

PRODUCT ELIMINATION DECISIONS: A COMPARISON OF CONSUMER AND INDUSTRIAL PRODUCTS

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This manuscript examines the influence of market type on the product elimination decision-making processes of American manufacturing firms. Three areas are examined: (1) the precipitating circumstances which "trigger" an elimination decision to begin; (2) the evaluation factors used to make the elimination decision; and (3) the particular strategies used to eliminate a product from the marketplace. Collectively, a great deal of similarity is identified in the product elimination decisions examined in this manuscript.

INTRODUCTION

This is a period of great change in the composition of the markets for most goods and services in the United States and elsewhere. The fragmentation of markets has led to the proliferation of new products which places pressure on the already thin resources of many firms. The 80/20 principle, whereby 80 percent of a firm's sales come from 20 percent of its product line, is a fact of life for many marketers. In fact, *Business Week* recently reported (Sept. 1996) that just 7.6 percent of all personal and household care products account for about 85 percent of total sales according to Paine Webber research.

Concurrently, the failure rates for many of these new offerings are extremely high. *Business Week* recently cited a study of 11,000 new products and found that only 44 percent of these items were still available in the marketplace five years later. In the current climate of diminishing brand loyalty, fragmented markets, longer lead times necessary for new product development, higher break-even points for new products, and raw material shortages, many firms are recognizing the need for greater efficiency in their

operations. Given the finite resources available to most marketers, the need to recognize products for possible elimination, accurately evaluate their performance, and eliminate them in a timely manner continues to assume greater importance.

The purpose of this manuscript is to report the results of a comprehensive examination of the product elimination decision-making processes within American manufacturing firms. Specifically, a comparison of consumer and industrial product elimination decision-making is presented to determine whether market type influences the product elimination decision-making processes.

This manuscript focuses on three particular areas of the product elimination decision-making process: (1) the precipitating circumstances which "triggered" the product elimination decision-making process to begin; (2) the variables used to make the elimination/retention decision; and (3) the strategies used to eliminate the product from the marketplace. First, a review of product elimination literature pertinent to the focal points of this manuscript is presented. Second, the methodology is described and results presented. Finally, the data are interpreted and conclusions offered.

PRODUCT ELIMINATION: A REVIEW OF THE LITERATURE

A review of the marketing literature reveals that the introduction of new products has received far more research effort than the elimination of existing products. New products tend to have "glamour" while the deletion of existing products is often regarded as "drab business" as a firm wrestles with those products that have served it well over time. This is a very dangerous matter given the need to balance these two key strategic areas.

That research which has been conducted on the elimination decision itself can be divided into two groups: (1) normative works replete with checklists and sequential actions to guide the marketing decision-maker (Alexander 1964; Berenson 1963; Eckles 1971; Hamelman and Mazze 1972; Kotler 1965; Kotler 1978; and Worthing 1975); and (2) empirical works which focus on specific components of the decision-making process (Agarwal and Gort 1996; Avlonitis 1980, 1983, 1984, 1985a, 1985b, 1990; Avlonitis and James 1982; de Brentani 1995; Eckles 1971; Hart 1988, 1989; Hise and McGinnis 1975; Hise, McGinnis and Viswanathan 1984; Lambert and Sterling 1985, 1988; Mitchell, Taylor, and Tanyel 1996; Pletcher 1973; Rothe 1970; Saunders and Jobber 1994; Viswanathan 1982; and Vyas 1993).

As noted earlier, this manuscript focuses on three particular areas of the product elimination decision-making process: (1) the precipitating circumstances which "triggered" the product elimination decision-making process to begin; (2) the variables used to make the elimination/retention decision; and (3) the strategies used to eliminate a product from the marketplace. The literature pertaining to these focus areas is examined in the sections that follow.

Precipitating Circumstances

An assumption in much of the early normative writing regarding the product elimination process is that the elimination decision arises only when a product reaches the maturity or decline stage of its product life (Alexander 1964; Berenson 1963; Eckles 1971; Hamelman and Mazze 1972; and Kotler 1965). More

recent research found that deletions may occur in a number of different circumstances and are not reserved purely for getting rid of "weaker" or mature products (Avlonitis 1980; Hart 1988).

