
Implementation Problems in Industrial Market Segmentation

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Marketing theory suggests that market segmentation offers a range of benefits to industrial and consumer marketers alike. Experience in industrial markets, however, while supporting these suppositions, highlights the considerable practical problems that can be faced by companies attempting to put market segmentation into practice. This paper reviews the industrial segmentation literature and considers a mix of qualitative and quantitative evidence from the European construction and agricultural markets and the UK aftermarket for car parts, making recommendations about the application of theoretical segmentation principles in practice.

INTRODUCTION

The advantages of adopting a segmented view of markets are well documented in the academic and practitioner press. This coverage, however, does not fully reflect the

practical problems that are often faced when trying to apply segmentation theory in real situations. The practitioner has to reconcile the potential benefits offered by the approach with the realities of a company structure, distribution system, and sales force that may be geared to satisfy operational considerations rather than marketing requirements and that may be seemingly well entrenched. Although academic segmentation theory may appear to offer considerable benefits in terms of satisfying customers and developing more effective marketing programs, the operational realities must be considered.

This paper draws on qualitative and quantitative research from the European construction equipment market, agricultural machinery, and the car parts aftermarket, to examine the practical problems that industrial companies face when trying to implement new or modified segmentation approaches. Accepted industry practice for subdividing each of the markets is reviewed. Recognizing the problems associated with radically revising existing structures, routes are considered that may improve existing market segmentation without creating major operational and practical problems. The theoretical ramifications are assessed, and these ramifications lead to key recommendations.

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Segments must offer real-world applications.

SEGMENTATION IN INDUSTRIAL MARKETS

Segmenting markets centers on the assumption that customers demonstrate heterogeneity in their preferences and buying behavior [1, 22, 38]. These variations are generally explained by differences in product/user characteristics [8, 28, 30]. Marketers are therefore rarely able to satisfy all customers in a market with a single product or service offering. Satisfying these diverse customer needs can be achieved more effectively by focusing on customer segments with relatively homogeneous requirements [12]. Market segmentation is thus a logical development of the marketing concept, which places the consumer at the center of marketing effort [6] and economic theory [39].

Theoretical discussion of market segmentation theory has tended to consider consumer and industrial applications separately [see, for example, 17]. Generally, this has been because different segmentation bases are used in each type of market. However, despite this separate treatment, the underlying logic for segmenting markets is the same for industrial and consumer situations. These similarities are highlighted by Yankelovich [40], who demonstrates the ability of segmentation analysis to appraise company capabilities and design more appropriate marketing programs. This, he argues applies equally to industrial and consumer situations. This view is supported by Wind [38], who also agrees that market segmentation's ability to differentiate between and select customer groups is as important to industrial marketers as practitioners in the consumer field. Whether consumer or industrial, market segmentation helps companies make more informed choices between alternative market opportunities and leads to more effective marketing programs being developed [37].

Academic segments are meaningless, however, unless they are capable of application in real-world situations. Given the need for readily implementable segmentation schemes [32], it is frustrating that so little of the market segmentation literature considers the interpretation and implementation of segmentation schemes [31]. Although some attempts have been made to clarify what constitutes an attractive segment most authors have chosen to focus on the design of segmentation studies and different approaches for grouping customers. This is illustrated in recent reviews of the segmentation literature [see, for example, 5] that predominantly consider papers about different segmentation bases. Meanwhile, for many researchers, discussion about the effectiveness of different segments starts and finishes with Kotler's [29] measurability, substantiability, accessibility, and actionability criteria for useful segmentation.

In their paper about identifying and qualifying industrial market segments, Hlavacek and Reddy [25] express concern about how little effort many industrial companies put into identifying and implementing segments. They point to the work of Garda [21], who discusses the difficulties that arise from viewing segmentation merely as a technique and not taking a strategic view of the segments that result. Garda's strategic market segmentation concept highlights that the attractiveness of alternative solutions, rather than the approach itself, should be at the center of such studies. Similar views are expressed by Johnson and Flodhammer [27], who stress that market segmentation schemes should lead to more efficient resource allocation.

