**VALUE CHAIN ANALYSIS**

***A WAY TO PROFITIMPROVEMENT & COST REDUCTION***

**Learning Objective**

1. **how to identify the value-added activity**
2. **how to rectify the non –value added activity**
3. **application in profit planning & cost reduction**

## INTRODUCTION

Competitive advantage for a company means not just matching or surpassing their competitors, discovering what the customers want and then profitably satisfying, and even exceeding their expectations. As barriers to inter-regional and international trade are diminishing and as access to goods and services are growing, customers can locate after identification and «the best of what they want, at an acceptable price, wherever it is in the world. Under growing competition and, hence, rising customer expectations, a company's penalty for complacency becomes even greater.

A strategic tool to measure the importance of the customer's perceived value is value chain analysis. By enabling companies to determine the strategic advantages and disadvantages of activities and value-creating processes in the market place, value chain analysis becomes essential for assessing competitive advantage.

Value analysis or value engineering is one of the most widely used cost reduction techniques. It can be defined as a technique that yields value improvement.

It investigates into the economic attributes of value. It attempts to reduce cost through

1. design change,
2. modification of material specification,
3. change in the source of supply and so on.

Suppliers Organisation Customers

Design

Customer

Service

Distribution

Marketing

production

Research

&

Development

It emphasizes on finding new ways of getting equal or better performance from a product at a lesser cost without affecting its quality, function, utility and reliability.

##### SCOPE

The aspect of value chain analysis is addressed to managers, and more specifically to management accountants, who may lead efforts to implement value chain analysis in their organizations.

The concepts, tools and techniques of value chain analysis apply to all those organizations which produce and sell a product or provide a service.

##### DEFINITIONS OF VALUE CHAIN

The idea of a value chain was first suggested by Michael Porter (1985) to depict how customer accumulates along a chain of activities that lead to an end product or service.

Porter's Definition : He described the value chain as the internal processes or activities a company performs "to design, produce, market, deliver and support its product." He further stated that "a firm's value chain and the way it performs individual activities are a reflection of its history, its strategy, its approach of implementing its strategy, and the underlying economics of the activities themselves."

Porter classified business activities under two heads viz., Primary activities line activities and support activities. Primary activities are directly involved in transforming inputs into outputs and delivery and after-sales support to output. In other words they include :

1. material handling and warehousing
2. transforming inputs into final product
3. order processing and distribution

1. communication, pricing and channel management, and
2. installation, repair, and parts replacement.

Support activities are the activities, which support primary activities. They are handled organization’s staff functions and include the following:

1. **Procurement** — purchasing of raw materials, supplies and other consumable ill well as assets.
2. **Technology Development** — know-how, procedures and technological inputs needed in every value chain activity.
3. **Human resource management** — selection, promotion and placement, appraisal, rewards; management development; and labour/employee relations.
4. **Firm infrastructure** — general management, planning, finance, accounting, legal, government affairs and quality management. '

**Definition of John Shank and V. Govindarajan**:

They described the value chain in broader terms. According to them "the value chain for any firm is the value-creating activities all the way from basic raw material sources from component suppliers through to the ultimate end-use product delivered into the final consumers' hands." This description views the firm as part of an overall chain of value-creating processes.

Industry Value Chain : The industry value chain starts with the value chain starts with the value-creating processes of suppliers, who provide the basic raw materials and components. It continues with   
the value creating processes of different classes of buyers or end-use consumers and culminates in the disposal and recycling of materials.

The industry value chain and the value chain activities within the firm are compared in diagram 1.

# COMPETITIVE ADVANTAGE AND CUSTOMER VALUE

In order to survive and prosper in an industry, firms must meet two enter supply what customers want to buy, and they must survive competition. A ft competitive advantage derives from the difference between the value it offers to customers and its cost of creating that customer value.

Competitive advantage with regard to products and services takes two possible forms. The first one is an offering or differentiation advantage. If customers perceive a product or service as superior, they become more willing to pay a premium price relative to the price they will have to pay for competing offerings. The second is a relative low-cost advantage, under which customers gain when a company’s total costs undercut those of its average competitor.

**The Value chains**

Procurement

Technology development

Human Resource management

Firm infrastructure

Differentiation Advantage : It occurs when customers perceive that a business it's product offering (defined to include all attributes relevant to the buying decision) is of higher quality, involves less risks and/or outperforms competing product offerings. For ex-pie, differentiation may include a firm's ability to deliver goods and services in a timely manner, to produce better quality, to offer the customer a wider range of goods and services, other factors that provide unique customer value.

Once a company has successfully differentiated its offering, management may exploit the advantage in one of two ways viz., either; increase price until it just offsets the improvement customer benefits, thus maintaining current market share; or price below the "full premium" level in order to build market share.

**Low-Cost Advantage** : A firm enjoys a relative cost advantage if its total costs are lower than the market average. This relative cost advantage enables a business to do one of two things ; price its product or services lower than its competitors' in order to gain market share and still maintain current profitability; or match with the price of com' . products or services and increase its profitability.

Many sources of cost advantage exist; access to low-cost raw materials; innovative pro­cess technology; low-cost access to distribution channels or customers; and superior operat­ing management. A company might also gain a relative cost advantage by exploiting econo­mies of scale in some markets.

The relationship between low-cost advantage and differentiation advantage has been illus­trated in Diagram 2.

**COMPETITIVE ADVANTAGE THROUGH LOW COST AND / OR DIFFERENTIATION**

|  |  |  |  |
| --- | --- | --- | --- |
| Relative | Superior | Differentiation  Advantage | Differentiation  with Cost  Advantage |
| Differentiation  Position | Inferior | Stuck –in –the-  Middle | Low-Cost-  Advantage |

Inferior Superior

# Relative Cost Position

Superior relative cost position otter’s equivalent customer value for a lower price. Superior relative differentiation position offers better customer value for an equivalent price.

Organizations which fail to gain competitive advantage through low cost or superior differ­entiation, or both, are "stuck-in-the-middle." For instance, several American bicycle m. found themselves in this position during 1980s. These companies lacked a cost advantage and failed to foresee the emerging mountain bike market. By contras^, Cannondale captured market share after introducing its large-diameter frame bicycle.

THE ROLE OF THE MANAGEMENT ACCOUNTANT

The management accountant in the past were considered an expert on cost analysis; cost estimation; cost behaviour; standard costing; profitability analysis by product, customer or distribution channel; profit variance analysis; and financial analysis.

Today, management accountants are expected to make use of activity-based costing, benchmarking, re-engineering, target costing, life-cycle costing, economic value analysis, total quality management and value chain analysis for decision making.

Value chain analysis requires a team effort. Management accountants of today has to col­laborate with engineering, production, marketing, distribution and service professionals to focus on the strengths, weaknesses, opportunities and threats identified in the value chain analysis results.

By championing the use of value chain analysis, the management accountant enhances the firm's value and demonstrates the value of the finance staff to the firm's growth and sur­vival.

**THE VALUE CHAIN APPROACH FOR ASSESSING COMPETITIVE ADVANTAGE**

Most corporations define their mission as one of creating products or services. For these organizations, the products or services generated are more important than any single step within their value chain. In contrast, other companies are acutely aware of the strategic importance of individual activities within their value chain. They thrive by concentrating on those activities that allow them to capture maximum value for their customers and them­selves.

These firms use the value chain approach to better understand which segments, distribution channels, price points, product differentiation, selling propositions and value chain configura­tions will yield them the greatest competitive advantage.

The way the value chain approach helps these organisations to assess competitive advan­tage includes the use of following steps of analysis :

1. Internal cost analysis — to determine the sources of profitability and the relative cost positions of internal value-creating processes.
2. Internal differentiation analysis— to understand the sources of differentiation (in­cluding the cost) within internal value-creating processes; and

(iii) Vertical linkage analysis — to understand the relationships and associated costs among external suppliers and customers in order to maximize the value delivered to customers and to minimize cost.

These types of analysis are not mutually exclusive. Rather, firms begin by focusing on their internal operations and gradually widening their focus to consider their competitive position within their industry.

The value chain approach used for assessing competitive advantage is an integral part of the Strategic planning process. Like strategic planning, value chain analysis is a continuous process of gathering, evaluating and communicating information for business decision-making.

By stimulating strategic thinking, the analysis helps managers envision the company's future and implement decisions to gain competitive advantage.

**Internal Cost Analysis:**

Organisations use the value chain approach to identify sources of profitability and to understand the cost of their internal processes or activities.

