



The implementation of customer profitability analysis: A case study

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Abstract

By using customer profitability analysis (CPA), firms can determine the profit contribution of customer segments and/or individual customers. This article presents an approach for the implementation of CPA. The implementation process is illustrated using a case study of a firm producing and selling professional cleaning products. The case study highlights specific issues related to CPA in an industrial setting, and the results provide examples of the possible benefits of implementing a process of regular CPA.

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1. Introduction

Within any given customer base, there will be differences in the revenues customers generate for the firm and in the costs the firm has to incur to secure those revenues. While most firms will know the customer revenues, many firms are unaware of all costs associated with customer relationships. In general, product costs will be known for each customer, but sales and marketing, service, and support costs are mostly treated as overhead. Customer profitability analysis (CPA) refers to the allocation of revenues and costs to customer segments or individual customers, such that the profitability of those segments and/or individual customers can be calculated.

The impetus for the increasing attention for CPA is twofold. First, the rise of activity-based costing (ABC) in the 1990s led to an increased understanding of the varying extent to which the manufacturing of different products used a firm's resources (Cooper & Kaplan, 1991; Foster & Gupta, 1994). When using ABC, firms first identify cost pools: categories of activities performed within the organization (e.g., procurement). For all cost pools, cost drivers are identified: units in which the resource consumption of

the cost pool can be expressed (e.g., number of purchase orders). Costs are then allocated to cost objects (e.g., products) based on the extent to which these objects require certain activities (measured in cost driver units). Once it became accepted that not every product requires the same types and same levels of activities, it was a small step to see that customers, too, differ in their consumption of resources. The size and number of orders, the number of sales visits, the use of helpdesks, and various other services can be very different for each customer. Consequently, some customers incur more relationship costs than others, leading to different levels of customer profitability. Although this has long been recognized, it fits better in the logic of ABC than in the traditional costing systems. Second, information technology makes it possible to record and analyze more customer data—both in type and in amount. As data such as number of orders, number of sales visits, number of service calls, etc. are stored at the level of the individual customer, it becomes possible to actually calculate customer profitability.

It is considered good industrial marketing practice to build and nurture profitable relationships with customers. To be able to do this, a firm should know how current customer relationships differ in profitability, as well as what customer segments offer higher potential for future profitable customer relationships. CPA can deliver such knowledge. While many publications extol the virtues of knowing which customers are profitable and which are not (Cooper &

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Kaplan, 1991; Jacobs, Johnston, & Kotchetova, 2001; Shapiro, Rangan, Moriarty, & Ross, 1987; Storbacka, 1997), most publications provide no more than a cursory description of the actual implementation process of CPA. One notable exception is the case description by Noone and Griffin (1999) set in the hotel market. Firms operating in industrial markets face specific implementation issues however. These issues are related to characteristics such as the use of account management and personal selling, indirect selling via distributors, maintenance and repair services, demonstrations of equipment at customer sites, and extensive discounting and bonus structures for customers and distribution partners. The objectives of this article are to develop a general approach for the implementation of CPA in industrial firms and to share what was learned from the actual implementation of such a process in one national subsidiary of a multinational industrial firm.

2. The potential benefits of CPA

The direct benefits of CPA lie in the insight it provides in the uneven distribution of costs and revenues over customers. The information on the spread of costs among customers will be valuable in particular, as the distribution of revenues will generally be known to the firm. This insight in the extent to which specific customers consume the firm's resources generates new opportunities for the firm in three areas: cost management, revenue management, and strategic marketing management.

First, CPA uncovers opportunities for targeted cost management and profit improvement programs. Published figures show examples where 20% of customers generate 225% of profits (Cooper & Kaplan, 1991), where more than half of the customers is unprofitable (Storbacka, 1997) or where the loss on a customer can be as high as 2.5 times sales revenue (Niraj, Gupta, & Narasimhan, 2001). CPA, as a specific application of ABC, reveals the links between activities and resource consumption, and it therefore points directly to profit opportunities (Cooper & Kaplan, 1991).

Second, CPA provides a basis for well-informed pricing decisions, bonus plans, and discounts to customers. It shows why filling some orders cost more than others and enables firms to have their prices reflect those differences (Shapiro et al., 1987). In a similar vein, it can help improve decision-making about discounts. In the absence of intricate knowledge about customer-specific costs, discounts are often based on sales volume. An analysis of customer profitability may well show however, that some of the large customers are in fact unprofitable customers (cf. Cooper & Kaplan, 1991; Niraj et al., 2001). The analysis outcomes may also help in revising existing discounting structures to improve profitability (cf. Kalafatis & Denton, 2000).

Third, CPA opens up possibilities for segmentation and targeting strategies based on cost and profitability profiles. Some companies have segmented their customer base in

platinum, gold, iron, and lead customers, based on their contributions to profits (cf. Zeithaml, Rust, & Lemon, 2001). Storbacka (1997) proposes a two-dimensional segmentation based on profitability and volume. Firms can subsequently develop segment-specific service concepts, based on the sales volume and profitability of customers (Thomassen, 1998; Zeithaml et al., 2001). Moreover, a classification based on volume and profitability can provide direction for customer retention and customer development programs, particularly when future sales potential is also taken into consideration. Highly profitable customers need to be retained, small, unprofitable customers with little potential may be referred to downstream distributors, while small or less profitable customers with high potential need to be developed into larger, more profitable accounts. This line of thinking can be extended from current customers to potential customers, as an analysis of the most profitable current customers points to where the most profitable new customers can be acquired.

