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THE IMPORTANCE OF BRANDING IN INDUSTRIAL MARKETS

Volume 1 of 1

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for submission in fulfilment of the requirements of the degree of PhD to

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MARKETING AND STRATEGIC MANAGEMENT

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DECLARATION

No part of this thesis has been submitted in support of an application for another degree or qualification from this university or any other Institute of Learning.

The following papers have been published or presented as a result of the research:

"An Exploration of Branding in Industrial Markets" (with Peter Doyle and Veronica Wong) in *Brand Management: An Edited Text*, edited by Leslie de Chernatony, Aldershot, UK, Ashgate Publishing, 1998, *forthcoming*.

"Strategic Segmentation and Cluster Analysis in Industrial Markets," *American Marketing Association (AMA) 1998 Summer Educators' Proceedings*, abstract, Boston, August 1998, *forthcoming*.

"An Exploration of Branding in Industrial Markets" (with Peter Doyle and Veronica Wong), 1997, *Industrial Marketing Management*, 26 (5), September, 433-446.

"Choice Models in Theory and Practice in Industrial Markets," *American Marketing Association (AMA) 1997 Summer Educators' Proceedings*, abstract, Chicago, August 1997, 209-210.

"An Analysis of Situational and Decision Factors Affecting Industrial Purchases" (with Peter Doyle and Veronica Wong), *Academy of Marketing Annual Conference Proceedings*, Manchester Metropolitan University, Manchester, UK, July 1997.

- "The Value of Branding to the Industrial Customer" (with Peter Doyle and Veronica Wong), *The 26th European Marketing Academy Conference (EMAC) Proceedings*, pp. 1869-1878, Warwick Business School, Coventry, UK, May 1997.
- "Choice Models in Theory and Practice," *Marketing Education Group (MEG) Conference Proceedings*, abstract, University of Strathclyde, Glasgow, UK, July 1996.
- "A Critical Examination of Branding in Industrial Markets" (with P.Doyle and V.Wong), *The 25th European Marketing Academy Conference (EMAC) Proceedings*, 849-866, Budapest, May 1996.
- "From Transaction Costs to Relationship Marketing: A Model of Buyer-Supplier Relations" (with Ram Mudambi), 1995, *International Business Review*, 4(4), 419-33.
- "Rethinking Industrial Branding Research," *American Marketing Association (AMA) 1995 Summer Educators' Proceedings*, Vol. 6, pp. 115-120, Washington, D.C., August 1995.

SUMMARY

Demonstrations of the power of branding in consumer markets reverberate around the globe. In contrast, the role of branding in industrial markets is unclear and under-researched. Three basic questions stimulate the thesis: (1) What is industrial branding?; (2) Is industrial branding important, and if so, to whom?; and (3) What are the implications of industrial branding for managers?

Industrial branding is *the process of increasing the meaningful differentiation of an industrial product by developing added values or benefits of the brand and communicating them to the customer*. The thesis introduces a continuum of industrial brands from commodities to independent brands. Functional benefits form the foundation of value, yet industrial branding emphasises that intangible and emotional values can also affect the choices customers make. Successful branding engineers a close fit between the benefits desired by customers and the tangible and intangible features of the brand. The *pinwheel of brand value to the industrial customer* captures the dynamics of the situation.

Most previous research examines branding from the seller's perspective. Instead, the thesis utilises in-depth interviews to gain insights into the perceived benefits of branding to the buyer. Then, two extensive surveys of UK industrial buyers contribute to knowledge by successfully measuring the importance of branding in specific product markets (bearings and circuit-breakers).

Analysis of the survey data reveals that branding is important, but not to all buyers or in all situations. The data are used to test hypotheses emanating from a preliminary new *model of industrial branding in the purchase decision process*. Cluster analysis is used for benefit segmentation, the grouping of customers by the perceived importance of choice criteria or attributes. The relative importance of branding is a significant factor in the creation of three buyer clusters. Firms in the *branding receptive* cluster highly value branding attributes such as how well known the company is, the company's general reputation, and the number of prior purchases from the company. Firms in the *high tangibility* cluster value tangible attributes such as physical product properties and price most highly, and branding least highly. Firms in the *low relevancy* cluster show low interest in the purchase and rate all the attributes relatively low in importance.

Previous research has shown the difficulty of linking benefit segments to more accessible characteristics. However, in the thesis, attribute importance of firms in the three segments is related to a number of buyer, purchase, and decision process characteristics. Branding importance is related to aspects such as buyer expertise, perceived risk, and the level of involvement in the decision process. Finally, the thesis offers suggestions for adjusting the marketing mix for buyers in each of the clusters. These recommendations recognise that segmentation analysis is only as good as how well it can be utilised by the sales force.

Overall, the thesis provides evidence of the power of industrial branding, and helps explain its importance. For a significant portion of buyers, the purchase decision comes down to the relatively intangible attributes of the company brand. Despite this, the potential of industrial branding remains relatively untapped.

Chapter 1

INTRODUCTION

1.1 RESEARCH OBJECTIVES

Demonstrations of the power of branding in consumer markets reverberate around the globe. In contrast, the importance of branding in industrial markets is unclear and under-researched. Three basic questions stimulate the thesis: (1) What is industrial branding?; (2) Is industrial branding important, and if so, to whom?; and (3) What are the implications of industrial branding for managers?

As industrial markets become increasingly competitive and global, marketers struggle to counter strong trends towards the commodification of industrial product markets. Improvements in the tangible aspects of the product often provide short-lived benefits, as competitors match or even surpass the innovation, and customers raise their expectations. As a result, a number of industrial markets feature products with practically identical physical specifications and performance. Yet in many cases, one of the products successfully maintains a high market share, even at a premium price. The question arises as to what differentiates the successful product from its competitors in the eyes of the customer. The basic explanation lies with customer perception of superior value (Doyle 1994). However, the processes involved in adding value are complex and interrelated (Porter 1985).

Many explanations and prescriptions for meaningful product differentiation and sustainable competitive advantage abound in the literature (Day and Wensley 1988). Explanations for purchase decisions emerge from the literatures of organisational buying behaviour, buyer-seller relationships, and industrial segmentation. To avoid simply competing on the basis of price, many successful marketers emphasise the more intangible aspects of the offer, service quality, and a broader systems approach to meeting customer needs. The objective of these strategies is to develop and sustain meaningful differentiation in a dynamic marketplace in a way that cannot be copied easily by competitors.

Strategies to improve service, offer systems approaches, and increase differentiation can be effective, but are not cost free, and their impact on pricing and resource requirements must be considered. Underlying these strategies is an appreciation of the importance of customer segmentation. Understanding customer segments can facilitate the development of pricing strategies and customised marketing approaches to better meet customer needs. In particular, if firms can identify a customer segment that recognises the value of intangible aspects of the product offer such as corporate reputation and stability, the profit potential can be great.

Yet, what about the role of branding? According to Aaker (1991, p.ix), when the industrial purchase decision is a "toss-up", the "decisive factor then can turn upon what a brand means to a buyer." Others (e.g., de Chernatony and McDonald 1992, p. 99) have written that branding may be just as important in industrial markets as it is in consumer markets. However, discussions of industrial

decision making only occasionally refer to branding or brand equity, and only a few studies have examined the real and potential impact of branding.

Branding is an important aspect of consumer product marketing strategy, and almost all branding models are designed specifically for consumer products.

Given the general acceptance of the many differences between consumer and organisational buying behaviour, the applicability of consumer branding theory and practice to industrial markets is suspect. The marketing mix available to industrial marketers involves numerous challenges, a few of which are summarised in Table 1.1. Yet, some researchers consider the distinction between consumer and organisational decision making to be somewhat arbitrary (Fern and Brown 1984). This raises the question of whether or not industrial brands have the power to affect buyer attitudes and perceptions as brands do in consumer markets.

TABLE 1.1

Industrial Marketing Mix Issues

Physical product	High costs and time required for R&D. Confusingly high number of product variations.
Pricing	Conflict between list prices and negotiated prices.
Distribution	High perceived importance of ordering and delivery services. Complex issues of channels management.
Promotion	Lack of co-ordination between advertising and personal selling.
Service	Additional service implies added costs and stimulates raised expectations that are often difficult to meet.

1.2 THESIS STRUCTURE

The three basic questions of the previous section form the structure of the thesis.

Answering the question of what industrial branding is requires more than a simple definition. The literature review of Chapter 2 examines prior research into industrial branding to compare how industrial branding has been described and explained. Given the low level of past research activity specifically on industrial brands, a thorough review of all related areas of research is conducted. The review highlights the models and findings that are most relevant to industrial branding research and paves the way for a fuller understanding of industrial branding.

Chapter 3 presents a three-part conceptual framework for branding in industrial markets. The first part defines industrial branding and introduces a *continuum of industrial brands* from commodities to independent brands. Secondly, the framework explains the importance of industrial branding in the purchase decision by identifying the benefits of industrial brands to the customer. The *pinwheel of brand value to the industrial customer* explains the sources and dynamics of brand value. Thirdly, the framework identifies the determinants of industrial branding importance with the preliminary new *model of industrial branding in the purchase decision process*.

Responding to the question of whether industrial branding is important requires a point of reference, that is, important to whom and for what? Branding is important, but not to all buyers or in all situations. Much of what has been

written on branding emphasises the power and strategic potential of branding from the seller's point of view. However, unless branding is truly important to buyers, its strategic importance to sellers is limited. Chapter 4 describes the method for researching the importance of branding. In-depth interviews and data from two surveys of UK industrial buyers are combined and analysed in various ways. Cluster analysis is used for benefit segmentation, the grouping of customers by the perceived importance of branding and other choice criteria or attributes. The data are used to test hypotheses emanating from the preliminary *model of industrial branding in the purchase decision process*. Previous research has shown the difficulty of linking benefit segments to more accessible characteristics. However, the chapter presents a series of hypotheses to test the relationship of attribute importance of firms in the benefit segments to a number of buyer, purchase, and decision process characteristics.

Chapters 5, 6 and 7 present the findings of the research. Chapter 5 summarises the findings of the exploratory interviews with industrial manufacturers, distributors, and buyers. These interviews focused on questions regarding how buyers make decisions in highly competitive markets. Chapter 6 presents and interprets the results of the survey on bearings purchases, while Chapter 7 presents the findings of the survey on circuit-breakers. The relative importance of branding is found to be a significant factor in the creation of three distinct buyer clusters, a branding receptive cluster, a high tangibility cluster, and a low relevancy cluster. The importance of branding is found to be related to a number of buyer, purchase and decision process characteristics.

The thesis concludes in Chapter 8 by examining the managerial implications of industrial branding. The chapter summarises and integrates the findings and draws out the strategic implications of the research for branding strategy. For a significant portion of buyers, the purchase decision comes down to the relatively intangible attributes of the company brand. Suggestions are offered for adjusting the marketing mix for different types of buyers and purchase situations. The chapter concludes by recognising that branding and segmentation strategies are only as good as how well they can be implemented.

1.3 THE CONTEXT OF INDUSTRIAL PRODUCTS

Before going forward to the literature review on industrial brands, it is worthwhile to step back and examine what the terms ‘product’ and ‘industrial product’ mean. Kotler et al (1998) defines a product as anything that can be offered to a market that might satisfy a want or need, and incorporates in this definition physical objects, services, persons, etc. Although this thesis focuses on products or goods, many of the same principles apply to services, but exploring this applicability to industrial services is beyond the scope of the current research.

Definitions of an industrial brand rest on an understanding of what constitutes an *industrial* product, yet this is not straightforward either. Kotler et al (1998) defines industrial products as those bought for further processing or for use in conducting a business. Others define industrial products simply as “products sold

to businesses.” Under these definitions, SellotapeTM adhesive tape and Windows 95TM software are industrial brands. Yet, since they are clearly consumer brands as well, this muddles the picture. Analysis of the strength of these brands in an industrial market could not be conducted without taking into account the strength of the brands in the consumer market.

To avoid this overlap, the industrial products considered for the purposes of this research are expected to meet the more narrow definition of *products used in manufacturing or business that are rarely marketed to the general consuming public*. Even this definition allows some variation of interpretation. Some industrial marketers in recent years have begun to broaden their promotional appeals away from specialised buyers to a more general audience. This is generally due to a perception of a growing sophistication of consumers who are buying the products for home use. High-tech computer firms such as Seagate Technology, Sun Microsystems and 3Com initiated major corporate branding campaigns at least partially inspired by the success of the “Intel inside” campaign. According to Blankenhorn, “the new campaigns are geared at increasing consumer mind share and humanizing products sold mainly to engineers and other professionals” (Blankenhorn 1997). Despite these exceptions, the definition of industrial product is expected to be robust enough to offer a meaningful scope for the research.

Again, terminology can be problematic if it gets in the way of intention and understanding. A number of authors have discussed many important and trivial distinctions between the terms “industrial”, “organisational”, and “business-to-

business” (e.g., Plank 1985; Powers 1991). A critical review of these discussions could in itself constitute an important contribution. However, for the purposes of this thesis, the terms can be assumed to be interchangeable.

The vast number of different types of industrial products routinely bought and sold necessitate use of simplifying classifications. These typically focus on categorising products according to their usual role in the production process and/or according to their cost. Table 1.2 builds on several widely used classifications (Hutt and Speh 1995; Kotler et al 1998; Powers 1991; Scheuing 1989).

TABLE 1.2
Classification of Industrial Products

USAGE	COST	DESCRIPTORS
Product Inputs	Direct materials costs	Raw materials, component materials, component parts
Process inputs	Indirect materials costs or variable factory overhead	Operating supplies, maintenance and repair items
Foundation inputs	Capital expenditure or factory overhead	Facilities, office and factory equipment

Product inputs consist of materials that enter into the final product, including raw materials, component materials, component parts, semi-finished goods, finished

goods, and sub-assemblies. These goods can be somewhat lost within the product, but can be identified whenever anyone needs to know. Usually, the user is indifferent, but the manufacturers' identity becomes known and important very quickly if the component should fail, as that can have serious ramifications throughout the entire system. Saunders and Watt (1979, p. 114) called this common and potentially worrisome feature "conditional conspicuousness." Product inputs include raw and finished steel, microcomputer chips, bearings, coatings, and electrical wiring.

Process inputs are goods that do not enter the finished product. These are often referred to as MRO items, which stands for maintenance, repair and operating supplies. Examples include industrial filters used in a foundry operation, abrasives used in a machining operation, and office stationery. Foundation inputs are capital expenditure items, and include installations, facilities, and accessory office and factory equipment. Central air conditioning systems, office furniture and fork lift trucks all provide examples of foundation inputs.

It is important to recognise that these distinctions, however helpful, can be somewhat arbitrary in practice. Another potentially helpful distinction lies in how the buyer utilises the product. The same physical product can play the role of either a process or a product input, depending on the circumstances. An automotive manufacturer would consider ball bearings incorporated into a car wheel to be product inputs, and consider bearings used in a factory conveyor belt to be process inputs. The impact of these distinctions on purchasing behaviour remains inconclusive.

Another perspective to consider is the relationship between the level of differentiation and the type of transaction. To Mathur (1984), the type of transaction determines the form a physical product takes. For example, a commodity can become a system when both the hardware and software are differentiated. Figure 1.1 summarises this linkage.

These insights further emphasise the need to refrain from oversimplifying the nature of industrial products and industrial markets. Given this introduction to the context of the research, and the fundamental questions and objectives of the research, the next step is to turn to the literature for an assessment of current understanding of industrial branding.

