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SWP 52/89 CUSTOMER PROFITABILITY ANALYSIS: A NEW PERSPECTIVE

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Introduction

This article is based on research focussing on customer profitability analysis, sponsored by the ICMA, where the Researchers worked in depth with four prominent companies (the study companies). The objective of this article is to explore what general concepts and approaches arising out of this research could be used to provide marketing management with a framework for more effective financial analysis of customer profitability. It must be emphasised at the outset that our use of the term 'customer' refers to the direct purchaser from the supplying company, and hence should be clearly distinguished from the 'consumer' who may or may not be the direct customer of the company.

Customer Profitability Analysis is a technique which is currently the subject of growing interest. Interviews conducted during this research revealed a general consensus of opinion among marketing management that 'Pareto's Law' holds when it comes to the profitability of customers. In other words, 80% of a company's total profit comes from only 20% of their customers. It has been noted by other researchers such as Hill and Harland (1) that closer analysis of the above data reveals another 80/20 distribution. This time, 80% of the total costs of providing customer service are accounted for by only 20% of the customers, and also more importantly those 20% are not the same customers that appear in the top 20% by

profitability. They emphasise that the reason for this is that the costs of servicing customers can vary substantially. Yet most management have made no attempt to identify, isolate and quantify these costs. The reason perhaps is that the systems in most companies are geared to product costing but not customer costing, since the database was not designed with this in mind. The systems in all the study companies were traditional, well established and geared towards providing a product-orientated analysis of costs. The organisations were structured to reflect the key importance of products and brands and information systems were developed to produce all the information which facilitates such product costing and profitability analysis.

However, it was argued by the marketing management involved that whilst product cost information was essential, the most valuable asset a company has is its customer base. Unless customers generate revenue in excess of their costs of servicing, the viability of the business will be affected. In order to effectively conduct negotiations with customers and to formulate policies, answers were needed to such questions as:-

(1) Which customers give most profit from extra volume ?
(2) How far is it possible to give price concessions to specific customers ?

(3) What is the minimum level of volume required to justify continuing business with a customer ?

(4) What is the minimum size of an order for it to be profitable if it is given normal and/or emergency service ?

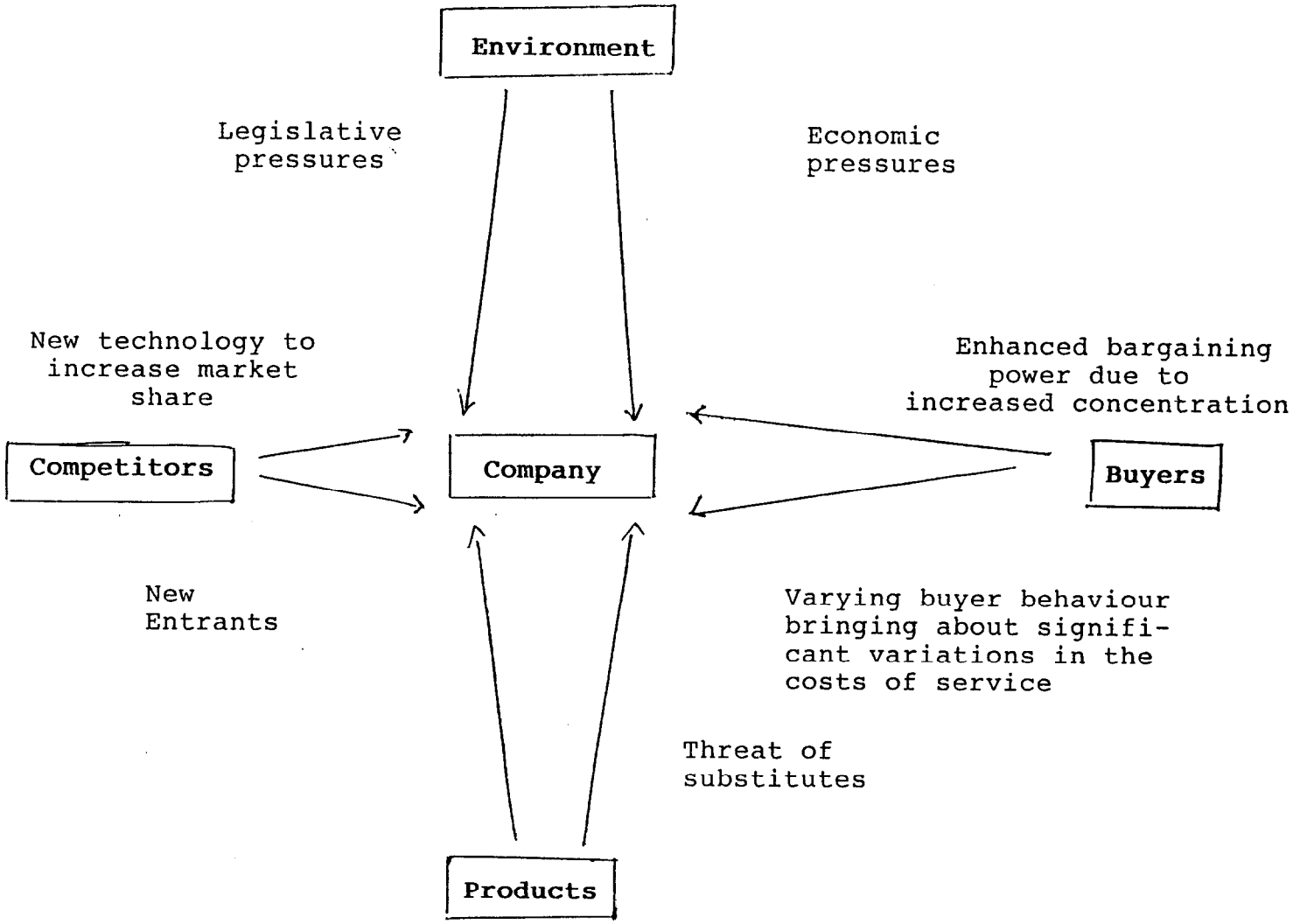
It was further emphasised by marketing management that traditional accounting theory and practice does not help to answer the above questions and hence negotiations are held and customer strategies formulated without full financial implications being considered.