These potential benefits of CPA are frequently cited in the literature. Yet the issues arising in actually implementing CPA are seldom discussed. In the next section, an overall approach for the implementation of CPA is presented.

3. An overall approach for implementing CPA

The actual calculation of customer profitability amounts to an extensive ABC exercise. To make CPA really useful, the implementation should go further than drawing up a customer profitability model and plugging data into it, as the value of the analysis is in the actions based on better informed decision-making. Therefore, a six-step approach to implementing CPA is suggested. This approach, outlined in Fig. 1, provides a directive for a team consisting of at least a marketer and a management accountant. Depending on the characteristics of the firm and its information systems, the team can also include operations managers and information specialists.

The implementation process starts with scrutinizing the list of current customers. Many customer databases contain details of customers who no longer have a relationship with the firm (Mulhern, 1999). Step 1 of the implementation process deals with the identification of the "active" customers in the customer database to assure that costs are allocated to active customers only. In general, a first analysis of customer profitability will be done retrospectively (i.e., using historical cost and revenue data). Active customers will be those customers that have placed at least one order during the period under consideration.

The next step in the implementation process is the design of the customer profitability model. In this step, the firm's operations have to be scrutinized to see what activities are performed, and what drives the costs of these activities. For example, the cost driver of sales activities can be the number of sales visits; the driver of order processing activities can

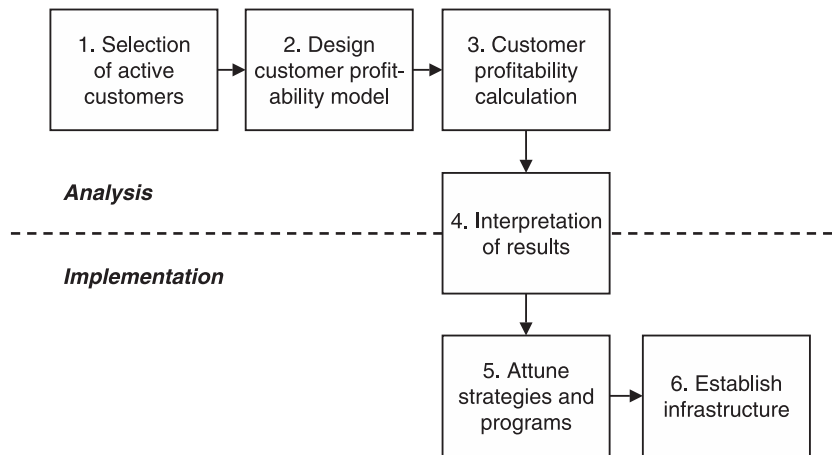


Fig. 1. An overall implementation approach for CPA.

be the number of orders. Ultimately, all costs should be assigned to activities, and for each activity, appropriate cost drivers should be identified.

The actual calculation of customer profitability is performed by supplying the customer profitability model with data. Discounts, rebates, and customer relationship costs (e.g., sales costs, service costs, logistics costs) will be subtracted from the individual customer's sales revenues. This is where the bulk of the implementation work lies. Taking sales activities as an example, data have to be collected on the costs of all sales activities, the total number of sales visits made by all sales persons, and the number of sales visits paid to each individual customer. The level of detail will be determined by data availability and by practical considerations. For example, each sales visit can be assigned a standard cost or the length of a visit (time spent at the customer) can be taken into consideration. The latter is more precise, but it requires more effort to record. As will be shown in the case example, firms who perform this analysis for the first time will find that while many data will be available in various databases, certain data simply is not yet available within the firm. Other calculations might be very costly to perform, as data in different formats, coming from different databases, might have to be converted manually.

The fourth step is concerned with the interpretation of the results. The profitability figures depend upon choices that were made in the second step. The first rough calculations will probably produce unexpected profitability figures that may well be met with a fair amount of disbelief. The largest customer may be one of the least profitable, for some customers, discounts might exceed their profit margin, and significant differences may be found across customer types. The results may also warrant refinements of the model. The allocation of costs to cost drivers and customers may have been based on oversimplifications or inaccurate estimates, and the CPA team may choose to review some of its earlier decisions to arrive at a more accurate distribution of costs.

In the fifth step, the results of the CPA are used to improve customer relationship management (CRM) strategies, as well as cost management and pricing programs. Profitability figures may indicate that service levels for certain customers or customer segments need to be reduced in light of current costs and revenues, while other customers may be so profitable that extra spending on customer retention is justified. Changes in strategies come accompanied by changes in objectives, as well as with changes in performance evaluation and rewards systems.

