



STUDY NOTE - 7

APPLICATION OF MANAGEMENT ACCOUNTING IN STRATEGIC MANAGEMENT

This Study Note includes Learning focus:

- Value engineering
- Kaizen costing
- Activity based management / costing
- Product development
- Budgeting and budgetary control
- Material management
- Logistics
- Human resources
- Total cost management

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Management accountant in the 21st century finds himself at the cross roads. From the ivory tower of purely accounting, the management accountant has now to confront challenges which are cross functional. He has become a change agent and also a catalyst to the growth of any company. The cross functional status requires the management accountant to be familiar with all the lines of activities, namely marketing, production, human resources, research and development. In short, the management accountant has to equip himself in the following ways to be a strategic cost management accountant:

- Needs exposure to multi-disciplines: Functional milieu has changed and water tight compartments do not exist. Team work with peers in different areas is a must
- Be the change agent: Help understand environment and introduce necessary changes with in the system to cope up with the fast changing world in the context of the third wave
- Help build strategic cost management: Develop analytical skills for benchmarking exercises, SWOT analysis, activity orientation, target costing, focus on both cost leadership and product differentiation
- Integrate customer satisfaction into total cost management using value chain analysis: This aspect identifies the area of maximum value addition and the need to relate value to customer satisfaction in quantitative terms
- Be part of the management team: Step outside the ivory tower and mingle with the main stream to introduce total cost management practice. This aspect incorporate use

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of cost tables, shop floor exercises, interpretation of technical and efficiency improvements in terms of value

- Especially, in the context of business strategies the role of management accountant as a change agent has been indicated earlier. However, it will be useful to define the role of the management accountant in the entire strategy formulation and implementation exercise. The following table gives a contribution of the management accountant at each stage of strategy building exercise:

Strategy building exercise	Contribution of the management accountant
Validation of vision	Be part of feedback sessions for validation to identify the impact of financial aspect
Validation of mission	Be part of feedback sessions for validation to identify the impact of financial aspect
Environmental scan and SWOT analysis	Research, collect and collate information on key environmental factors including statutory regulations and competitive activity
Strategic change portfolio	Be part of cross functional team to lay down strategic initiatives in a chronological order over the time horizon of the strategy
Identify critical success factors (CSF) - Set targets - Prepare annual budgets to dovetail to long range forecasts - Identify tools for measurement both financial and non-financial	Is fully involved in all the activities as his role for developing both targets, measures and interpretation of deviations through proper tools like Balanced scorecard, EVA, strategy maps, etc.
Sustain Kaizen	- Be part of cross functional teams to identify assumptions and CSFs which need revision - Be part of the cross functional team to identify critical business process which need specific attention for modification and improvement

Thus the management accountant takes on the strategic change portfolio to a great extent because he is the thread which runs through formulation, implementation and sustaining momentum for further modification and improvement. In this portfolio, his practices embrace five critical areas:



1. Planning as a key business process
2. Be part of cross functional team to achieve excellence
3. Develop models for various financial aspects of the strategy from formulation to implementation
4. Develop tools for monitoring and managing change
5. Communication to all stakeholders e.g., shareholders, customers, creditors, board of directors, etc.

With the customer focus and customer driven strategies taking the centre stage, the value chain of business functions has the following areas:

- Customer service
- Distribution
- Marketing
- Production
- Product and service and process design
- Research and development

The first three areas relate to marketing strategy, while the later three areas relate to operations management strategy. Management accountant being the fulcrum has to device a financial strategy, which has to expose marketing strategy and operations management strategy in a tandem. The financial aspects of the above two strategies have to be conceptualized, before developing a structure for the financial strategy.

Concepts

In any business the source of the company's earnings needs to be understood from the strategic perspective. Normally, earnings are traced to a sale of a product, which again can be divided into the quantum of sale of the product and price of the product. This definition has been from time immemorial been adopted for accounting purposes. From the marketing strategy perspective, customer has become the source of earnings. In that, without a customer visiting an outlet a sale cannot take place. Either more customers or a customer repeated visits are necessary for increasing the earnings. So the emphasis has shifted from the product to the customer as far as commercial success through bigger sale is concerned.