In general, the message from the industrial marketing literature is that companies adopt a more ad hoc approach to market segmentation than is prescribed in the theory. Wind and Cardoza [39], for example, find that many industrial segmentation strategies are based on intuition rather than on sound marketing planning. Instead of being based on thorough data collection and analysis, differentiated marketing often arises from less systematic modifications to product offerings. This is usually stimulated by specific customer requests, and the selection of segmentation variables

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is related to ease of implementation rather than the appropriateness of resulting schemes. Ease of implementation usually relates to the costs of identifying alternative segments and developing relevant marketing programs, which by default will require a restructuring of resources and approaches.

According to Blattberg et al. [7], the managerial usefulness of segmentation analysis depends on how well customers are divided into relatively homogeneous groups with distinctive buying behavior. The process of identifying such groups and deciding on the allocation of marketing resources amongst them, sometimes referred to as normative segmentation, has received much attention in the marketing and strategic management literature [20, 30].

Evidence from industrial markets suggests that the ease of implementing a segmentation solution significantly impacts on the success of normative segmentation. Although academics stress the need to identify the most suitable and statistically valid segmentation schemes, the priority of the practitioner is to identify segments for which an effective marketing program can be developed. This is the point at which theory meets practice, and it is essential to understand the different requirements of each rather than blindly assuming that the needs are equal and the same. More must be done to understand practitioner needs by reviewing the literature about segmentation implementation and by examining practical applications.

SECTORS OR SEGMENTS?

The implementation needs of industrial companies have frequently resulted in a sectorized rather than segmented view of different markets. A sectorized view of a market, as distinct from a segmented view, assumes that market divisions are predominantly based on product criteria that do not necessarily reflect distinctive and differing customer needs. This is at odds with the paper by Day et al. [15], which contends that market segments should be based primarily on customer needs rather than product-based criteria.

Despite concerns about whether they reflect differing customer needs, the application of sectorized, product-based market segments continues in many industrial markets. This is because of both the intrinsic appeal of the approach and poor managerial understanding of segmentation principles. The attractions of the product-based approach are captured in the following quotation [14]:

Such approaches are popular because they are convenient, clear-cut, easy to implement and result in boundaries that

are relatively stable over time. These factors should not, however, disguise the fact that such approaches are arbitrary and based exclusively on managerial judgement and intuition. (p. 23)

Poor managerial understanding of segmentation fundamentals shows up most where key decision makers do not appreciate the distinction between product-based sectors and segments organized around customer needs. For instance, the following comment made by a Managing Director of a British company [33] highlights the basic problem:

I don't know if we segment the market, or how we really position ourselves against the competition. I expect our advertising agency knows. . . . I think we are probably up-market, because we advertise in some very posh magazines.

The UK car market, with its well-known division by car size and engine size, is a typical example of the use of product-based market division. Senior managers at Rover Cars, for example, express the view that the UK car market can be segmented into small, lower medium, upper medium, and large cars. This does not necessarily conform with the academic view of segments built up around customer needs. However, whether or not to academics this is a legitimate segmentation scheme is largely irrelevant to the practitioner who is under pressure to (a) fall in line with a system that is recognized as normal by the industry and (b) make use of the established distribution system that has developed to serve the industry sectors. For this reason, any segmentation schemes that are developed for industry implementation must allow companies to continue to operate within the recognized boundaries of the industry in question.

METHOD

In order to examine the practical issues of segmenting industrial markets, data were available from three markets: the construction equipment market, agricultural machinery, and the car parts aftermarket. The information from the construction and agricultural machinery markets was part quantitative but largely qualitative, stemming from on-going research involving several international manufacturers. From the car aftermarket, results of a quantitative market structure/market trends survey were available.

Data from the construction and agricultural machinery markets were obtained from published secondary sources, interviews with senior marketing personnel at key manufacturers, and discussions with industry experts and intermedi-

Segments should have homogeneous buying behavior.

aries from the distribution channels. One of the main aims of the research was to achieve an in-depth view of the practical problems faced by companies attempting to implement segmentation theory, in their attempts to resegment markets or where segmentation was occurring for the first time.