The sixth and final step deals with establishing the necessary infrastructure for the continued use of CPA. Embedding CPA in the daily routines of sales and marketing and accounting may well necessitate changes in procedures (e.g., marketing planning), changes in responsibilities, and changes in systems (e.g., information systems). The next section presents the application of this six-step approach in a business-to-business setting.

4. The implementation of CPA in an industrial cleaning firm

The case organization is one of the national sales offices of a multinational firm that engages in the development, production, sales, and marketing of professional cleaning products (chemicals, cleaning systems, and consumables). Among the firm's main markets are industrial laundry, office cleaning, hotel cleaning, kitchen hygiene, and personal hygiene. Its products are sold directly (to large end-users such as in-flight caterers and to service integrators such as professional cleaners), as well as through distributors. The firm has divided its market into market sectors based on the nature of the end-user (e.g., healthcare, lodging, or dairy). As with many industrial firms, this firm employs a considerable sales and service force. The sales force is responsible for the initiation, maintenance, and development of customer relationships. The service force is responsible for

order processing, customer training, advice, product demonstrations, maintenance, and repair.

A number of developments fueled the firm's interest in CPA. Following a number of years of profitable growth, sales and profitability were now slowing. Sales volume was under pressure in a saturating market; buyer concentration and increased competition among sellers limited the possibilities for price increases. At the same time, value-added services had become increasingly important for the firm to sustain its position in the high end of the market. This meant that the share of non-product costs had increased vis-à-vis product costs. And precisely those non-product costs (e.g., personnel costs) were constantly on the rise. In the existing accounting system, these non-product costs were predominantly classified as overhead costs, and as such, were not attributed to individual customers.

The firm wanted to attain four goals with the implementation of CPA:

1. an improved understanding of the firm's sources of profitability;
2. an improved understanding of the relationship between (characteristics of) customers and costs;
3. an improved understanding of the relationship between the behaviors of employees and costs;
4. better informed decisions about the allocation of resources to customers and market sectors.

In the first half of 2000, a team was formed to investigate the possibilities for the implementation of CPA. The CPA team consisted of a marketer, a management accountant, and an information specialist. The team was first assigned the task of calculating the profitability of the firm's 18 market sectors. Preliminary analyses of the available data showed that it was necessary as well as feasible to calculate the profitability of individual customers and customer locations. The team charter was thus expanded to include profitability analyses for all direct and indirect customers for whom data on revenues and sales, service, and marketing activities were available. The first task of the CPA team was to define the "customer" and to set up a database of customers that were to be included in the analysis.

4.1. Step 1: Selection of active customers

Although the term *customer* is generally used as an unambiguous term, its definition is not so straightforward in many industrial firms, where both direct and indirect channels of distribution are used. Should, for instance, wholesalers be included in the analysis, or end-users only? The CPA team defined the *customer* as:

the recipient and user of products and services in a relationship with the firm. A customer consists of one or more geographically dispersed locations.

This definition implies that wholesalers and distributors are excluded from the CPA. This choice was made because the firm was specifically interested in the costs of sales and service end-users required, as compared to the revenues generated by these end-users. Since CPA requires both cost and revenue information, the firm had to look to wholesalers to gather information on end-user revenues. For many distributors, the firm had access to information about sales to end-users. Where such a partnership of information sharing did not exist, the revenues generated through these distributors had to be excluded from the analysis. Finally, only those end-users that had placed at least one order during the year 1999 were considered "active" customers; others were excluded from the analysis. The CPA team decided to calculate customer profitability per location, as the analysis was expected to show differences between different locations of the same customer. These differences in profitability could lead the firm to employ different service levels for different locations of the same customer. A total of 22,500 locations were included in the analysis.

4.2. Step 2: Design of customer profitability model

The next step is to identify the main activities that take place in the organization to serve its customers, determine how much resources are consumed by each activity, and assign the cost of activities to customers based on their consumption of resources (Cooper & Kaplan, 1991; Foster & Gupta, 1994). In this case, the team used the existing management accounting system as the starting point for the identification of relevant cost categories. The cost categories (or cost pools), presented in Table 1, were evaluated on their relation to individual customers. Several cost pools could be directly traced to a customer; others had to be allocated using an appropriate allocation rule. Whether certain costs are direct or indirect depends upon the structure of operations. For example, the logistics activities are outsourced to a third party, who charges each order shipped to a customer separately. Consequently, the logistics costs per order can be directly traced to the customer. Should the firm itself handle the logistics, the costs of warehousing and distribution

Table 1
Cost pools and cost drivers

Cost pool	Cost driver
<i>Direct costs</i>	
Logistics	costs charged by logistics partner
Order processing	number of orders placed by customer
Technical service	service hours spent by mechanics at customer
Customer consultants	consultant hours spent at customer
Equipment	cost of equipment placed at customer
<i>Indirect costs (sector specific)</i>	
Sales	sales volume
Marketing	sales volume
Product development	sales volume
Business development	sales volume

would be indirect costs that would have to be allocated using rules such as weight of shipment and distance to warehouse.