FIGURE 1.1

Differentiation and Choice of Transaction

		SOFTWARE	
		Differentiated	Undifferentiated
HARDWARE	Differentiated	SYSTEM	PRODUCT
	Undifferentiated	SERVICE	COMMODITY

Chapter 2

LITERATURE REVIEW

2.1 INTRODUCTION

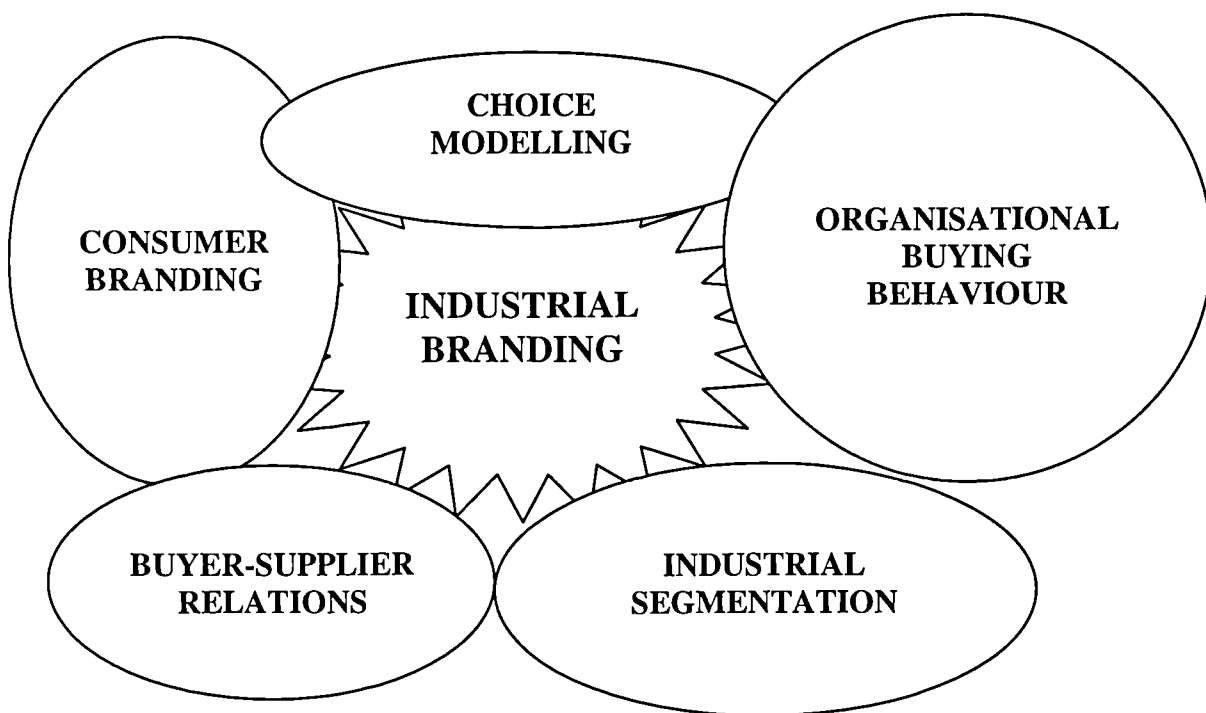
A cursory review of the literature on industrial branding is disappointing. Very few studies have specifically raised or examined issues of branding in industrial markets. Few answers to the key questions motivating this thesis can be found. Industrial branding is typically defined simply as “branding in industrial markets,” with little discussion of types or degrees of industrial brands, and with a lack of in-depth comparisons made with consumer branding or consumer buyer behaviour. Perhaps due to the difficulty of the research, questions on the importance of branding are skirted, with greater emphasis placed on documenting the presence and utilisation of industrial brand names. As a result, answers to questions on the managerial relevance and implications of industrial branding remain unsatisfactory.

Chapter 1 puts forth the argument that industrial branding constitutes an important and interesting area of research. Thus the low level of past research activity specifically on industrial brands is puzzling. Several explanations are possible, but it is most likely that relevant research has been conducted, but has not utilised branding terminology. Thus, a cursory review of industrial branding studies is not sufficient. This chapter describes the findings of a more painstaking review of the literature. Although little research has been conducted

explicitly on industrial branding, several other research areas offer findings and techniques of much greater depth and breadth. One must cast a wider net to gain insights. Figure 2.1 illustrates how industrial branding research can be positioned into the academic literature. Industrial branding can draw from and synthesise research, not just from consumer branding, but also from organisational buying behaviour, choice models, buyer-supplier relations, and industrial segmentation.

FIGURE 2.1

Research Context for Industrial Branding



The next subsection reviews the handful of industrial branding studies in considerable depth, keeping in mind the three key questions of the research. However, given the volume of research in each of the other areas, a comprehensive review of the literature lies beyond the scope of this thesis. The

remaining subsections of the chapter examine several studies in each area, and highlight the models or methodologies that are most germane to the research and the research questions.

2.2 INDUSTRIAL BRANDING

Relatively few attempts have been made to analyse or explain branding in industrial markets. A *Business Marketing* (1994) editorial noted with dismay that a Young and Rubicam model charting brand strength and value for 6000 brands in 19 countries, virtually ignores brands in the industrial marketplace. Others (Egan, Shipley and Howard 1992, p. 310) described the literature on the process and potential benefits of industrial branding as "sparse and unfocused." Those inclined to believe in the benefits of industrial brands do so with little support from models or research. Few articles or texts discuss industrial products and branding in the same sentence, much less quantify the benefits from the seller or buyer perspective. Some notable contributions are summarised below.

In contrast to the other studies focusing on strategies to push the brand through the supply chain, Saunders and Watt (1979) addressed the potential of a branding pull strategy. In the industry sector of man-made textile fibres, branding strategy was directed at the end user or consumer. The fibre group known as polyamides feature brands such as Bri-Nylon and Celon; acrylics brands include Acrilan and Orlon; and polyester brands include Dacron and Terylene. These brand names

commonly appear on the labels of finished goods such as clothing and towels.

Also, by UK law, the labels must also include the generic fibre name.

Through the use of personal interviews and self-administered questionnaires, UK textile experts and housewives were asked to rate pairs of brand names in terms of their similarity to each other using a five-point semantic differential scale.

Respondents were also asked to explain how they detected differences between brands. Multidimensional scaling generated perceptual maps, and the evaluations of the experts and the consumers were then compared. The textile experts consistently grouped the fibres by using criteria of molecular structure or chemical composition, accurately reflecting the situation of several competing brands being intrinsically identical industrial products.

In contrast, the consumers were unable to consistently recognise a relationship between the brands, and no clear product groupings were detected. The consumers referred to criteria such as handling or tactile properties, thickness and texture, and care requirements. However, these properties provide unreliable guides to the fibre used, as most of the fibres are suitable for a wide range of uses. For example, the same fibre can be used to make lingerie and overalls, or carpets and socks. Consumer misunderstanding of the important characteristics of the product category forms an unsteady foundation for branding strategy. Confusion was also created by parallel sales of unbranded or generic fibres due to over-capacity in the market. Overall, the authors criticised the brand naming and promotion strategies as being ineffective and confusing to consumers.

They suggested two alternative fibre branding strategies to consumers: first, a more focused promotion of a particular fibre brand for a particular use; and secondly, a more general corporate branding strategy. However, they concluded that the most effective branding strategy might be to concentrate on communications to weavers and knitters and other industrial intermediaries. For these industrial customers, both individual branding and company branding strategies are likely to be more effective than the confusing application of individual branding to consumers in force at that time.

Sinclair and Seward (1988) examined branding in the wood products industry, and in particular, the branding of reconstituted structural wood panels. Manufacturers were contacted using a telephone interview and a mail survey and asked about their branding policies. Using a mail survey, building material retailers were questioned about the effectiveness of the manufacturers' policies.

As in the textile fibre sector (Saunders and Watt 1979), the customers found it difficult to understand the product's appropriate end uses, and found the widespread brand naming to be confusing. In fact, the authors themselves used a variety of terms for the product without clearly describing the product category and its appropriate uses. Terms used by the authors included: reconstituted structural wood panels, oriented strandboard (OSB), waferboard, oriented waferboard, OSB/waferboard, and OSB/waferboard panels. They indirectly explained that this category had structural functions, while particleboard was intended for non-structural functions. Widespread brand naming practices were seen as adding to consumer confusion, especially since some manufacturers used brand names that incorrectly implied a structural functionality, such as Weyerhaeuser's "Structurwood." Not surprisingly, overall brand awareness was relatively low, as most retailers were unable to correctly match a series of brand names to the corresponding producer.

Sinclair and Seward looked beyond brand naming strategies to examine brand selection criteria. Manufacturers' perception of the criteria retailers use for brand selection placed a strong emphasis on performance/quality and on service. Most frequent manufacturers' responses were overall performance/quality (79%), pricing (53%), service (37%), product availability (26%) and product reliability (26%). To retailers, the most important stated criteria were price (53%), product availability (44%), overall performance/quality (30%), and end customer preference (23%). Interestingly, the two brands ranking highest on performance/quality were the most preferred by professional contractors, a key end user, and also commanded the highest price. They also were two of the three brands with the highest brand name awareness.

A common assumption about branding is that manufacturers expect branding to positively influence customers' perception of their brands on important selection criteria. This research did not really adopt this broad perspective. Instead, manufacturers were more narrowly asked about the benefits of their brand naming strategies. To manufacturers, the reasons for brand naming were: to differentiate their product from competitors (58%), to better identify their product (26%), to emphasise a claim of being first to offer a specialty product (26%), and to develop a more stable and loyal customer base (11%).

The effectiveness of these brand naming strategies were examined from the points of view of the manufacturers and the retailers. Manufacturers responded that the brand naming strategy did generate a number of benefits, including improved identity and differentiation, product recognition, promotion of repeat purchasing brand loyalty, and competitive positioning, including a price premium. However, 16% concluded that brand naming affords the manufacturer no particular benefits. The retailers were even less positive about the benefits of

branding. While 35% of the retailers reported that branding increased buyer preference for the products, 43% believed it did not. Retailers did not agree that branding helped to attract a loyal customer base, or symbolised more consistent quality. Thus, the authors concluded that the manufacturers generally perceived their brand strategies to be more effective than they actually were. Although not examined directly, the implications are that brand naming strategies would in turn have minimal positive influence on customers at the building contractor level or at the home owner level.

The ineffectiveness of branding in this industrial market appears to be largely due to the over-reliance on brand naming. The manufacturers failed to adequately inform their customers about the basic product attributes and their implications. Without that foundation, customers cannot be receptive to or find relevance in promotional activities that attempt to present unique brand images. Collins (1977) proposed that brand names are more important when little difference between competitive products is perceived, but he argued that, compared to other types of products, industrial products need brand names the least. Certainly, brand names alone do not provide meaningful differentiation in the textile fibre and building materials sectors.

Brand naming strategies were again scrutinised in a general UK study (Egan, Shipley and Howard 1992; Shipley and Howard 1993). They conducted a postal survey of UK manufacturers of industrial products in 1988, and compared the responses of 59 firms of 200 employees or more against those of 76 smaller firms. In response to the question, "Does your company use brand names or not," 98% of the large firms and 90% of the small firms replied that they do use brand names. However, the term "brand names" can be interpreted in a number of ways, and it is not clear that the researchers clarified what was meant by the term.

Respondents also rated the perceived importance of brand names for “achieving successful company performance.” On a scale of 1 to 5, with the mid-point signifying “moderate importance,” large firms rated the importance at 3.67, and the small firms rated the importance lower, at 3.30. This importance rating would have been more meaningful, however, if it were compared to the perceived importance of other performance factors.

Perceptions of brand name benefits were also measured. Large and small firms agreed that the most important benefits of brand names were: provide product identity, a valuable part of achieving marketing success, a major asset to the firm, make buying easier, and help with product positioning. The larger firms generally perceived these benefits to be more important than did the smaller firms.

The authors concluded that UK industrial companies do use industrial branding, and value the benefits of branding. Still, it is problematic to equate brand naming practices with effective branding. The authors (p. 319) claim that “the very high incidence of brand name usage recorded by the respondent companies confounds previous research suggesting that industrial products are difficult to brand successfully,” yet that is unfounded. It is certainly relatively easy to give an industrial product a name. It is much harder to develop a meaningful brand image in the minds of the customers that positively influences buying behaviour. As the authors themselves concluded, research into the performance impact of different levels of brand name usage and different branding strategies would be very valuable.

Firth (1993) examined the importance of brand names from a very different perspective. This study directly linked the perception of quality or prestige

associated with a brand name to financial performance. In 1983, New Zealand law was changed to permit local affiliates of the “Big Eight” accounting firms to use the international affiliate names. This study compared the pricing of accounting services in New Zealand before and after the name change, and found a fee increase of about four percent. Since the change in name was not accompanied by a change in auditing technology or personnel, this price rise was seen as entirely due to the brand name itself.

Accounting firms have spent considerable resources to protect and enhance their reputation, yet if the merger and acquisition activity of recent years provides any guide, at least part of the reputation and prestige associated with the Big Eight came from perception of size alone. As of 1998, the Big Eight have consolidated into the Big Four, and the potential for commanding premium prices may be even greater. The implications for strategic mergers and acquisitions in industrial product markets remain to be more fully explored.

Gordon, Calantone, and di Benedetto (1993) explored the existence and evolution of brand equity in general, and in the particular product sector of circuit-breakers. They described a process of how brand equity evolves as customers learn about the brand. The authors proposed that the brand attributes affect the degree and type of purchase loyalty exhibited. When customers focus more on the functional product attributes, purchase loyalty tends to be more specific to the individual brand. In contrast, customer assessment of general and intangible attributes such as quality, good value, and reputation, tend to correspond to company brand loyalty, rather than individual brand loyalty, as these assessments can be taken across all product categories of that manufacturer. In the area of electronic products and components, they found that the brand was generally taken to be the company brand, not the individual brand. This was despite the presence of brand naming practices that linked the company name to

specific brand names, such as the Westinghouse Challenger Type C circuit breaker. They used three tests of purchase loyalty: most frequently purchased, purchases of greater than 50% of total purchases; and the top two preferred brands account for more than 90% of total purchases.

The role of the distributor complicates this linkage between attributes and loyalty. The study found that electrical contractors can be as loyal to their distributor as they are to a manufacturer or to an individual brand. Also, distributor reputation and actions can greatly influence what a customer associates or attributes to the manufacturer and the individual brand. Other potential sources of influence noted were the architects, engineers, general contractors and the end customer.

Although the specific methodology was unclear, the study also examined which characteristics were perceived to be the most important in the purchase decision. In all cases, product quality and price were the main determinants, and lower price was cited as the change that would most likely cause brand switching. The authors concluded from this that for products of acceptable quality levels, efforts to gain market share should aim at price reductions. Unfortunately, this recommendation is rather unhelpful, since one of the primary objectives of a branding strategy is to develop ways to compete on bases other than price. The authors state that the potential exists for marketers to capitalise on images, associations and perceptions of perceived value and brand equity, so it is unclear why they recommend price reductions as the most effective strategy. Practical suggestions on how to capitalise on perceived brand value remain to be developed.

The study examined circuit-breaker brand equity in three ways. First, brand purchase loyalty was found to be strong and enduring, with 96 percent of

electrical contractor purchases accruing to two brands. Secondly, an experiment involving the physical examination of identified and unidentified circuit breakers revealed that evaluations of the unidentified breakers differed from the evaluations of the identified breakers. From this, one can conclude that the brand name does affect the perception of quality. And thirdly, in a test of brand extensibility, the assignment of a brand name greatly changed contractor perceptions of the quality of the new products. Regardless of the physical product properties, overall superiority was not ascribed to the new products unless they were associated with one of the leading brands. The authors concluded that brand equity is "alive and well" in the sector.

These findings foster a number of important managerial implications. Company branding strategies offer potential, but also limit manufacturers' ability to reposition an individual brand, as changes in one brand can affect perceptions of the firm's entire product line. Similarly, to be successful, brand extensions must fit into the existing "perceptual value range." Because of the existence of company brand loyalty, brand extensions can be effective. This potential can be assessed after further consideration of four areas: sales potential, marketing efficiency, cannibalisation, and the risk of over-extension. Overall, the study significantly enhances understanding of the range and implications of industrial branding strategies.

A more recent study (Hutton 1997) examined brand equity in an organisational buying context. The study involved a postal survey of members of the largest professional purchasing organisation in the US, asking about hypothetical purchases of personal computers, copiers, fax machines, and floppy disks. To Hutton, brand equity in this context consists of buyers' willingness to: (1) pay a price premium for their favoured brand over a generic or unknown brand; (2)

recommend the brand to peers; and (3) give special consideration to another product with the same company brand name.

The study found support for all three of these forms of brand equity. The average price premium that respondents were willing to pay was 12 percent for floppy disks, 16 percent for fax machines, 18 percent for copiers, and 19 percent for personal computers. Still, it could be argued that few informed buyers would seriously consider generic or unknown brands in these four product categories. In contrast, Woodside and Vyas (1987, p. 189) found evidence that managers are willing to pay a price premium of approximately 4 to 6 percent to suppliers “whose product and service performance is likely to be superior to other vendors.” This lower value is likely to be more realistic for closely competitive markets.

Hutton measured willingness to recommend the brand to peers on a scale of 1 (definitely yes) to 7 (definitely no). The results were 2.6 for floppies, 2.5 for faxes, 2.2 for copiers, and 1.9 for personal computers. Respondent willingness to give special consideration to another product with the same company brand name was measured as 3.0 for floppies, 2.8 for faxes, 2.9 for copiers, and 2.7 for personal computers, suggesting the presence of a “halo effect” and the potential for brand extensions. The study also found that these brand equity measures were significantly correlated to how well known the preferred brand was perceived to be by the average person. Well-known brands exhibited greater brand equity, which seems logical. In addition, the study asked respondents about the perceived importance of a number of decision criteria, including availability, brand reputation, customer service, innovativeness, price, quality, personal relationship with supplier, and reliability. These evaluations were then linked to the three brand equity measures. Brand reputation was most highly correlated with “willingness to pay a price premium” ($r=0.30$) and to “give

special consideration to a brand extension” ($r=0.24$). Reliability was most highly correlated with “willingness to recommend the brand” ($r=0.23$).