Importance of Customer Profitability Analysis (CPA)

The last two decades have seen continuous changes in the environment which have increased pressures on the supplier and necessitated a change in outlook. It is now no longer sufficient to be aware of the profitability of products and product groups manufactured by the company. The success of a firm operating in a particular industry is affected by various forces some of which are shown in Diagram I.

The environment is now characterised by aggressive competitors who are constantly seeking new strategies to take the company's market share and there is always the potential threat of new entrants seeking a slice of the cake. Increased pressures from competitors have made it difficult for firms to avoid offering price reductions, or

Diagram I



Source: Porter, Competitive Strategy

to obtain price increases when improving their products or services. Interviews conducted at some of the companies visited revealed that attempts even to hold prices at current levels have led to loss of orders as key customers switched to competitors who were willing to offer more favourable prices. The frequency of technological innovations has increased dramatically bringing about shortened product life cycles. In addition extraneous forces in the environment such as government legislation have affected the flexibility of firms and changes in economic conditions have necessitated clearer understanding of the costs of making, servicing and transporting goods to the firm's customers. To compound the suppliers' problems, the last decade has seen an increase in buyer bargaining power due to increased concentration resulting in a fewer number of larger buyers rather than a large number of relatively small buyers as was the case ten years ago.

The above developments in the environment have changed many companies' emphasis from product profitability to customer/market segment profitability. In addition realisation has now dawned that buyers behave in different ways resulting in significant variations in the costs of servicing them. Thus in summary we can say that the last few years have seen an increase in interest in CPA which can be attributed to changes in the environment which have

dramatically affected the focus of management attention on the critical aspect of business success - customers.

Difficulties in implementing a system of CPA

There are a number of significant issues based on the findings of this research project which will be considered under the following headings:-

(A) Traditional structure of organisations.

(B) Traditional methods of cost collection, absorption and cost apportionment.

(C) Mental attitudes of accountants and marketing personnel.

(A) Traditional Structure of Organisations

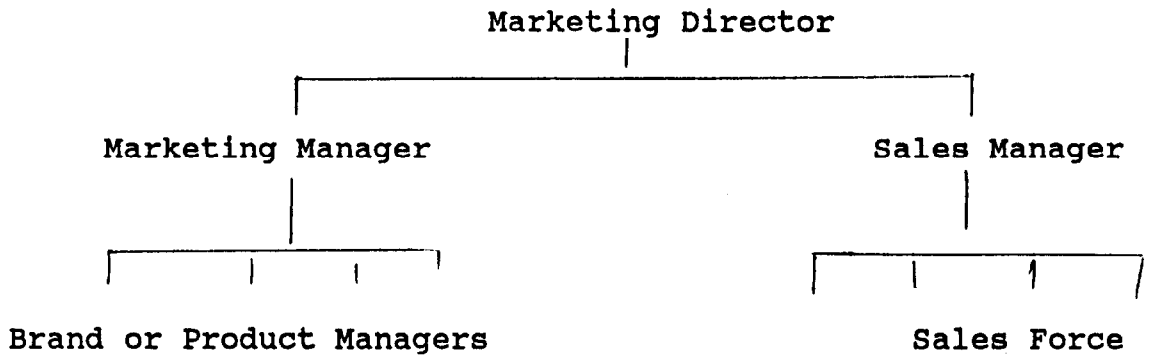
(i) Traditional structures facilitate product costing and analysis.

It has been noted that conventionally the key emphasis is on products and brands. Organisations are structured on a functional basis and costing systems are developed to produce all the information necessary for the marketing manager to manipulate brands to maximise profit. Hence the traditional structure of organisations hinders the development of a system of CPA. Since the product has remained the "cost centre" (in all the four study companies) it consequently

becomes impossible to establish profit targets in any way other than by product group.

(ii) Traditional structures hinders communication

The broad organisational structure of two of the study companies (two companies diverse in many respects but similar by the fact that they both deal with high value/low volume items) is shown below:-



This is also the traditional organisational structure of most fmcg (fast moving consumer goods) companies. This type of organisation often experiences difficulties in implementing a system of CPA. This has partially arisen as a direct result of centering costs and profits on "brands" or "products". The problem of developing a system of CPA is compounded (as was the case in one company) if the two arms perceive themselves to be in competition with each other, thus leading to a resistance to any sort of 'accounting for marketing' exercise. To elaborate, at one of the

companies the Sales Manager and Marketing Manager were competing for limited funds to finance their respective activities. Unfortunately it was perceived that the results of any accounting exercise would be used to judge the effectiveness of their respective efforts and hence limit the future funds made available to them. Thus the traditional structure hindered effective communication and generated attitudes resistant to any form of change.

In addition it can be argued that company procedures and traditions in both accounting and marketing often make it difficult for company executives and employees to effectively express the need for new procedures or to accept that they can be put into effect. This is a "cultural" or "institutional" barrier to change that can often be seen at the marketing accounting interface. One example was at one study company where company policy and tradition dictated that accounting for profit should be in terms of product divisions or factories, a tradition that makes it difficult for local affiliates to account for customer profitability. A further example was at another company where tradition dictated that the costs of marketing activities be classified as either "vertical" (activities where the end user is clearly identified) or "horizontal" (all other activities where the targets

cannot be clearly identified). The coding system was not clearly understood by the coding clerk concerned who coded all costs which were not totally clear into the horizontal category as being most convenient. The accumulation of a substantial proportion of costs under the horizontal category led the accounting personnel to believe that a system of CPA could not be meaningfully implemented. It was argued that allocation of costs for customers would be arbitrary and hence meaningless. In fact a clearer coding system designed after analysing the objectives and purpose of each marketing activity could ensure more meaningful cost classifications and hence attribution. The acceptance of overall company policy which dictated the particular classification used made it difficult for company executives to accept the need for change.