Indirect costs, such as marketing overheads, were attributed to customers using cost allocation heuristics. The existing management accounting system allowed for an attribution of marketing costs to individual sectors; within sectors, marketing overhead costs were allocated to individual customers according to their gross sales. Thus, product development costs were allocated to customers in sectors where resources on product development were spent. Firm level overhead costs, such as office housing costs and general overheads, were not included in the customer profitability model. Product costs did not have to be calculated separately since the transfer prices charged by the production locations were known.

This process of attributing costs to individual customers is a constant balancing act between increasing the accuracy of the allocation of costs and the efforts that are needed to achieve that increase. Furthermore, the allocation of costs is restricted by the availability of information. In this specific case, the availability of end-user data was restricted by the willingness of distributors to disclose their sales data. Thirty-five percent of indirect sales (i.e., sales generated through distribution) was not attributable to individual end-users.

The allocation of costs to customers was also restricted by the fact that sales representatives did not keep a registration of their hours spent. Sales costs now had to be allocated to customers as a percent of sales volume. Since sales representatives worked for a specific market sector, it was possible to allocate sales costs within sectors, thus making sure that customers in sales intensive sectors were allocated more sales costs. As costs of the sales force were almost 10% of sales revenues, the firm decided to implement time registration for the sales force per January 2001.

Because the sales representatives did not record time, no distinction could be made between sales costs incurred for active customers and sales costs incurred for prospects or customers that were being called upon, but refrained from placing an order. While this is unfortunate, the only consequence for calculating individual customer profitability numbers is that the allocation percentage reflecting the sales costs will be somewhat higher. This does not affect the *relative* profitability of active customers.

4.3. Step 3: Customer profitability calculation

A stand-alone spreadsheet was used for the actual calculation of costs and revenues per customer. A large number of data sources had to be pulled together to combine all the data that were needed to do the calculations. Data on revenues, costs, and individual customer's consumption of resources were collected from a diverse set of databases, spreadsheets, CRM applications, and enterprise resource planning (ERP) software. For a number of customers,

certain costs had to be calculated manually because the existing accounting system did not register these costs per individual customer. The CPA team was quite surprised to find that a lot of the data that was needed for the customer profitability calculations was readily available in the organization. The exercise identified the various disparate locations of revenue and cost data and centralized the management of those data. The final spreadsheet with all the data needed to perform the calculations counted 22,000 rows by 100 columns.

Prior to the actual calculation of customer profitability, management expected to find that there would be a small number of customers generating a large proportion of profits, a large group making about break-even, and a limited number of customers accounting for a loss. This proved not to be the case however. Variations in profitability between seemingly similar customers were unexpectedly high. Furthermore, the results for some customers were so disappointing that immediate action was required. The analyses uncovered that a relatively small customer in industrial laundry was granted such high discounts that a price increase of nearly 60% was needed to make the account profitable again. In another case, a customer with the habit of placing a large number of very small orders was asked to change its ordering behavior to bring the relationship costs in line with sales revenues. The customer ignored these requests and is no longer served by the firm. Accounts that were exceptionally unprofitable were dealt with immediately, while more elaborate analyses were performed on the customer base as a whole.

4.4. Step 4: Interpretation of results

Various aggregations and cross-sections of the customer base were made to interpret the outcomes of the analysis. This was first done at the customer level, rather than the location level. This is because in case of multilocation customers, agreements on discounts or support levels are negotiated at the customer level rather than at the level of individual locations. First, the results were presented in a customer pyramid (cf. Zeithaml et al., 2001). In this customer pyramid, the customer base is split into four tiers, based on customer turnover. Comparisons can be made among top customers, large, medium-sized, and small customers. The customer pyramid for this specific firm is presented in Fig. 2.

The largest 20% of customers were not responsible for 80% of revenues as the 20/80 rule suggests (see e.g., Howell & Soucy, 1990), but for 93% of revenues and for 95% of profits. It is not surprising that the top customers account for the largest share of absolute profits, but do they also have higher profit margins on their revenues? Some authors suggest that the segments below the top-tier have the highest profit margins (see e.g., Howell & Soucy, 1990; Kotler, 1997). Table 2 shows that the large and medium-sized customers indeed have a higher profit margin than the top