The study also examined the conditions under which well-known brands were more likely to be selected. In response to general hypothetical questions, buyers responded that they were most likely to choose well-known brands when: product failure would create serious problems for the buyer’s organisation or the buyer personally; the product requires greater service or support; the product is complex; and when the buyer is under time and/or resource constraints.

The study has several limitations worth noting. The use of hypothetical purchasing situations has often been shown to be problematic. The focus on four products that are also highly promoted consumer goods (personal computers, copiers, fax machines and floppy disks) complicates the interpretation of the findings. Another concern is the respectable but low 25 percent response rate.

Overall, this study and the previously discussed studies significantly contribute to the understanding of branding in industrial markets. However, the key question of what is industrial branding, and how it differs from consumer branding remains unanswered. Much of the research appears to equate industrial branding with brand naming. This emphasis on brand naming strategies leaves considerable room for broader interpretations and analyses of industrial branding strategy.

The literature more directly addresses the question of branding importance, most commonly in terms of importance to the selling firm. This ranges from the selling firm’s perception of the importance of branding to efforts to measure industrial brand equity. One interesting issue is the varying approaches to defining and conceptualising brand equity. Considerable confusion remains with

practitioner and academic communities over what brand equity means (Feldwick 1996). Table 2.1 compares Hutton's (1997) brand equity dimensions with those of Gordon, Calantone and di Benedetto (1993) and Woodside and Vyas (1987). No consistent method of calculating industrial brand equity emerges.

TABLE 2.1

Industrial Brand Equity Measures

<p>Gordon, Calantone, and di Benedetto (1993)</p> <ul style="list-style-type: none"> • Purchase loyalty (3 measures) • Differences in evaluation of products when the brand name is hidden, from evaluation of products where the brand name is given • Effect of assigning a brand name on perception of quality of a new product
<p>Hutton (1997)</p> <ul style="list-style-type: none"> • Price premium a customer is willing to pay for his/her favoured brand over a generic or unknown brand • Willingness to recommend the brand to peers • Willingness to give special consideration to another product with the same company brand name
<p>Woodside and Vyas (1987)</p> <ul style="list-style-type: none"> • Price premium a customer is willing to pay to suppliers whose product and service performance is likely to be superior to other vendors

Finally, perhaps due to the exploratory nature of much of the research, the implications of industrial branding for managers have not been clarified. With the exception of guidelines for developing brand names, few practical recommendations for industrial branding strategy have surfaced to date. Certainly, a few studies cannot answer all the questions posed by the complex business relationships inherent in industrial markets. These studies make a good start and provide some guidance for future research efforts.

2.3 CONSUMER BRANDING

The richness, sophistication and practicality of consumer branding research offers great challenges and opportunities for industrial branding researchers (Kapferer 1995). Despite differences in consumer and industrial markets, consumer branding provides a logical base for examining ways to analyse industrial branding. Researchers have responded in many ways to the challenge of defining branding (Aaker 1991), explaining and predicting consumer brand preference (Bass and Wilkie 1973; Shocker et al 1994), and explaining the implications (Doyle 1989). This literature review does not intend to provide a comprehensive review of the consumer branding literature. Others have done that thoroughly and insightfully (e.g., de Chernatony and Dall'Omo Riley 1998 forthcoming, Keller 1993, Shocker et al 1994). Instead, the review highlights a few key areas of most direct relevance to industrial branding, including the nature of a brand, aspects of branding importance including brand preference and performance, and branding strategies and implications for managers.

2.3.1 The Nature of a Brand

A look at any academic or practitioner book on branding (e.g., Aaker 1991, 1996; de Chernatony and McDonald 1992; Kapferer 1995) reveals no simple answer to the simple question of what is a brand. Notions of a brand have evolved over time. Early definitions of a brand emphasise aspects such as brand names and logo, while later definitions emphasise meaning and added value. The AMA (1960) definition of a brand is “a term, symbol or design, or a combination of them that is intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors.” In contrast, de Chernatony and McDonald (1992) define a successful brand as “an identifiable product, service, person, or place, augmented in such a way that the buyer or user perceives relevant unique added values which match their needs most closely.”

To Doyle (1994, p. 159), a successful brand (S) is a combination of an effective product (P), distinctive identity (D), and added values (AV), as perceived by customers, or, $S = P \times D \times AV$. Doyle also identifies three degrees of branding. A *basic* brand is a quality product that has been differentiated from its competitors through marketing mix decisions. An *augmented* brand offers buyers additional tangible benefits such as support services and guarantees. Buyers perceive a *potential* brand to have real, if intangible, values that differentiate the product in a sustainable way from competing products. This model can be depicted as three concentric circles, with the basic brand in the centre, surrounded by the augmented brand, and finally the potential brand.

More abstractly, to Kapferer (1995, p. 11), “a brand is not a product: it is the product’s source, its meaning, and its direction, and it defines its identity in time and space.” Kapferer envisions a three-tier pyramidal model of a brand. At the top of the pyramid is the brand kernel, the source point, the deep identity or core value of the brand. Curiously, this “must remain unspoken of and invisible” (p. 73), yet “to build a long lasting brand, there should be a clear understanding of the brand’s core and source point” (p. 75). The middle of the pyramid features the tone, style, and codes of the brand, including the culture, personality and self projection of the brand, which change and evolve. The bottom layer relates to the brand’s communication themes, the brand’s current advertising position, and thus the interface with the customer. This includes aspects of physique, reflection and relationship, and the notion of the product benefit. The three layers of meaning are not developed in all brands. Some remain focused at the lower level of the brand pyramid, which hinders their effectiveness.

A McKinsey article (Court et al 1997, p. 27) explain branding in simpler terms. A brand is a named product that consumers associate with “a set of tangible or intangible benefits that they obtain from the product or service.” A company builds a brand by distinguishing it from competing products, and by “aligning what they say about the brand in advertising and marketing with what it actually delivers.” A power brand offers a “distinctive product, consistent delivery, alignment between communications and delivery – plus personality and presence.”

Brands can be viewed from many perspectives, and play different roles. De Chernatony and Riley (1997) identify ten different interpretations or elements of a brand. Each interpretation offers a metaphor or way of verbalising what the brand means. These include: brand as a legal instrument; brand as a logo; brand as a company; brand as an identity system; brand as an image in consumers' minds; brand as a personality; brand as a relationship; brand as added value; brand as a cluster of values; and brand as an evolving entity.

Brands mean different things to different people at different times. The plethora of different definitions and notions of a brand can complicate discussions of branding. Goodyear (1996, p. 343) described this as being "divided by a common language." Companies are commonly advised to regard their employees as spokespersons for the company's brands (Balmer 1995), yet this can be problematic if the employees hold different concepts of the brand's role or importance. Similarly, effective branding strategies depend on a shared notion of the brand.

Brand equity can be defined as the total value added by the brand to the core product (Farquhar 1989), or the set of brand assets and liabilities linked to a brand that add to or subtract from the value provided by a product (Aaker 1991). The value of a brand can be considered from both the manufacturer and the customer perspective. One key to understanding brands is to identify the benefits of the brand to the manufacturer, the customer, and members of the supply chain. Brands provide value to the firm by generating marginal cash flow in various ways by enhancing: efficiency and effectiveness of marketing programmes;

brand loyalty; prices and margins; brand extensions; trade leverage; and competitive advantage (Aaker 1991). From the customer's perspective, brands provide value by giving signals about the offer and thereby enhancing their interpretation and processing of information. This can reduce the perceived risk of the decision and increase the customer's confidence in the purchase decision. Brands also offer symbolic or emotional benefits and can enhance use satisfaction. Thus, to consumers, brands imply enhanced functionality, and also offer symbolic or representational value (de Chernatony and McWilliam 1990).

Aaker (1991) identified five categories of assets that underlie brand equity. Name awareness, perceived quality, brand associations, and other proprietary brand assets such as patents, trademarks and channel relationships, all work to enhance the fifth dimension, brand loyalty. Similar interrelationships are envisioned among the other dimensions as well. Jones (1986) also described five main sources of brand value, including: experience of use; user associations, belief in efficacy, brand appearance, and manufacturer's name and reputation. Brands have a range of assets potentially at their disposal.

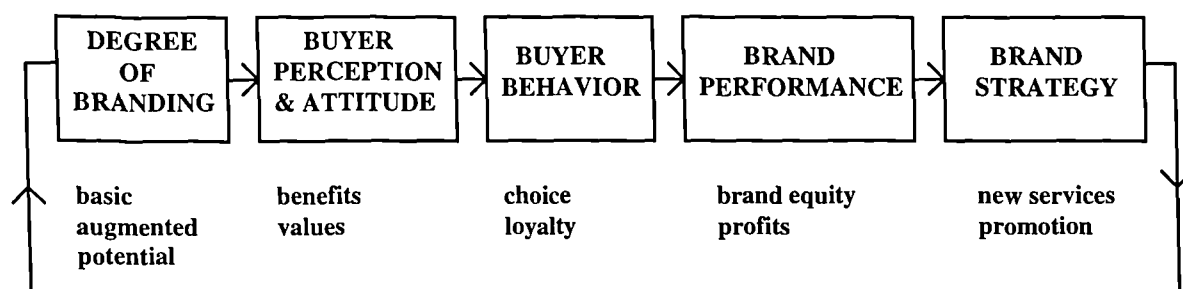
2.3.2 Brand preference and performance

Discussions of branding imply the existence of an underlying process suggested by random utility theory (Louviere 1994). Customers form preferences based on their perception of attributes; these preferences are translated into choice decisions, with customers choosing the product with the highest expected value or utility. In turn, choice decisions are directly linked to actual behaviour. A

standard way of depicting the branding system is shown in Figure 2.2. Branding strategy attempts to increase the degree of branding to the appropriate level, and is intended to affect buyer perception and attitudes. The assumption is that buyers' perception and attitudes about the brand affect their behaviour. Buyer behaviour, in terms of purchase choice and purchase loyalty, determines the financial performance of the brand. Brand performance indicators such as brand equity, market share and profitability, then affect future branding strategy. In reality, the relationships and process are more complex, since, for example, buyer behaviour also affects buyer perception and attitudes. Still, the underlying process as depicted helps to focus on the dynamic flow. The various links amongst perceptions, attributes, attitudes, preferences, intentions and brand choice have been widely accepted and extensively analysed in the consumer behaviour and organisational buying behaviour literatures (Weber 1997).

FIGURE 2.2

The Branding System



A number of models to explain or predict brand preference decompose consumer attitudes into multiple attributes (e.g., Bass and Wilkie 1973; Park and Srinivasan 1994; Srinivasan 1979). Arguments over the best way to measure buying

attitudes are not new (e.g., Myers and Alpert 1968, Wilkie and Pessemier 1973). Although considerable advancements in statistical technique have been made since the work of Bass and Wilkie (1973), their observation (p. 262) remains appropriate: "It is generally accepted that attitudinal measures provide useful predictions of brand preference and choice. There is much uncertainty, however, about the most appropriate form and components of attitude models and methods of testing and comparing models." They also found that a breakdown of attribute importance ratings reveals little difference between users of competing brands. Thus, "attitudes are both a cause and a result of behavior" (p. 268), and provide insufficient information about causality. Since the value of a brand can be greater than the sum of its parts, the ratings of competing products' attributes are often found to be more similar than their market share would indicate.

Modelling brand choice strictly as a function of price and the ratings of basic product attributes fails in many cases to explain differences in market share. Since many products share common features, the their role needs to be examined in the context of the relative importance of other attributes. According to Fishbein and Ajzen (1975), the typical number of influential attributes is in the range of seven to nine. Chernev (1997) found that when brand attributes differ in importance, common features enhance consumer preferences of the brand with the best rating on the most important attribute. In contrast, when attributes are generally similar in importance, common features encourage equalisation of brand shares.

Consequently, considerable research has attempted to explicitly identify and measure tangible and intangible elements of branding. Srinivasan (1979) defined the brand-specific effect as the component of overall preference not explained by the attributes used in the multi-attribute model. He empirically estimated this effect by comparing brand choices with choices implied from conjoint analysis of product attributes without brand names. Using a survey method, Park and Srinivasan (1994) derived individual levels of brand equity by finding the difference between the overall brand preference and an objective measure of attribute levels. Two components of the brand equity were identified, an attribute-based component, and a non-attribute component that quantifies the intangible aspects of the brand.

The construct of brand loyalty in its various forms continues to attract research. Considerable research has been undertaken on the dynamics of consumer brand switching, with efforts made to distinguish between attitudinal and behavioural components of loyalty (e.g., Jacoby and Kyner 1973). Most agree that verbal statements of brand preference or intention to buy do not consistently translate into brand purchases. Several types and definitions of brand loyalty proliferate in the literature, as do explanations for loyalty.

From a behavioural perspective, Ehrenberg (1988) argues that changes in market share can override the underlying switch probabilities, and that relative market share is the simplest and best predictor of brand choice. Many of the studies employ relatively sophisticated Markov or semi-Markov approaches to predict brand choice (Massy 1966; Columbo and Morrison 1989; Bordley 1989;

Vilcassim and Jain 1991). Most of these have data requirements that render them impractical for industrial research. Overall, most consumer branding methodologies remain basically untested in industrial markets.

2.3.3 Branding Strategies

Brand management crosses traditional management boundaries, and encompasses strategy, research and development, communications and organisational culture. Brand-building involves a co-ordinated effort across all areas of the company. Success depends to a large extent on quality leadership from the top. The key is to allow the brand to evolve in a controlled way to meet changing needs without abandoning its core elements.

At the basic branding level, the brand naming strategy of using company brands or a combination of company and individual brands have been seen as the way of the future for many consumer products companies, as they move away from reliance on individual brand strategies (Murphy 1990). The relationship between the company brand and the individual brand takes several forms. Balmer (1995) summarised the forms as brand dominance, equal dominance and corporate dominance. Many consumers would not associate brands such as Shredded Wheat and Buitoni with Nestle, for example. In contrast, brands such as BBC Radio 1 and Kellogg's PopTarts illustrate equal dominance. IBM, Heinz and Virgin generally utilise corporate dominance as their branding strategy.

Company or umbrella branding strategies have been thoroughly researched in consumer markets. To Sullivan (1990) product reputation consists of two main parts, a brand component, which has attributes that cut across all products with the same brand name, and a product-specific component, which has independent attributes of the particular product. Using data on Audi and Jaguar car sales, her study demonstrates how product-specific issues can affect the demand for other products with the same brand name.

Brand name management, however effective, is only one part of an overall branding strategy. As earlier discussed, brands have a wide range of brand assets available to them. Despite this, not all brands reach their potential. Doyle (1994, pp. 168-169) identified several characteristics of brand leaders, and provided suggestions for brand building. Management must start with a quality product that fully meets the functional needs of customers. Being first in the market does not guarantee success, but facilitates the branding process. Even if the brand is not the innovator, it must have a unique positioning concept to differentiate it and enhance its appeal. The basic appeal should be augmented by additional features, products or services to “delight” customers. Consumer trial should lead to satisfaction and a willingness to rebuy. A strong communication programme should encourage trial and repeat purchases by emphasising the brand’s functional benefits, unique qualities and brand associations. Finally, recognition of the need for time and consistency encourages success. Short-term tactics rarely succeed. Brands require organisational and financial investment over their lifetime, to keep the wheel of brand building turning (Doyle 1994), and to enable the firm to meet its financial performance objectives.

Another aspect of effective strategy is agreement on the objectives and the relevant financial performance indicators. Strategies to gain market share may conflict with strategies to increase margins or profits. As Vishwanath and Mark (1997, pp. 123-124) found, “market share alone does not drive profitability. In fact, market share explains only about half of the differences in profitability among brands; in some categories, there is hardly any correlation at all.”

Premium brands dominate some consumer product categories, while value brands dominate others. Even a small market share in a premium category such as facial skin care pays off (15% pre-tax operating profit or more), while brands with the highest market share in a value product category such as processed meats yields earn 10% ROS or less. Winning branding strategies focus on innovation in a premium category and cost reduction in a value category. Firms with products in value categories can benefit from efforts to transform the value category into a premium category, as has been accomplished with beer and athletic footwear.

Overall, despite similarities between consumer brands and brands in the industrial or business-to-business sectors, many authors (e.g., Gordon, Calantone and di Benedetto (1993) have identified key differences. As previously discussed, industrial brand naming strategy relies heavily on the company brand name, and for many customers, the company brand, not the individual brand is the key discriminator. In their overview article, Shocker, Srivastava and Ruekert (1994, p.157), called for more research into “the development and importance of corporate brands and brand identity, especially within business-to-business and

service contexts.” King (1991, p. 6) predicted that “in an era of rapid technological leapfrog, increasingly the company brand will become the main discriminator.” Sullivan’s findings on umbrella brands are especially relevant for industrial branding research, as most industrial brands are company or umbrella brands. Few examinations of image spillovers in an industrial marketing context have been conducted, with the exception of Gordon, Calantone and di Benedetto (1993), but could prove to be of significant practical importance.