Avlonitis (1980), in his study of British manufacturers of engineering products (n=94, industrial products), found that not all weak products were ready for elimination, nor were elimination candidates only those items with low profitability and declining sales. Rather, eight basic problem situations were identified under which a product may be reviewed for possible elimination:

1. government policies and regulations
2. changes in third party specifications
3. decline in market potential
4. parent organization decisions and policies
5. poor product performance (despite a generally viable market)
6. development of new products
7. rationalization brought about by mergers and acquisitions
8. development of an active variety reduction policy

Hart (1988), in an extension of the earlier work of Avlonitis, isolated seventeen distinct problem situations (many beyond the direct control of marketing managers) which precipitated the need to review a product for possible elimination in British manufacturing firms (n=166). Hart's sample consisted of both consumer and industrial product manufacturers. This list of precipitating circumstances (to be used in this study) is presented below:

1. Government policies and regulations
2. Operational problems
3. Third-party decisions
4. Competitive activity
5. Development of a new product
6. Company resources required elsewhere
7. Problems associated with raw materials/parts
8. Variety reduction policy
9. Decline in market potential
10. Poor sales performance
11. Poor profit performance

12. Poor quality or design
13. Poor fit with company capabilities or strategic plans
14. Rationalization due to mergers and acquisitions
15. Poor fit with company image
16. Parent company decisions and policies
17. Change in exchange rates

de Brentani (1995) identified two failure scenarios for service firms. The first scenario was labeled as the "peripheral, low market potential" consisting of the following market characteristics: low market potential, lack of consumer benefits, and a lack of corporate commitment to the service/product. The second scenario was labeled as the "poorly planned industrial clone" consisting of the following market characteristics: lack of responsiveness to customer needs, offering little improvement over competitive products, late launch which limited market share potential, questionable speed and reliability of service provider, lacking attempt to create a quality image, and poor customer interaction.

To date, no effort has been made to examine for possible differences based upon the types of markets served. Given the differences between consumer and industrial markets, differences may exist in the frequency of occurrence of the precipitating circumstances in the product elimination process.

H1: The precipitating circumstances which necessitate that a product be reviewed for possible elimination vary according to the type of market served by the firm.

Evaluation Factors

Decision-makers must assess the relative importance of those variables considered pertinent to that particular elimination decision. Early researchers attempted to identify a universal list of variables used to identify weak or poor performing products for possible elimination (Alexander 1964; Banville and Pletcher 1974; Berenson 1963; Eckles 1971; Hamelman and Mazze 1972; Hise and McGinnis 1975; Kotler 1965; Rothe 1970).

Avlonitis (1984) noted that previous authors had isolated evaluation factors which were actually more appropriate for the identification of "weak" products and not the subsequent elimination/retention decision. As such, he believed those variables were more related to product audit situations than to the product elimination decision. Avlonitis (1984) isolated fifteen evaluation factors believed to be more germane to the elimination decision. This list of evaluation factors (to be used in this study) is presented below:

1. New product potential
2. Product's elimination effect on sales of other products
3. Product's elimination effect on customer relationships
4. Product's elimination effect on profitability of other products via *production* overhead allocation
5. Reallocation of capital and facilities to other opportunities
6. Product's elimination effect on "full-line" policy
7. Release of executive time spent on the product
8. Existence of substitutes to satisfy the customer
9. Product's elimination effect on the fixed and working capital
10. Product's elimination effect on profitability of other products via *selling* overhead allocation
11. Product's elimination effect on corporate image
12. Competitive moves in case the product is eliminated
13. Product's elimination effect on profitability of other products via *distribution* overhead allocation
14. Product's elimination effect on employee relationships
15. Organized intervention (i.e., trade unions)

Greenley and Bayus (1994) examined the differences in tools used and method of information processing during the examination processes between American and British firms. They did not evaluate the specific variables used in the product elimination decision-making process.

To date, no effort has been made to examine for possible differences based upon the types of markets

served. Given the difference between consumer and industrial markets, differences may exist in the relative importance of evaluation factors in product elimination decision-making.

H2: The types of information used to evaluate a product for possible elimination vary according to the type of market served by the firm.

Elimination Strategies

A firm electing to eliminate a product has a wide variety of options by which to do so. The particular

elimination strategy used has been studied for over twenty years. A longitudinal presentation of this literature is summarized in Table 1. Saunders, and Jobber (1994) evaluated strategies for simultaneous product deletion and launch. The researchers identified five patterns: inconspicuous substitution, tangible repositioning, conspicuous substitution, intangible repositioning, and face-lift. The focus of their study was the replacement of deleted products rather than the processes used to eliminate a product itself.