The principal steps of internal cost analysis are :

1. Identify the firm's value-creating processes.

2. Determine the portion of the total cost of the product or services attributable to each value- creating process.

3. Identify the cost drivers for each process.

4. Identify the links between processes.

5. Evaluate the opportunities for achieving relative cost advantage.

Now we shall discuss each step:

1. Identify the firm's value-creating processes : To identify a firms value-creating processes, the firm must de-emphasize its functional structure. Most large businesses still organise themselves as cost, revenue, profit and investment centers. These and other organisational sub-units, such as departments, functions, divisions or separate companies, that are frequently used for control purposes are not very useful for identifying value-creating processes. Adopting a process perspective requires a horizontal view of the organisation, beginning with product inputs and ending with outputs and customers.

Processes are structured and measured sets of activities designed to produce a specified output for a particular customer or market. Emphasizing process means focusing not on what work is done but on how work is done within the organisation. While an organization’s hierarchical structure typically lays out responsibilities and reporting relationships, its process structure shows how the organization delivers customer value. While it is not possible to measure or improve hierarchical structure in any absolute sense, processes lend themselves to such measures as cost, time, output quality and customer satisfaction.

Because processes normally cut across functional areas, defining process boundaries is not always a straightforward task. People associated with a particular business process may view it in different ways. For example, the new product development process could start with marketing surveys or with delivery of product requirements from marketing to development engineering. The process could end with the release of product specifications or with shipment of the first order. Process boundaries should be defined independently of the way in which activities are organized.

Selecting the appropriate activity category may be anything but straightforward. The key is to classify value activities according to their true contribution to the firm's competitive advantage. For example, if order processing is important to a firm's customer interactions, then this activity should be classified under marketing.

Management at American Airlines, for example, handed its marketing unit the task of developing and implementing the carrier's SABRE computerized reservation system. The result; a significant competitive advantage that left the other airlines scrambling to cop; the system. Even mighty United Airlines has failed to match American's installed base o: terminals in travel agencies.

2. Determine the portion of the total cost of the product or service attributable to each value creating process : The next step of internal cost analysis is to trace or assign cost\* and assets to each value-creating process identified. Although firms maintain internal re­ports and cost accounting information, this information may not align with their processes Companies might have to reclassify their data or conduct cost studies to assign costs and assets to each process. Rather than conduct a detailed cost study, an organisation might use rough estimates to assign costs to their value-creating processes.

A full-cost approach provides the best estimate of life-cycle costs for evaluating the strategic cost advantage of a firm's value-creating process. Without adopting this approach, a firm

Risks sacrificing product development costs to short-term profits or for example, the savings  
in factory labour that an organisation gains through using flexible manufacturing systems, robotics aid computer-integrated manufacturing might be offset by the high cost or computer software programmers. The information systems support costs should be allocated to the value-creating processes that benefit from the new systems as part of the full cost.

For estimating the full cost of each value-creating activity, the full utilization of the capacity of the activity or its practical capacity, is normally used. Facility managers and equipment vendors are useful sources of capacity estimates. If estimates of full capacity vary widely, a firm could perform the analysis with the resulting costs to assess the sensitivity of the analysis to the different capacity measures. When costs vary dramatically, companies should seek more information for a more realistic long-term estimate of capacity.

Although many of the processes identified may be instrumental for achieving competitive advantage, various value-creating processes may have differing effects on a firm's costs or products. Companies selling pencils, pens or paperclips, for example, are unlikely to concern themselves with after-sales service. But customer support is a vital part of the competitive strategy for makers of computers or high-speed copiers.

3. Identify the cost drivers for each process : The next step of internal cost analysis is to identify the factor or cost determinants for each value-creating process. By understanding b» factors drive costs, a firm can assign priorities among its cost improvement initiatives, artier to determine its relative cost advantage, a firm should also know the cost factors of its competitors.

While management accounting systems may contain the total cost of each value-creating process, they may not reveal the causes or factors for the significant individual costs. Using single output or volume measures (e.g., units, labour hours, sales in Rs.) to assign costs is often misleading. Multiple cost drivers usually provide more useful information. Exhibit 1 illustrates examples of structural and executional cost drivers.

# EXHIBIT 1

## PROCESS COST DRIVERS

### STRUCTURAL COST DRIVERS

Scale - How big an investment to make in manufacturing, R&D, marketing and other resources

Scope - - What is the degree of vertical integration —

horizontal integration is more related to scale?

Experience or learning - How often has the firm already done this ?

Technology - What process technologies are used within

each step of the firm's value chain ?

Complexity - How wide a line of products or services to

offer to customers ?

# EXECUTIONAL COST DRIVERS

Work force involvement or - Is the workforce involved in decisions and participation improvements in performance?

Total quality management - Are the workforce and managers committed to total quality in processes and products?

Capacity utilisation - What are the scale choices on maximum plant construction?

Plant layout efficiency - How efficient, against current norms, is the plant's layout?

Product configuration - Is the design or formulation of the product effective?

Linkages with suppliers and - Is the linkage with suppliers and customers exploited, according to the firm's value chain

Structural cost drivers consist of organisational factors that determine the economic structure driving the cost of a firm's products. These cost drivers reflect a firm's long-term decisions, which position the firm in its industry and marketplace. Structural c« drivers may change. For example, large pharmaceutical companies enjoy economies c scale that lowers their unit costs for expensive R&D.

Executional cost drivers capture a firm's operational decisions on how best to employ its resources to achieve its goals and objectives. These cost drivers are determined b management policy, style and culture. How well a firm executes its use of human an physical resources will determine its level of success or failure. For example, worker empowerment and flattened organisations are helping many firms in their continuous improvement efforts.

Few structural and executional cost drivers can be operationalised under existing management accounting systems in the cost analysis of the value chain. However, these cost drivers do offer an important reminder of the strategic decisions that firms need to make, o least acknowledge, in designing their value-generating systems. Increasingly, companies using activity-based costing to understand the resources/costs consumed by the activities and processes used in delivering their products and services.

4. Identify the links between processes : While individual value activities are consider\* separate and discrete, they are not necessarily independent. Most activities within a value chain are interdependent. Firms must not overlook value chain linkages among interdependent activities that may impact their total cost.

For example, cost improvement programs in one value chain process may lower or increase costs and/or revenues in other processes. Transfers of goods and services from one value chain process to another increases cost. Eliminating these transfers reduces the costs purchasing, invoicing and other record keeping functions.

Tandem Computers eliminated its costs of purchase orders, invoicing and other functions by jointly developing a detailed bar code process with its suppliers. By improving its upstream design and engineering processes for the Taurus, Ford saved on downstream production and customer service costs. Using fewer floppy drives and motherboards in its PCs has enabled IBM to halve its delivered cost in two years.

As sources of competitive advantage, these relationships or linkages among activities can be as important as the activities themselves. Such linkages may also offer sustainable competitive advantage, because their subtle, complex nature makes them difficult for competitors to imitate.

5. Evaluate the opportunities for achieving relative cost advantage : In many organisations, cost reductions are made across the board (e.g., "eliminate 10 per cent from every department"). Because these firms do not reduce their costs strategically, this effort usually fails. More often than not, across-the-board cost reduction misconstrues the underlying problem. The point is not to become more efficient at insignificant activities, but to T meet customer demands.

Using the value chain approach, a company goes beyond simple across-the-board cuts and attempts to lower cost and improve efficiency within each value-creating process. For instance, a company might negotiate lower costs of process inputs such as wages or pur­rs, or evaluate make-or-buy options.

Reducing process input costs often means negotiating lower wages or moving production to countries with cheaper labour costs. Suppliers might be willing to drop their prices if the company negotiates long-term contracts. Companies also use buyer-seller partnerships to advantages in cost, quality, time, flexibility, delivery and technology.

Some processes may offer more opportunities for improvement than others. In order to get the most out of its cost reduction programs, a company should prioritise its value-creating process. Under the 80:20 rule, 20 per cent of the value-creating processes often account for 80 per cent of total costs.

**Internal Differentiation Analysis** : The value chain approach is also used by organisations to identify opportunities for creating and sustaining superior differentiation. In this situation, the primary focus is on the customer's perceived value of the products services.