Secondly, the traditional consumer branding path of awareness to association to trial differs in the industrial sector. This path depends on information acquisition and processing, but the necessary information often does not flow directly from the manufacturer to the customer through media. Instead, the sales person and the industrial distributor play important mediator roles, as well as additional sources of information. The sales person and distributor pass on manufacturer product and sales literature, sets up new product demonstrations, and make specific observations and recommendations.

Other factors enter into the industrial situation, especially as switching brands often implies switching suppliers as well. Interesting comparisons can be made of the research on consumer brand switching and the extensive body of research into buyer-supplier relations. Another relevant linkage is between brand switching models and segmentation analysis (e.g. Grover and Srinivasan 1989).

The literature on consumer branding is vast and rich, but researchers who simply attempt to duplicate consumer studies in an industrial setting face a number of key constraints, including suitability of the underlying behavioural assumptions and difficulties of data availability. Consumer branding research is but one source of insights for industrial branding research.

2.4 ORGANISATIONAL BUYING BEHAVIOUR

How and why customers choose one competing product over another remains one of marketing's research mysteries. Equally unclear is how this process can be modelled most effectively. Explanations of how industrial customers choose between similar competing products have filled countless academic and practitioner texts. From a practitioner point of view, interest focuses on how to modify the marketing mix to make a product more competitive. An additional academic interest is to develop and test realistic theories and models that apply to other areas as well. Broad conceptual models contribute to our understanding of purchase processes, but their abstract nature suggests few testable hypotheses and makes them difficult to operationalise (Anderson and Chambers 1985; Anderson, Chu, and Weitz 1987; Moriarty 1980). To Sheth (1973), a very high ratio of conceptualisation to empirical testing typifies the organisational buying behaviour literature. The difficulty lies in organising the many interrelated and overlapping aspects to explain and predict choice. Despite many brave efforts (e.g, Johnston and Lewin 1996), the broad models remain difficult to integrate and synthesise.

Questions remain, yet many points are clear. The following discussion expands on five main points: (1) purchase decisions are best viewed as a process; (2) many forces affect the purchase decision; (3) intangible factors matter; (4) perceived risk influences buyer behaviour; and (5) decision protocols to process information can and do differ. These general headings can serve to summarise the wealth of insights offered in the organisational buying behaviour literature.

First, purchase decisions are best viewed as a process. Robinson, Faris and Wind's (1967) model of the decision process, or buy phases, remains widely accepted. The phases include: (1) anticipation or recognition of a problem (need) and a general solution; (2) determination of characteristics and quantity of needed item; (3) description of characteristics and quantity of needed item; (4) search for and qualification of potential sources; (5) acquisition and analysis of proposals; (6) evaluation of proposals and selection of supplier(s); (7) selection of an order routine; (8) performance feedback and evaluation. Overall, the choice decision can be characterised as one of bounded rationality, a dynamic, adaptive process with formal and informal feedback processes (Woodside and Vyas 1987).

Secondly, a number of forces are recognised as affecting the choice criteria and the purchase decision. Organisational purchases are generally considered to be made on the basis of price, quality, delivery, and service (Hutt and Speh 1995; Wilson and Woodside 1995), yet the importance of these criteria change, depending on a range of factors. Robinson, Faris, and Wind (1967) examined the effect of the type of purchase on the criteria and process, distinguishing between

new task, modified and straight rebuy purchases, distinctions which reflect the extent of problem solving behaviour involved. The nature and types of buying decisions change over time. Webster and Wind (1972a) examined individual, interpersonal, organisational and environmental factors. Sheth (1973) identified a number of product, company, buyer, and situational factors. One important aspect of the buyer and the company is the decision making unit (DMU) or buying centre (Webster and Wind 1972b). The size and composition of the DMU vary according to product and organisational characteristics. Research has demonstrated how members of the DMU often hold different perspectives on the importance of various product attributes such as price and technical sophistication.

Johnston and Lewin (1996) named purchase characteristics as one of the most important constructs utilised in 25 years of research in this area. The relative importance of choice criteria has been found to vary depending on the product or problem situation (Evans 1980; Lehmann and O'Shaughnessy 1974), and job role (Wilson and Woodside 1995). As Malhotra (1988, p. 7) concluded, "The question facing researchers is, therefore, no longer whether attitude can be used to predict behavior, but when." Thus, it is relevant and practical to consider decisions in the specific context of the overall buying situation and task.

Thirdly, intangible factors matter. Webster and Wind (1972b) acknowledged the concept of ego-enhancement, and incorporated emotional factors and other non-task variables into their model. Psychological or emotive attributes such as reputation and image have been shown to be of equal or greater importance than

physical product attributes in some situations (e.g., Kauffman 1994; Levitt 1965; Shaw, Giglierano and Kallis 1989). This is of great relevance to industrial branding research.

Studies have identified and measured non-product characteristics and intangible elements of the buying decision in a number of ways. Levitt (1965) analysed the effects of communications on purchase decisions, using college students in an experimental design. He found that the company's overall reputation is generally more influential than the sales presentation, but that the presentation effect is more powerful the greater the riskiness of the decision. However, technical personnel under high-risk situations relied more heavily on company reputation than on the presentation. This research opened the door for more analyses of intangible aspects of industrial marketing, and of differences within the buying centre. For example, Wolter, Bacon, Duhan, and Wilson (1989) found significant differences in how buyers and designers evaluated emotive or non-functional product attributes, and called for greater recognition of the importance of emotive aspects of product evaluation.

Shaw, Giglierano and Kallis (1989) found that most buyers are more concerned with psychological or intangible attributes of the vendor than with physical attributes of the product, and concluded that promotional activities should reflect this concern. They used multidimensional scaling to analyse a survey of MIS directors on the importance of items in choosing a mainframe computer operating system. Similarly, a study of buyers across a range of products (Kauffmann 1994), conjoint and regression analysis revealed a relative lack of

sensitivity to physical product attributes, and a relatively high sensitivity to seller image and other intangible product attributes. And Smith and Andrews (1995) noted the importance of customer perception of the company's "domain of expertise".

Attribute measurement is an important aspect of the research. Lehmann and O'Shaughnessy (1974) used discriminant analysis to examine, across product types, how US and UK purchasing agents rated attributes in choosing a supplier. The 17 attributes included basic brand factors such as technical specifications, tangible examples of brand augmentation such as training, and more intangible factors such as overall supplier reputation. Reputation lies at the heart of branding strategy, so their finding that supplier reputation is one of the most highly rated attributes for some purchase situations is of special interest. Supplier reputation was found to be more important to US purchasing agents than to those in the UK. Other research (Parket 1972) implies that branding is more important for generic-type products, those perceived by buyers to have little difference in product characteristics, although not necessarily in other key buying factors. Reputation can have a quantifiable foundation. The financial condition and outlook of the supplier is routinely calculated and considered (e.g., Scheuing 1989).

Even rational and systematic decision making involves the assessment of intangible aspects. The functional benefits of a product do not always assume a tangible form, making it difficult to weigh or measure a product and determine its functional benefits. Consequently, buyers also look to intangible attributes for

clues as to the quality of the tangible attributes. While organisational buying research has generally focused on tangible product attributes, these and other studies have illustrated that intangibles are also important. The studies may not mention "branding", but do make a strong case for the importance of industrial brands and for investments in brands and branding research.

Fourth, perceived risk influences buyer behaviour. Models of organisational buying behaviour over the past 30 years have incorporated risk, especially as concerns vendor selection. Risk has been defined in many ways, but is generally defined in terms of the perception of the uncertainty and adverse consequences of buying a product (Dowling and Staelin 1994). Perceived risk and the choice of risk handling strategies are significant elements in buying decisions (Puto, Patton, and King 1985). Risk involves three elements: recognition of what has the potential to be lost or damaged; the significance of those losses; and the types and degree of uncertainty involved, or the probability of those losses. Risk handling strategies emerge in response to these aspects of perceived risk.

Industrial purchasing decisions involve a number of potential losses. A common distinction is between organisational loss or risk and the buyer's personal loss or risk, although these dimensions do overlap in practice. In general, potential losses include: financial loss, performance loss, physical loss, social loss, psychological loss, and time loss. To Mitchell (1995), these apply at the personal level, while only financial and time loss are key at the organisational level. The significance of loss varies by individual and organisational context. One buyer's confidence may be shattered by a purchasing error, while others may easily shrug

it off. Similarly, some organisations punish even small mistakes in judgement. Others consider risk taking as part of the process, with no expectation of success each and every time. As Mitchell (1995, p. 116) noted, “purchasers’ ability to withstand social pressure varies as does organisations’ ability to withstand financial loss.”

No buyer or organisation always has all the information necessary to make the “perfect” decision. Imperfect and asymmetric information between buyers and suppliers is a primary cause of perceived risk and uncertainty. Also, purchasers recognise that not all decisions are based on purely objective, quantifiable measures. Some elements of subjective judgement are necessary to fill gaps in knowledge. In some situations, selecting the right supplier can be at least partially attributed to intuition, a gut feeling, a sixth sense, or other aspects of subjectivity. Too much subjectivity can increase the riskiness of the decision, while an appropriate degree of judgement can reduce risk, and is expected of a professional buyer (Scheuing 1989).

Several authors including Cardozo (1980) have identified the types of risk and uncertainty in industrial purchases. Need uncertainty arises when a new or complex situation has unclear product or specification needs. Technical uncertainty stems from lack of expertise in the technology involved in the purchase and the probability of product failure. Market uncertainty becomes a factor when the market is characterised by instability, product shortages, and a proliferation of new or apparently similar suppliers. Acceptance uncertainty is created by organisational disagreements over which product is most suitable and

over whether the product is needed at all. Finally, transaction uncertainty arises regarding the specific terms of agreement, including price and delivery schedules. To Valla (1982), cited in Mitchell (1995), risk can take the form of technical risk, financial risk, delivery risk, service risk, and risk related to long-term supplier relationships.

The classic Robinson, Faris and Wind (1967) model considered new tasks to be the most risky, followed by modified rebuys and straight rebuys. However, Newall (1977) pointed out that a modified rebuy involves higher personal risk for the purchaser than a new task since the past buy provides a standard for comparison against which the buyer can be judged. To Newall, new tasks involve more organisational risk, but less personal risk. Yet, given the close linkages between personal and organisational risk, most researchers accept the basic premise that new tasks are the riskiest type of purchase overall. More insights could be gained by additional empirical testing of this relationship.

According to Dowling and Staelin (1994), issues of product-category risk, specific product risk and acceptable risk are also important. Product-category risk is the person's perception of risk inherent in purchasing any particular product in a specific product category. Specific risk is the level of perceived risk associated with the particular product being considered in the product category. Acceptable risk is the point above which a specific product has an unacceptably high level of perceived risk to purchase. Individuals with high levels of product-category risk are expected to have lower values of acceptable risk.

Given the sources of potential loss, the significance of the loss, and the types and degree of risk and uncertainty surrounding the loss, the next step is to consider the various risk handling and reduction strategies available. Puto, Patton and King (1985) provide three simple types of strategic options: reduce uncertainty, through additional information gathering; play the odds, by mathematical calculation of probabilities; and spread the risk through multiple sourcing and split procurements. Mitchell (1995) develops a more comprehensive list of risk-reducing factors, with primary focus on the importance of information gathering. Interestingly, Mitchell suggests that branding can play a role in risk reduction. He suggests that being a “leading company in the field” can reduce organisational or personal risk. Table 2.2 summarises and integrates the various risk handling strategies suggested in the literature.

TABLE 2.2

Industrial Risk Handling and Reduction Strategies for Supplier Selection

- Information gathering
- Group decision making, including participation by top management and users
- Highly structured purchasing procedures, involving quantification of suppliers and risks
- Greater consideration of a leading company or brand in the field
- Consideration of more suppliers, expansion of approved supplier lists, multiple sourcing
- Partnering and alliances, shortening of approved supplier lists, development of stronger business relationships, demonstration of more source loyalty

Risk handling strategies can conflict. For example, supplier reduction conflicts with considering more suppliers. Puto, Patton and King (1985) explained this conflict through the role of risk mediating factors of the buyer, the organisation, and the situation. The loyalty to existing suppliers can play a mediating role. Some organisations and individuals display high source loyalty, even when the incumbent supplier is perceived to be risky. Others demonstrate minimal source loyalty. The risk handling strategy depends on which purchase attribute is dominant. Price risk may be addressed very differently from technical or service risk, for example. The third mediating factor, the buyers' perception of the procurement problem, acknowledges that purchasing problems are multi-faceted. The chosen risk handling strategy depends on what aspect of the problem the buyer focuses on, or what reference point is used.

The general assumption in the literature is that perceived risk does affect attitudes and buying behaviour, such as information search and choice. However, a meta-analysis by Gemunden (1985) of 100 empirical findings revealed that in 51 of the 100 cases, perceived risk was not linked to increased information search. Gemunden (1985) suggests that information search is stimulated only above a certain risk threshold. The same may be true for the role of branding as a risk reducer. Branding may be an effective risk reducer, but only in higher risk situations. There is a need to empirically examine the relationship between perceived risk and the importance of branding.

Finally, the fifth key aspect of the organisational buying behaviour literature is that research has shown that decision protocols to process information can and do differ. One of the simplest ways of distinguishing between choice processes is by the number of stages in the decision making. High involvement decisions are frequently modeled as a two-stage process, beginning with a screening stage in which a list of possible suppliers, the consideration set, is narrowed down to the final few who comprise the choice set. In the final stage, a choice is made from among these final contestants. Alternatively, low involvement decision making skips the formal screening stage and can be modelled as a one-stage process.

Although consideration sets and choice sets cannot be directly observed, research has provided direct and indirect evidence of their existence and size (e.g., Hauser and Wernerfelt 1990; Roberts and Lattin 1991). Consideration sets can be used as a basis of market segmentation, and can increase the accuracy of choice predictions (Cooper and Inoue 1996; Gensch 1987a). Consideration sets have attracted significant research attention (for a review, see Shocker, Ben-Akiva, Boccara, and Nedungadi 1991), including a special issue of *IJRM* (Roberts and Nedungadi 1995). Yet, since consideration sets can be dynamic both within and across usage occasions (Shocker, Ben-Akiva, Boccara, and Nedungadi 1991), many definitional and measurement issues remain.

The decision on type of choice process is not always left up to the buyer. In many organisations, formal guidelines are issued for evaluating products and suppliers, and these must be at least tacitly recognised and acknowledged, even if not strictly followed. Many purchasing textbooks and numerous other studies

report the common usage of vendor rating systems, some of which can become rather complex to implement (e.g., Nolan 1970, Lysons 1993). Table 2.3 provides one example of a rating scheme recommended by Scheuing (1989). In contrast, none of the buyers in Woodside and Vyas (1987)'s in-depth case study analysis of six companies used a formal vendor rating system, and none of the purchasing agents favoured vendor rating systems.

TABLE 2.3

Steps of a Supplier Rating Plan *

- | |
|---|
| <ol style="list-style-type: none"> 1. Establish a list of critical performance factors. 2. Assign weights to these factors to reflect their relative contributions to a supplier's overall performance rating. The weights must add up to 1.00 or 100 percent (total performance). 3. Determine how to measure actual supplier performance on each factor. 4. Measure actual performance of a vendor according to each factor. Develop performance ratings as percentages of perfect performance (perfect =100%). 5. Cross-multiply the performance ratings with their respective weights to arrive at weighted ratings. 6. Add the weighted ratings to compute the supplier's performance index. |
|---|

* adapted from Scheuer (1989, p. 221)

Buyer and purchase characteristics affect the decision process utilised. The importance of particular attributes and the decision making process can vary between the consideration stage and the choice stage (Heide and Weiss 1995; Howard and Sheth 1969). Howard and Sheth (1969) theorised that consumers

use different decision processes depending on their knowledge about and experience with the choice alternatives. For example, the buyer's level of expertise affects how many suppliers are considered and how they are assessed. Other factors such as task complexity, the level of involvement, knowledgeability, and perceived risk are involved.

According to Gensch (1987), different individuals or segments use different types of decision processes on the same choice problem. Choffray and Lilien (1980) explained how a market can be segmented by the structure of the decision processes. Decision protocols to process information can and do differ amongst buyers (Crow, Olshavsky and Summers 1980). Research by Woodside and Vyas (1987) indicates that industrial buyers do not use any one particular decision process or protocol. Instead, buyers use a combination of evaluation models at various stages of the decision. They concluded (p. 182) that “although the overall choice process may appear to be complex, the decision rules used at various stages in the choice process are relatively simple [although] this simplicity is not always evident to the decision maker.”