TABLE 1
Product Elimination Strategy Selection

Study (Year)	Sample Composition	Sample Size	Findings
Rothe (1970)	Consumer products: ethical drugs major appliances goods clothing minor appliances	200	Respondents prefer to drop a product immediately upon making the elimination decision.
Eckles (1971)	Mix of consumer and industrial products: veterinary drugs electronics steel	11	The drop immediately option is used more frequently than the planned removal of a product.
Avlonitis (1983)	Industrial products: mechanical and electrical engineering products	94	The slow phasing out of a product was the most often used option. The author noted that these results may be sample-specific.
Lambert and Sterling (1988)	Mix of consumer and industrial products: durable goods packaged goods high technology process industries	141	Over 2/3rds used some combination of harvesting and milking strategies. No attempt was made to examine for possible differences in the selection of the different elimination strategies and the types of products sold (consumer vs. industrial).
Avlonitis (1990)	Mix of consumer and industrial products: consumer goods consumer durables industrial supplies industrial components capital equipment	166	This study examined the various elimination options and the product's position within its life cycle. There appeared to be surface evidence that the elimination strategy selected did vary over the stages of the life cycle. No attempt was made to examine for possible differences based upon the types of markets served (consumer vs. industrial).
Greenley and Bayus (1994)	Mix of consumer and industrial products	106	This study examined the procedures or processes used in the product elimination decision-making processes. Firms were then in terms of their information needs and usage. Specific strategies used were not discussed.

Product Elimination Decisions: . . .

Mitchell, Taylor and Tanyel

Agarwal and Gort (1996) studied early versus late market entries and the timing of market exit. The researchers found later entrants became vulnerable more quickly than did earlier entrants and were more likely to exit the market at an earlier age (i.e., more quickly) than older firms. Older products were more likely to survive given the advantages of market share, customer loyalty, and experience related cost savings.

Mitchell, Taylor, and Tanyel (1996) examined the potential for cognitive dissonance within organizational decision-makers by examining the product elimination decision. The presence of this psychological phenomenon was not supported in their study of manufacturing firms.

Based upon prior studies, six options (with descriptions to ensure standardization) were posed to the respondents in addition to a response for "other" elimination strategies:

1. Drop Immediately - once the elimination decision has been reached, the manufacturing stops immediately. All product is removed from the marketplace.
2. Phase-out Immediately - "run down" the product inventory by satisfying the customers' orders received up to the decision day and/or other contractual arrangements. Production is ceased after this date.
3. Slow Harvesting - sharply reduce long-term investment in plant, equipment, and R&D, but only gradually reduce operating expenditures such as marketing or service.
4. Fast Harvesting - sharp reductions in operating expenses (and possibly price increases) to maximize short-term cash flow, while minimizing the possibility that any additional money be invested in the business.
5. Sell-Out - sell the product or product rights to another manufacturer.
6. Drop From Standard Range and Produce Only for Premium Price - the product is no longer manufactured as a standard, but can be produced and marketed in the future if demanded by a customer. A premium price is then charged for these subsequent orders.

Respondents were asked to report the particular elimination strategy used from the list provided. Given the difference between consumer and industrial markets, differences may exist in the selection of particular strategies used to eliminate a product from the marketplace.

H3: The type of product elimination strategy selected varies according to the type of market served by the firm.

METHODOLOGY

An "after-the-fact" or post-hoc analysis of recent product elimination decisions was conducted. The product itself had been eliminated from the marketplace. The respondents were asked to provide information on the processes surrounding that particular elimination decision. A self-administered questionnaire was mailed to manufacturing firms selected from Dun and Bradstreet's *Million Dollar Directory*. The respondent was asked to provide the requested information as it pertained to that particular product elimination decision. The respondents were presented with definitions of consumer and industrial markets and asked to identify the market served by that product prior to its elimination (one selection only).

consumer market - individual households or consumers purchased or acquired the eliminated product for personal consumption.

industrial market - individuals or organizations purchased or acquired the eliminated product to use in the production of other products to be sold to others or to assist in the firm's conducting of its business.

Further, the lists of precipitating circumstances, evaluation factors, and elimination strategies were presented with response scales modeled from prior research.