Until towards the last decade of the 20th century, product pricing was essentially a part of push strategy. Manufacturing to stock on the basis of an assured demand with adequate protection to tariff walls from the government, especially, Indian entrepreneurs produce goods at their own cost and provided their margin and fix their selling price on the "cost plus pricing" basis. However, this approach came in for a rude shock when the information technology revolution or the "third wave" as it is called engulfed the entire world. While on the one hand, developed countries found their market shrinking due to stagnation in their population, but had surplus capacity to produce world class goods, they had to look for new markets. The third wave came in as a boon and the entire world shrunk. Logistics no longer was a problem and the delay in reaching the customer was totally removed. Liberalized economies meant breaking down tariff walls and the markets became open. Now the customer has many options for buying a product as numerous producers were queuing up with quality products. Pricing of product was no longer the prerogative of the manufacturer, but of the customer. Pricing thus became market driven and a product of pull strategy.

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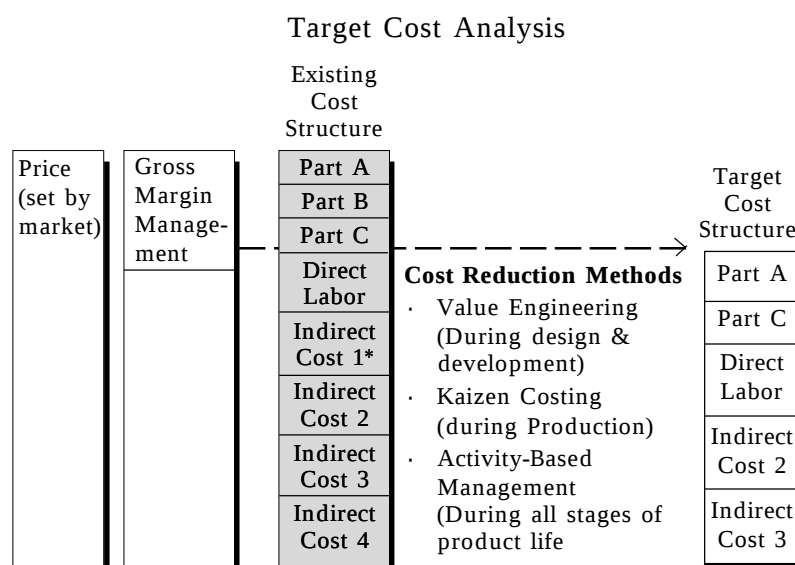
From the point of view of the management accountant the market driven price is the target price at which the manufacturer has to market his products and source his earnings. At the same time the management accountant has also understood that if a business has to be carried on, it has to earn a return on capital employed (ROCE) or return on investment (ROI) at a higher level than the average cost of capital. Having quantified this return per unit of sale this element is deducted from the target price to yield the target cost. This area is the battle ground where the higher existing costs needed to be brought down to a level of the target cost for which a financial strategy has to be developed.

This financial strategy would involve cost reduction at all levels and thus would involve analysis of marketing costs and profitability on the one hand, product development policy and strategy on the other hand. Towards this, the main thrust of cost reduction is a three pronged exercise:

- Value engineering during design and development
- Kaizen costing during production
- Activity based management and costing during all stages of product life

1. VALUE ENGINEERING DURING DESIGN AND DEVELOPMENT

Besides, with the globalization of markets, availability of range of products has brought in virtually perfect competition. As a result price of a product is market driven and set by the market. Fixation of selling price is no longer in the domain of the manufacturer of the product. At best he can set the gross margin to be earned on the product as the minimum viable return on his investment. Taking the market driven price and deducting there from the viable gross margin computed by the management the target product cost is arrived at. This target cost will be significantly lower than the existing cost structure and as such substantial cost reduction will be necessary to bridge the gap. This gap can be eliminated through application of value analysis and engineering, Kaizen costing and activity based management.



Source: Introduction to Management Accounting, Page



It is generally felt that cost control and cost reduction are used frequently and interchangeably. Though there is a major difference between these two terms, most of the people have failed to understand the concept of these two terms. The former deals with the reporting and review of variances arising because of comparison made between actual results and set of norms. Whereas the later deals with the methods by which the cost is reduced. The differences between cost and cost reduction are given below:

Cost control	Cost reduction
This process undertakes the competitive analysis of actual results with established norms.	This process finds out the substitute by finding new ways or methods.
Under this process, the variances are appraised and reported and necessary course of action will be taken to revise norms, standards etc.	Under this process necessary steps are taken for further modification in the method
It starts from established cost standard and attempts to keep the costs of operation of a process in line with those standards	It challenges the standard forthwith and attempts to reduce cost on a continuous basis
The main stress is on the present and past behavior of costs	The emphasis is partly on the present costs and largely on future costs
It has limited applicability to those items of costs for which standards have already been set. The items for which standards are set mainly relate to productive operations	It is universally applicable. It should be applied to every area of the business. It does not depend on standards, though target amounts may be set
It attempts to achieve the best possible results at the least cost under given conditions	Under this no condition is considered to be permanent where a change will secure a lowest cost figure
Cost control is a preventive function. Costs are optimized before they are incurred	Cost reduction is a corrective function. It operates even when efficient cost control system exists. There is room for reduction in the achieved costs
Cost control some times lacks dynamic approach	It is a continuous process of analysis by various methods of all factors affecting costs, efforts and functions in an organization. The main aim is to have continuous economy in costs

A distinction is made between value engineering and value analysis although commonly these two terms are used in the same sense.