Decision protocols such as compensatory versus hierarchical have been discussed and analysed for more than thirty years in the literature. Webster and Wind (1972b) cited the work of Coombs (1964), in their descriptions of conjunctive, disjunctive, lexicographic, and compensatory models. Section 2.4 examines the literature on choice models in considerable detail. Yet, more generally, effective modelling requires examination of more than just the appropriateness of the underlying behavioural assumptions (Tanaka 1993). Also

important are the accuracy of the model's predictions and the types of diagnostic information and managerial insights generated. Especially helpful are insights into the relative influence of various attributes or factors on the choice, as these can then be modified to improve a product's competitiveness. The link between attitudinal models and choice models has not been extensively developed or examined, with at least one notable exception (Dabholkar 1994).

Ultimately the buyer makes a choice. Once made, this decision is formally or informally evaluated, and this evaluation influences later perceptions of purchase need, buyer and purchase characteristics, and the decision process. One implication of this dynamic, adaptive process is that branding effects, too, can be expected to vary between decision making stages, although this hypothesis has not been systematically tested in industrial markets.

These and other findings provide strong justification for further examination of the role of branding in the decision process. To Murphy (1990b, p. 60), industrial brands "serve precisely the same role" as consumer brands, although with a weaker branding bond, and with less potent intangible features than in the consumer sector. These assertions are not easily testable. Instead, it is important to take a broader and more comprehensive look at the different ways branding can influence the decision. Research is needed to better understand the particular roles industrial brands play, from both the buyer and seller perspectives, and to determine to whom and in what situations is branding more important.

2.5 CHOICE MODELLING

The term choice model has been used in a number of different contexts in the literature. For the purposes of this review, choice models are considered to be mathematical representations of the purchase decision process. Gensch (1987b) identifies three main categories of choice models: conjoint analysis, multidimensional scaling/ preference mapping, and multi-attribute choice models. A number of articles (e.g., Eckstein and Wolpin 1989; Manrai 1995; McFadden 1986; Malhotra 1984; and Wilkie and Pessemier 1973) have comprehensively explained and critiqued the extensive literature in this area. A preliminary review of the reviews reveals that most take a similar approach, in that they primarily focus on the statistical or econometric techniques used, and that they generally assume the purchasing decision concerns a fast moving consumer good such as toothpaste. In contrast, this review focuses on the underlying behavioural assumptions and implications, rather than the techniques, and within a business-to-business context.

All choice models make explicit or implicit assumptions about the behaviour of the individuals involved. Models differ in the assumptions they make about behaviour regarding information processing and decision protocols. Given the same choice problem, individuals (or customer segments) can and do process information in different ways and follow different types of decision making schemes. Logically, models should be chosen that reflect the actual behaviour of the individuals involved. However, in many instances, models are used without directly examining the underlying behavioural assumptions, or their implications (Baumgartner and Homburg 1996).

Marketing is sometimes described as having one leg in economics and one leg in psychology. Multi-attribute choice models reflect that dichotomy of origin.

Models can be categorised as being either economics based or psychology based. Others characterise them as compensatory or sequential. Model makers have operationalised these two basic sets of behavioural assumptions in a number of ways and using an extensive vocabulary. Table 2.4 presents a taste of the assumptions, terminology and techniques. Most more recent models attempt to integrate the two sets of assumptions (e.g., Lehmann and Moore 1991), yet it can still be thought-provoking to set up this dichotomy and see where particular models fall. The following discussion first summarises the key aspects of economic choice models and psychology choice models, then discusses issues of operationalising them, in terms of data collection and the resulting diagnostic information.

TABLE 2.4

Choice Model Assumptions, Terminology & Techniques

ECONOMICS – based	PSYCHOLOGY-based
<ul style="list-style-type: none"> • Utility maximising • Compensatory • Simultaneous processing • Brand-based processing • Regression • Logit • Probit • Tobit 	<ul style="list-style-type: none"> • Hierarchical • Non-compensatory • Sequential elimination • Attribute based processing • Elimination by aspects • Conjunctive • Disjunctive • Lexicographic • Preference trees

In economic choice theory, market behaviour is generated by the maximisation of individual preferences, or utility maximisation. Individuals choose the alternative with the maximum utility at a particular moment in time. The random utility model can be summarised as:

$$U_i = V_i + W_i$$

in which the utility (U) of product i to an individual has both a deterministic component (V) and a random component (W). The utility of product i to an individual is equal to the value of product i and random disturbances from omitted attributes, discrimination errors, or unmeasured variations in preferences. The random component of utility models (W) allows for perceptual differences and errors by consumers. In this way, the economic model incorporates rational and irrational behaviour. The models assume information is processed simultaneously, at the same moment in time, and following identifiable decision rules. The process is compensatory, in that a product's strengths along one attribute dimension can compensate for its weaknesses along another dimension. Also, judgements about any particular product's attributes are considered to be independent of the judgements of other alternatives under consideration.

One interpretation of this protocol (Manrai 1995) is that individuals: (1) reduce the specific features of a product to a few attribute dimensions; (2) weight the importance of each attribute dimension; (3) evaluate each product alternative on each attribute dimension simultaneously; and (4) choose the product with the highest rating. A purchase decision on cars can serve as an example. Cars have many features, such as price, size, mpg, acceleration, type of paint, etc. These features can be reduced to categories such as economy, style, safety, and performance. An individual might limit his choice set to 5 cars, and identify 4 decision criteria. He rates the importance of these criteria, and rates the cars on

the criteria. The individual's brain processes all the information and identifies the best choice.

The economic model describes a rational process, yet includes a random component to account for perceptual errors that occur along the way. In addition, economists recognise Herbert Simon (1957)'s "regions of indifference", in which individuals known as "satisficers" will continue to pick their current alternative until another alternative becomes "sufficiently more attractive". This resembles the situation in many industrial markets, where inertia rather than loyalty provides an explanation for stability in supplier sourcing.

The behavioural assumptions of the multinomial logit (MNL) model and other frequently used economics-based models are explicit and well recognised (Gensch and Recker 1979). The models also assume homogeneity, such that the same preference coefficients or importance weights hold or can be used across the sample population. Often problematic is the assumption of Independence of Irrelevant Alternatives (IIA), whose implications have been thoughtfully analysed by a number of authors (e.g., McFadden 1986).

In psychological choice theory, decision making follows a hierarchical process. Similar to the economic choice process, individuals reduce specific product features to a few attribute dimensions, and then weight the importance of each attribute dimension. Differences arise in how the information is processed. Instead of processing information in the compensatory and simultaneous way assumed by the economic model, the psychological choice models assume that individuals evaluate product attributes "sequentially" or "hierarchically" by examining each product on the most important attribute. Individuals eliminate products that do not attain the cut-off or threshold value, and then examine the remaining products on the second most important attribute, etc. Products are

eliminated until only one remains. Judgements about a product's attributes are a function of the alternatives under consideration, and are not independent of the other alternatives, as is the case in the economics based model.

Again, a car purchase decision can illustrate the process. As in the economic model, a car's features are reduced to the categories of economy, style, safety and performance. One individual decides that economy is the most important attribute, and eliminates all alternatives over a certain price target. If safety is the second most important attribute, the remaining alternatives are examined and eliminated if they do not offer dual airbags, and so on.

It is unclear and arguable which set of behavioural assumptions is more realistic in industrial decision making. The sequential decision making process assumption fits some individuals and situations well, especially when a few attributes are much more important than others. Yet in other situations, individuals examine the whole product, compare the whole package in a way more similar to the compensatory model. Within a buying centre, members may adopt different decision making processes. Decision making is frequently modelled as a two-stage process (e.g., Bronnenberg and Vanhonacker 1996), with a screening phase and a final decision phase. Gensch and Soofi (1995) suggest that decision making in the screening phase may follow a hierarchical process, while decision making in the final phase may be compensatory.

The debate over the validity and appropriateness of the various models is complex and ongoing, and inevitably hinges on how the assumptions are operationalised. Operationalisation holds implications for data collection and the resulting diagnostic information. Economics based models can utilise data in the form of scaled attribute ratings and scaled importance ratings, along with evidence of actual, stated, or expected choice decisions. Scanner panel data is

often used for evidence of actual choices in consumer markets, but industrial research must rely on surveys and choice experiments. Survey instruments can be used to examine choice decisions of the recent past, or to ask respondents to speculate about future choices. Choice experiments, using conjoint analysis and other techniques, require considerably more effort on the part of the participants. Gaining industrial co-operation for academic research is notoriously difficult, as the literature on industrial mail surveys indicates (e.g., Jobber 1997). Sellers may recognise the potential benefits of the research, but it is the buyers who need a real incentive to participate.

Economic choice models such as the multinomial logit (MNL) model have been used to provide three basic types of diagnostic information: (1) which attributes are most important in determining product choice; (2) what buyers *say* is important versus what their *behaviour* reveals; and (3) how changes in the marketing mix affect the probability of choice. MNL models have a great deal of power and potential, but are limited in their general applicability by their assumptions and by the practicality of data collection.

In contrast, psychological choice models generally operationalise a hierarchical decision making process, as developed by the late Nobel laureate Amos Tversky (1972) and others such as Saaty (1977). In these hierarchical models, judgements about a product's attributes are considered to be a function of the alternatives under consideration, with an emphasis on pairwise comparisons of the products on the most important attributes. Typically, the individual's tolerances (cut-off values) on each of the attributes are computed. The products are systematically eliminated by comparing two products on one attribute at a time, starting with the most important attribute. Any alternative in which the individual tolerance exceeds the individual tolerance value is then eliminated. An alternative model is the Maximum Likelihood Hierarchical (MLH) model

(Gensch 1987a), which estimates the average tolerances or cut-off values for each attribute in the sample. Each individual is processed through the algorithm. The individual starts with his most important or first-ranked attribute. Then the individual's tolerance on each of the alternatives in his choice set is computed. Any alternative in which the computed individual tolerance exceeds the estimated aggregate tolerance is eliminated.

In terms of data collection, hierarchical models can utilise data in the form of scaled attribute ratings and scaled importance ratings, along with evidence of actual or stated choice decisions. The data collection process can be more demanding than for the economics based models, depending on the number of pairwise comparisons required. Also, a pairwise comparison sometimes requires an individual to identify differences between two products on a particular attribute when none may be perceived on that attribute. As with the economics based models, survey instruments can be used to examine choice decisions of the recent past, or to ask respondents to speculate about future choices. Choice experiments are also utilised (e.g., Oppewal, Louviere and Timmermans 1994).

The hierarchical models provide two basic types of diagnostic information: (1) which attributes are most responsible for eliminating alternatives; and (2) at what level the alternatives are eliminated. The economic choice models provide information on which attributes are responsible for *choosing* an alternative, while the hierarchical models focus on the attributes responsible for *eliminating* alternatives. Within an organisation, disagreement may exist as to which type of diagnostic information is more valuable. Still, as with the economic choice models, the power and potential of hierarchical models is limited by how well the assumptions mirror the underlying behavioural reality.

Industrial buyers do not commonly speak of a "compensatory process", yet they are quite familiar with supplier rating schemes. Most purchasing textbooks describe a process of identifying the best choice by evaluating each supplier on a list of important characteristics, using numerical ratings and rankings. Similarly, although buyers may not describe their decision making as following a "sequential, hierarchical process", buyers do speak of narrowing the field of choice by examining suppliers on one or two critical aspects. The reality is complex. Assumptions or assertions of compensatory behaviour often conflict with verbal reports of *hierarchical decision making behaviour*. Since considerable evidence suggests that compensatory models approximate or mimic hierarchical decision rules, and generally result in good predictions (e.g., Green and Srinivasan 1978), this conflict poses "no cause for alarm" (Johnson, Meyer and Ghose 1989, p. 256). However, the analysis (Johnson and Meyer 1984; Johnson, Meyer, and Ghose 1989) indicates that compensatory models are not appropriate in all contexts, and that a need remains for decision models to truly reflect the processes consumers use.

Overall, effective modelling requires consideration of more than just the appropriateness of the underlying behavioural assumptions (Tanaka 1993). Even if the underlying behavioural assumptions of a mathematical model make intuitive sense, it does not mean that the model accurately represents the process people actually use. Also important are the accuracy of the model's predictions, and the goodness-of-fit of the model (Brown and Cudek 1993). The accuracy or goodness-of-fit of the model is certainly an important indicator of its appropriateness. In addition, an effective model generates useful diagnostic information and managerial insights. The diagnostic information should provide the managerial insights into the relative influence of various attributes or factors on the choice. Still, one needs also to be aware of the time, effort and money spent collecting and analysing the information (Leigh, MacKay and Summers

1984). Tradeoffs are inevitable. Table 2.5 summarises and compares the models and the trade-offs in the context of industrial research.

TABLE 2.5

Summary of Tradeoffs in Industrial Choice Research

“Economics-based” or Compensatory Models

- Similar to purchasing text book descriptions on how buyers decide
- Testing and getting around the IIA assumption may be cumbersome for industrial research.
- Big emphasis on the “score card”. Easy to collect data, but sensitive to changes in usage.
- Provide insight into the attributes that determine product *choice*.

“Psychology-based” or Sequential Models

- Resemble many anecdotal descriptions of industrial purchases
- If buying centre members disagree over what is most important, the resulting sequence is complicated
- Pairwise comparisons are difficult to collect for large industrial choice sets
- Provide insights into how products are *eliminated* from further consideration

2.6 BUYER-SUPPLIER RELATIONS

Research in the area of buyer-supplier relations incorporates a wide range of issues, including partnerships, networking, strategic alliances, relationship marketing and transaction cost economics. Research on industrial relationships

can be viewed in a broader context of relationship marketing. Whatever the terminology, companies appear to be placing increasing importance on a wide range of business relationships. To some, the future source of competitive advantage will be the type of relationships that firms have with their suppliers (Sheth and Sharma 1997). Many top companies are attempting to move away from simply selling products to finding broader approaches to reducing the cost structures of their suppliers and customers. In this context, relationship building and branding are very closely related.

The wide range of current buyer-supplier relationships defies simple explanation. At one end of the spectrum, single sourcing has been identified as an ingredient of Japanese manufacturing success, yet has not been universally adopted, even in Japan. Relatively few firms truly follow W. Edwards Deming's call for a "long-term relationship of loyalty and trust" (Deming 1988). Source reduction practices and dual sourcing (Ramasesh, Ord, Hayva and Pan 1991) have been advocated as alternatives to single sourcing with an emphasis on the stability of the supplier base (Morgan and Dowst 1988). Single sourcing with a well qualified backup supplier is another realistic option (Galt and Dale 1991).

At the other end of the spectrum lie the adversarial relationships of buyers with multiple suppliers for each key component (Landeros and Monczka 1989). Yet, empirical evidence suggest that relationships between Western buyers and suppliers are changing (Helper 1991). Current buyer-supplier relations in the West can be described as "close but adversarial" (Mudambi and Helper 1998). This recognises increases in formal commitment, through contracts, without increases in informal commitment.

Analyses of buyer-supplier relations generally fall into one of two camps, transaction cost economics (TCE), or the more porous relationship marketing

camp consisting also of advocates of the IMP model (Hakansson 1982), relational exchange (Fontenot and Wilson 1997), Japanese management, obligational relational contracting (Sako 1993) and others. The following sections briefly present the main characteristics of these two approaches to buyer-supplier relations, and indicate the implications for research into industrial branding.

Analysing buyer-supplier relations within a TCE framework emphasises two realities: markets are not perfectly competitive, and there is more to selecting a supplier than location the lowest bid. Market exchanges between buyers and sellers, across technologically separable interfaces generate frictional losses, or transaction costs, for both parties. Transaction costs were first analysed by Coase (1937), and were further developed by Williamson (1975). A comprehensive literature review by Rindfleisch and Heide (1997) offers a synthesis and integration of the literature, as well as an evaluation of critiques of TCA. This builds on an important earlier review by Heide and John (1992). Transaction costs are wide and varied in nature, and are borne by both buyers and suppliers (see e.g., Sheridan 1990; Cusumano and Takeishi 1991; Sriram and Mummalaneni 1991; Newman and Rhee 1990; Mudambi and Mudambi 1995).

Another key aspect of the theory is the concept of transaction-specific assets (TSAs). These are investments with little value outside the particular buyer-supplier relationship. They encourage supplier reduction, and thereby generate both risks and opportunities, depending on the level of safeguards built into the relationship, and on the relevant norm of exchange (Heide and John 1992). Transaction cost analysis treats these issues as instances that can lead to market failure, with a suggested remedy of vertical integration.

In contrast, advocates of more relational perspective view TSAs as investments in a relationship that generates trust, a stronger, lasting bond, and greater

competency (Dwyer, Schurr and Oh 1987; Morgan and Hunt 1994). This view emphasises how, over time, a well-maintained buyer-supplier relationship decreases many transaction costs and increases competitiveness (Noordewier, John and Nevin 1990). In effect, better relationships offer a low cost means of effecting the same type of control that vertical integration accomplishes by fiat.

