Customer segments based on customer account profitability

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Abstract   Market segmentation is traditionally based on non-economic customer characteristics. Financial approaches can, however, offer additional insight. Based on customer profitability analyses, this paper offers some financial-based approaches, classified as one-dimensional and two-dimensional or matrix-approaches. By combining these financial-based segmentation techniques with traditional methods, a business unit should have the necessary insight to make decisions in accordance with the marketing concept. According to this way of thinking (market orientation), businesses have two main goals: (1) to satisfy customers' needs by offering products which meet their desires, requests and demands, and (2) to satisfy the business unit's needs by carrying out exchanges that result in long-term profitability.

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INTRODUCTION

Traditionally, the goal of market segmentation is to identify product markets comprising people, businesses or other organisations with similar characteristics and thus similar needs. Various characteristics are used as segmentation variables for both consumer and business markets. For consumer markets, the types of segmentation most often used are based on variables related to geographical, demographic, psychographic and behavioural characteristics. For business markets, additional types of segmentation have been introduced, for example, based on industry sector, buying process characteristics (eg formality), structure of procurement or buyer–seller relationships.[1–5]

Most of the traditional approaches to market segmentation are based on non–economic customer characteristics. The purpose of this paper is to offer some other approaches based on customer account profitability. It should be stressed that these approaches should not be looked upon as alternatives, but as *additional* market segmentation techniques. Furthermore, it should be noted that the two approaches are both in accordance with the marketing concept. According to this way of thinking (market orientation), businesses have two main goals: (1) to satisfy the needs of customers by offering products which meet their desires, requests and demands, and (2) to satisfy the business unit's needs by carrying out exchanges that result in long–term profitability. This

duality with respect to customers and businesses also appears in various definitions of marketing, such as the definition of the UK Chartered Institute of Marketing, as given in Jim Blythe's 'Essentials of Marketing' (3rd edition, Prentice Hall, UK): 'Marketing is the management process which identifies, anticipates, and supplies customer requirements efficiently and profitably'. Thus, by combining the two approaches of market segmentation, decision makers might have the insight necessary for achieving the two main goals of market orientation.

LITERATURE REVIEW

During the past decade, there has been a growing interest in market-oriented management accounting.[6–11] Most attention has been directed at customer profitability analysis. Research has been very limited, however, and further printed publications have been requested.[12–15] Although there is no disagreement with respect to the importance of this problem area, the standard textbooks of management accounting either do not consider customer–related financial topics or only touch on them.[16–18]

Very few papers dealing with customer profitability analyses have discussed customer segments based on financial figures. Some articles have focused on problems that have had to be solved in order to establish reliable customer accounting figures.[19–22] Others have been more preoccupied with theoretical aspects.[23–26] Some researchers have focused on contexts and empirical results — that is, case studies.[27–31] And still others have been preoccupied with studying relationships between customer profitability and various antecedents of customer profitability.[32–37] One of the consequences is that even in 'special'

textbooks, customer profitability accounting is not discussed in depth, and customer segments based on financial characteristics are seldom considered.[38–41]

However, some approaches for marketing segmentation based on financial variables have been introduced. These may be divided into two groups: one-dimensional and two-dimensional approaches. This latter category can also be called matrix approaches.

One-dimensional approaches

'Customer base management' can be defined as 'the task of analysing the customer base in order to identify business and profit potentials within the customer base and developing strategies to realise the identified potentials'.[42] Traditional descriptive statistics (mean values, standard deviations, etc) and graphical representations may give fundamental insight. Nevertheless, analyses based on ordered distributions may give far better insight. These approaches may be based on absolute or relative profitability figures.[43,44] Graphical representations may be combined with economic key measures — for example, Stobachoff coefficients. Revenues may be analysed separately by way of Lorenz curves and Gini coefficients.[45]