Value analysis aims at reducing cost by economizing expenditure and increasing productivity and it probes into economic attributes of value and through continuous process of planned action aims to improve performance and increase the value in a product, and there by reduce costs. Value engineering concentrates mainly on direct costs. Value engineering may be applied in the production stage, i.e., the design and development stage but value analysis applied to existing products already being marketed.

Terms and definitions used in Value Analysis:

- Objective: The purpose or reason that the product or service exists



- Basic function: A basic function, if eliminated, would render the product useless in terms of its stated objective
- Secondary functions: Secondary functions exist to support a basic function because of the way the particular product was designed

For example, in opening a tin can, we might have the following:

1. Objective: remove contents
2. Basic function: open can
3. Secondary functions: cut lid

In order to remove the contents of a can, we must open the can; thus “open can” is a basic function. There are other ways to seal a can, however such as using a screw lid or a plastic top. In these cases, the secondary function would change because a different approach is used to accomplish the basic function. Identifying basic and secondary functions is at the heart of value analysis. As an exercise, try to identify the basic and secondary functions of a stapler and a cup.

After identifying basic and secondary functions, the cost of each basic and secondary function is determined. Then creative alternatives are developed to reduce the cost or to improve the value of the product. This is done by consolidating, revising, or eliminating secondary functions, which improves the value ratio.

For example, in the can opening example above could a way be found to remove the contents of the can without cutting the lid? One idea is a pull tab arrangement to open the top; another is a flip top which can be easily removed.

If these ideas improve the value ratio, they are better ways to accomplish the basic function, with a different secondary function, than the current method.

Value tests

Establishment of set of Value Tests, being the first step in the development of systematic approach for value engineering a set of value tests will have to be applied to a product which is slated for value engineering.

- Does the use of product / component contribute value?
- Is the cost of the product / component proportionate to its usefulness?
- Do the component / product need all its features?
- Is there a better alternative or substitute?
- Is any one buying the component / product for a lower price?
- Can a usable part be made by a low cost method?
- Is there an alternative supplier to provide the component / product at a lower price?
- Does the material, reasonable labor and overhead add up to target cost?
- Are the component / product made on proper tooling taking the quantum of production into consideration?
- Can a standard product available in the market be substituted?

Honestly, answering these questions, there is unsatisfactory value with considerable room for improvement. This can be achieved only through a structural approach developing a job plan.



Value engineering job plan

In this plan there are seven phases, corresponding in part to the chain saw's course of development. The specific phases of the job plan are:

1. General phase
 2. Information phase
 3. Function Phase
 4. Creation Phase
 5. Evaluation Phase
 6. Investigation Phase
 7. Recommendation Phase
- **General Phase:** This phase gives an overview of the entire job plan. Job Plan is broken up into: (A) A description of the process and the techniques of each stage of production or a cost centre. (B) Identification of any bottlenecks by products and waste products which are to be overcome and the structure of human resources and any stresses and strains are recognizable affecting good human relations and inspired team work.
 - **Information Phase:** Information relating to bottle necks, by products and waste products, raw materials, conversion costs will have to be obtained in an exhaustive manner. The specifications and requirements and the current costs incurred in these areas will have to be quantified accurately.
 - **Function Phase :** Two techniques of this phase are a major part of Functional Approach:
 - Define the Function - Every function must be defined in two words, one verb and one noun
 - Evaluate Function Relationships -This is accomplished by taking the functions as defined in the above technique and the information and data secured in the information phase and establishing a relationship between them.
 - **Creation Phase:** Creativity or Brain Storming. Two techniques simply point up the vital areas:
 - Establish Positive Thinking – Mind comprises 2 parts – Judicial & Creative. Necessary to turnoff the judicial part during the creative phase
 - Develop creative ideas – Cultivate uninhibited thinking and developing a multitude of ideas and approaches for accomplishing the defined functions. Large Quantity of Ideas desired
 - **Evaluation Phase:** Techniques of this phase must be undertaken with care and diligence. Judicial part of the mind is brought into active use.
 1. Refine and Combine Ideas.
 2. Establish Cost on All Ideas.
 3. Develop Functional Alternatives.
 4. Evaluate by Comparison.