Buyers can work closely with a supplier to improve specific areas of performance, leading to savings in quality inspection costs, better integration of design efforts (Newman 1989; Ellram 1990), increased stability of supply, reduction in paperwork and administrative costs, improved quantity discounts due to economies of scale, and savings due to an “external economy of learning” (Nooteboom 1993). The ability to offer cutting edge technical assistance can be an important competitive advantage for vendors. Technical assistance can provide customers considerable added value, and buyers are beginning to treat vendors’ technical expertise as a strategic resource (Ghingold and Johnson 1997). The new relationships also reflect the widening acceptance of just-in-time (JIT) manufacturing, total quality control (TQM) techniques (Turnbull, Oliver, and Wilkinson 1992), and the adoption of electronic data interchange (EDI) links. Many of these investments serve to improve the quality of information and communication available to buyers and suppliers.

Central to the relationships are the notions of trust and commitment (Morgan and Hunt 1994). Trust incorporates dimensions of perceived credibility and perceived benevolence (Doney and Cannon 1997), and enables buyers and suppliers to focus on the more long-term benefits of the relationship (Ganesan 1994). Trust is a key factor affecting commitment to the business relationship. On a regular and frequent basis, buyers must decide to either stay with a supplier or to switch. As Ford (1980) and other authors have discussed, this decision has strategic and operational implications. Neither trust nor switching costs alone

tell the whole story for many products, given the multidimensional nature of performance (Noordewier, John, and Nevin 1990). If the buyer feels it can get a better deal elsewhere, it may well dump a trusted supplier and respond to a new, more tempting offer from a rival supplier. Suppliers can never be too confident about future business, as they realise that there always comes a day when they are no longer the clear choice for even their most loyal customers.

In many cases, trust and loyalty have a human face. Interpersonal factors influence many purchase decisions, and personalities can make or break a deal. Strong personal links or friendships can be the motivating force for initiating a business relationship, and for continuing the relationship long after other more objectively sound alternatives become available. Highly trusted salespeople can reduce customer defection during periods of increased competition or during problems of product or service quality. Yet, trusted salespeople when they leave a company often take some good customers with them, and incompetent or unscrupulous salespeople can wreck even a long-term relationship between two organisations.

Anderson and Narus (1990) suggested that the nature of trust in an individual differs from that of trust in an organisation. Doney and Cannon (1997) developed a model that drew on five distinct processes or ways that trust can be developed: by calculation of the costs of untrustworthy behaviour; by prediction of the other party's likely behaviour; by assessment of the other party's capability of meeting its obligations; by determination of the intentions of the other party; and by transference of trust or mistrust from one individual or organisation to another individual or organisation.

Trust in an organisation was shown to be significantly related to the supplier's size and reputation, and in particular, supplier willingness to customise.

Confidential information sharing, and the length of the relationship were not found to be significantly related to trust. Trust in a salesperson was shown to be significantly related to salesperson expertise, likability, similarity to members of the buying firm, and frequency of business contact. The perceived power of the salesperson, frequency of social contact, and length of the relationship were not significantly related to trust. Overall, trust of the salesperson had a positive effect on the trust of the selling firm, and vice versa.

However, although trust is important for a good buyer-seller relationship, that alone does not make or keep a sale. Doney and Cannon did not find a significant relationship between trust and the current supplier choice, although trust was positively related to the likelihood that buyers plan to do business with the supplier in the future. Trust is important for a supplier to be considered, but may be less important in the actual supplier choice.

Good buyer-supplier relationships at an interpersonal level certainly help to improve the overall reputation of a company brand or individual brand. Yet, effective branding must also rest on other more controllable foundations, such as the quality of the physical product, services, infrastructure, communications, financial performance and stability. One reason personality factors may matter more is the absence of a strong company brand image. As Hague and Jackson (1994, p. 54) wrote: "It is because industrial companies attach little importance to branding that the emphasis is thrown onto personalities, and it is often these strong personal links which are the only basis of business between an industrial buyer and supplier." Some customers in some situations do highly value the importance of the interpersonal relationship, while others focus more on inter-organisational aspects of the relationship, and place trust in the company, not in a

particular employee of the company. Because of these indications of the diversity of customer perceptions of value and benefit, it is important to further examine issues of industrial customer segmentation, to determine to whom, and in what situations is relationships and branding are more important.

2.7 INDUSTRIAL SEGMENTATION

Segmentation is one of the most widely researched analytical tools in marketing (Cheron and Kleinschmidt 1985; Haley 1968; Plank 1985; Rangan, Moriarty and Swartz 1992; Rao and Wang 1995; Wedel 1990). Segmentation is the identification of groups of individuals or organisations with characteristics in common that have significant implications for the determination of marketing strategy (Jobber 1995). Buyers differ in many ways, as do the types of purchases they make, and the decision processes they use. These different aspects provide the basis for meaningful customer segmentation and analysis.

Customers in industrial markets can be segmented using a number of bases. Most industrial firms at least partially rely on traditional organisational demographics as bases for segmentation. These traditional bases include size, Standard Industrial Classification (SIC) category, end use of the product, and geographic location (Webster and Wind 1972b). However, due to considerable differences in firms within these segments, organisational demographics are not the only valuable segmentation base. Hooley and Saunders (1993) identified three general ways of segmenting industrial markets, by background company characteristics, attitudinal characteristics, and behavioural characteristics.

In the classic macro-micro model, customers are first subdivided on the basis of macro organisational demographics, and then further subdivided into micro segments based on situational characteristics (Frank, Massy and Wind 1971). Dibb and Simkin (1994) encouraged marketers to consider existing market divisions as a starting point.

Rangan, Moriarty and Swartz (1992) identified and reviewed six bases for industrial segmentation: demographic; product end-use or application; buying situation; customer benefits; customer buying behaviour; and customer decision making style. Since no single segmentation base can be effective for all situations, marketers often find it difficult to know which one or ones to use. Bonoma and Shapiro (1983) responded to this problem by developing a multi-step, nested approach to industrial segmentation. They suggested beginning with the outer nest of more easily observable variables and moving to the inner nest of less accessible variables. Their five sets of segmentation bases include: organisational demographics such as industry type, company size, company location; operating variables such as company expertise and capabilities, product use or status; purchasing approaches such as purchasing function and structures, purchasing policies and criteria, buyer-seller relationships; situational factors such as urgency of order, size of order, product use or application; and buyers' personal characteristics such as personality and approach. This approach has been criticised as lacking in applicability and dynamism, but it does provide good conceptual value.

Industrial situation specific variables often offer more relevance than do general organisational demographic bases. Situation specific characteristics include

frequency of purchase or usage and the nature of the buying centre. Cardozo (1980) identified four main situational bases: buyer familiarity with the buying task; product type; importance of the purchase to the buyer; and the principal type of uncertainty present in the purchase situation. He recommended combining these with organisational demographics to increase segmentation effectiveness. Other situational variables include the attitudes, perceptions, and preferences of the buyer toward the supplier, its products, services and personnel. Segments can be defined by technical parameters and by buying factors (Brown, Shivashanker and Brucker 1989). Industrial sales forces can perceive differences in customers in terms of their technical sophistication and knowledgeability (Gensch 1984, 1990).

Benefit segmentation is a widely accepted approach of identifying homogeneous groups of potential customers on the basis of the similarity of their user needs and perceived importance of product attributes (de Kluyver and Whitlark 1986; Moriarty and Reibstein 1986). Benefit segmentation can facilitate the development of customised marketing approaches to better meet customer needs and organisational objectives. The perceived importance of the various attributes, or benefits sought, can be an effective differentiator, and can be integrated with multi-attribute analysis to yield a framework for comparing brand alternatives (Weber 1997). Buyers often significantly differ in their evaluation of the importance of aspects such as physical properties, price and reliability.

Benefits are not limited to tangible aspects of the physical product or performance, but extend to more intangible service and company factors such as vendor reputation. Segmenting on the basis of customer service needs can also be practical and effective (Sharma and Lambert 1994). The consideration and integration of branding concepts can enhance segmentation on the basis of benefits. Buyers seek benefits which include elements of basic brands, namely

the physical product attributes and performance characteristics, and of augmented brands, such as parts availability and support services, and of potential brands, such as reputation. Effective segmentation should capture the dynamics of maturing markets (Rangan, Moriarty and Swartz (1992).

An understanding of the degree of branding can help the company to become more responsive to customer expectations as the product market matures and competitive pressure increases.

The perceived benefits depend to a large extent on the intended end use of the product. For example, Doyle and Saunders (1985) demonstrated how segmentation by product application or end use can assist a company in developing its positioning strategy as it moves from basic commodities to specialty products. In addition to several general measures of market attractiveness, the model variables include six product specific features, which can be seen as elements of basic brands, and four company characteristics, which indicate the degree of branding. Their segmentation and positioning approach started with the firm's market and financial objectives, and explicitly considered the firm's marketing and technical capabilities. This took into account both the benefits sought and the benefits deliverable. Segmentation lead to the identification of a number of target segments, a positioning strategy, and the development of a marketing plan for each product.

Branding can illustrate dynamic aspects of segmentation and buying behaviour. Shapiro, Rangan, Moriarty and Ross (1987) described the segments created by the trade-off between price and cost to serve, with higher costs caused by customer demands for additional services. As services become standardised, customers migrate to lower price segments. Rangan, Moriarty and Swartz (1992) tested a similar model in an in-depth analysis of the buying behaviour micro-segments of an industrial company. They identified four buyer segments:

programmed buyers, relationship buyers, transaction buyers and bargain hunters. Neither study uses the term, but industrial branding stands in the middle of this intersection of buying behaviour and segmentation.

Figure 2.3 illustrates how branding can be considered in the context of industrial market segments. In this example, customers are segmented by price sensitivity, or willingness to pay high prices. A basic brand may involve relatively low costs, but customers rarely pay high prices for a basic brand. Augmenting a basic brand increases the costs of the offer, sometimes quite significantly, yet does not guarantee high prices. Some customers do not need higher levels of service or quality, and are thus unwilling to pay more. Other customers will initially pay a premium price for the recognisable services and guarantees of an augmented brand, but only up until these services become widely copied and available. More difficult to generate, and to copy, are the real but intangible benefits or values of a potential brand. These intangible benefits can be costly to develop and maintain, but provide the key to sustainable differentiation, and to the maintenance of premium prices.

FIGURE 2.3

Branding in the Context of Buying Segments

	COSTS		PRICE	
	Low	High	Low	High
Basic Brand	X		X	rarely
Augmented Brand		X	x	x
Potential Brand		X		X

In another example, most steel companies define their customer segments along product and consuming industry dimensions, which facilitates calculation of

shifts in demand or market share. Schorsch (1994, p. 113) criticised this as “a very lazy approach. It has absolutely nothing to do with how customers actually make buying decisions.” His research for McKinsey utilised key buying factors to identify three distinct segments, a price-sensitive segment, a service segment, and a commitment segment. These segments cut across the traditional organisational demographic segments such as segments by industry sector. After examining the marginal costs and prices of the segments, Schorsch concluded (1994, p. 115), “building a marketing strategy around target industry segments, rather than target buying characteristics, inevitably undermines company profitability.” This knowledge of what different customers value can help to explain the existence of a difference in profitability between similar shipments of up to 20 percent in some commodity markets (Ahlberg, Hoover, de Mora, and Naucler 1995).

The integration of branding and segmentation can help in evaluating the attractiveness of alternative segments, and in *making decisions on positioning* and the marketing mix. Segments with a high degree of branding pose higher barriers to entry. They also demand different marketing skills than do segments with low levels of branding present. Depending on the dynamics of the particular situation, companies can consider a range of branding strategies, from large investments in branding to commoditisation or debranding (Parasuraman 1983).

Although few segmentation analyses explicitly address branding, they do highlight branding issues. Overall, the willingness of industrial marketers to accept the concept of segmentation has been greater than their ability to make it operational or strategically relevant (Brown, Shivashanker and Brucker 1989). To them and to Garda (1981), segmentation “tends to lose much of its magic when applied in the industrial arena.” The difficulty lies with identifying buyer

segments that are truly meaningful to the seller (Barclay and Ryan, 1996; Gensch, 1984). How meaningful or useful the segments are depends upon factors such as the value or size of the segments, segment accessibility, level of competitor activity, and management's capability to implement different segmentation strategies (Doyle and Saunders 1985). The implementation of strategic segmentation plans has been called a "glaring omission" of the early literature (Plank 1985, p. 87), yet, according to Kalafatis and Cheston (1997), the current academic emphasis is, and should be, on practical applications of business segmentation theory.

There are good reasons why operationalising segmentation in an industrial context is even more difficult than in consumer markets. Industrial segmentation is encumbered by: a greater diversity of end-users and end-uses; multiple decision makers; the uncertain role of technology; and the lack of access to good and relevant data; and the complexity of the industrial buying process (De Kluyver and Whitlark 1986). Benefit segmentation in particular is not appropriate for all situations. To O'Connor and Sullivan (1995), benefit/attribute segmentation can be a rather subjective research procedure that leads to segments that do not strongly relate to brand purchase. Their research indicated that segmentation using preference data is more efficient and useful. Benefit segmentation commonly assumes a link between attitudes and purchase behaviour, when it may be that 75 percent of behavioural outcomes are not explained by attitudes (Dibb and Stern 1995).

Part of the difficulty of segmentation stems also from how segmentation analysis is commonly conducted. Segmentation provides a means to solving a business problem. It is important to first identify the problem and pose the research question, before developing the segmentation analysis. Too often, customer segments of a particular market are identified, and then questions are asked

regarding what to do with the segments. If this backward approach is followed, then it is no wonder that segmentation has proven to be less than useful.

Also, to be effective and relevant, dynamic aspects must be considered.

Customer segments evolve as the product moves through the product life cycle, shaped by awareness of competitive alternatives and changes in customer expectations. Sustaining a segmentation strategy based on benefits alone becomes difficult as the product market matures. As product quality differences diminish, with most competitors offering more or less equivalent products, price and service aspects often become more important (Rangan, Moriarty and Swartz 1992). Mechanisms for ongoing monitoring and evaluation of the perceived customer segments are important. These mechanisms can insure that the identified segments continue to be relevant and worthwhile paths for better meeting customer and organisational needs.

For the thesis research, the key is whether segments based on the importance of branding and other attributes can be linked to identifiable characteristics of the buyer, purchase, and decision process. Knowing that branding is important to some buyers is not sufficient. The buyers must also be identifiable in a meaningful way, so that managers can adjust the marketing mix appropriately. Segmentation analysis is only as good as how well it can be utilised by the marketing managers and the sales force.

2.8 CONCLUSION

Little previous research has specifically addressed theoretical or practical aspects of industrial branding. Yet, as with any cross-disciplinary area of research, the research can, and should, draw on several other rich, well-established, and applicable areas of research. This chapter has highlighted pertinent aspects of

five distinct management literatures. Consumer branding, organisational buying behaviour, choice modelling, buyer-supplier relations, and industrial segmentation each offer unique theories and models which industrial branding research must acknowledge and utilise as appropriate.

The challenge of industrial branding research, and indeed any cross-discipline research, is to identify which concepts and models are the most relevant. The literature review has done this. The next step is to move beyond the traditions and jargon of individual research areas. Cross-disciplinary research opens itself up to accusations of “cherry-picking” models, concepts, techniques and jargon simply on the basis of convenience or personal preference. To avoid this criticism, a cohesive framework for industrial branding research is required. This framework should incorporate aspects of other literatures and research areas, but should begin to develop a distinctive identity of its own.

Consequently, Chapter 3 introduces a conceptual framework for industrial branding. This multi-part framework enables the key questions surrounding industrial branding to be addressed and answered. The first part addresses the question of what industrial branding is, and provides a way of integrating the many aspects of branding as perceived by customers. The second question is whether industrial branding is important, and if so, to whom. A model of branding in the decision process enables these questions of branding importance to be systematically examined. The model also facilitates efforts to answer the third key research question of what are the implications of industrial branding for managers. Only by understanding the role of branding in the decision process can effective managerial responses and strategies be formulated.

Chapter 3

CONCEPTUAL FRAMEWORK & HYPOTHESES

3.1 INTRODUCTION

To be meaningful, a conceptual framework for branding in industrial markets must include three main aspects. The framework must first *define industrial brands* and explain what brands and branding are in an industrial context.

Section 3.2 defines industrial brands, introduces a *continuum of industrial brands*, and explains how industrial brands differ from industrial products and from consumer brands.

Secondly, the framework must explain *the importance of industrial branding in the purchase decision*. Section 3.3 identifies the benefits of industrial brands to the manufacturer, but more importantly, to the customer. Central to this explanation of branding importance is an understanding of the composition of brand value to the industrial customer. *The pinwheel of brand value to the industrial customer* explains brand value in the context of accepted theories of organisational buying behaviour.