The quantitative data resulted from a survey of installers (garages) in the UK market for car parts. Data were collected from 201 UK-based garages and retailers on every aspect of their supplier needs. Current segmentation of the market was studied, and multivariate techniques were used to generate a new segmentation scheme. The managerial utility of this scheme was then assessed.

In combination, the data collection exercises generated data on market trends, competitor evaluations, customer needs and perceptions, and product evaluations for all customer types and a range of manufacturers. The findings included managers' perceptions of existing market segments, possible new approaches to segmenting the markets, plus customer and competitor quantitative data that could be analyzed to examine segmentation issues.

The results of the research are here organized into two sections. The first examines operational considerations and frustrations that impact on the implementation of segmentation schemes. Information from the markets for agricultural and construction equipment is used as the basis for the discussion. The second section uses quantitative findings from the automotive aftermarket to consider the managerial utility of recognized industry segmentation and to examine how easily a new scheme, generated using recognized multivariate techniques, could be implemented.

CURRENT SEGMENTATION AND RESEGMENTATION

Existing industry breakdowns in the agricultural and construction equipment businesses are organized on a product basis. The industry deals with a diversity of machines designed to cut and dig, carry and load, tunnel and excavate, climb on tracks up three in 10 slopes, or travel along the public highway at speeds of up to 45 mph. Some are

designed to carry many tons of earth or rubble; others, only small loads in often confined spaces. The full product breakdown, as recognized in the industry, includes:

Articulated dump trucks	Asphalt finishers
Backhoe loaders	Crawler dozers
Crawler excavators	Crawler loaders
Mini excavators	Motor graders
Motor scrapers	Rigid dump trucks
Rough terrain lift trucks	Skid steer loaders
Wheeled excavators	Wheeled loaders
Tractors	Fork lifts
Spreaders	Harvesters
Combines	Attachments

Most manufacturers have added product groups to their portfolios gradually, with the result that sales and marketing (and often engineering) within these companies are set up around product groups. Typically, each product group has separate management teams. One major European manufacturer of construction equipment, for example, has six principal groups: backhoe loaders, wheeled loading shovels, loadalls/telehandlers, crawler/wheeled excavators, fastrac articulated trucks, and skid steers/mini excavators (the "on a trailer behind a van" end of the market).

Like the U.S.-based market leaders, key Japanese market challengers and numerous followers and nichers, the European company defines its marketing by geographic territory and a sectorized view of customer groups. Distribution is geared so that within key market territories, different managers handle their own product group for only one or two customer groups. In Europe, the main construction industry customer groups are:

Plant hire
Extraction (quarrying/mining)
Civil engineering
Contractors
Landscaping
Public utilities and local authorities
Manufacturing and industrial services
Tool hire

House building
Agriculture
Earthmoving
Waste disposal

The result is a marketing program orientated around three factors: (a) territory, (b) product group, and (c) customer group (Figure 1). The European manufacturer, for example, has a team of five marketing managers in the UK handling company strategy and marketing programs for backhoe loaders. The work load is divided so that each member of the team deals, according to their own expertise, with key customer groups and territories throughout Europe, North America, and South East Asia. These managers are supported by locally based field managers.

Quite divorced from these managers, the company has teams controlling its other product groups. Often, because of this marketing structure, different teams will be selling separate products to the same set of customers. Because a similar approach is adopted by most other key world players, customers are used to having to deal with different people – and sometimes dealers – for different products.

This results in a multi-celled matrix that reflects industry structure but which does not necessarily relate to customer needs or buying behavior. Such an approach is not new. Abell [1] suggests that adopting a three-dimensional approach to its business can help a company understand the boundaries between markets, industries, and businesses, and be better equipped to deal with the competitive arena in which it is located. The three dimensions that Abell suggests are:

- customer group dimension (who is being served)
- customer functional dimension (what need is being satisfied)
- technological dimension (how customer functions are being met)

Marketing textbooks demand customer needs, buying processes, and habits be explored, with customers – irrespective of their industry and often country of location – being pulled together in homogeneous groups or market segments. However, this European manufacturer (and many of the other key players in this market) is highly successful with a large brand loyal following. To reorganize sales, marketing, and distribution, having determined homogeneous groups across existing customer classifications, product groups, and territories, would be highly disruptive, costly and – in the short term – perhaps of only marginal benefit. The following points summarize the views and concerns of those interviewed about such a course of action:

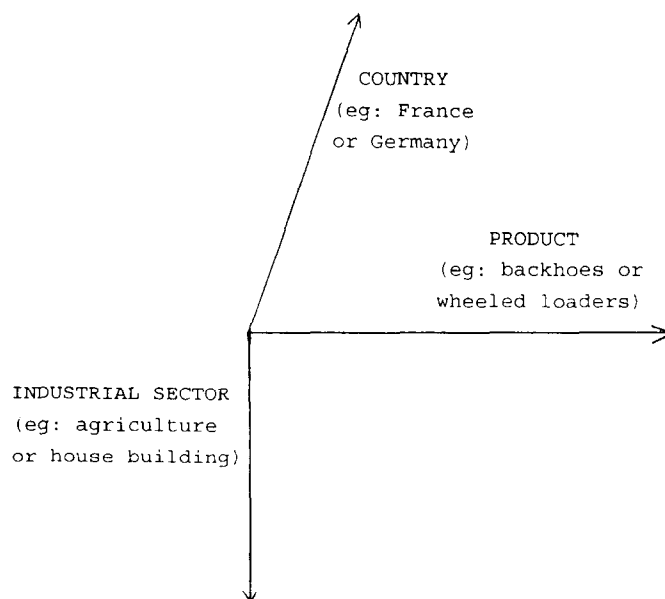


FIGURE 1. Multi-segmented view of European construction equipment

1. There was obvious interest in the market segmentation concept, but the view was expressed that any resegmenting of the customer base would only be feasible if disruption to the sales, marketing, and distribution effort could be minimized.
2. Efforts to alter the current sector view of the market would need to be quickly rewarded with clear benefits in terms of increased customer satisfaction.
3. There were frustrations about how the effectiveness of a particular set of segments could be measured. Current guidelines about the attractiveness of alternative scenarios were seen as difficult to implement.
4. Disruption to salesforces and dealer networks, which are long established, often with legally binding contractual obligations to maintaining the status quo, would need to be minimized.
5. The “hassle factor” in resegmenting was seen as a major barrier to change.
6. Benefits from a new set of segments were seen likely to be only marginal.

MANAGERIAL UTILITY OF EXISTING AND NEW SEGMENTATION SCHEMES

It is usually the installer of parts, rather than the vehicle owner, who is considered to be the consumer by car part

Behavior based segments are more useful than product based segments.

aftermarket suppliers. This is because it is most often the installer who makes the final brand choice, rather than the vehicle's owner, who simply leaves the car with the garage for servicing or repair.

Traditionally, the car aftermarket categorizes installers into a number of distinct types. The key characteristics of these types are illustrated in Table 1.

Interviews with industry experts [10, 16] reveal historical reasons for grouping installers in this way. For example, VM agents became established when vehicle manufacturers set up franchised operations. Increasing numbers of trained mechanics responding to government encouragement to start their own businesses led to a rise in specialists and independents. Most recently, fast-fit and menu service operations have developed to satisfy increasing customer emphasis on ease of access and competitive pricing. As a result of these developments, a number of installer groupings have become recognized. Suppliers in the industry find these groupings easy to understand and operationally useful to deal with. Whether or not the groupings segment customers effectively in a marketing sense can be judged by considering the degree to which supplier requirements vary by installer type.

Analysis of the survey of installers' supplier needs reveals only a limited number of statistically significant vari-

ations according to installer type. Out of 40 qualities included in the survey [derived from 26], for only nine was variation by installer type statistically significant [16]. Menu/fast-fit operations placed relatively more importance on literature/catalogs and car make coverage than many other installer types. This group was less concerned about original equipment brands and packaging, which were seen as very important by the vehicle manufacturers' agents. Retailers such as the motorist accessory shops, different again, emphasized the need for good quality sales forces. This requirement was not echoed by the other groups. Table 2 shows, in full, the ratings for the statistically significant requirements. It is important to reiterate that for the other 31 supplier qualities, variations by installer type were not statistically significant.