Based on such profitability analyses, customers may be assigned to different profitability segments according to some pre-defined rules. Rust *et al.*[46,47] offer one such approach with customers assigned to one of four groups: (1) 'the platinum tier' includes all the most profitable customers; (2) 'the gold tier' differs from the 'the platinum tier' in that profitability levels are not as high; (3) 'the iron tier' contains essential customers whose profitability is not substantial enough for special treatment; and (4) 'the lead tier' consists of the

customers who are costing the business money. Other approaches also exist.[48,49]

Two-dimensional or matrix approaches

Shapiro *et al.*[50] assert that it may be useful to think of customers in two dimensions: net price realised and cost to serve. They introduce a matrix with cost to serve on the horizontal axis and net price on the vertical axis. Based on the averages of the aggregated values of the period under consideration, the customers are assigned to one of four groups: (1) 'carriage trade' (upper right) costs a great deal to serve, but the customers are willing to pay; (2) 'aggressive customers' (lower right) demand the highest product quality, the best service and the lowest prices; (3) 'bargain basement' (lower left) are customers that are sensitive to price and relatively insensitive to service and quality; and (4) 'passive customers' (upper left) can be served cheaply and are willing to accept higher prices.
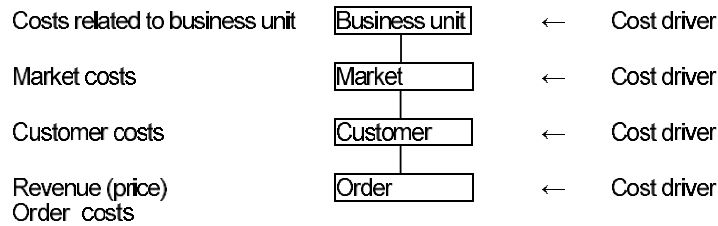
Bellis-Jones[51] introduced a technique called the 'decision grid analysis'. The horizontal axis measures contribution as a percentage of sales, low to high, and the vertical axis measures volume, low to high. The customers are assigned to one of the following segments: (1) 'winners' (upper right), high contribution and high volume; (2) 'problems' (lower right), low contribution and high volume; (3) 'losers' (lower left), low contribution and low volume; and (4) 'potentials' (upper left), high contribution and low volume. Similar approaches have been offered by others.[52-54]

Other market segmentation procedures have been introduced, such as product–customer matrices[55] or classifications of customers based on loyalty and profitability.[56,57] Here, customer loyalty is measured on the horizontal axis, low to high, and

customer profitability on the vertical axis, low to high. The customers are assigned to one of the following segments: (1) 'top performers' (upper right), high loyalty and high profitability; (2) 'underachievers' (lower right), high loyalty and low profitability; (3) 'non-profits' (lower left), low loyalty and low profitability; and (4) 'high potentials' (upper left), low loyalty and high profitability. When matching customer characteristics with respect to attitudes, behaviour and financial information at the individual customer level, however, confidentiality issues and codes of marketing should be considered.[58-61] In addition, such matching activities may be against the law or require a licence from the authorities.

CUSTOMER ACCOUNTS

In order to produce figures, tables, key measures, etc of customer segments based on financial variables, one needs customer accounts. Thus, there is a need for empirical data. In this study, the Norwegian fishing industry is chosen as a context, specifically four Norwegian exporting companies of klipfish and frozen fish. This industry is characterised by almost worldwide export activities oriented towards various product markets (geographical areas). Each product market has many participants, both on the buyer side and the seller side. The products offered may be perceived as generic. Usually, the importing companies buy products from several exporters, often located in different countries. Two of the companies export klipfish and the other two frozen fish/fillets. The sample, consisting of 564 orders related to 176 customer and 36 geographical markets, represents about 4 per cent of the total Norwegian exports of products from these lines of business. This industry is suitable as a context, as discussed below.