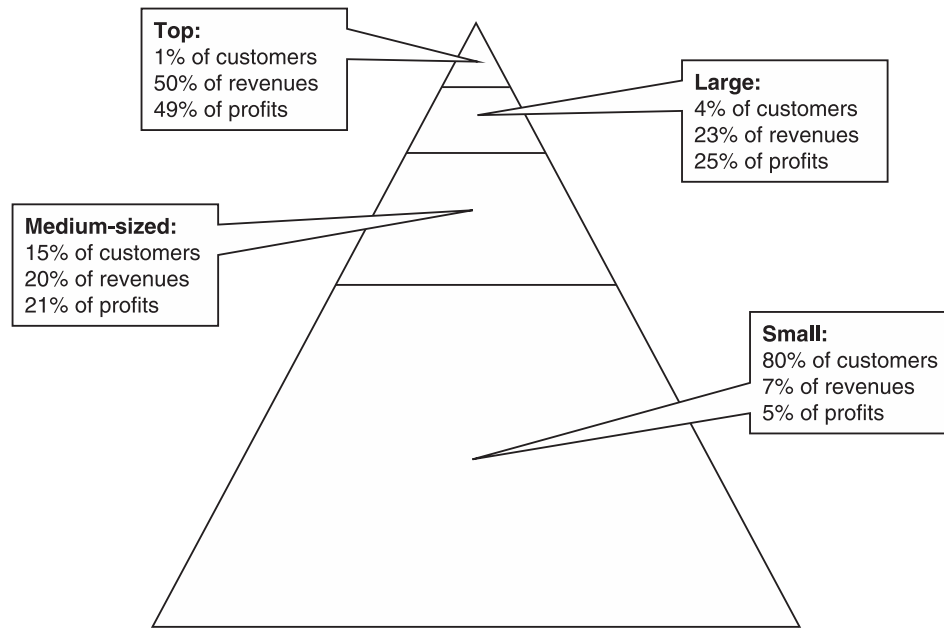


Fig. 2. This firm's customer pyramid.

customers and the small customers. A closer analysis reveals that there are three factors that explain these profitability figures. The first is the gross margin (i.e., revenue minus product costs): Both top customers and large customers use their bargaining power to command lower prices, leading to lower gross margins. The second factor is logistics costs (including order processing): Due to exchange efficiencies, the logistics costs of top and large customers are substantially lower per sales dollar compared to small and medium-sized customers. The difference between top and large customers is due to a third factor, customer support costs: Top customers command higher levels of support and hence generate twice as much support cost (per sales dollar) than large customers.

The analyses of activities, cost drivers, and the relationship between profitability and size led the CPA team to take a closer look at the profitability of individual locations within multilocation customers. The CPA team and company management shared concerns that the services to the smaller locations of big multilocation customers might involve extremely high costs when compared to the revenues of these small locations, as big multilocation customers are able to negotiate higher service levels for lower prices. These concerns are backed up by the data, as can be seen in Table 3. In this table, the profitability of individual

locations is used, rather than the aggregated customer profitability. Clearly, the smaller locations of multilocation customers are less profitable.

Another way to look at the customer profitability data is to analyze the *distribution* of profitability. Storbacka (1998) has introduced the Stobachoff curve, which provides a graphical representation of the distribution of profitability. First, all customers are ordered from highest absolute profitability to lowest absolute profitability. With this ordered array of customers on the horizontal axis, the cumulative profits are plotted against the vertical axis. Fig. 3 shows this firm's Stobachoff curve.

Such customer profitability curves will often show a cumulative profit that quickly crosses the 100% line, dropping back to 100% cumulative profitability after all unprofitable customers have been added to the total. In certain industries, Stobachoff curves have been found to reach the 200% cumulative profit line (Cooper & Kaplan, 1991; Storbacka, 1998). The shape of the curve says something about the vulnerability of the customer base. The size of the area under the curve is an indication of the degree of subsidizing in the customer base. A large area means that some customers with very high profits subsidize other

Table 2
Customer size and profitability (relative profitability is presented as an index relative to overall average profitability)

Customer size	Relative profitability
Top (1%)	93.2
Large (2–5%)	103.9
Medium-sized (6–20%)	100.6
Small (21–100%)	67.1

Table 3
Location size, customer configuration, and profitability (relative profitability is presented as an index relative to overall average profitability)

Location size	Relative profitability	
	Single-location customers	Multilocation customers
Top	93.5	109.0
Large	105.2	103.2
Medium-sized	100.3	79.0
Small	12.3	– / – 4.2

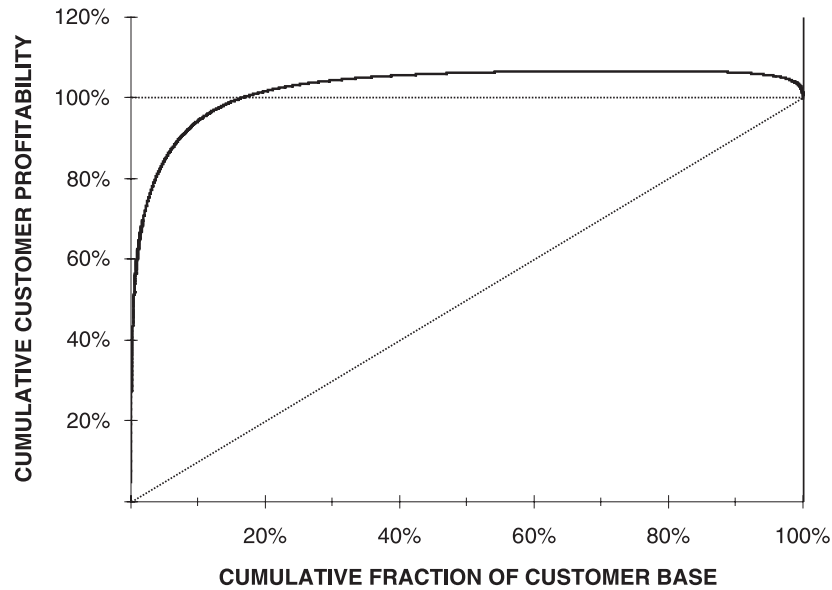


Fig. 3. This firm's Stobachoff curve.

customers with negative profits. When combined with a measure of dependence (the proportion of profitable customers), the vulnerability of the customer base can be determined. Fig. 4 shows four possible combinations of subsidizing and dependence (note that all four quadrants depict an equally profitable firm). While the CPA team concluded that, for the firm as a whole, both the subsidizing effect and the dependence were limited, a further analysis of profitability distribution was executed for the various mar-

ket sectors. This analysis showed that 4 out of 13 market sectors had a high degree of subsidizing, with two of these sectors also scoring high on dependence.