The rank figures in the second column of Table 2 reflect the importance attributed by the installers to the particular feature. These show that the nine qualities in the table were ranked among the least important of the total 40.

It can be seen that while some distinctive characteristics are revealed by aggregating installers into types, when viewed in the context of the full list of supplier qualities, the insights achieved are minimal. In view of the limitations of the existing installer sectorization, it is interesting to see whether academic segmentation approaches are able

TABLE 1
Categories of Installer Types

Specialist repairers
Garages that carry out work on either a limited range of components or car makes
Vehicle manufacturers' (VM) agents
Garages franchised to sell, service, and repair the cars of one or more manufacturer
Retailers
Retail outlets that serve the market for DIY car parts
Menu/fast-fit
Independent companies offering servicing and repairs (sometimes dealing only with very limited and easy to fit ranges of parts) at fixed prices
Independent garages
Garages that are not franchised to vehicle manufacturers and that usually work on cars over 3 years old

Developed from Mintel, 1988.

TABLE 2
Variation of Supplier Requirements by Installer Type

Requirements	Rank	Mean Likert Responses				
		S	VM	R	MFF	IG
Original equipment brand	34	4.1	4.73	3.21	3.05	3.78
Suitable packaging	33	3.24	4.32	4.13	3.3	3.19
Low unit prices	24	4.33	3.59	4.53	4.2	4.32
Advertising and promotional support	35	3.05	3.95	3.83	3.45	2.7
Literature/catalogs	20	4.14	4.38	4.59	4.35	3.89
Specialist in some parts	38	3.24	2.76	3.46	3.4	3.93
Good quality sales force	31	3.48	3.97	4.05	3.85	3.93
Coverage of all car makes	32	2.52	3.03	4.28	4.5	4.22
Low price reputation	36	2.81	3.14	3.79	3.6	3.56

S, specialists; VM, vehicle manufacturers' agents; R, retailers; MFF, menu/fast fit; IG, independent garages.

to generate a more managerially useful segmentation solution. According to academic theory, there are two broad types of segmentation study: a priori and clustering based [22]. For this analysis cluster analysis, a well-established technique, with recognized segment generation abilities [38] was used.

Following the method of Doyle and Saunders [18], the 40 variables were first reduced to 14 using factor analysis. The hierarchical form of clustering known as Ward's method [34, 35] was then used to cluster the variables. This approach successively joins cases at a number of levels to form a dendrogram (tree diagram). (See 2, 19, for full accounts of this method.)

The level of analysis at which the data were clustered into seven clusters was chosen because the clusters were distinctive and relatively straight forward to interpret—both identified by researchers as important qualities [3, 32, 18]. In addition, a study of the statistical stress measure used in the analysis showed that moving from the seventh to sixth cluster level resulted in significant information being lost. Satisfactory validation of this solution was achieved using the recognized three-stage procedure outlined by Choffray and Lilien [13].

Profiling of the seven clusters was attempted using a range of demographic and behavioral descriptor variables. This profiling stage is essential in order to understand as much as possible about the customers which each cluster contains so that appropriate marketing programs can be developed. A segmentation scheme can only be regarded as managerially useful if such an overview can be obtained. Kotler's [29] frequently quoted segment characteristic of accessibility requires a good understanding of customer profile. Without this, it would not be possible to develop a marketing program that would be suitable to reach a particular customer group. However, with the aftermarket data,

profiling the seven segments did not reveal distinctive installer groups in terms of the demographic and behavioral variables used. Furthermore, as can be seen in Table 3, there was no logical allocation of installer types to the clusters identified. The implications of this are that attempts to implement this segmentation scheme would encounter considerable difficulties. Put simply, without an understanding of these customer profiles, it would be virtually impossible to predict the suitability or likely success of a particular marketing mix.

DISCUSSION

The agricultural and construction industry research has identified the problems faced by companies wishing to resegment their markets. Recognized industry structures, whether based on product and customer type sectors or allied more closely to segments of differing customer needs, are often very powerful. Distributors, dealers, and even customers all know where they stand so that management's ability to bring about change can be limited at the start. It is often argued that even when academically valid and operationally appropriate segments are identified, the sales function proves unable to modify strategy accordingly [38]. In such cases, segmentation has developed for operational reasons, rather than as a direct response to differing customer needs and buyer behavior. The result, as is seen here, can be a sectorized rather than a segmented view of the market, where the buyers in each group do not really have relatively homogeneous needs.