(iii) <u>The Corporate Accounting boundary limits information access</u>

Within corporations the boundaries between accounting units (between parent and overseas subsidiaries for example) can also serve to limit the information available to those units closest to the customer. Marketing subsidiaries are often not permitted access to a full cost breakdown. This clearly hinders any efforts to develop a system of the CPA.

However, assuming that the corporate accounting boundary does not exist and that the company management are willing to change company procedures and traditions in order to facilitate the development of a system of CPA, there remains the practical problem of defining what costs should be attributed and how. When attempting to attribute costs, should one try to attribute all costs ? If not, where should the line be drawn ?

Normally product costing is effected by accumulating functional costs and then apportioning such functional costs over budgeted company output using predetermined bases for allocation. In this manner a unit product cost is derived. In the study companies customer profitability analysis (where it was implemented) consisted of deriving a gross contribution by deducting from sales revenue the cost of sales, based on the unit product costs of the mix of items bought by the customer. For reasons to be discussed later this method is totally unsatisfactory.

(B) Traditional methods of cost collection, absorption and apportionment

(i) Traditional accounting techniques rely on "full cost" allocation. Often allocation of cost are based on rather arbitrary formulae and costing schemes are so

built up layer upon layer that the original sources of cost are lost from sight.

In the case of large firms manufacturing a very large range of items, the problem is compounded and many such firms face significant difficulties in even estimating costs by product let alone by customer.

(ii) Existence of Joint Costs

The existence of "joint costs" (i.e. costs arising from indivisible resources that may be used in different ways or to benefit several customers) may make it difficult to calculate the costs attributable to a particular customer or customer group.

An example of a joint cost was the Inspection & Quality Control Department at one of the study companies. The purpose of the department is to check that all company products are safe to use and meet strict guidelines. The attendant costs of running and maintaining the department (salaries of personnel, rent, etc.) is a joint cost since several or all customers benefit from the services of the department. One argument suggests that joint costs may not affect the profitability of individual customers/customer groups and hence can be ignored. However joint costs in such a manufacturing company could even amount to 65% of the total costs of

production and of servicing the customer. If such a large chunk of costs were to be ignored for the purpose of customer profitability analysis any answers obtained at the gross margin level would not be useful for strategic decision making. Accounting and marketing expressed conflicting viewpoints. Accounting felt that joint costs should be allocated using predetermined criteria. Marketing personnel on the other hand, pointed out that any form of allocation must be arbitrary thus making the whole exercise futile. They pointed out that allocation results in "averaging" of costs, and that no customer incurs an "average" cost to serve. Further customer profitability figures derived from allocated and reallocated costing data would be meaningless to them since it would not tell them the true costs of servicing a customer. They felt that new concepts were necessary but were not sure what the concept should be. (We advocated the use of the avoidability technique, a concept which will be discussed later in the article).

(iii) Absence of a Database

A common problem is that even where a database existed, the data base from which costs are estimated was not established with the aim of providing a system of CPA. To develop a system of CPA it is essential to adopt an integrated approach which views the functions of

production, warehousing, transport, order processing and advertising as comprising an inter-related system to provide service to an end product namely the customer. The traditional approach however views such functions as being separate and independent. Thus costs are allocated, analysed, and controlled on a functional basis. This is not conducive to customer profitability analysis.

(c) Mental attitudes of accountants and marketing personnel

In addition to organisational traditions and accounting practice which hinder the efforts to establish a system of CPA, the mental attitude of accountants and marketing personnel is a further stumbling block in the path towards resolving the issue.

The main factors are:-

(1) Many accountants do not seem to accept marketing as a distinct and separate managerial function, and hence do not give priority to either understanding its needs or solving its problems. Bancroft and Wilson (2) noted that such an attitude is an appalling indication of the failure of accountants to see the real essence of business activity (i.e. product market interactions) and of misplaced arrogance in looking down on a group whose purpose and function they do not clearly understand.

(2) Due partly to (1), most accountants use traditional techniques to provide customer orientated financial information to marketing management. However, marketing personnel expressed dissatisfaction with the results due to the complex systems of cost allocation and reallocation, which rendered the final figures unintelligible. They felt that radical thinking was needed on existing techniques and the fact that such thinking was not forthcoming was due to the cautious iconoclastic attitude of accountants.

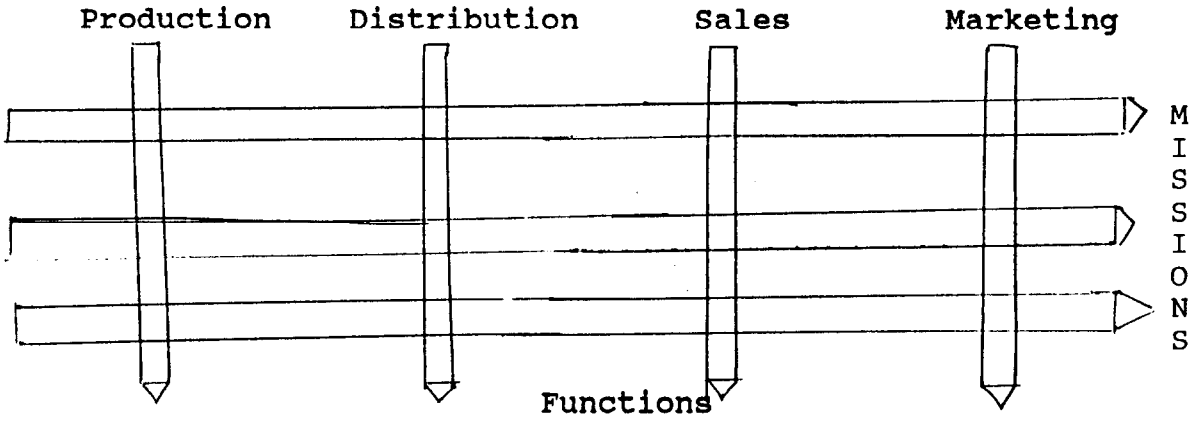
The concepts and methodology adopted for this project were selected bearing these problems in mind.