Sample Composition

A total of 1,304 firms was randomly selected from the *Million Dollar Directory's* list of manufacturing

firms (SIC 20-39) meeting the inclusion requirements of possessing annual sales in excess of \$25 million and completeness of record (name of desired contact person: Vice President of Marketing). The questionnaires were mailed during a one week period. One-hundred and eighty-five (185) completed questionnaires were received, yielding a 14.2 percent response rate. Of these 185 responses, 110 dealt with the elimination of an industrial product while the remaining 75 pertained to the elimination of a consumer product.

Analysis of Non-Response Error

The annual sales revenue and the number of employees have been used in the past as measures for the size of the firm and used to examine possible non-response error in product elimination research (Viswanathan 1982). For this study, both measures were collected *after* a completed questionnaire was received and matched with that firm's response. Also, a systematic random sample of non-respondent firms (of the same size of the respondent group) was drawn with their annual sales revenue and number of

employees recorded. As such, non-response was assessed by examining two groups drawn from the same population: respondents and non-respondents. No statistical differences existed between the respondents and non-respondents in terms of their level of annual sales and number of employees.

PRESENTATION OF RESULTS

Precipitating Circumstances by Type of Market (Analysis of H1)

The respondents rated the relative importance of each precipitating circumstance on their particular product elimination decision of reference on a 5-point Likert Scale (1 = of little or no importance to 5 = extremely important). Mean responses were computed for each variable for two analysis groups: consumer products and industrial products. To test this hypothesis, a series of t-tests (means comparison) was conducted. The t-value and level of significance (p-value) for each variable is provided in Table 2.

TABLE 2
Comparison of Precipitating Circumstances

Variable	Means		t-statistic	p-value
	Consumer	Industrial		
A1 = Gov't policies and regulations	2.13	2.13	.03	.97
A2 = Operational problems	2.63	2.92	-1.42	.16
A3 = Third-party decisions	2.51	2.34	.81	.42
A4 = Competitive activities**	3.37	3.00	1.96	.05**
A5 = New product development	3.39	3.18	.91	.37
A6 = Resources required elsewhere	2.93	2.95	-.10	.92
A7 = Problems with raw mat. and parts	2.63	2.44	.92	.36
A8 = Variety reduction policy**	2.79	2.24	2.84	.01**
A9 = Declining market potential**	3.89	3.17	3.54	.00**
A10 = Poor sales**	4.44	3.51	5.47	.00**
A11 = Poor profits**	4.04	3.40	3.14	.00**
A12 = Poor product quality**	3.11	2.55	2.54	.01**
A13 = Poor fit with corporate strategy	3.16	2.85	1.42	.16
A14 = Rationalization due to mergers	1.76	1.55	1.33	.19
A15 = Poor fit with company image**	2.39	1.79	3.13	.00**
A16 = Parent company dec. and policies**	1.83	1.31	3.46	.00**
A17 = Change in exchange rates	1.41	1.29	1.08	.28

KEY: ** = Significant to the .05 level.

Product Elimination Decisions: . . .

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Analysis of the t-statistics and p-values reveals differences in the occurrence of eight of the seventeen precipitating circumstances (47%) based upon type of market served. Interestingly, the variables found to differ significantly all possess greater mean values for the consumer product group. Precipitating circumstances found to occur more frequently for consumer product marketers (i.e., cause a product to be reviewed for possible elimination) include: competitive activities; variety reduction policy; declining market potential; poor sales; poor profits; poor product quality; poor fit with company image; and parent company decisions and policies.

Ranking of responses within the two groups shows that poor sales, poor profit, and declining marketplace occur with the greatest frequency regardless of type of market served. Collectively, moderate evidence exists that the frequency of occurrence of the precipitating circumstances does vary according to the type of market served by the firm. H1 is moderately supported.

Surface evidence exists that marketplace performance is more frequently used as the trigger mechanism for a product to be reviewed for possible elimination among consumer products when considered as a group. In general, the typical consumer product firm has a broader product mix than the industrial product firm. As such, this product mix breadth may act to spur more comprehensive product line audits among consumer product manufacturers. Further, many industrial products derive their demand from the sale of other products. This derived demand situation may act as a "de-motivator" to conduct such needed comprehensive product line audits.

Evaluation Factors by Type of Market (Analysis of H2)

The respondents rated the relative importance of each evaluation factor on their particular product elimination decision of reference on a 5-point Likert Scale (1 = of little or no importance to 5 = extremely important). Mean responses were computed for each variable for two analysis groups: consumer products and industrial products. To test this hypothesis, a series of t-tests (means comparison) was conducted.

The t-value and level of significance (p-value) for each variable is provided in Table 3.