The firm used a series of workshops per market sector to disseminate the outcomes of the CPA. When sharing the results with managers and customer account teams, the CPA team was not always met with enthusiasm for the new insights. They sometimes encountered disbelief, denial, and resistance. Account managers could not believe nor accept

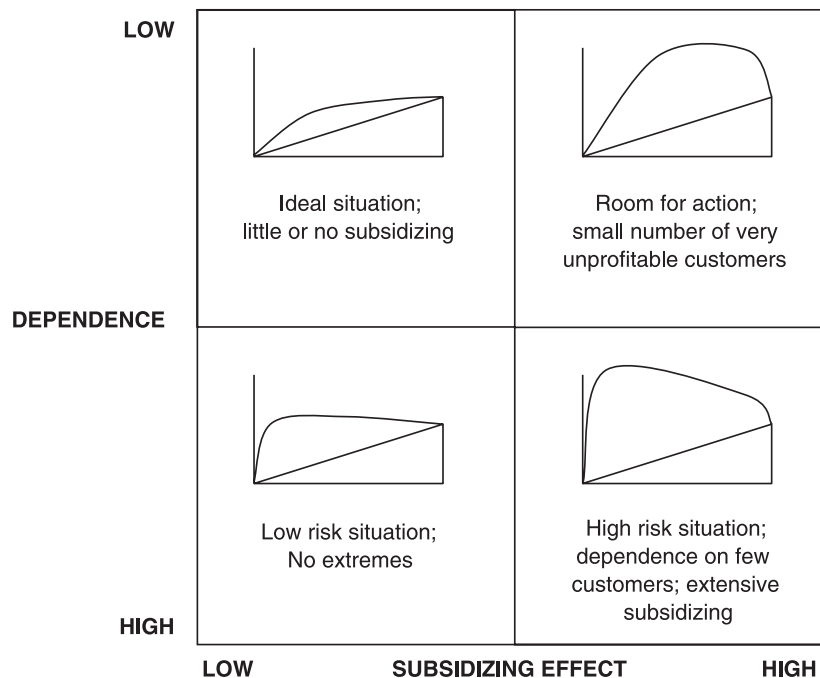


Fig. 4. Stobachoff curves for varying levels of subsidizing and dependence (based on Storbacka, 1998).

that some of their largest accounts were found unprofitable. By and large, however, most account managers realized that they were handed a useful tool for decision-making about the deployment of resources towards market sectors, individual accounts, and customer locations.

4.5. Step 5: Attune strategies and programs

The new insights in the profitability of individual accounts had an immediate impact on strategies, programs, and actions. Account managers now had profitability figures available for their customers that could be used to make better day-to-day marketing decisions. One example relates to an in-flight caterer who had repeatedly asked for a price discount. The profitability figures for this customer showed that, due to the time-critical operations of the caterer, technical service costs amounted to almost one-third of revenues. Furthermore, the caterer's ordering frequency was high. With all costs taken into account, the firm was losing money on this customer. The outcomes of the profitability analysis made it possible for the firm to show what it invested in the relationship, and instead of extra discounts, agreements were made about ordering frequency and service levels.

The profitability analysis outcomes do not only help account managers make decisions about pricing and service levels, it also aids them in allocating the time of the sales teams to customers where (potential) profit is highest. Previously, these decisions were generally based on (potential) volume. To stimulate this new profit thinking instead of the existing volume thinking, the bonus system for sales managers and account managers was adapted to reflect rewards based on *profitable* sales growth, not just on sales growth alone.

The results also provided support for a differentiated CRM strategy that the firm had introduced around the time the customer profitability project was started: a "small business" concept with more standardized, low-cost services for smaller customers. This differentiated approach should help alleviate the disappointing profitability figures for small customers and small customer locations. But while many firms may be tempted to concentrate exclusively on taking measures towards unprofitable customers, this firm chose to give extra attention to the profitable customers, especially in those market sectors that showed a vulnerable customer base, i.e., those sectors showing a high degree of dependency. Profits depended on a limited number of customers in those sectors and special care was taken that those customers were not underserved. The firm was taking its first steps towards service differentiation based on customer profitability (cf. [Storbacka, 1997](#); [Thomassen, 1998](#)).