The combined creative ideas that have been refined to basically workable solutions and have the greatest potential return on further invested time are subjected to the techniques of the Investigation Phase.

- **Investigation Phase:** This technique provides selected ideas into workable and saleable solutions providing lower cost methods of performing the required and desired functions through the application of additional, vast resources of knowledge.
- Use Company and Industrial Standards.
- Consult Vendors and Specialists
- Use Specialty Products, Process and Procedures

These are to be evaluated and used when they provide a lower total cost than standard products, processes, and procedures would.

7. **Recommendation Phase:** This phase and its techniques are the culmination and wrap-up of all previous efforts exerted throughout the Job Plan:
- Present Facts
 - Present costs
 - Motivate Positive Action

The Presentation of these facts and costs and the motivation of positive action are accomplished in one of three ways – verbal form, written form or in combination of both.

Final combined form is recognized as best and contains sufficient data for the decision makers to determine the course of action to be taken. Changing things is central to Leadership, and changing them ahead of anyone else is Creativeness.

2. KAIZEN COSTING

Kaizen costing is a Japanese term for continuous improvement during production. This involves setting up annual targets for achievement in various elements of costs in conversion as part of production. For example, optimization of total cycle cost is a typical Kaizen attempt. The total cycle can be broken up as follows:

$$\text{Total cycle time cost} = \text{Set up time cost} + \text{Process time cost} + \text{Move time cost} + \text{Delay}$$

Each element of this cost is subject to continuous improvement. Especially, in the context of lean manufacturing systems **set up time costs** were higher at the beginning per unit of production, especially as the through put was much lower than in mass production where economies of scale could be achieved. Set up costs have been under investigation and the concept of SMED (Single Minute Exchange Die) has been accomplished. This has been possible through application of ergonomic principles, time and motion study and work study. Each movement contributed to a time span and as such elimination of unnecessary movements led to lower set up time resulting in lower set up costs.

Process time cost again relates to the conversion of raw material to finished product in stages and at each stage certain operations are performed using labor, supervision and consumables. Time being the main parameter, quicker time meant that the operating cycle was compressed. For achieving this compression process analysis has to be initiated, where



after application of new technologies or techniques to improve the process capabilities and the time of conversion can be successful.

Move time cost. Any process is made up of one or two operations and between the operations the work in process needs to be moved from one stage to the other. This involves move time, which actually does not add any value. This move time has to be reduced as it cannot be eliminated. Reduction is achieved through better layout of a shop floor or using faster mechanisms to move their work in process, e.g. belt conveyers, elevators, pneumatic conveyers, etc.

Delay time cost. Any operating cycle is affected due to non availability of raw materials, absenteeism of labor, power interruptions, etc. These delays not only do not value to the customer but also affect delivery schedules so a meticulous planning of work schedules, inventories as well as avoiding power interruptions through stand by power is some of the methods adopted to reduce this cost.

3. ACTIVITY BASED MANAGEMENT / COSTING

The management accountant's role in optimization of total cycle cost is very significant in that as part of the cross functional team, he has to evaluate various alternatives and present the value implications thereof for decision making. The methodology adopted for evaluating the costing of these activities is by use of activity based management and costing (ABC), especially for indirect costs. This methodology involves again process analysis, cost drivers and innovative approach to effect reduction of costs. For example, in marketing costs like distribution, warehousing, outbound logistics, after sales service, promotional costs need to be analyzed and linked to marketing strategy rather than as a stand alone exercise. Activity based management is born out of pull technology and is totally customer oriented. The activity analysis is done to identify activities that add value and activities that do not add value from the customer's perception. It is in this area life cycle costing becomes an important tool for application. Recovery of marketing costs over the life cycle needs to be related to the various stages of life cycle, life start up, growth, maturity and decline. As the target price is market driven, the total income during the life cycle will be completely dependent on the target price. But the costs of production and marketing are going to vary according as the stage of the life cycle and the management accountant's role is very significant in this regard.

Application of supply chain management principles the costs of distribution or warehousing can be optimized on the basis of the nature of the product being marketed. Outbound logistics costs are also scrutinized applying the logistics models as to how to reach an ultimate customer earlier than the competitor and offer him the product along with service. The principles of consolidation, containerization, optimizing inter modal transfer, etc have been successfully applied. The operating margins have been improved by determining the mode of transfer of product from the manufacturer to the customer by proper tier management.