Analysis of the t-statistics and p-values reveals only minor differences in the relative importance of evaluation factors when considering the type of market served. Evaluation factors found to be of greater relative importance in consumer markets include: Competitive moves in case the product is eliminated; and a product's elimination effect on the profitability of other products via distribution overhead. All other variables show no differences in relative importance within consumer or industrial markets. It appears that the evaluation factors used to determine whether to eliminate or retain a product are relatively consistent among all manufacturing firms examined in this study. While differences were thought to exist based upon the type of market served, this is clearly not the case. As such, H2 cannot be supported.

Elimination Strategies by Type of Market (Analysis of H3)

The respondents reported the strategy implemented for their particular elimination decision of reference. By examining the frequency of their selection across the two groups, it is possible to determine whether differences exist as to their utilization and the type of market served by the firm. The frequency of their selection is shown in Table 4 for both examination groups. Given the unequal sample sizes, the values are converted to percentages to permit ease of analysis. Next, the Wilcoxon Matched-Pairs Signed-Ranks test is used to examine the percentage frequency of selection of the elimination strategy options for possible differences based upon the types of markets served (consumer vs. industrial).

The Wilcoxon Matched-Pairs Signed-Ranks test permits the analysis of two related samples when the measurement scale permits the researcher to determine whether differences exist in paired values of samples X and Y as well as the magnitude of those possible differences (Daniel 1992). Once these differences are determined, this group of differences (d_i) values are used for computation purposes. The direction of these differences is noted and the absolute

TABLE 3
Comparison of Evaluation Factors

Variable	Means		t-statistic	p-value
	Consumer	Industrial		
B1 = New product potential	3.27	3.35	-.38	.70
B2 = Product's elimination effect on sales of other products	3.29	3.17	.64	.52
B3 = Product's elimination effect on customer relationships	3.53	3.43	.57	.57
B4 = Product's elimination effect on profitability of other products via production overhead allocation	3.00	2.95	.25	.81
B5 = Reallocation of capital and facilities to other opportunities	2.96	2.87	.45	.66
B6 = Product's elimination effect on "full-line" policy	2.72	2.69	.17	.87
B7 = Release of executive time spent on the product	2.04	2.03	.08	.94
B8 = Existence of substitutes to satisfy the customer	3.17	3.48	-1.59	.11
B9 = Product's elimination effect on the fixed and working capital	2.41	2.33	.50	.62
B10 = Product's elimination effect on profitability of other products via selling overhead allocation	2.58	2.38	1.15	.25
B11 = Product's elimination effect on corporate image	2.37	2.05	1.86	.07
B12 = Competitive moves in case the product is eliminated**	2.65	2.32	1.96	.05**
B13 = Product's elimination effect on profitability of other products via distribution overhead allocation**	2.44	2.13	1.99	.05**
B14 = Product's elimination effect on employee relationships	1.97	1.85	.83	.40
B15 = Organized intervention (i.e., trade unions)	1.43	1.22	1.89	.06

KEY: ** = Significant to the .05 level.

values of the differences are ranked. Simply put, the median of the population of differences is zero, there should exist an equal number of positive differences and negative differences. The sum of the ranks of the positive differences should equal the sum of the differences of the negative ranks (Please see Daniel [1992]) for a more comprehensive discussion of this technique). The computations for the Wilcoxon Matched-Pairs Signed-Ranks test are also presented in Table 4.

The results of the Wilcoxon Matched-Pairs Signed-Ranks test indicate that the utilization of the particular elimination strategies is not influenced by

the type of market served. The "phase-out immediately" option is the most often used strategy by all respondents, regardless of the type of market served by the firm. Further, the remainder of responses are distributed over the remaining strategy options. As such, H3 cannot be supported.

Two items deserve mention here. First, the number of firms electing to harvest the product in some fashion is lower than expected given the amount of research effort and discussion afforded this option. Second, the industrial marketers' increased use of dropping a product and selectively producing it is a reflection of

TABLE 4
Elimination Strategy Selection

Strategy	Consumer	Industrial
Drop Immediately	4 (5.3%)	8 (7.3%)
Phase-out Immediately	58 (77.3%)	59 (53.6%)
Slow Harvesting	5 (6.7%)	12 (10.9%)
Fast Harvesting	5 (6.7%)	3 (2.7%)
Sell-out	0 (0.0%)	6 (5.5%)
Drop & Prod. Select.	1 (1.3%)	16 (14.5%)
Other	2 (2.7%)	6 (5.5%)
	100%	100%