As with internal cost analysis, internal differentiation analysis requires firms to first identify r value-creating processes and primary cost drivers. They are then ready to perform a differentiation analysis using the following guidelines :

1. Identify the customers' value-crating processes;

2. Evaluate differentiation strategies for enhancing customer value; and

3. Determine the best sustainable differentiation strategies.

Now we shall discuss these guidelines

1. Identify the customers' value-creating processes : To pursue a superior differentiation

strategy, a firm's processes must enhance those of its customers. Thus, a firm should

Carefully study the value-creating processes of its customers. Exhibit 2 presents such an analysis for Crown, Cork and Seal Company (CCS), a metal can maker, and its customers in the late 1970s. The metal container industry was characterized by low growth, low profits and intense competition. The CCS succeeded with a differentiation strategy, which is usually very difficult to accomplish in a commodity-type business. Two different groups of customers — food and beverage canners — accounted for 80 per cent of the metal containers produced.

2. Evaluate differentiation strategies for enhancing customer value : The key to successful differentiation under the value-chain approach is to identify the value creating processes that distinguish a firm's products or services from those of its competitors, making this distinction, customer value is emphasized. The ways customer value can be enhanced through differentiation include :

• Product features — that are esthetically appealing or functionally superior. For example, the Mercedes-Benz automobile accomplished this feat so well for years that  
its name became synonymous with the highest level of quality — people would describe

a product as the "Mercedes-Benz" of its category :

• Marketing channels— that provide desired levels of responsiveness, convenience  
 variety and information for example:

1. Designing distinctive cans for customers may assist their own marketing activities.
2. Consistent can quality lowers customers canning costs by avoiding breakdowns and   
    holdups on their canning lines.
3. By maintaining high stocks and offering speedy delivery, customers can economise on  
    their own stock-holding (they may even be able to move to a just-in-time system o  
    can supply).
4. Efficient order processing can reduce customers ordering costs.
5. Capable and fast technical support can reduce the costs of breakdowns on canning  
    lines.
6. Service and support— tailored to end-user and channel member sophistication an urgency of need.
7. Brand or image positioning — that lends greater appeal to the company's offering  
    on critical selection criteria. For many years, this quality image has allowed the  
    American Express Co. to command a significant price premium in the highly competitive  
    financial services market.
8. Price — including both net purchase price and cost savings available to the custom through the use of the product and service.

3. Determine the best sustainable differentiation strategies : For a firm to achieve superior differentiation, it must utilise the best mix of resources in creating value for customers. In order to prioritise its processes as sources of differentiation, a company mm determine what attributes of each process enhance customer value.

The more unique a firm's resources and skills, the more sustainable is its differentiation advantage over competitors.

**Vertical Linkage Analysis** : Linkages among value-creating processes do not end with the activities within a firm. The greatest competitive advantage may come out of linkages between a firm’s value-creating activities and those of its suppliers, channels or users.

Vertical linkage analysis is a much broader application of internal cost and differential analysis that includes all upstream and downstream value-creating processes throughout d industry. Vertical linkage analysis considers all links from the source of raw materials to the disposal and/or recycling of the product Exhibit 3 outlines the vertical links involved in tl production of "fast food" containers.

# VERTICAL LINKAGES IN THE PRODUCTION OF PLASTIC FOOD CONTAINERS

|  |
| --- |
| Natural gas producers |

|  |
| --- |
| Ethane producers |

|  |
| --- |
| Styrene producers |

|  |
| --- |
| Polystyrene producers |

|  |
| --- |
| Fast food carton producers |

|  |
| --- |
| Fast food restaurants |

|  |
| --- |
|  |
| Final consumers | |

Vertical linkage can reveal which activities are the most (and least) critical to competitive advantage (or disadvantage). For example, Swiss watchmakers succeeded for years relatively small, labour-intensive assemblers. Then came the 1970s and the advent of low cost, mass-produced watches. The Swiss responded by restructuring their industry to gain economies of scale similar to those enjoyed by their new global competitors.

However, the Swiss failed to realise that their critical problem was not in manufacture This set of activities added only a small proportion of the value of their final product. Far more significant were downstream activities in output logistics, marketing, sales and service. Beyond being able to make a watch cheaply, the Swiss had to lower their costs of distribution and service. They came up with the hugely successful Swiss watch, which, besides being inexpensively priced, was virtually indestructible and could be distributed through numerous low-cost channels, from department stores to discount houses.

Value chain of Petroleum Industry in India

ONGC:produces Petroleum (Sweet or sour)

Natural Gas Crude oil Refine

User: ONGC

IOC, BPCL, HPCL, MRPL

By fractional distillation

Power CH4 LPG C2C3

BPCL EPR

HPCL

Fertilizer LPG Petrol Diesel Kerosene

GAIL

GAS Cracker

CNG

For car Naphtha

Propylene Butylenes

Holdia Petro Chemical

PVC

High density

Polythene (Pipe)

Plastic Propylene Butylenes

chair

Products Backaline, Film, X-Ray plate, Color Estar, Bitumen

**Vertical linkage analysis includes the following steps;**

1. Identify the industry's value chain and assign costs, revenues and assets to value-creating process;
2. Diagnose the cost drivers for each value-creating process; and
3. Evaluate the opportunities for sustainable competitive advantage.

1. Identify the industry's value chain and assign costs, revenues and assets to value-creating processes : Because vertical linkages can be complex and intangible, they are often overlooked by organisations. For example, the petroleum industry consists of numerous value-ling processes or activities, including exploration, production, refining, marketing and distribution. These processes define the value chain for this industry. One company may participate in all parts of this value chain; another firm may participate in only a few. This diversity of operations and organisations makes it difficult to adopt a standard approach for identifying industry value chain processes.

Few firms have information systems that can identify and analyse these subtle relationships, For example, profitability and return on assets are key measures of competitive advantage throughout an industry's value chain. It can be extremely difficult to obtain pertinent information for these measures, including operating costs, revenues and assets for each process throughout the industry's value chain. However, this information is necessary to calculate a rate of return on assets for each value chain process.

Obtaining the replacement or current cost of physical assets used by a value-creating activity necessary but often-complex undertaking. Historical or book values usually provide equate measures of current investment. Plant engineers, equipment vendors and independent appraisal professionals may be consulted to help establish current asset values. Likewise, establishing prices for transferring goods and services along value chain processes requires an understanding of market or competitive-based rates. If at least one firm competes in each: of value creation, then competitive market prices are available. If not, then a company must use judgement in determining a transfer price that incorporates a normal profit margin of full costs. For long-term strategic decision-making, companies should use full cost under conditions of full capacity for the value activity. While several measures of capacity exist, the measure should represent the long-term utilisation of the value activity's assets (sometimes called "practical capacity").

Publicly available financial reports produced by firms throughout the industry value chain can provide key financial information. Typically, this information is neither in the proper format nor disaggregated enough to accommodate vertical linkage analysis. Significant analysis, data manipulation and judgement may be necessary to obtain the appropriate information for each value chain process.

For intermediate transfers between processes, competitive market prices, if available, should be substituted for the internal transfer prices. For example, competitive market prices for a e link in the value chain may be obtained from individual firms that operate only in that if the chain. For long-term cost estimation, full costs should be used rather than marginal variable or incremental costs.

2. Diagnose the cost drivers for each value-creating process: Traditional management or cost accounting systems often assign costs by using a single output measure of operating activity, such as output volume. For vertical linkage analysis, a single measure is inadequate to capture the underlying cost categories. Direct labour-based measures may be appropriate for labour-intensive activities; operating hours may be appropriate for machine-based activities.

3. Evaluate the opportunities for sustainable competitive advantage : By nature, competitive advantage is relative. In an ideal world, a firm can gauge its competitive position by knowing its competitor's value chains and the rates of return on each, in reality, however, this may be rather difficult; the competitor's internal cost, revenue and asset data for its process are generally unavailable. Sufficient qualitative information usually exists on a firm's major value-creating processes and the strategies for each. By understanding how other companies compete in each process of the industry value chain, a firm can use the qualitative analysis to seek out competitive niches even if financial data are unavailable.

Value chains for three competitors in the rapidly changing telecommunications industry -AT&T, NYNEX and IBM — are listed in Exhibit 4, along with the strategic differences for each firm (Hax and Majluf, 1991). The strategic differences reflect varying structural an executional cost drivers. In marketing, for instance, AT&T started with no organisation but with significant name recognition. The regional marketing scale of NYNEX and the work wide marketing scale of IBM are important cost advantages.