4.6. Step 6: Establish infrastructure

The final step in the implementation process is to establish the infrastructure that is needed to perform CPA

on a regular basis. The firm decided it would perform a CPA every 6 months. This first time, the CPA was run as a project, with a temporary project team, a stand-alone database, some improvised calculations, manual database conversions, a trial-and-error approach, and a spirit of learning by doing. Bit by bit, this process now had to be formalized, while the analyses themselves could be made more sophisticated.

For many firms, the backbone of regular CPA will be a dedicated CRM system. While this firm did not rule out the purchase of such a system in the future, the immediate focus was on creating the infrastructure for generating accurate costing information. Therefore, following this first implementation of CPA, it was more important to the firm to have accurate figures for the total level of the activities, and the consumption of resources. Thus, somewhat paradoxically, a first implementation of a CPA system focused on the firm activities rather than the individual customers. Once the departmental and accounting legacy systems are assured to produce accurate cost and activity data, attention can shift to the purchase or development of a CRM application.

Procedures are also part of the infrastructure. To improve the accuracy of future customer profitability figures, the sales managers and account managers were requested to start registering the duration of their customer visits. In the absence of such a registration in the first round of analysis, sales costs were allocated to customers as a percentage of revenues. The willingness of the sales force to record their time spent for customers was high, as they understood the importance of this information for accurate analyses of customer profitability.

5. Learning from CPA

The exercise described above was this firm's first experience with CPA. As [Ward and Ryals \(2001\)](#) suggest, the most effective approach for attaining accurate valuations of customer relationships is an iterative approach in which a customer profitability model is progressively implemented in the organization. This means that, with each cycle, the model is to be improved until the calculations are sufficiently accurate for marketing purposes. For this firm, the first improvement for the next iteration concerns the registration of sales force hours to allocate sales costs more accurately. It has further decided to repeat the CPA exercise every 6 months and implement improvements along the way.

The customer profitability exercise has led to an increased attention for costs and revenues of services. Maintenance and repair services have now become a separate cost center within the organization. Costs for after-sales maintenance and repair are billed to the account team that deals with the customer in question. The account manager, armed with the most recent customer profitability figures, decides whether these costs are then charged to the customer

or not. A choice for the latter implies that the account manager believes these costs for maintenance and repair are to be seen as investments in the customer relationship.

Management also learned that increased accuracy of the allocation of costs and revenues to customers was sometimes in conflict with what was politically desirable in the organization. For example, allocation accuracy dictates that customers that are located closer to the warehouse are allocated less cost for distribution. However, the consequence of such a cost allocation would be that those account managers with accounts farther away from the warehouse would be confronted with lower customer profitability, and hence, they would be disadvantaged as bonuses were now also related to customer profitability.

Another important lesson from this exercise was that although a customer's profitability figure provides very valuable information about that customer's contribution to the firm, the figure by itself is not enough to judge a customer's importance to the firm. CPA provides a figure of a customer's direct monetary contribution over a chosen period in the past. A true valuation of customers would include future expected contributions, both direct and indirect.

For the firm, the exercise has sparked learning on three different levels: On the first, and most basic level, the firm has learned what each customer's last year contribution has been to the firm's operating income and how this information can be used for cost management, revenue management, and marketing management. Second, the firm is learning how revenues and costs are best allocated to individual customers. The first attempt described in this article is only the start of a continuous improvement of such allocation methods. And third, the firm is learning what the various factors are that determine the value of each individual customer (customer profitability being but one of those factors).

6. Discussion

There are a few caveats users of CPA should be aware of. First, CPA figures are constructed from multiple data sources. The accuracy of these data sources limits the possible accuracy of the customer profitability figures. In addition, the CPA model has to be a good representation of the actual processes.

Second, customer profitability should not be used as the only basis for decisions about the value of particular customer relationships. As the first customer profitability figures come in, managers may be tempted to base a variety of marketing decisions on those figures. The "firing" of unprofitable customers may be one of those decisions. Before such drastic decisions are made, managers should first be made aware of the assumptions that underlie the figures such that they understand the limits to the figures' accuracy, and second, they need to assess whether there may be other reasons than profitability alone that would warrant

the value of those customers. The value of unprofitable customers may be in expected future revenues and/or in revenues generated by other customers through referral or endorsement (Hoekstra & Huizingh, 1999; Horngren, Foster, & Datar, 2000; Reinartz & Kumar, 2002).

A third caveat relates to the impact of CPA-induced actions on overall results. CPA is based on ABC principles. It incorporates both variable and fixed costs. As such, the cost structure of the firm determines how changes in the firm's actions, programs, and strategies influence the overall results. If small customers are not called upon anymore by sales representatives because the cost of a sales visit is too high with respect to these customers' profitability, that by itself does not mean that sales costs will go down. Either the sales force has to be reduced or the sales people have to focus their efforts on more promising customers—and achieve results with those customers.

The allocation of revenues and costs to individual customers requires a variety of data to be brought together in one database. While part of the challenge is to collect these data from disparate databases within the firm, other challenges are to set up new procedures for data that have never been collected and to collect data about customers that are shielded off by distributors. While the case study showed a lack of sales cost data because time spent on sales visits was not recorded within this firm, other firms may well discover that current databases do not cater for an accurate allocation of technical service or logistics costs. In addition, the case study illustrated that the profitability analysis could only be executed for those end-users that dealt with the firm directly, as well as for those end-users that were serviced through distributors that shared sales and service data with the supplier. As many industrial firms sell through independent distributors, the number of customers that can be included in the analysis is limited by the extent to which distributors share their customer data with their supplier.