Direct product profitability is another interesting concept which has been used in dealing with the marketing costs. CIMA defines direct product profitability as "the attribution of costs other than the purchase price, (e.g. distribution, warehousing, retailing) to each product line. Thus the net profit as opposed to gross profit can be identified for each product..." (CIMA: Management accounting official terminology, PP. 31, 32)

DPP can be computed by the following methods:

- Determinants of sale revenue depend on price of the product, the frequency of buying the product and the quantum of sales returns.



- Determinants of cost especially to the retailer include unit price charged by supplier, ordering costs, holding costs, outbound logistics cost from the warehouse to the retailer, cost of arrangement in the store and the wastages, obsolescence and breakages costs

DPP identifies the cost drivers so as to manage them. They are the size of the product, probability of the demand, delivery cycle and the mode of ordering.

PRODUCT DEVELOPMENT POLICY AND STRATEGY

This involves four phases namely, concept development, product planning, product/ process engineering, pilot production/ ramp up. This entire exercise takes a gestation period, which can be from few months to few years. This also involves approval at various levels for both technical and financial concurrence. In the first stage, when a prototype is built, tested and verified, approval for the design is taken. Next stage for refining and modifying the prototype and also establish the process design, approval for product and process is jointly taken. When the pilot plant and the quality function deployment (QFD) are completed for the final product, approval for the first commercial sale is taken. Before the full commercial production is started, the final commercial approval is obtained. In all these four stages of approval, two aspects of approval from the financial angle need to be appraised. They are the commitment costs and the actual expenditure to be incurred. The relationship between the commitment and the expenditure is very important from the strategic angle, as this will determine the infusion of funds periodically, as also the total funds to be employed.

In commercialization of technologies it becomes relevant that the management accountant has to tackle this area from two stand points:

- Whether the product is being developed from in house research and development
- Research and development strategy has to be based on the following tenets:
 - The research project has been selected after sufficient brain storming, understanding target market requirements and the product architecture
 - The end product will be developed with in a time horizon (say 2 to 3 years) well with in the life cycle of the product
 - The people who run the successful research group have the necessary core competence
 - This strategic policy will have to be converted into a programmed budget by the management accountant so that the management is in a position to understand the total commitment of funds required as well as the mile stones to be reached during the entire programme culminating to the development of the final product
- Whether by purchasing state of the art technology from external sources
- When a management is not in a position to ear mark separate funds for research and development or wishes to cut short the gestation period by acquiring a technology, then purchasing the state of the art technology becomes very relevant. Here again proper strategy needs to be developed according to the psyche of the organization
- Licensing of technology. This is a least cost approach as the licensee is allowed to use the technology in a particular geographical area but does not own the technology. The management accountant here again has three strategic options as to
 - Pay for the technology in a lump sum or
 - Part lump sum or part royalty or
 - Only royalty for a longer period



These alternatives are to be examined thoroughly in relation to the technology being proven or unproven and the product life stage, which will determine the residual number of years the product, will be able to command a market

- Joint venture. If the company is particular that the technology should be owned as well as updated from time to time, the route of joint venture for strategic alliance becomes significant. Here again the evaluation of the joint venture exercise financially becomes very important in projecting future profits to be shared between the joint venture partners and the type of risk adjusted discounting rate to be applied.

Pricing policies and strategies

The price fixation for the first time takes place when:

- A company develops or acquires a new product
- Introducing existing product into a new geographic area or a new distribution channel
- A service company bids for a new contract work

For fixation of price the decision of the company regarding positioning of the product becomes important according to the nature of the product. Product quality has a bearing on the price. Nine price-quality strategies

	Quality High	Quality Medium	Quality Low
High price	• Premium	• Mega value	• Ultra value
Medium price	• Overcharging	• Average value	• Fair value
Low price	• Rip off	• Deceptive	• Economy

Essentially, the strategies High-High (a), Medium-Medium (e) and Low-Low (i) can exist in a market at the same time as there is logic in pricing. The strategies (b), (c) and (f) are a consumer high surplus. The strategies (d), (g) and (h) lead to over pricing to take advantage of a temporary shortage market.

All these strategies must follow a structured approach in the following manner:

1. Selecting the pricing
2. Determining the demand
3. Estimating costs
4. Analyzing competitors
5. Selecting the price for the second time
6. Selecting the final price

The pricing policy will also have to set out the objective clearly as the strategies to be adopted will be determined by the following objectives:

1. Survival
2. Skimming the market



3. Maximum current revenue
4. Maximum sales growth
5. Product quality leadership

Sensitivity analysis in respect of price elasticity is yet another aspect, which should be taken care of for pricing. The price elasticity will vary according to following conditions:

1. No substitutes are available
2. Market is indifferent to incremental pricing
3. Customers buying habits are die hard
4. Customers equate high quality with high prices

The management accountant will always be involved in the pricing exercise and the relevance of the exercise is determined by the sensitivity analysis based on adequate reliable data.