Costs related to business unit	Business unit	←	Cost driver
Market costs	Market	←	Cost driver
Customer costs	Customer	←	Cost driver
Revenue (price) Order costs	Order	←	Cost driver

Figure 1 Market hierarchy for order-handling marketing companies

Establishing reliable profitability figures for customer accounts is not straightforward. For example, customer accounts can be established by using different estimation methods: (1) full costing, (2) variable costing, or (3) activity–based costing. These methods will, of course, tend to result in different designs of the specified accounts. The most important aspect to remember, however, is that different approaches result in different estimates of customer profitability. Here, the ABC approach is used.

Figure 1 shows the selected market hierarchy and illustrates the assignment of costs to the different levels. It also reflects the chosen market-oriented accounting framework. Costs are assigned to the level where they are incurred (orders, customers, markets, etc). All of the revenues are related to the order level. The costs of the orders are subtracted from the revenues from orders. In this way, the results can be estimated for each order. Revenues and costs from orders are then transferred to the customer level. The customer result for a given period is the aggregate revenues from orders related to the actual customer less the aggregate costs related to the orders as well as the costs related to the customer. Analogously, the market result and the result of the strategic business unit for a given period are estimated.

The chosen context simplifies the assignment of costs because the product costs of the exporting companies were easily found from the invoices received from the producers, while the other costs of the exporters all represent different sorts of marketing costs. Of course, all the accounts and all the vouchers still had to be thoroughly revised. In this way, about 98.5 per cent of the total costs were traced and assigned directly to the cost objects of the various levels of the market hierarchy. Thus, only 1.5 per cent of the costs (indirect costs) had to be accumulated into cost pools and allocated to the various cost objects according to the ABC approach.

Table 1 shows the layout of the customer account report — that is the main items (cost groups), as well as the averages of the customer accounts of the sample ($n = 176$), and Table 2 shows descriptive statistics for important items of the customer accounts. Items resulting in reductions in the sales revenues (quantity discounts, bonuses, etc) are very moderate in this industry. Direct product costs are more significant, on average representing about 90.4 per cent of customer revenues. These costs consist of purchasing and packaging costs, inward freights and brokers' commissions. Direct marketing costs related to orders and customers represent about 7.0 per cent of customer revenues. These costs comprise sales and distribution costs (outward freights, transport assurances and agent commissions); losses and activities established in order to reduce losses (losses on accounts receivable,

Table 1: Customer accounts (averages) (*n* = 176)

	Norwegian Kroner (NOK)	%
Customer income (customer revenue)	1,021,690	100.00
Customer income (revenue) reductions	400	0.04
Net customer income (revenue)	1,021,290	99.96
Direct customer product costs	923,480	90.39
Customer product margin	97,810	9.57
Direct order-related marketing costs	71,170	6.96
Direct customer-related marketing costs	370	0.04
Customer operating margin	26,270	2.57
Direct customer-related capital costs	8,360	0.82
Customer margin	17,910	1.75
Indirect order-related costs	8,090	0.79
Indirect customer-related costs	2,100	0.21
Customer result	7,720	0.75

Table 2: Descriptive statistics for important items of customer accounts (*n* = 176)

	Arithmetic mean	Standard deviation	10th percentile	90th percentile
Absolute figures				
Customer income (revenue)	1,021 690	1,438,940	18,200	2,702,760
Direct customer product costs	923,480	1,320,950	15,800	2,407,800
Customer product margin	97,810	134,150	160	278,170
Direct order-related marketing costs	71,170	101,580	40	176,310
Customer operating margin	26,270	54,600	−9,620	96,620
Direct customer-related capital costs	8,360	17,650	0	30,980
Customer margin	17,910	46,140	−9,620	66,350
Indirect order-related costs	8,090	13,160	1 590	16,190
Indirect customer-related costs	2,100	2,140	210	4,960
Customer result	7,720	42,670	−13,920	51,000
Relative figures				
Direct customer product costs	90.39	4.94	85.57	96.07
Customer product margin	9.57	4.91	3.93	14.31
Direct order-related marketing costs	6.96	3.24	3.83	10.60
Customer operating margin	2.57	3.89	−0.66	5.77
Direct customer-related capital costs	0.82	1.00	0.00	2.35
Customer margin	1.75	3.66	−0.99	4.51
Indirect order-related costs	0.79	1.59	0.16	1.62
Indirect customer-related costs	0.21	1.50	0.01	0.47
Customer result	0.75	4.23	−2.68	2.71