The CPA exercise reported here is an example of a *retrospective* analysis, i.e., an analysis of past revenues and costs generated by customers over a specific period (cf. Jacobs et al., 2001; Storbacka, 1997). Managers will also be interested in *prospective* analyses of customer profitability. Prospective CPA calculates the net present value of future expected costs and revenues associated with serving a customer over his entire future life. Prospective CPA is also known as customer lifetime value analysis (see e.g., Berger & Nasr, 1998; Dwyer, 1989; Hoekstra & Huizingh, 1999; Jain & Singh, 2002). To be able to estimate future costs and revenues, a retrospective analysis of customer profitability is a valuable, if not an essential, first step.

7. Conclusions

In this case study, a six-step approach was used to implement CPA within the firm (cf. Fig. 1). Costs and revenues should be allocated to active customers only,

which means that the analysis starts with identifying those customers in the customer database that can be considered active customers. The second step is concerned with the analysis of all activities within the firm that generate the costs that are made to service customers. For all activities, the cost drivers have to be identified in such a way that it can be calculated how many units of each cost driver are spent on each individual customer. The actual calculation is performed in Step 3. Subsequently, the outcomes are interpreted and weighed against a priori expectations of profit distributions among customers. Based on a discussion of the (preliminary) outcomes, earlier decisions about the allocation of costs to customers may be revised to improve the accuracy and/or fairness of the allocation. Once the calculation method is agreed upon and the numbers are in, marketing strategies, programs, and actions can be attuned to the new information. Immediate action may be required for extremely unprofitable accounts, improvement programs may be installed to reduce unnecessary high costs, and whole new strategies may be developed for specific customer segments. As a sixth step, organizational adjustments may be needed to establish an infrastructure for a continued use of CPA in the organization.

The first two steps are preparatory steps and can be executed in parallel. These two steps could be executed by a project team in which accounting and marketing/sales are both represented. Outside help may be desirable when the company is not familiar with the principles of ABC. Steps 3 and 4 represent the actual CPA. Extensive discussions with sales and account management will be helpful to determine to what extent the calculations agree with a priori expectations of profitability. Such discussions will also help pave the way for new marketing strategies, programs, and actions. The final two steps represent the consequences of CPA. While the profitability calculations may be interesting as such, they are no more than a means towards the end of improved CRM.

Such an implementation approach that outlines how CPA can be implemented in an industrial firm is new to the literature. So far, the literature on CPA has concentrated on the benefits of analyzing customer profitability and on how to construct customer profitability models. Moreover, the majority of examples in the literature are about firms operating in consumer markets or in “nonindustrial” business-to-business markets, i.e., business-to-business markets that are not capital intensive, where the uses of account management, consultative selling, and maintenance and repair services are uncommon. This case study analysis has highlighted a number of issues that are particularly relevant for industrial firms. These issues relate to the collection of cost and revenue data, the use of customer profitability in performance evaluation, and the use of customer profitability for differentiated marketing strategies.

The issue of data collection has internal as well as external aspects. Industrial firms will often have representatives from a variety of departments visiting customers, such

as sales representatives, account managers, mechanics, and consultants. All these representatives need to keep a registration of time spent with customers to generate the data that are needed to calculate customer profitability. Many industrial firms use channel partners to distribute (part of) their offerings. If end-users buy the product via a distributor, but receive after-sales service directly from the OEM, agreements with distributors on information sharing are needed to bring together all cost and revenue data for those end-users. Finally, industrial customers are not necessarily singular entities. They are often aggregates of multiple locations, and profitability figures can vary between those different locations. Industrial firms who want to implement CPA need to think about the desired level of aggregation.

The potential use of CPA in performance evaluation is particularly relevant for industrial firms, as many of them employ bonus schemes for account teams and individual sales representatives. Provided that the CPA system is viewed as being fair and accurate, it can be used to reward teams and individuals on the basis of profits and profitable growth, instead of on sales growth alone.

With respect to the third issue, that of CPA as the basis for differentiated marketing strategies, industrial firms are advised to consider the use of profitability-based market segmentation, a differentiation strategy already used in financial services and other, predominantly nonindustrial, markets (see e.g., Noone & Griffin., 1999; Storbacka, 1997; Zeithaml et al., 2001). Once customer profitability figures are established and customers are classified as platinum, gold, iron, or lead customer within the customer pyramid, customers can be served according to their tiers. As profitability-based segmentation is new to industrial firms, the first to implement it effectively may be in the position to reap disproportional rewards.

CPA will bring a wealth of new information to the firm that uses it for the first time. As such, CPA is highly valuable by itself. At this point, there is little evidence of its widespread use and actual implementation in industrial firms. In an era of increased attention for CRM and customer loyalty, CPA may well be the much-needed backbone for such efforts.

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