Concepts adopted

Traditional accounting in functional organisations concentrates on departmental costing in which each department is a cost centre. This gives good visibility to expenditures and allows them to be budgeted and controlled by departmental heads. Such costing has been of great value in helping to manage manufacturing costs and in providing brand managers with relevant unit costs of products.

However, when the focus of interest is customer profitability, a different outlook is needed, namely a "mission" orientated approach to analysing costs as opposed

to the functional approach traditionally adopted. This is because in most companies sales revenues are easily obtained in terms of customers, but gross margins and marketing sales, and support costs are not so easily obtained. The mission concept was first introduced by M Christopher (3) while developing the total cost approach to physical distribution. A diagram that illustrates the difference between functional management (and costs) and the cross functional aspects of the marketing mission is shown below:-



Christopher, Wills and Walters (4) note that the difference between the mission approach and traditional accounting practice is that traditional accounting methods have tended to concentrate on "who" does the spending (e.g. departments or functional areas within the firm) rather than on the "ends" to which these expenditures are related.

The basic idea of a mission is firstly to have a clearer understanding of the ends to which expenditures are related,

and then to relate all cost items to these ends by constructing a broad framework within which it is clear what resources are being devoted towards what end and with what results.

Conventional accounting theory and practice dictates that costs be controlled and monitored on a functional basis. However, even if all costs can be controlled to the satisfaction of the firm, that does not necessarily imply that the organisation as a whole is effective. A view that is increasingly being accepted is that the true objectives of the firm cannot be stated in terms of functional performance criteria, but rather in terms of "corporate missions" that cut across functional areas.

The main advantage of the mission concept is that it forces management to consider all relevant activities and attendant costs in the achievement of a selected goal.

The mission approach offers a perspective to examine all the activities associated with servicing customers so as to enhance understanding of how resources interact in differing ways to provide outputs to customers. It therefore helps to focus management thinking on customers. However the next step is to determine how costs should be attributed to customers. Conventional accounting theory which advocates allocation of cost is not suitable for making operational

the mission concept and thus developing a customer orientated costing system. The major defect of conventional absorption costing is its slavish and totally unnecessary adherence to the concept of complete cost distribution which means that every factory cost should be assigned. Shillinglaw (5) suggests that a better approach is to substitute another concept, the concept of avoidable cost. Shillinglaw defines avoidable costs as "the amount of cost that could be eliminated if the company were to discontinue a given cost centre, activity or product given enough time to make the transition from the present level of activity to zero". The Chartered Institute of Management Accountants in their official terminology state that it is "those costs which can be identified with an activity or sector of a business and which would be avoided if that activity or sector did not exist".

The concept of avoidable cost was utilised in the study companies as a useful tool for developing the mission concept.

It was felt that the concept had substantial advantages over both the traditional techniques of marginal costing and absorption costing

The advantages of the avoidability concept over conventional accounting techniques are:-

(1) Attributable costing ignores indivisible fixed costs, sunk costs, and committed costs on the basis that such costs would still be incurred even if a specific customer group/segment were abandoned. The avoidability concept only takes into account those costs relevant to a specific class of decision.

(2) The concept considers only those costs directly traceable to customer groups, and divisible fixed costs for which estimates can be made of the amount of cost which could be avoided by not servicing specific customers. Hence the concept reduces the averaging process inherent in existing accounting techniques.

(3) When considering what techniques could be used for attributing costs to customers, it must be emphasised that marginal (variable) costing is too narrow to fit the scope of the decisions to be made, while the existence of joint costs ensures that full cost (absorption) costing has no analytical meaning whatsoever.

(4) Attributable cost is not necessarily a good measure of long run marginal cost, but it is likely to be closer to measuring the cost impact of certain classes of decisions than either full cost or average variable cost.

(5) J Watts (6) Chief Accountant of British Rail has stated that the avoidable cost concept was used to aid British

(3) Gaining an understanding of how different resources are used to support the customer segments.

(4) Determining the data to be used and the time period for the analysis.

(5) Developing a framework for classifying the elements of cost which can be attributed to customers.

(6) Determining equitable methods for cost attribution of the above mentioned cost elements.

Each stage will now be considered individually.

(1) Determining how customers can be grouped or segmented

At the outset it is essential to group customers in a meaningful manner. The study companies used many different bases for segmentation. Some examples of which are:-

By Territory

At one of the study companies, it was revealed that segmentation was purely for administrative convenience. There were no genuine territorial differences in the marketing mix.

By consumer demographics

This is common in consumer goods marketing. Consumer demographics help to pinpoint differences in customer type by age, sex, income, social class, etc.

By buyer requirement

At another study company, segmentation was based on whether the company's product was merely a component

or assembly in the purchaser's own business, or whether the company's product was a finished good and sold without any further added value by the customer.

The following guidelines were used for defining or testing the definitions of market segments:-

(1) Are there groups of customers displaying common needs or other relevant characteristics ?

(2) Can the selected groups be clearly differentiated from others ?

(3) Are the selected groups each large enough to be serviced economically ?

The fundamental concern is that market segmentation starts not with distinguishing product possibilities but rather with distinguishing customer needs. Segmentation should comprise the sub-dividing of a market into distinct customer groupings where any customer grouping may conceivably be regarded as a market target to be reached within a distinct marketing mix.

(2) For these selected customer groups/segments develop an understanding of how each group is serviced (i.e. identify the factors which bring about variations in the costs of servicing those customers.)

Once customer groups/segments are clearly defined it is then necessary to consider how service offerings are differentiated as between customers.

In most companies, the supply chain of factory, depot, administration and sales effort requires different resources and different costs for servicing different customer groups. For example, export assignments are often packed more securely, have varying terms of trade (cif, fob), may be billed in different currencies, are covered by special credit insurances, require host nation labelling, may need host nation certification as to fitness for use, and so on. Many other examples exist, such as the differences between retail and wholesale, or value added markets.

As a first step in the analysis the concept of the marketing mix (illustrated in Diagram 2) was used in order to highlight the differences in the emphasis on individual mix elements between customer groups/segments. It was essentially a qualitative exercise whose results were tabulated as shown in Diagram 3. The tabulation shown in the diagram was used to understand how service offerings are differentiated between customers. When analysing customer costs, it is essential to understand the different ways the study companies did business with different customers.