The findings from the aftermarket research highlight further the problems of implementing a new segmentation scheme. The existing installer sectors have not been specifically developed to satisfy customer needs and marketing requirements, and differences in the needs of each group are not readily apparent. It is difficult to see how anything other than minor adjustments could be made to this "segmentation" or in the marketing efforts targeted at each group. However, the segmentation scheme generated by the cluster analysis seems to create more problems than it solves. Although recognized statistical tests indicate that, in an academic sense, the segments are valid, the unsatisfactory profiling of the customer groups means it would be virtually impossible to implement the scheme with any certainty of success.

Academics have attempted to develop industrial segmentation methods which are in sympathy with the practical implementation issues faced by practitioners. The practitioner viewpoint was recognized early on by Wind and

TABLE 3
Breakdown of Installer Type at the Seven Cluster Level

	S	VM	R	MFF	IG	Total
Cluster 1	9	5	42	8	8	72
Cluster 2	6	10	21	7	7	51
Cluster 3	2	6	7	2	4	21
Cluster 4	1	9	3	0	1	14
Cluster 5	1	2	14	0	4	21
Cluster 6	0	0	3	0	1	4
Cluster 7	2	3	6	0	2	13
Total	21	35	96	17	27	196

S, specialists; VM, vehicle manufacturers' agents; R, retailers; MFF, menu/fast-fit; IG, independent garages.

Re-analysis of existing markets yields more useful segmentation than slow segment evolution.

Cardoza [39]. Their findings suggested that marketers judge segments on the basis of appropriateness and ease of implementation. These criteria were used to develop a configuration of segment bases that use the two criteria as dimensions. Wind and Cardoza [39] then devised a two-stage approach to industrial market segmentation that first used key organizational characteristics to develop macro segments and then identified micro segments on the basis of key decision making unit (DMU) characteristics, such as membership, size, and structure, within the macro segments. DMU characteristics have been shown to be an important industrial segment base in certain circumstances [36, 24]. The Macro-Micro model, as it is sometimes called, was based on the principle that it can be possible to break down existing groups or sectors on the basis of other customer characteristics to reveal subsegments that are more homogeneous than before [23].

Since the two-stage approach to industrial segmentation was developed, further attempts have been made to devise models that cater for the particular problems of this area of business. Bonoma and Shapiro [9] classify the different industrial segmentation models into three categories: unordered base selection, two-step base selection, and multistep base selection [for full reviews, see 31, 11]. Like the two-stage approaches, the multistep method is specifically designed to cater for problems faced by industrial companies trying to work out which and how many bases should be used.

The message for industrial companies at the bottom of the segmentation slope is to not be afraid to use existing market divisions as a starting point. This helps minimize the practical problems of existing, entrenched sales, marketing, and distribution systems, and allows companies to deal with segmentation variables that are relatively easy to identify and measure. For example, using macro segments as a starting point, subsegments can then be sought using other appropriate base variables. It may be possible, as in the construction equipment market, to merge the mar-

keting activity for a few of these subsegments to create reasonably definable and robust segments. The key, as always in segmentation research, is to identify customer groups which contain customers with relatively homogeneous needs. These groups can originate either from within the macro segment boundaries, or cut across them.

Despite some moves toward catering for the specific problems that segmentation poses for industrial marketers, more work is needed that addresses the implementation problems and offers guidance for applying academic schemes in practice. For academics, this research reiterates the importance of implementability as a criterion for segmentation in industrial settings. The power of existing structures should not be underestimated, and, where these are particularly entrenched, it is more realistic to seek ways to reorganize what already exists than to try to impose completely new approaches to segmentation. Where new segmentation solutions are sought, the importance of readily implementable, clear, and understandable schemes should not be obscured by the desire for an academically valid solution that is justified by all the formal statistical routines. Without schemes that are straightforward to implement, the ability to generate appropriate, targetable, and effective marketing programs will be limited, reducing the likelihood that practitioners will use such schemes.

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