**EXHIBIT 4**

**VALUE CHAIN DIFFERENCES : THE TELECOMMUNICATIONS INDUSTRY**

**Value Chain Strategic Differences**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Processes

AT&T NYNEX IBM

Procurement Owns manufacturing Free to use any Owns Rolm, CPE

branch (Western Electric) Supplier it wants manufacturer

Technology Technological leadership Focus on software Strong R& Din

development through Bell Labs products computer hardware

and software technologies

Operations National presence Regional monopoly Global presence

High quality of equipment Innovative equipment Leading computer

through heavy capital from outside suppliers technology

expenditure High-quality regional Partnership with MCi

Similar communications network through

standards nationwide investment  
 Strongest National  
 telecommunications  
 network.

Marketing New emphasis on Use of Bell logo Strong reputation

and sales marketing(still weak) Focus on top 1,000 for marketing

High name recognition corporate customers excellence

Long-term relationship Sales and distribution Already sells to most

with clients centres close to major corporations

Recruits computer customers Experienced sales executives force

Finding innovative ways to perform value-creating activities helps firms to improve their performance and achieve competitive advantage. In order to thrive in the mature, highly competitive meat packing industry, for example, Iowa Beef Processors built its plants tile ranches, thus eliminating the high cost of shipping cattle to northern processing [n order to lower its costs, Tropicana froze slabs of orange juice concentrate near the groves in Florida and shipped the slabs to its large markets in the Northeastern U. S. ten did the company mix the concentrate with water, thus avoiding the lengthy and shipment of water.

Increased global competition forces firms to focus on worldwide sustainable competitive advantage. Global competition, cites following four major factors that influences national competitive advantage:

* factor conditions: The nation's position in factors of production, such as skilled labour or infrastructure, necessary to compete in a given industry;
* demand conditions : The nature of domestic demand for the industry's product or service;
* related and supporting industries: The presence or absence in the nation of supplier industries and related industries that are internationally competitive; and
* firm strategy, structure and rivalry : The conditions in the nation governing how corn-lies are created, organised and managed and the nature of domestic rivalry.

Geographic scope can allow firms to gain substantial competitive advantages by sharing or co-ordinating similar value activities in different places. The importance of this advantage is led by the recent success of firms with a global scope, such as Canon (Japan), Caterpillar (U.S.), N. V. Philips (Netherlands) and Siemens (West Germany). These firms sell and their products in practically every corner of the globe.

Automakers like Ford or GM are even more global: they carry out many key value-creating bs — from engineering to manufacturing and sales — in dozens of countries around Id. The Japanese auto companies are also globalising rapidly, making huge invest-n manufacturing facilities in, for example, South Korea, Singapore and the U.S.

Nike’s value-creating processes are shoe design, manufacture of shoe components and assembly. All major inputs to each process are available in the U. S. However, Nike component manufacturing, requiring moderately skilled labour and capital, in Taiwan nth Korea. It locates assembly operations, a labour-intensive activity, in low-wage countries such as China, Thailand and the Philippines.

Taking a global view of the value chain is not without disadvantages. One possible negative s transportation between linked processes. Transportation consumes time and adds to costs. Shipments of electronic components between the Far East and North American assembly plants may save transport take at least a month. Transporting components to local assembly may save transport and inventory costs.

Scattering value-creating processes around the world can also lead to poor control, commu-1 and coordination. Close proximity of R&D, engineering, production and marketing lei may provide synergistic benefits in meeting customer needs.

For example, to increase its worldwide tire production capacity to compete with Michelin Japan's Bridgestone acquired Firestone Tire & Rubber in the U. S. Muddled strategies, slow decision-making and poor communication between Tokyo and Akron, Ohio, led to major losses, layoffs and a sell-off of assets.

The North American Free Trade Agreement among Canada, Mexico and the U. S. has introduced new relationships affecting value-chain analysis for suppliers and buyers alike These relationships require careful scrutiny. For example, lower labour costs in Mexico have motivated companies to locate their assembly and manufacturing processes there. How­ever, some firms have experienced costly productivity and quality problems that more that offset their labour savings. Each firm must balance the benefits/cost of a multi-location decision.

To properly evaluate the opportunities for competitive advantage in the global marketplace firms need to consider such things as a country's values, political climate, environmental concerns, trade relations, tax laws, inflation rates and currency fluctuations. The recent devaluation of the Mexican peso is an example of the risks of moving operations to uncertain economies.

**STRATEGIC FRAMEWORKS FOR VALUE CHAIN ANALYSIS**

Value chain analysis requires a strategic framework or focus for organising internal and external information, for analysing information, and for summarising findings and recommendations. Because value chain analysis is still evolving, no uniform practices have been established. However, borrowing recent concepts from strategists and organizational experts, three useful strategic frameworks for value chain analysis are :

1. industry structure analysis;
2. core competencies; and
3. segmentation analysis.

**Industry Structure Analysis** : Michael Porter developed a five factors model a way to organise information about an industry structure to evaluate its potential attractiveness.

Under this model, the profitability of an industry or market — measured by the long-ten

return on investment of the average firm — depends largely on five factors that influence

profitability.

Factors which influence profitability are :

1. Bargaining power of buyers;
2. Bargaining power of suppliers;
3. Threat of substitute products or services;
4. Threat of new entrants; and
5. Intensity of competition

1. Bargaining power of buyers : The degree of buyer power generally depends on : — customer concentration (the higher the concentration of customers, the greater is the negotiation leverage);

-the propensity for customers to integrate backward (the higher the propensity for back-ward integration, the greater the bargaining leverage);

-costs of switching suppliers (the lower the switching costs, the greater the buyer's leverage); and

-the number of alternative suppliers (the greater the number, the greater the customer's leverage).

2. Bargaining power of suppliers : Just as powerful buyers can squeeze profits by putting sward pressure on prices, suppliers squeeze profits by increasing input costs. The same factors that determine the power of buyers also determine the power of suppliers. The bargaining power of suppliers and buyers relative to the firm depends on the relationships between their value chains. Bargaining power will be a function of relative strengths, in particular value activities that depend on one another.

Identifying the specific activities involved and the nature of their strengths and relationships important insights into the power balance between buyer and seller, and how it may be altered for the firm's benefit.

3. Threat of substitute products or services : The potential for profit in an industry is mined by the maximum price that customers are willing to pay. This depends primarily on the availability of substitutes. When few substitutes exist for a product— e.g., gasoline consumers are willing to pay a potentially high price. If close substitutes for a product t, then there is a limit to what price customers are willing to pay. Any price increase will cause some customers to switch to substitutes. A thorough understanding of the value us of buyers as they relate to the firm's product can help in assessing (and combating) threat of substitution.

4. Threat of new entrants : If an industry is earning a return on invested capital above the cost of capital, that industry will act as a magnet to firms outside the industry. Unless the entry of new firms is barred, the rate of profit must fall to the competitive level. Even the mere threat of entry may be sufficient to ensure that established firms constrain their prices to the competitive level.

5. Intensity of competition : Markets experiencing rapid growth typically see less intense petition. Rival companies can usually satisfy profitability and growth without having to market shares from their competitors.

The variety and nature of the value chains of competitors shape many of the characteristics a industry. The relative importance of economies of scale versus economies of scope, sample, depends on the kind(s) of technology employed in competitors' value chains, stability of the industry and of its competitive situation also relates to what happens to value chains of firms in the industry. The effectiveness of low cost versus differentiation spends on the nature of users' value chains, and on how competitors value chains act with those of both sellers and users.

Since these five forces are ever-changing, Porter's framework needs to be employed as a dynamic analytical tool. This is because competition is a dynamic process; equilibrium is never reached and industry structures are constantly being reformed.

A major difficulty in industry structure analysis lies in defining the specific industry. No industry has clear boundaries either in terms of products or geographical areas. For example, does one analyse the industry environment of Ford as the "transportation equipment " industry, the "motor vehicles and equipment" industry or the "automobile" industry ?

To overcome the difficulty of defining an industry, the concept of substitutability can be applied to a firm's supply and demand chains. On the demand side, if buyers are willing to substitute one product for another—e.g., Toyotas for Fords—then the manufacturers belong in a single industry. However, this guideline does not always hold. For example, customers may be unwilling to substitute Apple Macintosh computers for H.P. computers, even though both manufacturers belong to the same industry. On the supply side, if two manufacturers can make each other's products, then they belong to a single industry.