This list did give some ideas as to the differential value as between customers. To illustrate, in one study company, it was found that for one customer, products were delivered to retail outlets spread over the country. Another customer was satisfied with delivery to a centralised common warehouse. The interesting feature was that the former customer obtained more favourable deals and discounts because, as a group, they purchased in greater volumes. But since the different branches are situated all over the country they were, in effect, attempting to promote sales to a customer whose individual branches were not covering the costs of servicing them.

Diagram 2

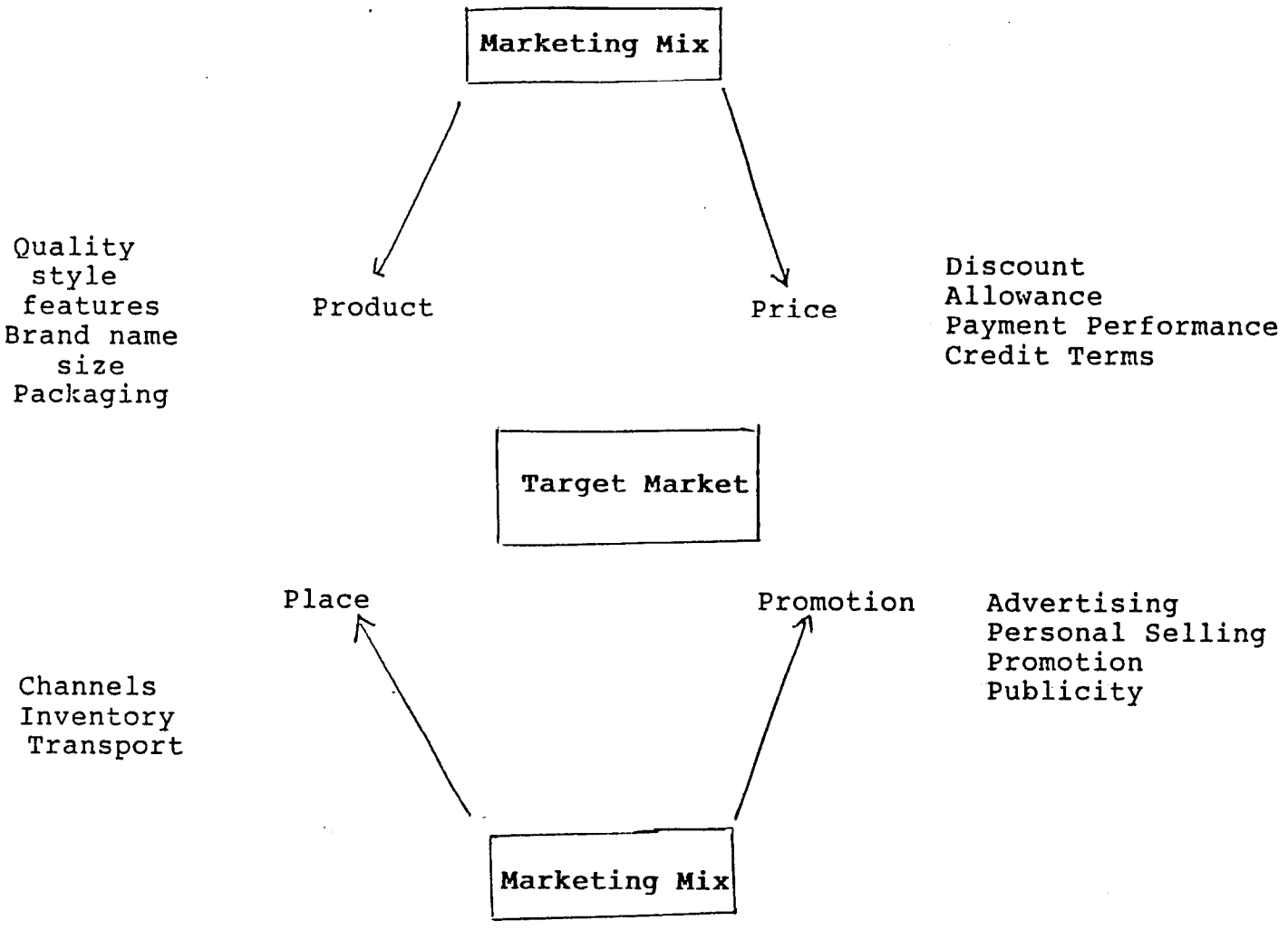

Marketing Mix
Quality
style
features
Brand name
size
Packaging
Product
Price
Discount
Allowance
Payment Performance
Credit Terms
Target Market
Place
Promotion
Advertising
Personal Selling
Promotion
Publicity
Channels
Inventory
Transport
Marketing Mix

DIAGRAM 3

MARKETING MIX

PRODUCT	- RANGE
	- PACKAGING
PRICE	- DEALS
	- DISCOUNTS
PROMOTION	- CORPORATE ADVERTISING
	- PRODUCT RELATED ADVERTISING
	- CONSULTANTS
DISTRIBUTION	- DIRECT TO WAREHOUSE
	- DIRECT TO RETAIL OUTLETS

CUSTOMER/CUSTOMER GROUP

X	Y	Z

The main purpose is if the list is prepared carefully we should get cost patterns emerging because of differences in the way different customers are serviced. To illustrate, there are differences in warehousing and stockholding requirements. Other differences are one customer has a central ordering system, in which instance the paperwork for the supplier is reduced. In the case of another customer, goods are ordered locally by their respective branches, in which instance the costs of servicing them will be higher. There are financial variations such as differences in payment terms offered and payment performance by the customer.

This tabulation helped in developing 'customer profiles' and facilitated the development of a framework for classifying the elements of cost which could be attributed between customers.

A specific illustration taken from one of the study companies, which was involved in manufacture and sale of industrial products, may clarify this point. Two of their customer segments are considered for the purpose of this illustration. The two segments considered were:

(a) Customers who buy in bulk for the purpose of reselling without adding any value to the product (whom we shall call "Merchants").