costs related to credit insurance, commercial letters of credit, etc); post–sale service costs (training, support, complaints, etc); the treatment of customers (travelling, representation, exhibitions, advertisements and advertising campaigns, etc); other marketing costs (charges related to exportation, duties, taxes, etc). Direct customer–related capital costs represent about 0.8 per cent and consist of discounting costs, capital costs, bank costs, etc. In addition to current costs, one has to consider calculated costs. For example, direct order–related capital costs often have to be estimated so that the costs correspond with the real credit time. However, these types of problems are not typical for market-oriented accounting. Analogous problems are usually met in other fields of management accounting. The remaining costs may be treated as indirect costs (fixed costs that are divisible) and allocated to the different levels of the market hierarchy by way of the ABC

Customer results in NOK
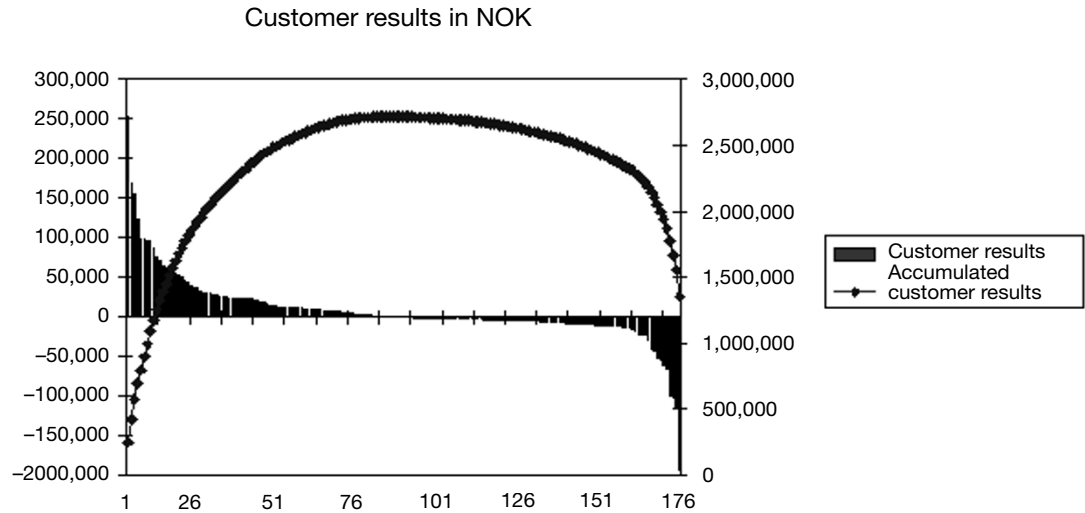
Figure 2 Customer results in NOK, ranked in descending order (per customer and accumulated) ($n = 176$)

approach. Indirect costs related to orders and customers represent about 1.0 per cent of customer revenues. Thus, the customers are, on average, only marginally profitable. The direct and indirect costs related to the market level and the business level of the market hierarchy represent only about 0.5 per cent of the total costs. Nevertheless, the companies' profits are rather modest.

The rearrangement of the accounting figures was calculated in close collaboration with the marketers, accountants and managers of the exporting companies. There was no disagreement concerning the results. The orders included in the sample were selected at random in such a way that several succeeding orders were analysed in order to simplify the balancing work. The sample is analysed at the market level, comparing the four exporters' market-revenue figures with the total Norwegian export for these lines of business for the period under consideration for each of the 36 geographical markets. The analysis shows a strong and significant correlation ($r = 0.804$; $p < 0.001$). In addition, the 20–25 most important geographical

markets for this part of the Norwegian fishing industry are represented in the sample.