Wilcoxon Matched-Pairs Signed Ranks Test Computations:

Strategy	Con (%)	Ind %	d_i	$ d_i $	Sign
Drop immediately	5.3	7.3	+2.0	1	+
Phase-out immediately	77.3	53.6	-23.7	7	-
Slow harvesting	6.7	10.9	+4.2	4	+
Fast harvesting	6.7	2.7	-4.0	3	-
Sell-out	0.0	5.5	+5.5	5	+
Drop & prod. select.	1.3	14.5	+13.2	6	+
Other	2.7	5.5	+2.8	2	+
	100%	100%	28		

Where,

d_i = Difference between percentage values for each variable

$|d_i|$ = Absolute value of the d_i value

T+ = Sum of ranks of + values = 18

T- = Sum of ranks of - values = 10

sum =

28

Analysis: The test statistic compares the T+ and T- values. The Wilcoxon Signed-Ranks test probability table shows a critical value that for $n=7$, the smaller of the T values would need to be below 4 to be significant at the 0.05 level. This is not the case for this study. This suggests that the elimination strategies used are similar for both groups. For $T=10$, the probability of differences between the groups (P -value) equals 0.2891.

the performance of custom work -- an integral part of industrial marketing.

IMPLICATIONS FOR FUTURE RESEARCH

As noted, Avlonitis (1984) urged researchers to refrain from the development of generalized elimination models. As such, the elimination decisions examined in this study were classified as

representing consumer or industrial products. The differences in operating environments were thought to significantly affect the elimination decision. While some differences were found in the frequency of occurrence of the problem situations and the types of information used to make the elimination/retention decision, this broad classification ignores the potential for significant differences in operating environments within the two classifications themselves.

This systematic study of the decision-making processes which separated consumer and industrial product marketers further reinforces or illustrates the need for more specialized types of research on the topic of product elimination as this level of aggregation (type of market served) may mask important differences within the product elimination decision-making process. A lower level of aggregation, such as industry-specific studies, is suggested for future research in order to improve our collective understanding of the product elimination process.

LIMITATIONS

The sampling frame used in this study was selected in order to communicate directly with those individuals responsible for recent product eliminations. As such, many of the business units included in the study are owned by larger organizations. As divisions within larger organizations, it is unknown the degree of autonomy (or lack thereof) of each respondent firm. Some of the respondents may be under severe pressure for short-term performance by their parent companies. Such pressure to conform to parent company wishes can be viewed as a "scope effect" of parent companies on these subordinate firms.

The true effects of these possible scope effects are unknown. However, their impact may be felt in at least two ways: (1) a lesser willingness to stick with a poorer performing product in the short-run; and (2) the adherence to a decision-making process prescribed by the parent firm when considering a product for possible elimination. Both of these conditions would have the effect of ignoring possible differences or uniqueness in local operating environments.

Finally, the identified consistencies in behavior among marketing decision-makers during the product elimination decision-making process may indicate that differences in operating environments indeed have no effect on the elimination decision. As such, the quest to identify differences in product eliminations and operating environments may be misguided. Rather, attention may need to be refocused to the appropriateness of current consistencies among decision-makers.

SUMMARY AND CONCLUSIONS

The types of markets served by an organization can be broadly classified into two groups: consumer and industrial. Industrial markets are typically distinguished from consumer markets based upon the presence of some or all of the following conditions: derived demand; smaller number of buyers; a greater variability in purchase volume; more professional buyer representation; more direct buying (from the manufacturing firm); more specification buying (i.e., custom production); and less frequent negotiation between market participants.

This study examined the possible influence of these structural differences (as a group) on the product elimination decision-making process. Though intuitively attractive, the type of market served appears to have only modest influence on the elimination decision. While slight differences may exist in the elimination decisions for consumer and industrial products, a further division of the types of markets may be needed to identify more specific differences based upon operating environment.

Collectively, a core group of precipitating events tends to occur for all firms. Within this group, however, the items occurring most frequently (approximately 50% of variables) do so with even greater frequency in consumer markets. Further, a core group of evaluation factors tends to be given greater relative importance for all elimination decisions. Finally, deleted items tend to be phased-out immediately. Though many factors influence the firm's decision-makers, there exists a great deal of similarity in the product elimination decision-making in the American manufacturing firms examined in this study.

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