(b) Customers who add value to the product in a variety of ways (whom we shall call "Processors").

The matrix shown helped us to obtain a clearer picture of the type of service offerings which each group were offered and hence helped to gain a greater insight into the cost patterns which emerged as a result of servicing them. The two groups will now be discussed in brief.

Merchants

The product bought serves as an important component in a large part of their industrial market, especially in durable goods manufacture. By developing the 'marketing mix' matrix we found that for this customer segment the major variables that count are:-

(i) Consistency of quality.
(ii) Extent of the manufacturer's product line.

The buyer's main concern is price, and a seller who offers his product for a fraction of a penny less has the best chance of getting the order. The price reduction can come off the basic price or indirectly through volume discounts and/or more generous credit terms. Therefore these factors figure importantly.

Because other manufacturers (i.e. European competitors) offer similar terms, competition also takes place on a non-price front. An important variable is the seller's delivery reliability because the buyer's operation is geared to continual delivery. The supplier who reliably meets promised delivery dates has a comparative advantage. Hence the company has to hold stocks for the customers thus generating higher stockholding costs.

Company salesmen cannot make much of a difference if their company's price or delivery reliability is not right but can make a contribution by making and maintaining regular contacts. Advertising plays only a very small role usually taking the form of corporate image promotional activities.

Thus the major costs that emerged as a result of developing a matrix as shown in Diagram 3 and gaining a clearer understanding of 'merchants' behaviour patterns were:-

(a) Higher discounts/allowances.
(b) Higher cost of customer credit.
(c) Cost of stockholding on behalf of the customer resulting in the company tying up its resources in inventory.
(d) Cost of salesmen's time necessary to maintain regular visits.
(e) The attendant costs associated with maintaining high speed of service (low lead times, fast delivery).

Processors

Whilst the merchants only break bulk and sell to the end users, processors add value to the product, by additional manufacturing processes.

Thus this customer category requires exceptionally high standard output from a more specialised production process.

Such customers are far more quality conscious than merchants. The marketing mix differs from that required by merchants because the product has to be manufactured in many specialised variations to perform fairly different tasks. The buyer seeks specific criteria such as exceptional quality, strength and durability. The seller's ability to meet the required standard is an important factor in retaining the customer. A higher price can be charged since the buyers are willing to pay more for such factors as the seller's reputation, and extra styling.

Another important marketing variable is the seller's backup for the purchase - particularly delivery times, the availability of the different types required and service. Some of these factors may be in the hands of channel middlemen through whom the manufacturer sells. Advertising in trade journals plays a useful role in creating buyer awareness and interest in the company's product range. The promotional strategy also employs catalogues, trade shows, training films, and sales force contests.

Thus the servicing of processors generate different costs viz:-

(i) The "attendant" costs of producing high specification products.

(ii) Different types of advertising and promotional costs.

Thus the matrix helped us identify how cost patterns emerge because of differences in the way different customers are served.

(iii) Gaining an understanding of how different resources are used to support selected customer segments

When considering what costs are attributable to customers, an understanding of what resources are applied to supporting that customer or segment and how they are applied is essential. Examples of resources are headcount or personnel, by "grade" and function, buildings and inventories, warehouse and distribution equipment. As mentioned earlier, it is easier to attribute or assign costs to customers if one knows by what means they are being served, and what the other applications of each resource might be.

(iv) Defining the data to be used and the time period for the analysis.

In studying customer account profitability, it was decided to start from customer revenues. In many businesses, product revenues and gross contributions are well-established analyses that fall out of a marketing information system. Product cost data is often reasonably well established, either through a factory costing system or where products are imported by a marketing subsidiary through the transfer pricing

system. In either case these costs were used as a given datum unless there was a special reason for going into product cost in more detail.

Once the base data was determined, the next obvious step was to determine a suitable time period for analysing such data. Although sales analyses are usually available quite soon after a period end, the costs relating to purchased services are usually not recorded in the books of account until an invoice is received from the supplier. The accruals process gives reasonably sound financial accounting data but does not make for easy attribution of costs to period activities unless there are cost standards. To minimise the distortions possible in short periods it was decided to consider a relatively long period. In selecting a time period, it was borne in mind that if the period went back too far in time it may not be possible to prepare meaningful analysis from what remains of the underlying data.

The first task involved identification of the costs that could be traced directly to the segment or segments in question. The costs of a fleet of delivery trucks, for example, can often be traced entirely to retail or wholesale sales or to one region or another.

The next stage of the cost analysis involved following a sample of orders from order reception to final delivery in terms of order and product flow to identify relevant subfunctions. A subfunction is defined as a discrete area where cost is incurred in the fulfilment of each order. Once this was done the direct costs associated with each subfunction were studied. This reduced the element of subjectivity in relation to cost attribution. The chart below gives the result of this exercise for one part of one study company:-

	Order Processing	Stock-holding	Assembly	Transport	Total
Wages) - NI) - Overtime)	65,000	2,100	39,000	6,255	112,355
Packaging			7,000		7,000
Stationery	322				322
Insurance		721			721
Computer Lease	2,500				2,500
Telephone Charges	1,820				1,820
Motor Expenses				3,811	3,811
Interest			800		800
	69,000	9,633	48,000	10,066	136,141

In the above chart, interest cost is an imputed cost obtained by multiplying the average cost of inventory by the monthly cost of capital to the company.

It must be emphasised that the purpose of adopting this method is to avoid allocation routines and to consider only those subfunction costs which are directly traceable to the mission (i.e. customer segments). This of course means that not all of the costs of the individual functions will be assigned to the customers/segments. It also implies that the costs of certain resources which are utilised to service a number of customers may not be charged to any specific customer group due to the fact that the costs of the resource would not be avoided if the individual customers/segments were to be individually abandoned. What is being attempted is the calculation of the long run marginal cost of the customers/segments and thus the exclusion of such common costs is justified. The resulting calculated cost of servicing the customer has a significance which may be lost if the common costs were allocated.