**Core Competencies Analysis :** Industry structure analysis is well suited to describing the what of competitiveness, i.e., what makes one firm or one industry more profitable than another. But understanding the particulars of such advantages as low cost, quality, customer service and time to market may still leave the question of why largely unanswered. For example, why do some companies seem able to continually create new forms of competitive advantage while others seem able only to observe and follow ? Why are some firms net advantage creators and others net advantage imitators ? For assessing competitive advantage it is necessary not only to keep score of existing advantages — what they are and who has them — but also to discover what it is that drives the process of advantage creation. Industrial structure analysis is much better suited to the first task than to the second. Thus, industry structure analysis must be supplemented by an equally explicit core compe­tence focus. Organisations need to be viewed not only as a portfolio of products or services, but also as a portfolio of core competencies.

Core competencies are created by superior integration of technological, physical and human resources. They represent distinctive skills as well as intangible, invisible, intellectual assets and cultural capabilities. Cultural capabilities refer to the ability to manage change, the ability to learn and team-working. Organisations should be viewed as a bundle of a few core com­petencies, each supported by several individual skills.

Core competencies are the connective tissue that holds together a portfolio of seemingly diverse businesses. They are the lingua franca Vn&l that allows managers to translate insights and experience from one business setting into another. Core competence-based diversification reduces risk and investment and increases the opportunities for transferring learning and best practice across business units.

For instance, Microsoft's only factory asset is its human imagination. This company has excelled in inventing new ways of using information technology for a wide variety of end users. In contrast, using its core competence in information processing, Xerox developed icons, pull­ down menus and the computer mouse, but failed to exploit the marketplace.

A core competence is identified by the following tests:

1. Can it be leveraged? — does it provide potential access to a wide variety of markets?
2. Does it enhance customer value? — does it make a significant contribution to the  
   perceived customer benefits of the end product?
3. Can it be imitated? — does it reduce the threat of imitation by competitors?

Applying the value chain approach to core competencies for competitive advantage  
includes the following steps :

1. Validate core competencies in current businesses;

1. Export or leverage core competencies to the value chains of other existing businesses;
2. Use core competencies to reconfigure the value chains of existing businesses; and
3. Use core competencies to create new value chains.

1. Validate core competencies in current businesses : Core competencies should tie together the portfolio of end products and help a firm excel in dominating its industry. For example. Corning Glass's core competence is its ability to melt specialty glass. Pyrex, television bulbs, headlamps and optical wave guides are just a few of the products of this successful producer. Procter & Gamble's R&D expertise and marketing/distribution skills provide a significant competitive advantage in a wide range of mass consumer products (e.g., Ivory, Tide, Folgers, Crisco, Pampers).

Core competencies need to be continually validated. In the early 1970s, Timex held half of market for watches with its core competence in low-cost management of precision manufacturing. By the mid-1970, the watch industry moved to digital technology, making Timex's core competence irrelevant.

2. Export or leverage competencies to the value chains of other existing businesses: The same set of core competencies can be exploited in multiple businesses by exporting core competencies to the value chains of other existing businesses.

For example, one of Honda's core competencies is designing and producing small engines. By exporting this core competence to a wide variety of business lines, the company seeks to have six Hondas in every garage : autos, motorcycles, snowmobiles, lawnmowers, snow chain saws and power tools. Other Honda core competencies are dealership management and shorter product development cycles.

Marriott Corp. has core competencies in food service and hospitality skills, standardised hotel operating procedures, and a shared procurement and distribution system. Besides employing these core competencies in hotels, the company uses them in its other businesses, including institutional food service, consumer food and restaurants, cruise ships and theme parks.

AT&T extended its core competence as an efficient processor of customer accounts by altering the credit card business. Kimberly Clark's entry into disposable diapers extended its lore competence in the design of paper products.

3. Use core competencies to reconfigure the value chains of existing businesses : While firms may manage their existing value chains better than their competitors, sophisticated firms work harder on using their core competencies to reconfigure the value chain to improve payoffs. Otherwise, competitors may exploit opportunities. For example, Japanese watchmakers side-stepped traditional distribution channels in favour of mass merchandisers such as department store chains. By efficiently consolidating freight, Emery Freight dominated the air freight industry and was consistently a leader in profitability in U. S. industry. Federal Express reconfigured the air freight business by focusing on the overnight delivery of small packages.

Tetra-Pak is an excellent example of a firm that reconfigured the value chain in the packaging industry for dairy products and orange juice. Tetra-Pak designed filling machine for its aseptic packages and changed the packaging industry. Exhibit 5 illustrates Tetra-Pak's changes to the value chain.

HOW TETRA-PAK RECONFIGURED THE VALUE CHAIN

Retail Display

Transport

Customers

Filling

Make container No refrigerated Low store Longer shelf life

on site trucks handling

Terra Pak No wasted space No need to No need to

specialised in filling & refrigerate & refrigerate & less

equipment packing less space is space is required

required

Another example of a value chain reconfiguration is IKEA, which grew from a small, Swed­ish mail-order furniture operation to one of the world's largest retailers of home furnishings (Normann & Ramirez, 1993). As illustrated in Exhibit 6, IKEA selected numerous factors to offer prices that are 25-50 per cent lower than those of competitors.

# HOW IKEA RECONFIGURED THE FURNITURE INDUSTRY

Value Chain Major Choice

Design Simple, high quality, designed to lower cost

Parts Standard & common, global supplier network

Assembly By the customer

Transport/stocking Computerised system for suppliers & warehouses

Marketing Scandinavian image

Display Focus on designs, not pieces, to create value

Home delivery By the customer

4. Use core competencies to create new value chains : With strong core competencies in its existing businesses, an organisation can seek new customers by developing new value chains.

For example, Federal Express (FedEx) transferred its expertise in the delivery of small packages to contract new business with L.L. Bean for overnight distribution. Disney has exported its people-moving skills to urban mass transit for Oakland, California.

**Segmentation Analysis :** Industries are sometimes collections of different market segments. Vertically integrated industries are good examples of a string of natural businesses from the source of raw material to the end use by the final consumer. Several firms '• in the paper and steel industries are vertically integrated. Not all firms in an industry partici­pate in all segments.

If the nature and intensity of Porter's five forces or the core competencies vary for various segments of an industry, then the structural characteristics of different industry segments need to be examined. This analysis will reveal the competitive advantages or disadvantages different segments. A firm may use this information to decide to exit the segment, to enter a segment, reconfigure one or more segments, or embark on cost reduction/differentiation programs.

Differences in structure and competition among segments may also mean differences in key success factors among segments.

Using the value chain approach for segmentation analysis, Grant (1991) recommended five steps:

1. Identify segmentation variables and categories;

2. Construct a segmentation matrix;

3. Analyse segment attractiveness;

4. Identify key success factors for each segment; and

5. Analyse attractiveness of broad versus narrow segment scope.

1. Identify segmentation variables and categories : There may be literally millions of ways to divide up the market into segments. Typically, an analysis considers between five to ten segmentation variables. These variables are evaluated on the basis of their ability to identify segments for which different competitive strategies are (or should be) pursued.

The selection of the most useful segment-defining variables is rarely obvious. Industries may subdivided by product lines, type of customer, channels of distribution and region/geography. The most common segmentation variables considered are type of customer and product related as illustrated in Exhibit .

## APPROACHES TO DEFINING SEGMENTATION VARIABLES

# CUSTOMER CHARACTERISTICS

Geographic - Small communities as markets for discount stores

Type of organisation - Computer needs of restaurants versus manufacturing firms versus

banks versus retailers

Size of firm - Large hospital versus medium versus small

Life-style - Jaguar buyers tend to be more adventurous, less conservative than buyers of Mercedes-Benz and BMW

Sex - The Virginia Slims cigarettes for women

Age - Cereals for children versus adults

Occupation - The paper copier needs of lawyers versus bankers versus dentists

PRODUCT-RELATED APPROACHES

Use type - Appliance buyer-home builder, remodeler, homeowner

Usage - The heavy potato user - the fast-food outlets

Benefits sought - Dessert caters - those who are calorie-conscious versus those who

Are More concerned with convenience

Price sensitivity - Price-sensitive Honda Civic buyer versus the luxury Mercedes-Benz

buyer

Competitor - Those computer users now committed to IBM

Application - Professional users of chain saws versus the homeowner

Brand loyalty - Those committed to IBM versus others

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The first set of variables describes segments in terms of general characteristics unrelated to the product involved. Thus, a bakery might be concerned with geographic segments, focus­ing on one or more regions or even neighborhoods. It might also divide its market into organisational types such as at-home customers, restaurants, dining operations in sell hospitals and so on. Demographics can define segments representing strategic opportunities such as single parents, professional women and elderly people.