BUDGETING

At the outset, under strategy formulation and implementation the importance of annual budgets to form part of strategic plan has been reiterated. These annual exercises of budgeting are not standalone exercises but are a genuine part of achieving milestones in a strategic plan. So annual exercises have to build up and reach the target set in the strategic planning horizon. Towards this compounded annual growth rate (CAGR), assumptions regarding environmental factors like inflation, business cycles, etc will have to be reflected in the annual budgets also according to stage of the life cycle.

Budget essentially, is a document that sets out physical targets, translated into value imputations and finally present a total picture of the business in terms of profit and loss plan of revenue income and expenditure and a balance sheet projection of assets and liabilities. Classification of budgets can be done under three heads:

- According to time (E.g., programmed budgets, annual budgets, quarterly budgets, monthly budgets, etc)
- According to function (E.g., Sales, Production, Purchase, Human resources, R & D, capital expenditure)
- According to flexibility (E.g., Budgets at various levels of capacity utilization)

The types of budgets can also be developed depending on the purpose involved:

1. Zero based budget: Unique budget which tries to answer a management's question "suppose we are to start our business from scratch, which activities should be phased out, which activities should we spend more money and which activities should be continued as they are"
2. Programmed budget: Essentially for research and development as well as projects which extend beyond a single accounting period or more accounting periods and will have to be taken up for decision on a holistic manner taking the programme in its entire team including both capital expenditure and revenue income / expenditure
3. The regular annual budgets as part of a strategic programme tying each year to a milestone and level of achievement as targeted in the strategic plan



BUDGETARY CONTROL

Whenever a budgeting exercise is completed the functional budgets are available to each area for monitoring the actual performance against the budget. Budgetary control is essentially the comparison of actual level of performance against budget and reporting variances to provide basis for future course of action. Variance analysis can be done under various heads like price variance, quantity variance, mixed variance, yield variance, overhead efficiency variance, overhead volume variance, etc. The aim of budgetary control is to fix responsibility for cost control purposes for the responsibility centers like cost center, profit centre and investment centre. Responsibility accounting principles will be based on budgetary control as per the following steps:

- Fix targets for each responsibility centre
- Compare actual performance with target
- Analysis of variances
- Take corrective action

MATERIAL MANAGEMENT

With the opening up of markets there has been keen competition leading to lowering of prices and the market driven target prices. This necessitated cost reduction exercises and one of the major areas identified is reduction in the material management costs. It has been estimated that about 30% - 50% of the cost of material issued to production is made up of material management cost and as such is a fertile area for management accountants to institute cost reduction exercises. Evolution of economic order quantity (EOQ), lot sizing, material requirement planning (MRP I), just in time management (JIT) and manufacturing resources planning (MRP II) have been mainly aimed at continuously reducing the cost of purchasing and holding materials. These methods will have to be applied with a proper strategic fit as each method is applicable to any business under specific conditions only, namely

- Make to stock
- Make to order
- Make to assembly

Again, the selection of the method depends also on the process as to whether it is continuous or intermittent. Some of the methods like MRP II and JIT require a lot of data and coordination as they develop plans for coordinating the various functions of production, maintenance, H.R and material management. These are very cost intensive for installation and can be afforded by big businesses.

STRATEGIC ROLE OF LOGISTICS

As part of value chain, logistics assumes a big role through both inbound logistics and outbound logistics. Inbound logistics arise through procurement of raw materials and components from the vendors to the factory for conversion / assembly. Outbound logistics take place when the finished product or service has to reach the customer from the point of production or creation. The challenge of logistics is to develop a logistical strategy which will achieve and maintain operational flexibility. Flexibility is required both to provide a high level of basic customer



service and develop sufficient reserves to meet any extraordinary situations that may arise. Such a strategy would require an integration of location structure, warehouse location patterns, transportation economies, inventory economies and optimization of total costs.

The importance of location varies with each type of industry. Whether to have a location at the point of consumption or at the point of raw material availability the material index concept has been used successfully. The material index concept has been developed on the assumption as to whether the manufacturing process was weight gaining or weight losing. Another important factor for location has been the capacity and availability of transportation so that the community becomes economically self sufficient. This would entail that the services provided both for the process of manufacturing and marketing would permit economies.