Once the direct costs for each subfunction had been identified a mechanism for attributing these costs to the respective customers was developed. In this respect we used the concept of a "work unit" initially developed by Gordon Shillinglaw. A work unit is a factor that causes the subfunction to incur the costs in question. Thus for

example if we consider fuel costs, the work unit would be the number of miles travelled because this is the fact that causes the cost to be incurred. The main drawbacks associated with this method is that the work units may not be entirely homogenous - they may vary because of several factors rather than one single factor. However the governing factor selected was one that correlated most closely with the cost of carrying out the activity, hence the unit selected was a fairly reliable index. The selection of such units is not very difficult, the only practical problem is that different factors may be selected for a single activity. Thus, for example, the work units for loading labour costs could be either the number of pounds loaded or number of deliveries made, etc. An obvious solution is to try and reduce the number of measuring rods so that one index will serve a number of functions.

The process consisted of two steps, viz:

(a) Select work units or governing factors, after discussion with company personnel.

(b) Estimate cost volume relationships for each work unit, using the concepts of avoidability.

In adopting this process the principles applied were taken from the work of Barrett (7) who was responsible for

developing and implementing this technique. Each step will now be considered individually.

We now demonstrate how cost relationship can be established using the avoidability principle. For example, if we take the transport function of one study company the main work units are:

Element	Work Unit
Fuel, oil costs	Miles travelled
Routine delivery labour cost	Number of routes

Fuel Costs

It is possible to determine the cost of fuel consumed per mile travelled from manager's approximations.

Labour Cost

In the case of the study company, the firm had a policy of one vehicle and driver per route. Hence, the costs can be identified per route. The expenditure of the transport function can be reanalysed to quantify the costs which are avoidable by route. This can be summarised as follows:-

Labour Cost

Basic Pay		x
Pension		x
Holiday Pay		x
		x

Attendant Vehicle Cost

Insurance	x	
Depreciation	x	x

Avoidable cost per route per month	xx

Once the costs per route are identified it will facilitate more objective cost attribution. Thus the costs of a route can be identified with the specific customers who benefitted from it. It may be (for example) that customers A, B and C were serviced on route X. We know the costs which can be avoided if route X were not serviced. This cost can be attributed to the customers who benefitted from it. Once we identify the avoidable cost per route then there is the problem of how such costs should be attributed to customers within the route identified. But at least this is a more objective form of cost attribution than under conventional absorption costing methods. Under the present system adopted by the company, total distribution cost is absorbed over total company output and a budgeted distribution cost per unit of product is derived. This is basically an averaged cost and does not indicate the differential costs of servicing specific customers/customer groups.

Similarly if we consider the stockholding function.

Element	Work unit
Storage	Units stored
Insurance	Inventory value
Interest	Per £1 cost

Storage

In the case of customers where stock is specifically held for the customer, it may be feasible to attribute a notional cost for rent based on units stored.

Insurance

Given an assumption that the company operates on a 15% margin, and that insurance cost is directly related to the level of inventory held. The cost per £1 inventory investment per month based on a (say) £100 cost per month for inventory valued at £400,000 would be £0.00025. Under a policy of holding six weeks inventory, the insurance cost associated with £1 revenue would be £0.0003, i.e. (£0.85 for 1.5 months at £0.00025 per month. Thus a cost relationship has been established and it would be possible to attribute insurance cost based on sales revenue.

Interest

Again assume that the company operates on a 15% profit margin. Thus the acquisition cost associated with each £1

sales revenue would be 1.275 p (i.e. £0.85 for 1.5 months at 1.0% per month). In this instance an assumption has been made that the company's weighted average cost of capital is 12% per annum. Thus again a cost relationship has been established which enables us to impute interest cost based on sales revenue.

Once cost relationships are established it is then possible to charge the costs attribute to each customer.

Marketing and Sales Functions

The costs of the sales and marketing activities are not related to resources and analysis of these expenses followed an understanding of the purpose of the expenditure. All activities of the sales and marketing functions were analysed and reclassified as follows:

(1) Direct customer related.
(2) Sales force related.
(3) Overall market related.

The first step in an analysis of this kind is to identify the marketing, sales and administrative costs that are directly traceable to individual customers/customer groups. In our research we found that certain expenses are completely traceable to specific customers. Examples of these include free goods, attendant costs of special

exhibitions and displays at the customer's premises, etc. Diagram 4 indicates the type of activities in each category.

Once customer related activities are clearly identified, the attendant costs of these activities can be coded and attributed to the respective customer groups.

Sales force related expenses too can be attributed once we obtain an understanding of the basis on which bonuses/commissions have been granted. The underlying philosophy in attribution is to ask the question what costs (commissions, bonuses, etc.) would have been avoided if a specific customer group had not been serviced ? Management may have awarded commissions on the basis of turnover and it would then be possible to attribute costs using the avoidability principle.

The avoidability principle has the added advantage in that it helps focus on costs relevant to a customer. Thus, for example, the avoidability logic tells us that the costs of sales force training, etc. need not be attributed because training programmes would have been implemented irrespective of whether a customer group had been serviced or not. Hence, this is not an avoidable cost.

Now, let us consider overall market related activities. These are activities the costs of which cannot be directly

DIAGRAM 4

Reclassification of Sales and Marketing Programmes

Customer related	Sales force related	Overall market related
1. Specific price reduction	1. Bonus	1. TV Advertising
2. Free goods	2. Commission	2. Trade shows
3. Co-operative Advertising	3. Free gifts	3. Mail order campaigns
4. Extended Credit	4. Competitions	
5. Training customers	5. Sales force training schemes	
6. Provision of free services		
7. Demonstrations at customers' premises		

traced to customers. The objectives of such activities is to build the "corporate image" of the company. Examples are TV advertising campaigns, trade exhibitions, etc. In our research we found the costs of these activities to be substantial and amounting to nearly 80% of the total marketing expenditure of the companies studied without exception. The heavy expenditure was justified on the basis that it was the "critical mass" necessary to maintain the company's market presence.

As a first step in an attribution exercise, we felt it essential to ask the following questions for each activity:-

(1) What was the purpose of the activity ?
(2) Which customers benefitted from it ?
(3) Can the costs of the activity mentioned in (1) be attributed to the customers identified in (2) ?