The second category of segment variables includes those that are related to the product One of the most frequently employed is usage. A bakery may employ a very different strategy in serving restaurants that are heavy users of bakery products than restaurants that use fewer bakery products. Zenith made a niche for itself in the very competitive personal computer industry by focusing on government, which is the largest computer user.

Segmenting by competitor is useful because it frequently leads to a well-defined strategy and a strong positioning statement. Thus, a target customer group for the Toyota Cressida consists of buyers of high-performance European cars such as the BMW. The Cressida is positioned against the BMW as offering comparable performance for a substantially lower cost.

2. Construct a segmentation matrix : After customer and product related variables have been selected for identifying different segments, a segmentation matrix can be developed. Two or more dimensions may be used to partition an industry.

For example, restaurants could be divided into four dimensions; types of cuisine, price range, type of service (e.g., sit-down, buffet, cafeteria, take-out, fast food) and location.

A segmentation matrix for the British frozen foods industry is presented in Exhibit 8. Five types of product and five channels of distribution are used to construct the two-dimensional segmentation matrix consisting of 25 potential segments. However, not every cell in the matrix may be relevant. Empty cells may represent future opportunities for products 01 services.

# EXHIBIT 8

**SEGMENTING THE BRITISH FROZEN FOOD INDUSTRY**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Distribution Channels | | | | |
|  | | Supermarkets  Producers' Retailers' Brands Brands | | Independent Grocery Retailers | Specialist Freezer Stores | Caterers |
| P |  |  |  |  |  |  |
| R  . : | Vegetables |  |  |  |  |  |
| O | Fruits |  |  |  |  |  |
| D | Meat |  |  |  |  |  |
| U | Products |  |  |  |  |  |
| C | Desserts |  |  |  |  |  |
| T |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| T | Convenience |  |  |  |  |  |
| Y  P  E  S | Ready Meals |  |  |  |  |  |

Note : The above matrix identifies five categories of frozen food, and five distribution channels. While the basic distinction of customers is between retail and catering, within retailing there are three distinct categories of outlet, supermarkets, independent grocery and specialist retailers of frozen foods ("home freezer centres"). In addition, different market conditions exist for processors supplying frozen foods for sale under their own brand names as opposed to those supplying frozen foods for sale under the brand name of the retailer.

3. Analyse segment attractiveness : Competitive assessments using industry structure analysis or core competencies analysis can also be used to evaluate the profitability of different segments. However, the competitive focus shifts to an analysis of the different segments.

For example, in the frozen foods industry segmentation, independent grocers and caterers may be willing to substitute fresh fruits and vegetables for frozen goods. Therefore, the threat of substitutes within the segments and from outside sources must be carefully examined.

In addition, the interrelationship among segments must be carefully considered. For ex­ample, caterers may purchase frozen food items from supermarkets at bargain prices. Segments may be natural buyers, sellers or substitutes for one another.

In the automobile industry, the luxury car and sports car segments were high-priced, high-margin products with less intense competition than other automobile segments. The intro­duction of high-quality, lower-priced Acura, Lexus and Infinity autos changed the com­petitive structure of these high-priced segments.

4. Identify key success factors for each segment: Quality, delivery, customer satisfaction,  
market share, profitability and return on investment are common measures of corporate  
success. In this regard, each segment must be assessed using the most appropriate key  
success factors. Cost and differentiation advantages should be highlighted by these mea­sures.

Examination of differences among segments in buyers' purchase criteria can reveal clear differences in key success factors.

5. Analyse attractiveness of broad versus narrow segment scope : A wide choice of  
segments for an industry requires careful matching of a firm's resources with the market.  
The competitive advantage of each segment may be identified in terms of low cost and  
or differentiation.

Sharing costs across different market segments may provide a competitive advantage. For example, Gillette broadened its shaving systems to include electric shavers through its 1970 acquisition of Braun Lipdon recently entered the bottled iced-tea market.

On the other hand, when the Toro Company broadened its distribution channels for its snow blowers and lawnmowers to include discount chains, it almost went bankrupt. Felling betrayed, a number of Toro's dealers dropped its products.

Taking a narrow segment focus may leave a firm vulnerable to competitors. For instance, by relying solely on its lemon-lime soft drink, 7-Up left itself at a competitive disadvantage to Coca-Cola and Pepsi.

In many industries, aggressive firms are moving toward multiple-segment strategies. Campbell Soup, for example, makes its nacho cheese soup spicier for Texas and California customers and offers a Creole soup for Southern markets and a red-bean soup for Hispanic areas. In New York, Campbell uses promotions linking Swanson frozen dinners with the New York Giants football team; in the Sierra mountains, skiers are treated to hot soup samples. Developing multiple strategies is costly and often must be justified by an enhanced aggregate impact.

Some firms decide to avoid or abandon segments because of limited resources or because of uncertain attractiveness. For example, in the 1960s, IBM decided not to enter the mini­computer segment. This allowed upstart Digital Equipment Corp. to dominate this segment of the computer industry.

A segment justifying a unique strategy must be of worthwhile size to support a business strategy. Furthermore, that business strategy needs to be effective with respect to the target segment in order to be cost effective. In general, it is costly to develop a strategy for a segment. The question usually is whether or not the effectiveness of the strategy will compensate for this added cost.

# LIMITATIONS OF VALUE CHAIN ANALYSIS

Value chain analysis is neither an exact science nor it is easy. It is more "art" than preparing Precise accounting reports. There are several limitations to the implementation and interpretation of value chain analysis. First, the internal data on costs, revenues and assets used for value chain analysis are derived from one period's financial information. For long-term strategy decision-making, changes in cost structures, market prices and capital investments from one period to the next may alter the implications of value chain analysis. Organisations, should ensure that the value chain analysis is valid for future periods. Otherwise, the value chain analysis must be repeated under new conditions.

Identifying stages in an industry's value chain is limited by the ability to locate at least one firm that participates in a specific stage. Breaking a value stage into two or more stages hen an outside firm does not compete in these stages is strictly judgement.

As discussed previously, finding the costs, revenues and assets for each value chain activity sometimes presents serious difficulties. There is much experimentation underway that may provide better approaches. Having at least one firm operate in each value chain activity helps to identify external prices for goods and services transferred between value chains. or intermediate products or services with no external or competitive market information, transfer prices must be estimated on the basis of the best information available.

Isolating cost drivers for each value-creating activity, identifying value chain linkages across, and computing supplier and customer profit margins present serious challenges. The use of full cost assumes that the full capacity of the value chain activity's facilities is used to derive the costs. Plant and manufacturing personnel and vendors of equipment are good sources for capacity information.

They can also be helpful in estimating the current or replacement cost of the assets. Independent companies, for valuation services for assets

Despite the calculational difficulties, experience indicates that performing value chain analysis can yield firms invaluable information for their competitive situation, cost structure, and linkages with suppliers and customers.

**ORGANISATIONAL AND MANAGERIAL ACCOUNTING CHALLENGES**

Value chain analysis offers an excellent opportunity to integrate strategic planning with management accounting to guide the firm to growth and survival. This change in focus for management accounting is necessary to maintain its critical role as the information profession.

The most significant challenge for senior management and management accountants is to recognise that the traditional, functional, internally oriented information system is inadequate or tire firm engaged in global competition.

Another challenge for management accountants is to bring the importance of customer value to the forefront of managements strategic thinking. For many managers and firms, this requires a great deal of education and awareness. Management accountants should take the initiative to bring the value chain message to major players in the firm. Seminars, articles, tin examples and company-specific applications are useful to illustrate the advantages of value chain analysis.

Although value chain analysis requires expertise in internal operations and inform, it demands a great deal of external information. Management accountants must seek relevant financial and non-financial information from sources outside the organisation.

Management accountants must integrate databases and potential sources of timely information on competitive forces confronting the business. This calls for innovation and creativity gathering and analysing information for management decisions.

Designing internal and external information systems to assist managers in planning, monitoring and improving value-creating processes is another challenge facing management accountants.

Information technology is improving daily but existing information systems are slow to change. Management accountants should solicit support from all senior managers for allocating sources to develop and improve value chain-oriented information systems.

Value chain analysis requires the cooperation of all managers involved in value chain pit processes, including engineers, designers, production managers, marketing managers and distribution managers. Leadership from the CEO is vital to successful cooperation of manager The management accountant should ensure that the CEO is committed to value chain analysis and the organisational changes necessary for its successful implementation.