Thirdly, as industrial branding is not equally important in all situations or to all buyers, the framework should identify the *determinants of industrial branding importance*. Branding importance is related to a number of buyer and purchase characteristics. The preliminary new *model of industrial branding in the decision process* integrates consumer branding and organisational buying

behaviour theory, and draws on the other literatures reviewed in Chapter 2. The model is not intended to provide an alternative to more comprehensive explanations of buying behaviour. Instead, the model incorporates branding concepts into traditional organisational buying behaviour frameworks. Section (3.5) summarises the general propositions inherent in the model, and presents the specific hypotheses to be tested concerning the role and importance of branding. The final section (3.6) introduces the more general hypotheses regarding industrial buying behaviour.

No conceptual model can provide the definitive explanation of human behaviour. Models can play an important role in advancing knowledge and understanding. Theory can improve our perspective or view of complex activities. Deming (1960) cited an apt quote from Seeger (1946), “It is noteworthy that the etymological root of the word theatre is the same as that of the word theory, namely a view. A theory offers us a better view.” Webster and Wind (1972b, p. 5) identified three practical values a model of organisational buying behaviour can have for marketing practitioners. A model can: (1) help identify, guide, and evaluate the need for market information; (2) aid in the analysis and interpretation of available information about the market; and (3) improve the value of predictions about and understanding of market response, thereby enhancing the firm’s marketing and segmentation strategies.

Thus, a good conceptual model is characterised by practical relevance as well as by appropriate theory. As Hosmer and Lemeshow (1989) observed, “Successful modeling of a complex data set is part science, part statistical

methods, and part experience and common sense.” Practical questions motivate the conceptual framework for branding in industrial markets. The framework is intended to increase understanding of what industrial branding is, to whom it is important, and how managers can utilise branding knowledge.

3.2 DEFINING INDUSTRIAL BRANDS

Industrial marketing practitioners rarely use the terminology of branding. Part of the explanation for this rests with a few common misconceptions about industrial brands and terminology. This section explores several issues of terminology and perception. Branding terminology can be problematic, especially as each branding scholar or practitioner eagerly offers his or her fresh, unique way of encapsulating the essence of the phenomena of branding. Some authors use the terms “product” and “brand” almost interchangeably, while others insist that products and brands are distinctly and completely different entities.



To many industrial marketers, the word brand connotes a gimmick for a "less than serious" consumer product. However, not all consumer products are brands, and not all brands are consumer products. Industrial brands are not gimmicks, and are not new. Shipley and Howard's (1993) survey revealed that UK industrial companies use brand names widely. Some industrial brands have emerged from marketing initiatives, while others such as TeflonTM and DacronTM have been created by patents, trademarks and other aspects of legal protection. Although all trademarks involve branding, it would be misleading to equate

brands and trademarks, as the degree of branding varies considerably amongst trademarked products (Cohen 1991).

These and other misconceptions often gloss over key differences in the *degree* of branding, as described by Levitt (1980) and Doyle (1994), and as previously discussed in Chapter 2. One reason some industrial marketers avoid talking directly about branding is their assumption that a brand is simply a name or a logo. Brand names and logos are important identifying devices, but to be meaningful, there must be more substance to a brand than simply a name.

Industrial products and brands can be depicted as existing in a continuum of perceived differentiation and value. At issue is the level of valuable differences that buyers perceive amongst the available purchase alternatives. A *continuum of industrial brands* is presented in Figure 3.1. At one end of the spectrum, a *commodity* offers no meaningful differentiation, and is generally bought in bulk quantities. Fuel oil and raw materials such as coal are usually considered commodities. However, evidence of branding exists in the arena of commodity grades of lumber. For example, Weyerhaeuser began using a brand name, 4-Square, for its softwood dimension lumber as early as the 1920s (Sinclair and Seward 1988).

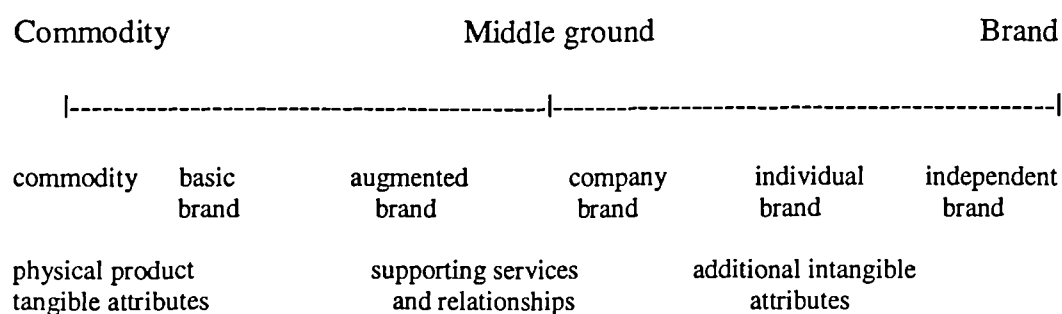
At the next level, a *basic brand* bears an identifying name or number, but lacks other features to distinguish it from a commodity. For example, British Steel produces hot rolled steel under several brand names, including the low strength BS 1449, and the high strength TenformTM range. The chemical giant, Air

Products offers the Airflex™ range of emulsions, including the Airflex™ 911.

Promotions of these basic brands point out aspects of superior quality and differentiation.

FIGURE 3.1

A Continuum of Industrial Brands



In the middle ground, an *augmented brand* emphasises additional services such as technical or financial support. These enhance the overall attractiveness of the offer. Manufacturers such as British Steel, SKF and Loctite augment their products with a technical advisory service. Corporation annual reports often highlight augmented services. For example, the cover of the annual report of the manufacturing giant Parker Hannifin features the Parker logo and one phrase, “Leadership in Customer Service.” Inside the report describes their fluid connector products as augmented with “value engineering services, educational materials and expert systems” (Parker Hannifin 1994).

A *company brand*, otherwise known as a corporate or umbrella brand, also offers augmented features and services, and in addition, promotes the support, stability, and reputation of the overall company’s portfolio of products. Large industrial

conglomerates such as General Electric typically rely on the company brand.

Many Japanese and Korean companies such as Matsushita and Daewoo promote the company name across a very wide product range. As Balmer (1995, p. 26) observed, "Mitsubishi produces everything from canned fish to motorcycles."

The *individual brand* takes the company brand one step further and offers a brand identity that is complementary but distinctive from that of the overall company. Often the company and individual brands are used together. 3-M offer a number of individual brands, including FluoradTM fluorochemical surfactants, and a number of product lines incorporating the 3M ScotchTM name. Some of these names can be quite unwieldy, such as ScotchlokTM 2 Electrical Spring Connectors and ScotchliteTM Diamond Grade Reflective Sheeting. Rohm and Haas promote their DithaneTM fungicide. ICI feature their 'Waterlily' comfort cushioning. These brands offer the customer additional intangible benefits to broaden their appeal.



Finally, at the end of the continuum, an individual brand becomes an *independent brand* and enjoys a distinctive identity that may even overshadow the identity of the company behind it. Many people do not automatically connect the brands KevlarTM, TeflonTM and LycraTM with DuPont, as they have developed independent identities over the years. In the textile industry, fibre manufacturers have attempted for many years to utilise branding as a pull strategy, although this strategy has not always proven to be very successful (Saunders and Watt 1979). Their objective has been to stimulate consumer preference so that it will pull the product through the distribution and manufacturing system. For example, the

fibre brand Tencel™ has developed a “trendier” image than that of its manufacturer, Courtaulds (Miller 1996). Similarly, although many outdoors enthusiasts recognise the brand Polartec™, few could connect it to its manufacturer, Malden Mills Industries. Overall, independent industrial brands remain uncommon, yet potentially influential. To Murphy (1990b, p. 55), “some of the strongest brands exist in non-consumer products sectors.”

In many cases a continuum diagram can be interpreted as portraying a normative judgement about the subject area, namely that one end is “good” and the other is “bad.” In contrast, the continuum of industrial brands is intended to be descriptive rather than normative. Well-run companies have successfully managed products at every point on the continuum. However, knowing where one’s products and competitors’ products are located in the continuum in the minds of the customer can be an important aspect of effective management.

- 4 Many industrial products will never become an independent brand, and are not suitable for becoming even an individual brand. They may carry a name, or a product identifier, but these labels often exist for the internal convenience of the manufacturer, or for the ordering convenience of the buyer. Basic names or numbers provide functional separation of the products on offer, but cannot be considered as meaningful brands to the customer. A company may believe it has a brand when instead it simply has name recognition. However, name awareness does provide an important starting point. Name awareness can play a critical role in determining which competing product is purchased. An engineer who takes the first step in identifying the purchase requirement may specify a manufacturer

or brand if the name has high top of mind or unprompted recall. A purchasing manager may more speedily approve a purchase request if the name of the selected supplier is known to him/her.

Name awareness is not sufficient to create and maintain a strong brand.

Industrial brand strength builds on three main elements of branding. The three main *elements of industrial branding* are: general name awareness, or how well known the brand is; the general reputation of the brand, or how others view the brand in general terms; and purchase loyalty, which can be viewed as the number of prior purchases of the brand. Together these three elements work to develop and maintain industrial brand strength.

As discussed in Chapter 2, the distinctions between a product and a brand are not always clear. Table 3.1 identifies factors that help distinguish an industrial brand from an industrial product. Few products fit neatly into either of the columns, yet the items can be used to indicate the degree of branding of a particular industrial product. The factors can also indicate whether an additional effort to further develop an individual brand is justifiable. According to Hague and Jackson (1994, p. 34), “for most industrial companies there is scope for only one brand and that is the company name.” They recommend that individual brands “should only be used where there is a will and resources to support them with adequate promotion.” (1994, p. 47). Realistically, most branding in business-to-business markets is likely to continue to focus on corporate identity and reputation, rather than on developing distinctive personalities at the individual product level.

TABLE 3.1**Potential Differences between Industrial Products & Brands**

An Industrial Product	An Industrial Brand
Customers look up the name or number each time they order it.	Customers ask for it by name.
Technical drawings generally specify the necessary physical dimensions and requirements and rarely the supplier.	Technical drawings often specify the preferred or only acceptable supplier.
Customers perceive it to be an imitator or an equivalent of competing products.	Customers perceive it to be a pioneer or leader in its category.
A lengthy description may be necessary in order for customers to talk about it.	Customers commonly use its name when talking about it with others.
People within the selling organisation use different names or numbers to refer to it.	Engineers, sales people, marketers and senior management all refer to it in the same language.
Customers feel no attachment to it.	Customers <i>may refer to it casually or affectionately.</i>
If bought as a process input, the end user is typically indifferent to the supplier.	If bought as a process input, the end user has some interest in who the supplier is.
If bought as a product input for further sale, the final customer is typically indifferent to the supplier.	If bought as a product input, the final customer has some interest in who the supplier is.
The name has low unprompted recall, even when name recognition is high.	The name has high unprompted recall and high name recognition.
The product has average or below average financial performance (market share, price, profit).	The product has above average financial performance (market share, price, profit).

Yet the potential for individual branding does exist and has proven to be powerful. Table 3.2 summarises potential differences between individual brands

and company brands. These criteria can be used to determine the presence and degree of branding in various industrial markets, and to systematically analyse differences in branding patterns. This analysis could provide important insights into the level of competition in a market sector, barriers to entry, and customer expectations. Advanced knowledge in these areas could significantly enhance the effectiveness of future branding efforts.

TABLE 3.2

Potential Differences between Individual & Company Brands

Company Brand	Individual Brand
Customers generally think about this product in the same way they do about other products by that manufacturer.	Customers distinguish between this product and other products of the same manufacturer.
Customers focus on more general or intangible attributes of the company that remain fairly consistent across a number of product categories.	Customers are interested in several unique product attributes that are not completely relevant across product categories.
The manufacturer promotes this product to potential buyers along with a range of related products.	The manufacturer makes a special effort to promote this product to potential buyers.
The manufacturer's promotions are generally targeted to the usual buyer of this type of product.	The manufacturer makes an effort to promote this product to potential end users or final customers.

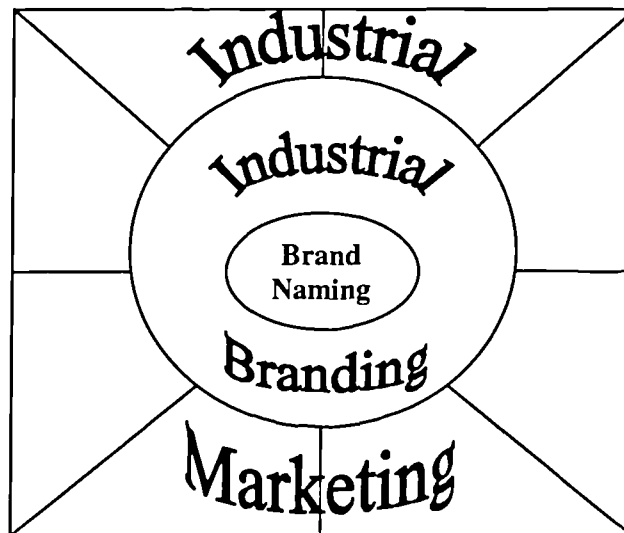
Subtle yet important distinctions can be made between *industrial marketing*, *industrial branding* and *industrial brand naming*. As illustrated in Figure 3.2,

industrial marketing is the most broadly encompassing of the three concepts.

Industrial marketing is the general process of matching industrial customer needs and organisational capabilities. Product differentiation, positioning, and adjustment of the marketing mix are each important ingredients of industrial marketing.

FIGURE 3.2

Relationship Between Industrial Marketing, Branding, and Brand Naming



Industrial branding is the process of increasing the meaningful differentiation of an industrial product through the development of added values or benefits of the brand and their communication to the customer. Branding involves the positioning or re-positioning of the brand in the mind of the customer relative to other competing brands. Functional benefits form the foundation of the industrial brand, yet industrial branding emphasises or focuses on the additional emotional and self-expressive benefits of the brand. Successful branding

engineers a close fit between the benefits desired by customers and the tangible and intangible features of the brand.

Industrial branding differs from industrial marketing in two main ways.

Industrial branding emphasises the development of a unique positioning of the brand through added emotional and self-expressive benefits of the brand.

Secondly, industrial branding focuses on a co-ordinated programme to communicate those benefits internally within the organisation, and to current and potential customers. More generally, branding strategy offers a different perspective or approach to each element of the marketing mix and other aspects of industrial marketing. Branding provides special insights into marketing issues and problems that can facilitate the development of effective strategies for competitive advantage. Industrial branding strategies are explored in more detail in Chapter 8.

- ❖ Industrial branding can be distinguished from the more basic *brand naming* strategies, a distinction not clearly made in earlier studies of industrial branding. *Brand naming is the decision making on which type of name is most appropriate for the brand, and the decision on the actual name itself.* Aaker (1996) presents a hierarchy of naming, including corporate brand, range brand, product line brand, sub-brand, and branded component. Saunders and La Foret (1994) identified four main types of brand naming practices. At the extremes are corporate dominant and brand dominant. Mixed types include endorsed brands and dual brands. Brands may use the company name with simple product identification numbers or letters, or may use names that combine the company

and the product brand name, or may use product brand names, with frequent references to the company name, or may use the product brand names, with little or no mention of the company name, or some combination of these strategies.

Still, as the McKinsey consultants noted (Court et al 1997, p. 29), “many basic materials producers have only a name, and are searching for a brand.” The problem is not unique to industrial branding. Brand naming is but one part of overall branding strategy, yet authors sometimes appear to equate branding strategy and brand naming strategy. For example, Kapferer (1995, p. 108) identifies six “branding strategies”: product brand, line brand, range brand, umbrella brand, source brand, and endorsing brand, while these are in a practical sense, simply brand naming strategies. As industrial marketers “search for a brand”, they need to look for more than a name or logo. Names or logos alone provide little value to customers. Branding is important in the purchase decision because of the more substantive benefits and sources of brand value to the industrial customer.

3.3 IMPORTANCE OF BRANDING IN THE PURCHASE DECISION

This section explores the importance of branding in the industrial decision process from the perspective of sellers and buyers. Simply stated, branding can help sellers and buyers to more effectively meet their objectives. Section 3.3.1 sets the stage by identifying the benefits and role of branding to manufacturers. Section 3.3.2 describes the benefits and role of branding to buyers in the

industrial purchase decision. Section 3.3.3 builds on these benefits by introducing the pinwheel of brand value to the industrial customer.

3.3.1 Benefits of Branding to the Manufacturer

Brands create value for the firm. This is a standard tenet of marketing strategy.

The benefits and strategic importance of brands are well accepted in the literature and practice (e.g., Doyle 1989, 1994; Kapferer 1992). Branding can give “a sharper competitive edge across a complex marketing mix” (Bushill 1985, p. 83).