To illustrate, consider one specific activity, namely a TV advertising campaign. It may not be directly customer related. But the customers who benefitted from a local Tv advertising campaign would obviously be those in the geographical area covered by the local TV station.

Similarly, let us consider another marketing activity, i.e. trade shows. The beneficiaries are the customers invited.

The bulk of the marketing expenditure relating to maintaining market awareness can now been broken down into chunks, each chunk of which can be attributed to the customers who benefitted from the campaign. However, the next problem is how should such costs be attributed between individual customers ?

Avoidability may not throw additional light at this juncture. For example, if we ask what costs would you avoid by not servicing an individual customer, the answer would invariably be nil or negligible. Thus, we would be moving ever nearer to answers at the gross margin level which is not useful for strategic decision making. In order to avoid obtaining answers at the gross margin level, we must consider ways of attributing costs. The costs of the above-mentioned programmes can be attributed in a wide variety of ways, none ideal but attribution itself seems unquestionable. Several methods were considered for each programme during the research. Let us continue the example of trade shows. The cost of trade shows can be attributed to customers in a number of ways, some of which are considered below:-

(a)	By Sales Revenues	(but this would penalise "good" or efficient customers)
(b)	By number of attendees	(but this might discourage customers from attending which would seem counter-productive).
(c)	By number of people invited	(but this would pre-empt the customer's rights to manage his business in the most effective way).
(d)	By total number of customers in the region.	(this might penalise the small or growing customer).

None of the above methods is "rational" and avoidability seems an irrelevant technique at the individual customer level, but might be applied to market segments or geographical areas. Perhaps in the case of the above the attribution of cost between all the customers in the region is the least worst, with a "break" or "holiday" for a new customer or small or growing customer for a short period.

We have discussed in brief the concepts to be used for generating customer-orientated financial information. We looked at how functional costs could be attributed to customers, and also looked at methods of analysing and attributing the costs of sales and marketing activities. A simple layout for presenting customer profitability information is shown in the layout.

Suggested layout for a Customer Profitability Statement

	£	£
Gross Sales Value		350,000
Less: Discount	18,000	
Net Sales Value		332,000
Less: Direct cost of goods sold	111,000	
Gross Contribution		222,000
Less: Sales & Marketing Costs		
Direct promotional costs	27,000	
Attributed expenditure	55,000	112,000
		110,000
Less: Distribution costs:		
Order Processing	1,800	
Storage and handling	38,500	
Inventory financing	21,000	
Transport	41,000	
Packaging	2,200	
Refusals	500	105,200
		5,800
Customer Gross contribution		
Less: Other customer related costs		
Credit Financing	3,200	
Returns	1,400	4,300
Customer Net Contribution		1,500

The format attempts to identify only those customer related costs which are avoidable (i.e. the costs which would not be incurred if the customer did not exist).

We start at the gross sales value of the order from which is then deducted the discounts given to that customer. This leaves the net sales value from which is deducted the direct production costs or costs of goods sold. When analysing customer behaviour patterns certain customers take up a disproportionate amount of the sales representative's and sales manager's time. If the sales representatives and sales management maintain time sheets it would be possible to attribute a notional cost based on the time taken by the customer. We did not allocate indirect costs such as national advertising. The costs of all the functions from the point an order is received to its ultimate delivery were attributed using the avoidability logic discussed earlier. This gives a more objective figure of the resources used to service that customer. Finally, other customer related costs such as cost of customer credit, are subtracted to give a net contribution to overheads and profit. The net contribution figure thus arrived at is more meaningful than the gross margin figures which were hitherto provided to marketing management by accountants. This is because gross margin is no indicator of a customer's net profitability. This could result in a situation where loss making customers are subsidised by more profitable customers, thus pulling

down the overall profitability of the firm. The use of net contribution figures would prevent this situation arising, further, it is enlightening to the company because as long as the net contribution is positive, then it is conclusive proof that the company would be better off with the business than without it.

The information could be used by Marketing Management as ammunition when negotiating future prices. Further, it could facilitate the development of more constructive marketing strategies. Marketing management can concentrate efforts on customers who are profitable and divert valuable resources away from unprofitable accounts.

CONCLUSIONS

If an effective system of CPA is to be developed, it is obviously vital to group customers or segment the market in a meaningful manner. In doing this the concept of the marketing mix should be used to identify any similarities/differences between the customer groups/segments, and to highlight those factors which bring about variations in the costs of servicing the different segments. Once operational and service patterns are identified, it will be easier to develop a system for quantifying those costs.

It is important to remember that there are many ways of doing business with corporate customers. Negotiating, ordering, accounting and delivery points may each be concentrated in one place or spread among many sub-units of the customer organisation. Doing business with one customer may be a relatively low cost process; doing business with a similar customer differently organised may give rise to far higher costs. The very simplistic idea of "customer" as contained in the sales ledger, may in reality be highly complex when it comes to accounting for the relevant costs.

The justification for introducing CPA are to enable better decisions to be made regarding allocation of resources and setting of priorities for different groups of customers. This decision orientation strongly argues against traditional costing apportionment systems and in many cases the adoption of the avoidable cost concept provides much better information. However avoidable cost, by its very nature, does not result in spreading exactly the total cost incurred across the various customer categories and accountants must learn to put up with the 'untidiness' of such a system if it aids the decision making process. It can also be seen that the current state of development of the avoidable cost concept is not a complete solution to the needs of CPA. Thus there is room for considerable further research and refinement, and possibly the development of additional techniques in this area.

As management thinking progresses and focuses more sharply on customers, it becomes relatively easier to analyse and charge costs to customer accounts. It has been said that the most valuable asset a company has is its customer base. Certainly no business can exist without customers and unless they generate revenue in excess of the costs of servicing them, at least in aggregate, then the business will not survive very long. The purpose of this article is to recognise that the costs of servicing customers can vary substantially and to show how the initial steps could be taken in the direction of devising a customer orientated management accounting system.

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