For many service companies, Porter's value chain model emphasising manufacturing lira may appear inappropriate. However, every organisation (banks, hospitals, airlines, professional firms) has a variety of primary and support value-creating activities to which value chain analysis applies. For example, a publishing company might have the following primal activities; information acquisition, editorial, production, distribution, sales and service. Support activities include new product and business development, technology assessment and development, human resource management and firm infrastructure. If strategy is seen i the pursuit of competitive advantages the link between the formulation of service strategy and operational service delivery is vital.

**VALUE CHAIN ANALYSIS VS. CONVENTIONAL MANAGEMES ACCOUNTING**

Information generated from the traditional management accounting systems, including cost accounting, is generally unsuitable for value chain analysis for a variety of reasons. Exhibit provides a comparison of value chain analysis and traditional management accounting.

Generally, traditional management accounting focuses on internal information. It often places excessive emphasis on manufacturing costs. It also assumes that cost reduction must found in the "value-added" process, i.e., selling price less the cost of raw material.

Using a value added approach can be misleading, since there are many other purchase inputs such as engineering, maintenance, distribution and service. The value-add-starts too late because it ignores linkages with suppliers, and stops too early because ignores linkages with customers.

The value chain approach encompasses external and internal data, uses appropriate a drivers for all major value-creating processes, exploits linkages throughout the value chain and provides continuous monitoring of a firm's strategic competitive advantage.

# EXHIBIT 9

##### VALUE CHAIN VS. CONVENTIONAL MANAGEMENT ACCOUNTING

|  |  |  |
| --- | --- | --- |
|  | Traditional Management  Accounting | Value Chain Analysis  in the Strategic Framework |
| Focus | Internal | External |
| Perspective | Value Added | Entire set of linked activities from suppliers to end-use customres |
| Cost Driver  Concept | Single cost driver  (cost is function of  volume)  Application at the overall firm level (cost-volume-profit analysis) | Multiple cost drivers  - Structural drivers (e.g. scale,  scope, experience, technology and complexity)  - Executional drivers (e.g. participative management and plant layout)  A set of unique cost drivers for each value activity. |
| Cost Containment  Philosophy | “Across the board” cost reductions | View cost containment as a function of the cost drivers regulating each value activity.  Exploit linkages with suppliers  Exploit linkages with customers  Exploit process linkages within the firm “Spend to save”. |
| Insights for Strategic  Decisions | Somewhat limited | Identify cost drivers at the individual activity level, and develop cost/ differentiation advantage either by controlling those drivers better than competitors by reconfiguring the value chain( e.g. Federal Express in mail delivery, and MCI in long distance telephone)  For each value activity, ask strategic questions pertaining to  -Make versus by  -Forward/backward integration  Quantity and assess “supplier power” and “buyer power”, and exploit linkages with suppliers and buyers. |

Limitations of value chain analysis

1. Non – availability of Data: Internal data on costs, revenues and assets used for Value Chain Analysis are derived from financial information of a single period. For long – term strategic decision – making, changes in cost structures, market prices and capital investments etc. may not be readily available.

2. Identification of Stages: Identifying stages in an industry’s Value Chain is limited by the ability to locate at least one firm that participates in a specific stage. Breaking a value stage into two or more stage when an outside firm does not compete in these stages is strictly judgment.

3. Ascertainment of Costs, Revenue and Assets: Finding the Costs, Revenues and Assets for each Value Chain activity poses/ gives rise to serious difficulties. There is no scientific approach and much depends upon trial and error and experimentation methods.

4. Identification of Cost Drivers: Isolating cost Drivers for each Value – creating activity, identifying Value Chain Linkages across activities, and computing supplier and customer profit margins present serious challenges.

5. Resistance from Employees: Value Chain Analysis is not easily understandable to all employees and hence may face resistance from employees as well as managers.

6. Science Vs Art: Value: Value Chain Analysis is not an exact science. It is more “art” than preparing precise accounting reports. Certain Judgment and factors of analysis are purely subjective and differ from person to person.

**Problem 1**

ACE Ltd has applied Value Analysis during last year. The financial controller of ACE Ltd. has prepared the following estimates of working results after applying the benefit of vale engineering for the year ending 31st March, 2006

Direct Materials Rs. / units 16.00

Direct Wages Rs. / units 40.00

Variable Overheads Rs. / units 12.00

Selling Price Rs. / units 125.00

Fixed Expenses Rs. 6,75,000 per annum

Sales Rs. 25,00,000 per annum

During the year 2006-07 , various steps in value analysis are implemented:

1. Identification of the problem of low labour efficiency; As a result of re-engineering of business processes, the overall direct labour efficiency will increase by 12%, but the wage rate will go up by 5%.

2. Collecting information about function, design, materials, labour, overhead costs, etc., of the product and finding out the availability of the competitive products in the market . It is expected that the materials prices and variable overheads will go up by 10% and 5% respectively.

3. Exploring and evaluating alternatives and developing them as a result fixed overheads are also expected to increase by Rs. 1,25,000.

The VP– Manufacturing states that the same level of output as obtained in 2005-06 should be maintained in 2006-07 also and efforts should be made to maintain the same level of profit by suitable increase the selling price.

The VP–Marketing states that the market will not absorb any increase in the selling price. On the other hand, The proposes that publicity involving advertisement expenses as given below will increase the quantity of sales as under :

Advertisement Expenses (Rs. ) 80,000 1,94,000 3,20,000 4,60,000

Additional units of Sales 2,000 4,000 6,000 8,000

Required :

(a) Present an Income Statement for 2005-06.

(b) Find the revised price and the percentage of increase in the price for 2006-07, if the views of the VP–Manufacturing are accepted.

(c) Evaluate the four alternative proposals put forth by the VP–Marketing. Determine the best output level to be budgeted and prepare an over-all Income Statement for 2006-07 at that level of output.

**Solution**

**(a) Working notes :**

1. Number of units produced and sold for the year ending on 31st March,

Total sales revenue upto 31st March,

= ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Selling price p.u.

Rs. 25,00,000

= ⎯⎯⎯⎯⎯⎯ = 20,000 units

Rs. 125 p.u.

2. **Statement of variable cost per unit**

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Year 2005-06 2006-07

Rs. Rs.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Direct materials 16 17.60

(Rs. 16 + 10% X Rs. 16)

Direct wages 40 37.50

(Rs. 40 X 100/112 X 105/100)

Variable overheads 12 12.60

(Rs. 12 + 5% X Rs. 12)

⎯⎯ ⎯⎯⎯

Variable cost per unit 68 67.70

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

3. Contribution per unit during 1999 -2000

= Selling price per unit – Variable cost p.u.

= Rs. 125 – Rs. 67.70 = Rs. 57.30

4. Profit in 1998-1999

Contribution per unit = S.P (p.u.) -- V.C. (p.u.)

= Rs. 125 – Rs. 68 = Rs. 57 p.u.

Total contribution = Rs. 11,40,000

20,000 units X Rs. 57/- p.u.

Less: Fixed expenses 6,75,000

⎯⎯⎯⎯⎯

Profit 4,65,000

(a) **Income Statement for the year 1999-2000**

**Rs.**

Sales revenue 25,00,000

20,000 units X Rs. 125

Less: Variable cost 13,54,000

20,000 units X Rs. 67.70

(Refer to working note 2)

⎯⎯⎯⎯

Total contribution 11,46,000

Less : Fixed expenses 8,00,000

Profit 3,46,000

**(b)** **Statement for determining revised price and the percentage of increase in the price for 1999-2000 based on the views of Vice-President- Manufacturing**

**Rs.**

Variable cost 13,54,000

(20,000 units X Rs. 67.70)

Fixed expenses 8,00,000

Profit 4,65,000

(Refer working note 4) ⎯⎯⎯⎯

Desired sales revenue 26,19,000

Revised selling price (per unit) 130.95

(Rs. 26,19,000/20,000 units)

Rs. 130.95 -- Rs. 125

Percentage increase in selling price : ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ X 100 = 4.76%

Rs. 125

(c) **Evaluation of four alternative proposals of**

**Vice-President – Marketing**

**⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯**

Addition units of sales 2,000 4,000 6,000 8,000

Rs. Rs. Rs. Rs.