CUSTOMER SEGMENTS: SOME FINANCIAL-BASED APPROACHES

When customer accounts are available, various figures, tables, key measures, etc can be worked out. Here, four market segment approaches are discussed, two one-dimensional and two two-dimensional.

One-dimensional approaches: Based on absolute and relative customer results

Figure 2 presents customer results in absolute figures (Norwegian Kroner–NOK) per customer and accumulated for the whole sample. Customers are ranked according to absolute customer results obtained during the period of analysis. This implies that the customer that contributed most to the total customer result during the period is listed first, then the second most profitable customer, etc. The customer that is ranked last represents the

Accumulated customer revenues/customer results
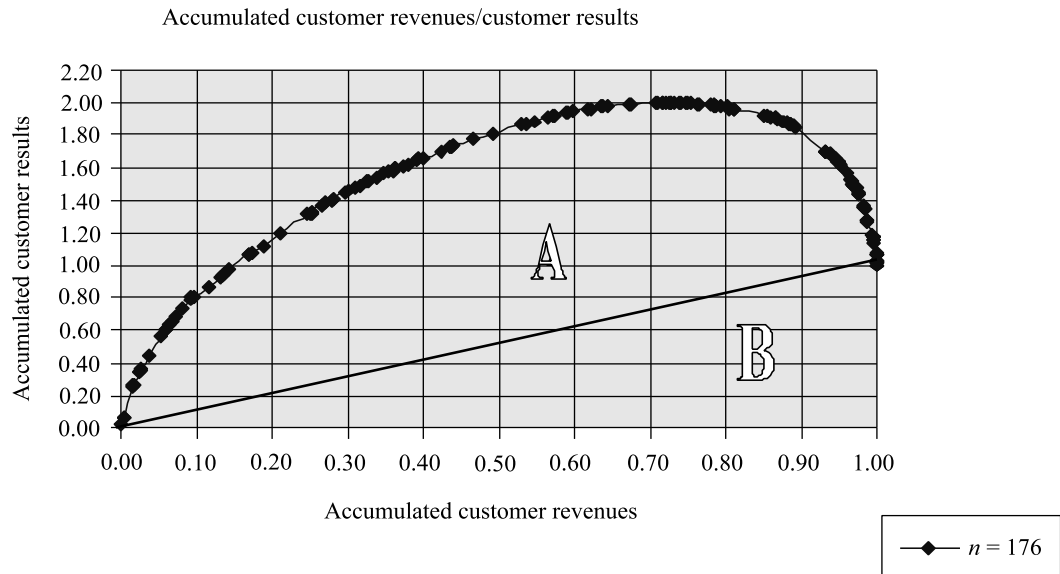
Figure 3 The Stobachoff curve for the customer sample (*n* = 176)

lowest customer result obtained — that is, a considerable loss. Out of the total sample of 176 customers, there were 86 with positive customer results and 90 with negative customer results. Table 2 shows that the customer results of the chosen range (10–90 per cent) do vary from about NOK −13,920 to about NOK +51000. Figure 2 shows that the range is much wider when taking all of the customers into consideration. Thus, the 'extreme' customers have a significant impact on profitability.

Figure 3 presents the relative customer results of the sample — that is, the Stobachoff curve.[62] The vertical axis shows the accumulated customer result as a proportion of the total customer result of the period. On the horizontal axis, the customers are ordered according to their relative profitability (customer profit as a proportion of customer revenue). The most profitable customer is ordered as no. 1. The second most profitable customer is considered next and the customer result of this customer is added to the customer result of the first customer. Assuming the analysis is based on proportions, the end point of the

Stobachoff curve has to be 1.1.

The Stobachoff coefficient in Figure 3 is about 0.677. Taking into consideration that the range of this coefficient is from 0 to 1 (see Appendix), the distribution of the relative customer results seems to be relatively skewed. The vulnerability factor (VFA) has the value of 0.267. Thus, the findings can be summed up as follows:

— About 100 per cent of the customer results originated with about 15 per cent of the customer revenues.
— About 73 per cent of the customer revenues resulted in about 200 per cent of the customer results ('summit').
— About 27 per cent of the customer revenues resulted in negative earnings and diminished about 100 per cent of the accumulated customer result.

