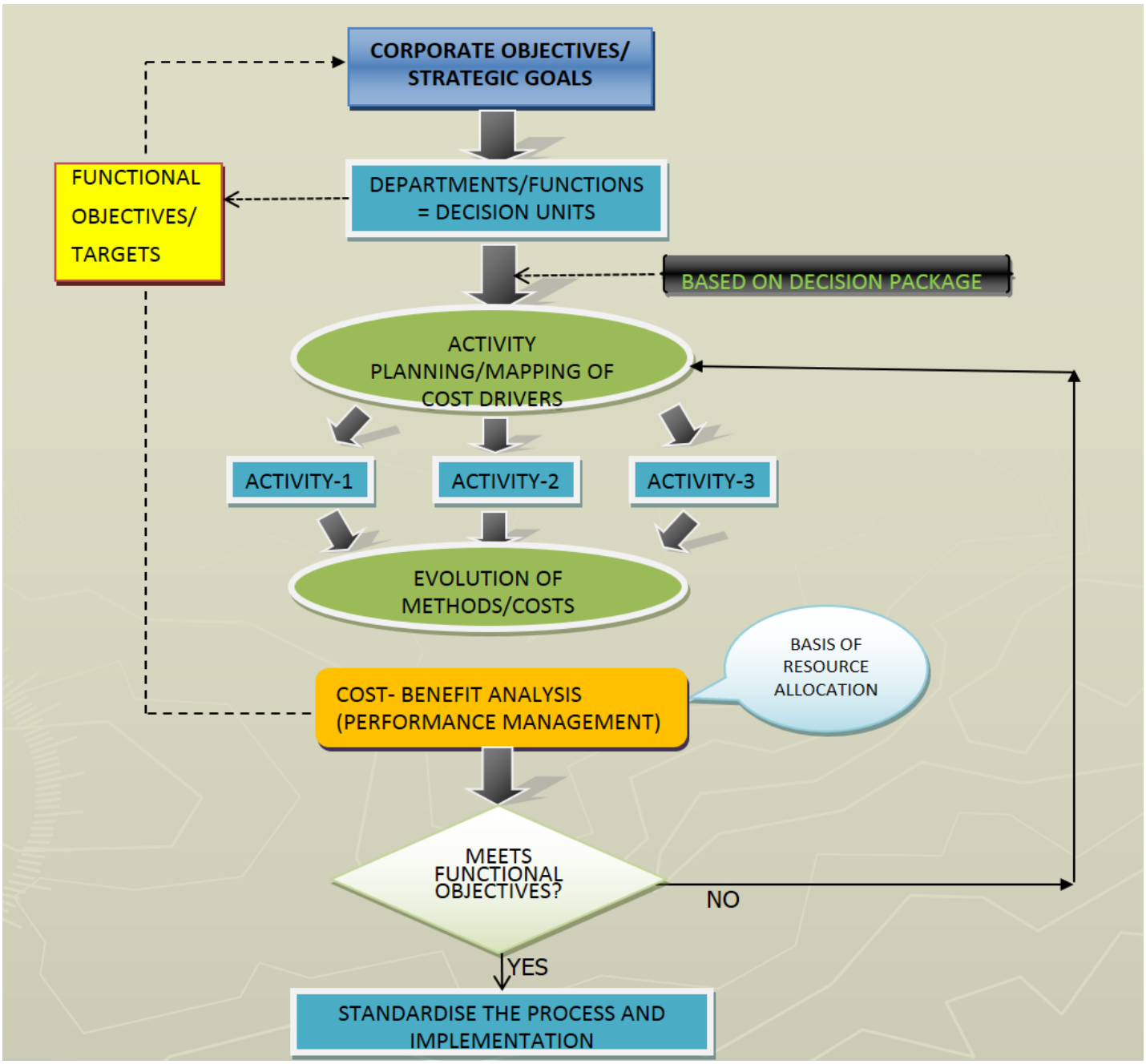


Figure 10: Business Process Reengineering: A structured approach

This as well as the other models discussed during the course of this paper were actually applied to address typical challenges faced by a leading Indian automobile company through brainstorming sessions and discussions with top to middle level managers across different managerial functions and were found to be effective concepts in arriving at sustainable solutions to the difficulties faced by the organization as a whole.

SUMMARY

- Manufacturing strategy: Mass Customization, Lean/Agile Manufacturing, Flexible Manufacturing systems (FMS), Design Right strategies before mass production
- Global sourcing for minimizing the supplier base
- Global supply chain management with modern methods and e-procurement
- Innovation: Develop new product with customers and suppliers simultaneously
- Use of E-Business tools for effectiveness of time, effort and costs
- Performance Measurement and effective reporting structure – Reflective oforganization objectives and goals
- Empowered work teams with sufficient autonomy and responsibility
- Concentrate on businesses or sectors which are relatively recession proof, and have them as a part of the product portfolio

CONCLUSION

"Meeting demand in time, at the least cost" is the mission statement for any business and the biggest challenge, that if addressed can bring revolutionary value addition for all stakeholders.

The problems and challenges discussed, being quite universal are applicable for any Indian manufacturing company, in the current market scenario. The above paper attempts to suggest practical solutions which can be emulated across different segments of the Indian manufacturing industry through Plan-Do-Check-Act (PDCA) cycle.

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