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Total contribution 1,14,600 2,29,200 3,43,800 4,58,400

(Refer to working note 3) ( 2,000 units X ( 4,000 units X (6,000 units X (8,000 units X

Rs. 57.30) Rs. 57.30) Rs. 57.30) Rs. 57.30)

Less: Advertisement expenses 80,000 1,94,000 3,20,000 4,60,000

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Addition Profit /(Loss) 34,600 35,200 23,800 (1,600)

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Evaluation of four alternatives : Since the additional profit is maximum at the additional sales of 4,000 units, therefore the second alternative is adjudged as the best out of the four alternatives proposed by the Vice-President of Marketing. Hence the concern should produce and sell 24,000 units during the year 2005-06

**Overall Income Statement for 2005-06**

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Output and sales 24,000 units

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Rs.

Sales revenue 30,00,000

24,000 units X Rs. 125/-

Less: Variable cost 16,24,800

24,000 units X Rs. 67.70

⎯⎯⎯⎯⎯

Contribution 13,75,200

Less: Advertisement expenses Rs. 1,94,000

Fixed expenses Rs. 8,00,000 9,94,000

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Profit 3,81,200

A problem on cost reduction

# Problem 2

Even Forward Ltd. is manufacturing and selling two products: Splash and Flash at selling price of Rs 3 and Rs. 4 respectively. The following sales strategy has been outlined for the year :--

1. Sales planned for year will be Rs. 7.20 lakhs in the case of Splash and Rs. 3.50 lakhs in the case of Flash.
2. To meet competition, the selling price of Splash will be reduced by 20% and that of Flash by 12 ½ % .
3. Break- even is planned at 60% of the total sale of each product.
4. Profit for the year to be achieved is planned as Rs 69,120 in the case of Splash and Rs 17,500 in the case of Flash. This would be possible by launching a cost reduction programme and reducing the present annual fixed expenses of Rs. 1,35,000 allocated as Rs. 1,08,000 to Splash and Rs. 27,000 to Flash.

You are required to present the proposal in financial terms giving clearly the following information:

Number of units to be sold of Splash and Flash to break-even as well as the total number of units of Splash and Flash to be sold during the year.

Reduction in fixed expenses product-wise that is envisaged by the Cost Reduction Programme.

# Solution

Splash Flash

(a) Sales (Rs.) 7,20,000 3,50,000

(b) Sp/u (Revised) 2.4 3.5

(80% of 3) (87.5% of 4)

(c) S. units (a/b) 3,00,000 1,00,000

(d) BEP 60% 60%

(e) BEP (c×d) 1,80,000 60,000

Splash flash

(a) MOS 40% 40%

2,88,000 1,40,000

(1,20,000×2.4) (40,000×3.5)

(b) Profit 69,120 17,500

(c) Previous Fixed cost 10,8,000 27,000

(d) New P/V ratio (b/a×100) 24% 12.5%

(e) Revised fixed cost (BES×P/V) 1,03,680 26,250

(f) Reduction in fixed cost (c-e) 4,320 750

**Cost Control and Cost Reduction**

Cost control implies guidance a reputation of cost by executive action. For this purpose, the executives are provided with some yard stick such as standards or budgets with which the actual costs and performances are compared to ascertain the degree of achievement made. Therefore Cost Control involves a continuous comparisons of actual with the standards or budgets to regulate the former. Standards or budgets once set up are not attended during the period or until some mistakes are discovered in standards.

Cost reduction is the achievement of real and permanent reduction in unit cost of products manufactured. It, therefore, continuously attempts to achieve genuine savings in cost of production distributing, selling and administration. It does not accept a standard or budget as or fined. It rather challenges the standards/budgets continuously to make improvement in them. It attempts to excavate, the potential savings buried in the standards by continuous and planned efforts. Cost control relax that dynamic approach, it usually dealt with variances leaving the standards intact.

**Application of cost control in material cost.**

Materials Cost is the price paid and the cost incurred by an organization in procuring materials for production. If material cost is effectively controlled we must have a proper system of material control and the following are the fundamental requirement of such a control :-

1. Definite responsibility in respect of every function of material control should be specified and allocated.
2. Proper co-ordination between the various sections/departments responsible for different function should be achieved.
3. Purchasing function should be centralised as far as possible and entrusted to a competent person conversant with purchasing function.
4. Controlled procedure should be standardised ad uniform forms and documents should be used all over the organisation.
5. To facilitate the control procedures materials requirements budget and materials purchased budget should be prepared.
6. Adequate provision for proper storage facilities and suitable arrangements for storing materials should be made.
7. A proper system of stock control should be introduced and maintained.

**Difference between cost control and cost reduction :-**

Cost Control is defined as the “the guidance and regulations by executives action of the cost of operating and undertaking while cost reduction is defined as and achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability for the use intended.”

Thus the cost control represents the efforts where cost reduction represents achievement. Cost reduction is a continuous attempt towards improvement.

Cost Control implies that cost should not exceed the budgeted or standard limits. If it exceeds, investigation is necessary. Cost reduction means waste reduction, expenses reduction and increased production.

The process of cost control is to set a target ascertain actual performance and compare it with the target, investigate the variances and take remedial measures. Cost reduction is not concerned with maintenance of performance according to the standards. Cost control assumes existence of standards or which are not challenged. Cost reduction assumes the existence of concealed potential savings in the standards or norms which are, therefore subjected to a constant challenge with a view to improvement by bringing out the saving.

Cost control is a preventive function, costs are optimissed before they are incurred. Cost reduction is a corrective functions. It operates even when an efficient cost control system exists. There is room for reduction in the achieved cost under controlled conditions.

**Programme For Cost Reduction :-**

The possibilities of reducing the cost of a product in the applications of cost reduction methods. The lines of approach in laying out a cost reduction plan are suggested below :

1. Product Design :- Cost reduction starts with the design of the product. Product design being first step in manufacturing of a product, the impact of any economy or cost reduction effected their stage will be felt through out the manufacturing life of the product. Design is therefore the most important field where cost reduction may be attempted.

Efficient designing for a new product or improving the design for an existing product, reduces cost in the following manner :-

(i) Material Cost :- Cheaper substitute , higher yield and less quantity and varieties of materials, cause reduction in cost.

1. Labour Cost :- Reduced time of operation and increased productivity reduce cost.
2. Cost of gigs, tools and fixtures are to be minimised.
3. Standardisation and simplification in variety increases productivity and reduces costs.
4. Organisation :- It is not possible to measure the extent of cost reduction resulting from an improvement in organisation nevertheless, economies are bound to be achieved if the following considerations are looked into :-

(i) Definition of each function and responsibility.

1. Proper assignment of task and delegation of responsibility to avoid overlapping
2. A suitable channel of communication between various management level.
3. Co-operation and closed relationship between the various executives.
4. Removal of doubts and fiction.
5. Encouragement to employees for cost reduction suggestion.
6. Factory Lay Out Equipment :-

A cost reduction programme should study the factory layout and the utilisation of the existing equipment to determine whether there is any scope of cost reduction by elimination of wastage of men, materials and maximum utilisation of the facilities available.

The necessity for replacement of Plants, introduction of new techniques or expansion of facilities should be considered and various alternative explored with a view to reducing costs.

(d) Production Plan Programme and Method :-

Production control ensures proper planning of work by installing and efficient procedure and programme ordering correct machine and proper utilisation of materials, manpower and resources so that there is no waste of time and money due to wait for components, men, material etc. An efficient cost reduction programme should examine the following points relating to production control.

(i) Whether wastage of manpower and material is kept to the minimum

(ii) Whether there is any scope for reducing idle capacity.

(iii) Whether the procedures for the control of stores and maintenance services are efficient.

(iv) Whether labour wastage may be reduced and productivity increased by eliminating faulty production method, plant layout and designs or introducing incentive schemes.

(v) Whether there is scope for reduction of over head, whether a budgetory control system is in operation to ensure the control over overhead costs.

**Cost reduction techniques**

It may be extended to administrative, selling and distribution methods, personnel management, purchase and material control, financial management and other mischevious services. Tools and techniques for cost reduction :-

1. Budgetary control and standard cost.

2. Work study and organisation and method of procedure.

3. Value analysis.

4. Standardisation.

5. Simplification and variety reduction .

6. Economic batch quantity (E. B. Q.)

7. Coding and classification.

8. Improvement in design.

9. Substitute material utilisation.

10. Automation.

11. Operational Research.

12. Quality Control.

13. Production Planning and Control.

14. Inventory Control.

15. Purchase Scheduling .

16. Job evaluation and merit voting.

17. Training and development.

18. Business forecast.

19. Market Research .