The findings do not imply that the total customer results of the period would have been the same by concentrating the market activities towards the 15 per cent most profitable customers. As long as the customer margin is positive, the customer

at least partly covers the indirect costs. Thus, to get further insight, graphical analysis based on the customer margins can be carried out.

Based on the above results, the customer base can be divided into segments in various ways, as used in the approach of Zeithaml *et al.*[63] When assigning the customers to the various segments, both the absolute and the relative figures should be evaluated. When deciding the levels of each of the measures, market strategic aspects and strategic goals of the business unit should be considered.

Two-dimensional or matrix approaches

The first matrix approach is similar to the matrix approach of Shapiro *et al.*,[64] although it is based on relative figures. Each customer is placed into one of four groups based on the mean values of the relative costs to serve and the relative customer product margins. The individual customer accounts, as given in Table 1, provide the necessary information for producing such a matrix. The findings are presented on Figure 4.

The segmentation procedure implies that the customer base of 176 customers is divided into four groups: (1) 62 customers are 'demanding, but willing to pay'; (2) 28 are 'aggressive customers'; (3) 59 customers are 'transaction oriented'; and (4) 27 are 'passive customers'.

The Pearson's correlation coefficient describes the linear relationship between the variables — that is, 'relative costs to serve' and 'relative customer product margins'. Of course, the anticipated result is a rather high and positive coefficient. However, this is only found for the first group of customers — that is, 'customers that are demanding, but willing to pay'. For the 'aggressive customers' the coefficient is also rather high, but

unfortunately negative. This implies that the higher the relative costs are to serve, the lower the relative customer product margin. Significance level and effect size are both important considerations when looking at relationships. With respect to the strength of the relationship between two variables, Cohen[65] suggests the following guidelines: $r = 0.10$ to 0.29: small; $r = 0.30$ to 0.49: medium; and $r = 0.50$ to 1.00: large. These guidelines apply whether the correlation coefficient is positive or negative — the sign has no impact on the strength of the relationship, it simply represents the direction. Thus, the strength of the linear relationship is large for two of the coefficients, medium for one and small for the last one. For insight into the shapes of the relationships, regression analyses can be calculated. Of course, the shapes may be non-linear, as with Figure 4.

Figure 5 shows another matrix approach. Each customer is placed into one of four groups based on the mean of the customer revenues and the level (plus or minus) of the relative customer results of the period under consideration: (1) 62 customers are 'majors'; (2) 26 are 'problems'; (3) 64 are 'minors'; and (4) 24 customers are 'potentials'. The chosen names of the various customer segments implicitly describe the tactics or strategies that the business unit should consider with respect to the four segments.

When comparing the customer segments of the two matrix approaches above, the number of customers is about the same for the segments having the same location (I–IV). One might, therefore, consider it unnecessary to conduct both analyses. A closer look, however, shows that only about 30 per cent of the customers are located in the 'same' quadrant. Thus, the two approaches do provide differentiated insight.

	High		High

Figure 4 Customer segments based on relative customer product margins and relative costs to serve

Quadrant structure (Figure 4):

IV — Passive
Percentage: 15.4
Pearson's correlation coefficient: 0.31^{c}
Average revenue (NOK): 1,340,000
Average customer result: Positive (high)
— Are increasing degressively with increasing customer revenues (volumes)

I — Demanding, but willing to pay
Percentage: 35.2
Pearson's correlation coefficient: 0.78^{a}
Average revenue (NOK): 710,000
Average customer result: Positive
— Are increasing degressively with increasing customer revenues (volumes)

III — Transaction oriented
Percentage: 33.5
Pearson's correlation coefficient: 0.28^{b}
Average revenue (NOK): 1,295,000
Average customer result: Zero
— Are increasing degressively with increasing customer revenues (volumes)