Warehouse should be established in a location where it has either service or cost advantage or both. The purpose of warehousing is to gain time and place utility and from the strategic view point marketing impact is increased and the total cost is reduced. The fundamental principle justifying establishment of a warehouse is transportation consolidation and transportation economies. The variables involved in the location of a warehouse are:

- Processing cost of volume shipment
- Transportation cost of volume shipment
- Warehousing cost of average shipment
- Local delivery of average shipment
- Number of average shipments per volume shipment
- Processing cost of average shipment
- Direct freight cost of average shipment

Inventory level and velocity are directly related to the location. There are two classes of inventory namely, the base inventory and the transit inventory. These vary with different locations. The overall impact of the base inventory in an increasing number of warehouses versus the lower transit inventory due to more number of warehouses will have to be matched.

The least total cost design takes into consideration the total inventory cost and the total transportation cost which are inversely related for different networks of warehouse locations. The network that incurs the least total cost taking both inventory and transportation together is to be selected.

Service sensitivity analysis can be applied to the least total cost logistical design for a number of variables like variation in the number of warehouses in the system to change in one or more performance cycles for improving speed or consistency of operations, change in inventory policy regarding base stocks.

HUMAN RESOURCE STRATEGY

The human resource (HR) strategies in a competitive environment are based on innovation strategy, quality enhancement strategy, speed strategy and cost reduction strategy. For all the strategies mentioned above costs are involved and in the highly competitive market situation



the HR strategy leads to total cost design without compromising on any of its components. The primary objective is to improve productivity by reducing the unit cost of output per employee. This would include optimizing costs in the areas of man-machine relationship, structuring wage levels, employing part time labor, outsourcing, flexibility in job assignments, introducing automation, etc. Arising out of HR strategy certain costs especially due to employee behavior becomes important. They are

1. **Costing employee absenteeism:** Employee absenteeism is a factor which is prevalent in all the organizations with varying degrees. This absenteeism has two fold affect on the corporate strategy both physical and financial. Physical non-availability of employee affects work ethics, productivity and delivery systems. The financial implications are the cost of total hours lost due to absenteeism including employee benefits as also the cost of overtime paid to substitute absentee worker. This will have to be reduced to a minimum through a benchmarking exercise and also identifying the reasons for absenteeism which are controllable.
2. **Costing employee turnover:** Employee turnover has three elements namely separation costs, replacement costs and training costs. Attrition is high in certain industries leading to high cost of employee turnover, in which case benchmarking exercises will help reducing the cost of employee turnover. It will be more relevant where the benchmarking exercise indicates that the employee turnover is high in a particular organization more due to inherent factors than industry related factors.
3. **Cost of change management:** When ever strategies are formulated and implemented resistance to change, fear of loss of jobs, cultural trauma, etc among the employees tend to stall the change over. The management account as a part of cross functional team should be able to quantify the cost of transformation through provision of safety net for separating employees, retraining costs for existing employees, recruitment costs for inducting new employee in particular positions for acquiring core competence in specific areas, educating employees on the change over to new strategy to reduce cultural trauma.
4. **Cost of high performance work practices:** A change over to a new strategy is necessarily to introduce radical transformation in work performance. This requires high performance work practices. The high cost of introducing high performance work practices need to be matched with the benefits through productivity improvements. The management accountant needs to do a cost benefit analysis and present to the management the implications of the various alternatives before a decision is taken. While the cost of introduction involves outflow immediately the benefits will be spread over a time horizon in the future which need to be discounted and matched.

STRATEGIC TOTAL COST MANAGEMENT

Alignment of various strategic exercises is in operations, marketing or finance needs to take the entire organization into consideration. Besides, these strategies will have to inculcate a paradigm change from the traditional approach to the world class approach. The role of cost management has undergone a sea change as below:

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Traditional approach	World class approach
Cost plus pricing	Target pricing
Domestic standards	Global benchmarking
Production oriented policies	Continuous improvement in customer satisfaction
Confronting attitude to stake holders	Partnering relations to stake holders
Ex-post cost measurement Work in process Defects rework and spoilage	Ex-anti target costing 1. Product design 2. Process design
Feedback controls	Real time controls
Top down command and control	Leadership values and goals
Conformance to standards	Creating new standards

The world class approach to cost management would require understanding the total production management, total quality management and align the total cost management on the lines of the other two strategies. This will ensure that all the aspects of the corporate strategies are translated in terms of values and control in the total cost management strategy. The following table shows the relationship among the three strategies:

Process	Product /service definition	Product / service development	Material sourcing and inbound logistics	Production or servicing	Support functions (HR/IT and Finance)	Marketing	Sales and outbound logistics	Service
TQM strategy	Quality function deployment and value engineering		Statistical and managerial tools for TQM accident and loss prevention			Customer relationship management, complaints and redressal	Adherence to schedules	Ensure service quality
Total Production management (TPM)	Ensure manufacturability, identification of required plant and machinery, proper vendors		Reduce cost of quality, improve plant availability through preventive and productive maintenance, waste reduction			Respond to marketing inputs relating to customers and develop pull technology	Work in coordination with the marketing function in regard to logistics as well as after sales service	
Total cost management (TCM)	Reduce design related defects and associated costs	Reduce time to market	Eliminate costs related to defective inputs	Eliminate costs related to rejects and rework	Ensure internal customer satisfaction	Ensure external customer satisfaction	Optimize logistics expenditure	Reduce service cost



Utilizing cost as a part of marketing strategy would require comprehension of the impact of various cost analysis on product differentiation and cost leadership. The following table depicts the importance of various strategic cost inputs vis-à-vis product differentiation and cost leadership:

	Product differentiation	Cost leadership
Product costing as a measure of performance	Not very important	Very important
Flexible budgeting and variance analysis	Moderate to Low	High to very high
Achieving budgetary targets	Moderate to Low	High to very high
Marketing cost analysis as a tool	Critical to success	Not so important
Pricing decisions based on product cost	Low	High
Competitor cost analysis as a tool	Low	High

From the above it is clear using cost as a strategy definitely pays as long as the type of cost inputs which are required for the type marketing strategy. Again this is a case of proper alignment of cost strategy and marketing strategy in a long run and on a continuing basis.

When total cost management strategy is to be implemented, it is necessary that certain new concepts are understood. Classification of costs has always been into variable, semi-variable, fixed categories. When cost as a strategy is to be implemented it presupposes that there is a time horizon which is longer than a few accounting periods. In such a time span even the so called fixed costs tend to vary e.g., rent, taxes, salaries, etc. So, the total cost management strategy has evolved a new classification namely, **bed rock fixed costs** e.g., depreciation, patent, amortization; **managed costs** rent, taxes, salaries and wages, maintenance, travel, advertising, etc. and **truly variable costs** include materials, royalties, freight, overtime costs, etc. This classification helps arriving at break even points which are more credible and take into consideration the changes in the costs over a period. A single break even is not possible and not acceptable in the total cost management. Another very important feature of total cost management is that almost all costs are manageable through cost strategy as even period costs tend to vary over time. For instance, rents which are considered period costs as fixed under normal parlance are treated as managed costs in total cost management strategy. This is particularly so, because the quantum of rent variation can be managed through leasing, rent or own strategies, tax planning, etc.

Introduction of total cost management strategy can embrace many different areas in business and as such there are specific tools to be employed for the implementation as follows:

- **Enterprise wide cost system:** Depicts beginning to end costs starting from designing, sourcing, manufacturing and delivering a product or set of products to the customer
- **Production cost management:** Aims at reduction of total cost of design, material management, production by Kaizen method of optimizing each cost component
- **Marketing cost management:** Identifies products, brands, segments and markets that augur greater growth with least incremental marketing costs

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- **Support cost management:** Aims at improving productivity and efficiency of all line functions while reducing the resources needed to provide such improvements
- **Transformation cost management:** Identifies and drives the efforts of change management towards avenues where they will have the maximum impact on costs for reduction

Implementation of total cost management has a time span and has to be done in following steps:

Business life cycle	Cost management initiatives	Total cost management techniques
Recognition of opportunity	Establish objectives	Business planning
Statement of objectives	Formulate plan	Cost estimation
Identification of requirements	Define responsibilities	Cost engineering
Search for technologies	Operationalize initiatives	Programme management
Evaluation of alternatives	Correct deviations	Planning and scheduling
Research and development	Control costs	Change management
Development of concepts		
Building of facilities		
Begin and continue operation		
Modify and improve		
Decommissioning		
Phase out and disposal		

Total cost management strategy emphasizes that enduring cost benefits will accrue to a company only when the organization aligns its information systems objectives to its strategic goals. The enterprise resource planning (ERP) concept stems from this tenet and introduces automation in areas where the human intervention may not be so efficient but more costly. For instance, automation in data entry, billing, payrolls, accounts receivables, etc may entail an initial hefty investment but the transformation benefits with the total cost management ushered in will be in the form of reduced inventories, improved customer services, lower logistics costs and thus improved product margins. Though the ostensible purpose of ERP is not just cost reduction but open up new vistas for growth in the future. The efficiency and effectiveness in business activities through online and real time decision making leads to cost reduction benefits.