II — Aggressive
Percentage: 15.9
Pearson's correlation coefficient: -0.68^{a}
Average revenue (NOK): 185,000
Average customer result: Negative
— Are decreasing degressively with increasing customer revenues (volumes)

Axes: **Relative customer product margins** (High/Low, vertical); **Relative costs to serve** (Low/High, horizontal)

$^{a}p \leq 0.001$
$^{b}p \leq 0.05$
$^{c}p \leq 0.10$

Figure 4 Customer segments based on relative customer product margins and relative costs to serve

Quadrant structure (Figure 5):

IV — Potentials
Percentage: 13.6
Pearson's correlation coefficient: -0.08^{d}
Average revenue (NOK): 270,000
Average customer result: Positive
— The relationship between customer revenues and customer results is indefinite

I — Majors
Percentage: 35.2
Pearson's correlation coefficient: 0.47^{a}
Average revenue (NOK): 1,992,000
Average customer result: Very positive
— Are increasing degressively with increasing customer revenues (volumes)

III — Minors
Percentage: 36.4
Pearson's correlation coefficient: -0.23^{c}
Average revenue (NOK): 145,000
Average customer result: Negative
— Are decreasing degressively with increasing customer revenues (volumes)

II — Problems
Percentage: 14.8
Pearson's correlation coefficient: -0.56^{b}
Average revenue (NOK): 1,505,000
Average customer result: Very negative
— Are decreasing degressively with increasing customer revenues (volumes)

Axes: **Relative customer results** (High/Low, vertical); **Customer incomes (customer revenues)** (Low/High, horizontal)

$^{a}p \leq 0.001$
$^{b}p \leq 0.01$
$^{c}p \leq 0.05$
^{d}not significant

Figure 5 Customer segments based on customer revenues and relative customer results

It should be underlined, however, that such matrices only give an overview of the situation. It should also be mentioned that the chosen graduations of the matrices may split customers that in reality are very similar. All customers should therefore be analysed separately — that is, combining the approaches

considered above, both the one-dimensional and the two-dimensional ones.

DISCUSSION AND CONCLUSIONS

The chosen context of this study was Norwegian order handling companies exporting fish products to various importing companies of various product markets all over the world — that is, a business-to-business context. This industry was chosen because it has a very high level of attributable costs (98.5 per cent in this study). Thus, the lack of arbitrary allocations implies that there are low uncertainties in the measures of customer profitability. Similar approaches for establishing market-oriented accounting reports have been used in other manufacturing industries, as well as in various service industries, such as the banking industry. Of course, reports, such as customer accounts, do vary from one context to another. In the banking industry, for example, customer accounts have to include revenue and cost figures related to transactions, loans and deposits/savings, as well as to other banking products. In the banking industry, interest rates have a significant impact with respect to the profitability of customers; however, these figures represent only a fraction of all the information required to provide reliable figures of customer profitability. Broadly speaking, even if the industrial contexts do vary, the various customer accounts include the same fundamental financial information. Thus, the approaches for market segmentation discussed above can be used in various industries, as discussed below.

It should be noted that the customer accounts presented above represent only a single period of time. However, financial reports with respect to customers accounts should be made available for both the final period of analysis and for the entire year to date. Such financial reports can be extended to include customer balance sheets, information which is of great importance in, for example, the banking industry. In addition, budgets may be calculated using the same approach. In this way, marketers can know exactly their aims for the coming period of time (eg year). Financial reports comparing budgets with realised figures should be made available for marketers. An extension to individual customer account budgets could be the calculation of each customer's financial value (economic customer value) — ie the lifetime financial value of a customer — as well as the estimation of the financial value of the whole customer base or segments of the customer base.

The one-dimensional segmentation approaches discussed above can be used in any industry, as long as customer accounts are available — that is, customer accounts giving information with respect to customer revenues (customer incomes) as well as absolute and relative customer results. Graphs presenting absolute and relative customer figures (such as those in Figures 2 and 3) can then be included in the organisation's financial reports. Such graphical representations may be calculated for the final period of analysis, for accumulated figures, for budgets etc, and can be presented for all customers or for segments of customers, such as the portfolio of customers of a sales agent or of a marketer of a company. Such graphs give summarised financial information — that is, an overview. Thus, regular periodical reports may include information with respect to customer profits (revenues and costs), balance figures, various key measures, as well as graphical representations at the customer level. For the comparisons of the various

customer portfolios, new key measures are interesting (see Appendix). Of course, the contents of the regular periodical reports should be considered from a decision usefulness perspective.

In addition to knowing about the profitability of individual customers, decision makers also need to have insight into the financial situation of various customer segments. Such segments may be established by using traditional approaches, such as the geographical characteristics of the customers. However, the financial approaches discussed above (ie the two-dimensional or matrix approaches) may give additional insight. Overviews of customer segments, as illustrated in Figures 4 and 5, can be included in the regular periodical reports of a company. However, they are commonly used *ad hoc* — for example, as a part of the information when discussing the market strategies of the business unit. The two-dimensional approach, based on customer revenues and relative customer results (Figure 5), can be calculated in any industry as long as customer accounts are available — that is, customer accounts giving information with respect to customer revenues (customer incomes) as well as absolute and relative customer results. The other approach, based on relative customer product margins and relative costs to serve (Figure 4), is suitable for business-to-business contexts, but has also been adopted in other contexts — for example, the banking industry. Customer matrices from the final period of analysis should be compared with corresponding matrices from earlier periods. In this way, migration patterns of customers can be identified. This insight can be useful when discussing strategic market problems.

The insight obtained by using the segmentation techniques discussed above may of course be combined with more traditional segmentation techniques. In this way, the decision makers should get an understanding of the decision situation from the point of view of both customer and the the business unit. Normally, managers would choose the most profitable segments, but other segments may also be of interest — for example, customers belonging to segments with potentials. By combining the insight obtained with respect to customer value and customer economic value, the decision makers should hopefully succeed in targeting the most interesting customers. The next strategic market task is then to position the offer of the business unit in such a way that it is perceived as appealing and good value for money by the target customers of the chosen market segments.

Market-oriented businesses have two main goals: (1) to satisfy the needs of the customers by offering products which meet the desires, requests and demands of the customers; and (2) to satisfy the business unit's needs by carrying out exchanges that result in long-term profitability. Thus, it may be asserted that a company's implementation of the marketing concept is not in accordance with the original intentions if the company's efforts are concentrated towards the customers and their needs, wishes and requests. In order to claim market orientation, business self-interest also has to be fulfilled — that is, the customers have to be profitable.

APPENDIX: ECONOMIC KEY MEASURES

Referring to the labelled areas in Figure 3, the Stobachoff coefficient is defined as the ratio $A/(A + B)$. The value of this coefficient will be between 0 and 1. The closer to 0, the more evenly the customer results are distributed. In such a

case, the A area is small compared with the (A + B) area. The closer the coefficient is to 1, the more unevenly the customer results are distributed.

The VFA is simply defined as the proportion of the customer revenues resulting in negative customer results. Thus, the VFA describes the proportion of orders, customer, markets, etc resulting in negative bottom lines. This coefficient will be also between 0 and 1. If each of the customer results is positive, the coefficient will be 0. If the coefficient is close to 1, this implies that the business may be said to be vulnerable. Even if the aggregated customer result is positive, this result is generated by only a few customers. If these customers quit, the total result may turn from positive to negative. Thus, there is consistency between the key figures. In both cases the objective is to keep them as close as possible to 0.

The two presented key figures have to be judged together. The VFA only represents a precision of the shape of the 'Stobachoff area' and thus only may be perceived as giving additional information about the ordered distribution. In this case, the value of the coefficient is 0.667. The value of the VFA is 0.267, which tells us that about 27 per cent of the customer revenues resulted in negative customer results.

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