Effective branding strategies generate improved financial performance for the firm. Branding enables performance improvements in two main ways. First, branding can increase customer perception of meaningful differentiation and added value. Differentiation and added value increase the likelihood of the firm’s product being chosen and decrease the firm’s vulnerability to price changes and other competitive behaviour. Secondly, branding can increase internal employee morale and perception of a shared focus or purpose, and improve the internal organisational conditions. Considerable research has found indications of the link between an employee sense of common purpose and financial results.

These two branding paths to enhanced financial performance share the same roadbed and criss-cross at many junctures. As Bushill (1985, p. 88) wrote, branding provides “positive separation from competitors, an extra level of customer preference, a more unified marketing attack and an improved sense of business purpose.” Customers may differentiate companies by how motivated

the employees appear to be. Customer recognition of company differences can act to improve employee motivation. Thus, the aspects can effectively reinforce each other.

Further consideration and examination of these two aspects can help to put into context the many benefits attributed to branding. Benefits attributed to branding include *differentiation and added value* benefits such as: increased name awareness; perception of greater quality; proprietary brand assets; increased brand loyalty; premium prices; larger margins; increased demand; increased likelihood to be asked for by name, and sought out; a barrier to switching behaviour; increased receptivity to new communications and messages; improved customer satisfaction; increased company goodwill; and increased overall company worth.

Benefits of branding related to improvements in the *internal organisation* include: a platform provided for adding new products; increased power in the distribution network; more open opportunities for licensing, and joint ventures; and increased receptivity to new ideas. Chris Macrae (1991) and others have written extensively on a number of internal brand organisation issues.

3.3.2 Benefits of Branding to the Customer

To be successful, branding must have identifiable benefits to the buyer and the seller. Yet, de Chernatony and McWilliam (1989) found that marketers might not fully appreciate the customer's perspective. They identified five

interpretations of a brand's purpose: to show ownership; to differentiate; to assert consistent quality; to facilitate customer information search; and to serve as a symbolic or image-projecting device. These objectives in industrial markets must be considered jointly with other product marketing strategies. For example, patents and trademarks can be more appropriate ways of demonstrating ownership. Adherence to ISO and other industrial quality standards asserts quality in an objective way. Online catalogues, EDI, and other electronic ordering systems can greatly facilitate customer information search. Still, the objectives of differentiation and added value and of serving as a symbolic or image-projecting device remain important industrial branding objectives.

Although it is widely accepted that brands create value for the customer, it is somewhat more difficult to explain these benefits, especially from the perspective of the industrial customer. To Aaker (1991), benefits to the consumer take three forms: functional, emotional, and self-expressive.

- Consumers are willing to pay more for a brand if they perceive it be a better value, or better at satisfying their functional, emotional and self-expressive needs. In recognition of this, consumer product advertising may highlight functional differences, yet often attempts to stimulate or elevate the importance of emotional and self-expressive needs (de Chernatony and McWilliam 1989).

In contrast, although industrial buyers possess a range of needs, previous research has made little connection between branding and the satisfaction of industrial buying objectives. Table 3.3 proposes one way of making this link.

Buyers are willing to seek out a brand if the physical product and/or the

associated augmented services are perceived to be of a higher quality. Limiting consideration to well-known products has the functional benefit of reducing search and transaction costs. A brand can provide an overall summary of all the various product attributes to be considered.

TABLE 3.3
Benefits of Brands to Industrial Customers

Functional	Perceived higher quality of product and associated services
	Reduction of information search
	Reduction of transaction costs
Emotional	Reduction of individual risk and uncertainty
	Reduction of firm risk and uncertainty
	Increase of buyer and user satisfaction and comfort
	Reinforcement of prior experience and relationships
Self-expressive	Individual pride and credibility in association
	Firm credibility and image boosted by association

Known brands have the emotional benefit of reducing perceived risk and uncertainty, both of which have identifiable costs to the individual buyer and to the firm. To Hague and Jackson (1994, p. 42), branding benefits the industrial customer by increasing purchase confidence. Purchasing a well-known brand

can reinforce prior experience and relationships. Branding can increase customer satisfaction. Buying a familiar brand may involve additional comfort and a “feel good” factor. Buyers like to take pride in their work, to feel good about making the right choices.

Self-expressive benefits can be both personal to the buyer and generalisable to the buying organisation. Buyers enjoy associations with winning companies. To Scheuing (1989, p. 212), “every purchasing department will be judged by the company it keeps.” Companies recognise the value of using components manufactured by well-respected suppliers to gain legitimacy and acceptance for their own products. Branding offers buyers the potential to use the purchase as a way of saying something about themselves and their companies.

Overall, branding enables buyers to get the full benefits they seek. Branding enhances the choice by offering additional features and benefits other competing offers lack. A basic product or augmented product would not be sufficient to satisfy some needs. Branding can also enhance the decision process, by reducing search time and uncertainty and by increasing confidence and pleasure. By enhancing the actual choice and the choice process, branding acts to facilitate more complete satisfaction of the initial purchase need. Not all buyers and not all purchases require or desire extensive branding. That observation reinforces the relevance of *the continuum of industrial brands* (Figure 3.1). As long as the customer defines the purchase need away from the commodity end of the continuum, then branding can play a positive role of helping to better meet customer needs.

3.3.3 The Pinwheel of Brand Value to the Industrial Customer

The previous sections identified the key features and benefits of industrial brands and branding. What is left to explain is the composition of brand value, what lies behind the names and logos and promotional efforts that enable brands to generate meaningful benefits. To understand successful brands, brand composition must be analysed from the perspective of expected value to the customer.

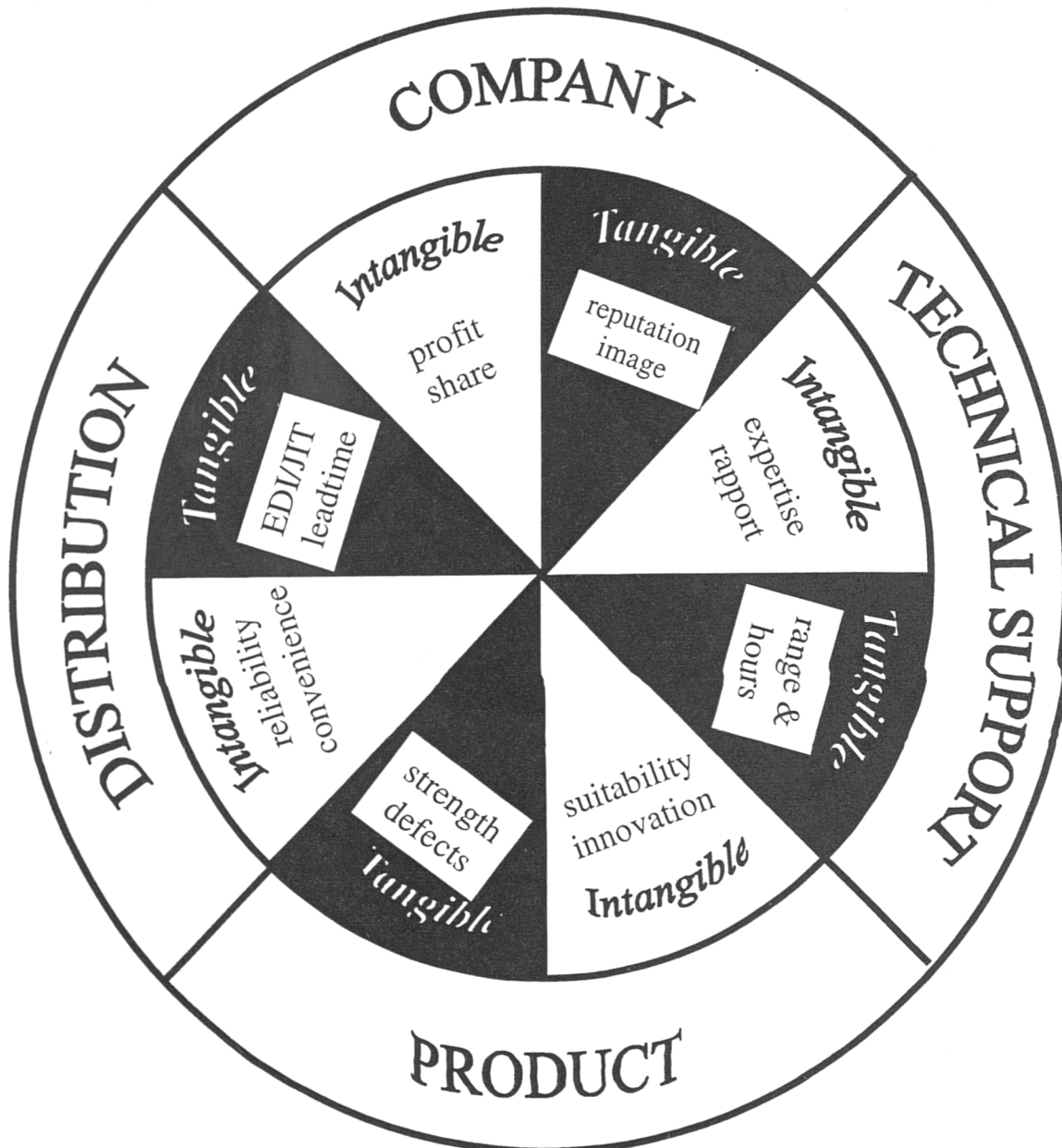
Brand value to the customer depends on the transaction as a whole. Assessment of brand value can be very quick and informal, or very prolonged and formal, depending on the nature of the purchase and the buyer. Overall, brand value is a function of the expected price, the expected performance or benefits of the basic product, the expected quality of the augmenting services; and the brand. These important components of brand performance consist of both tangible and intangible attributes.



Figure 3.3 presents these fundamental concepts and assumptions in a *pinwheel of brand value to the industrial customer*. In operation, a pinwheel's individual vanes revolve and blur together. Examining a pinwheel at rest may give a false impression of its purpose, but is necessary to understand how it works.

Similarly, it is difficult, but important, to stop and systematically analyse the composition of brand value. Each vane of the pinwheel represents one of the four performance components: the product, ordering and delivery services,

FIGURE 3.3
The Pinwheel of Value to the Industrial Customer



technical support services and the company. Each performance component involves *tangible* aspects, shown as the dark vanes, and *intangible* aspects, shown as the light vanes.

Although the concept of tangible and intangible attributes is well established in the buyer behaviour literature, tangibility can best be thought of as existing as a continuum. At the extremes, the differences in the terms are clear. Tangible aspects of the offer are physically present or can be seen, experienced or measured in some way. Intangible aspects of the offer are more "elusive or visionary" (Oxford Reference Dictionary), are understood using cognitive processes, and also often contain an emotional dimension. Generally, these concepts have been applied by identifying some attributes important to the choice decision, such as physical quality as tangible, while identifying other attributes, such as reputation, as intangible.

The pinwheel of brand value takes this concept one step further. The pinwheel recognises that, since evaluations of physical quality also involve measuring quality that is at times quite elusive or difficult to define (the "art" of engineering), then even this very tangible performance component contains an intangible aspect. Similarly, because the intangibility of performance components, such as reputation, generates risk and uncertainty, buyers seek out tangible measures of reputation. As shown in Figure 3.3, tangible performance aspects may have limited connection with each other. The intangible aspects of performance strengthen the connections and help the brand to provide

meaningful value to the customer. The four performance components of brand value to the customer require further explanation, as follows.

Product performance lies at the value base, centring on the core physical product. *Tangible* product performance is quantifiable by measures such as number of defects and usable product life. Issues of quality control management have been thoroughly explored in the literature, yet performance measures also involve *intangible* elements and subjectivity. Two products may have identical failure rate histories, but a production manager may rate one as more reliable or of higher quality than the other because of prior experience or due to other influences. Garvin (1987) explored the issue of perceived quality, recognising that decision makers often have incomplete or conflicting information upon which to make a judgement.

Distribution performance encompasses aspects of ordering, availability, delivery, and the distribution process. *Tangible* measures such as required lead times and the number of late deliveries are routinely quantified, and the presence of online ordering systems is also tangible. Delivery performance has often been cited as a critical factor in the literature. More *intangible* elements such as the ease of ordering, general reliability, the willingness and ability to respond in an emergency, and the daily working relationship also add value. Customers evaluate manufacturers and other suppliers on distribution performance. Industrial manufacturers are assessed on their performance by their distributors and by their end users.

Technical support services performance includes the provision of services that augment the basic product. These include technical support, training, and troubleshooting, either as part of the standard offer, or for an additional charge.

A *tangible* checklist can identify which services are offered, the times and number of staff available, and the coverage of guarantees. For example, suppliers are increasingly expected to provide technical support at the research or design stage, during installation, and in the operating environment. More *intangible* are notions of service quality and the degree of rapport and understanding between the service providers and the customer. Suppliers routinely try to measure how satisfied customers are with the service support. This is in addition to measuring satisfaction with the product itself. Distributors and manufacturers are both offering an increasingly wide range of support services, enhanced by the overall trend of outsourcing in many businesses.

Company performance encompasses aspects of the company as a whole, rather than any particular company product, brand, or service, and is an appropriate consideration both for manufacturers and for distributors. The underlying assumption is that industrial purchasers prefer to conduct business with companies that are relatively stable, successful, reliable, and culturally compatible. *Tangible* evaluations of a company include measures of financial stability, such as reported profitability and market share. The perceived amount of advertising investment behind a product can also serve as a product and company quality cue (Smith and Andrews 1995). The greater the perceived advertising investment, the greater the perceived product and company quality. Many *intangible* elements are of considerable value, including company

reputation, general quality image, technological leadership, and country of origin. Gross (1994) described the importance of the "relationship value", and included in it factors such as technical potential, reliability, pleasantness, and trustworthiness. The processes and importance of building relationships on the basis of shared expertise, and the development of strategic partnerships are areas of considerable research, both from the perspectives of the purchaser and of the supplier (Asmus and Griffen 1993, Lamming 1993).

Annual polls of most admired companies commonly consider both tangible and intangible aspects of company performance and reputation. *Fortune* magazine's annual Corporate Reputations Survey identifies four "bedrock elements of success" in the poll: innovation, soundness of the company's financial structure, calibre of management, and value to investors over the long term (Robinson 1997). The results indicated that solid financial performance is the most effective way to enhance corporate reputation. Reputation generally has a firm tangible foundation, and cannot be easily altered by advertising images or intangible "smoke and mirrors."

The pinwheel of brand value to the customer complements the basic-augmented-potential model of branding (Doyle 1994, Levitt 1980), as discussed in Chapter 2, and the *continuum of industrial brands* (Figure 3.1). For basic brands, the product performance vane assumes the most prominence, with the vanes of technical support services, ordering and delivery, and company performance remaining relatively indistinct. For augmented brands, ordering and delivery and support services gain prominence. Potential brands can be described with a well-

balanced pinwheel featuring all the performance components. The pinwheel of brand value also provides an important contrast to conventional depictions of brands as distinct layers of increasing intangibility. The layered depiction of brands may understate the role intangibility and subjectivity play at even the physical product core. The pinwheel of brand value acknowledges, for example, that customer evaluation of a core product attribute, such as the technology utilised, involves intangible and even psychological aspects. The diagram recognises the synergy between tangible and intangible factors and the overall dynamism of the decision environment.

3.4 A MODEL OF INDUSTRIAL BRANDING IN THE PURCHASE DECISION

3.4.1 Overview

The *model of industrial branding in the purchase decision* places branding into the context of the models of buying behaviour reviewed in Chapter 2. Eight main relationships form the model. Each is well established in the literature, and is represented in the model as a proposition. The first four propositions directly concern the perceived importance of branding. Propositions 5 to 8 do not directly involve the perceived importance of branding, but summarise relationships important to industrial buying behaviour. The components and relationships are detailed in Section 3.4.2. Then, specific hypotheses are developed and presented concerning the relationship between the perceived *importance of branding* and the other elements of the model, under the headings

of P1 - P4. Section 3.5 specifies these branding hypotheses in considerable detail. Section 3.6 presents hypotheses regarding other aspects of the model. These include the links between buyer and purchase characteristics and the perceived importance of other attributes, and the links between buyer and purchase characteristics and the decision process.

3.4.2 Model Components and Relationships

In brief, the four main propositions of branding importance and the underlying buying behaviour model are:

- P1 Buyer characteristics are related to buyer perception of the importance of branding and other attributes.
- P2 Purchase characteristics are related to buyer perception of the importance of branding and other attributes.
- P3 Buyer perception of the importance of branding and other attributes is related to the buyer decision process utilised.
- P4 Buyer perception of the importance of branding and other attributes is linked to the choice made.

These propositions all directly relate to the importance of branding. In addition, the following four propositions address the broader buying behaviour orientation of the model:

- P5 Buyer characteristics are related to the buyer decision process utilised.
- P6 Purchase characteristics are related to the buyer decision process utilised.
- P7 Buyer characteristics are related to the choices made.

- P8 Purchase characteristics are related to the choices made.

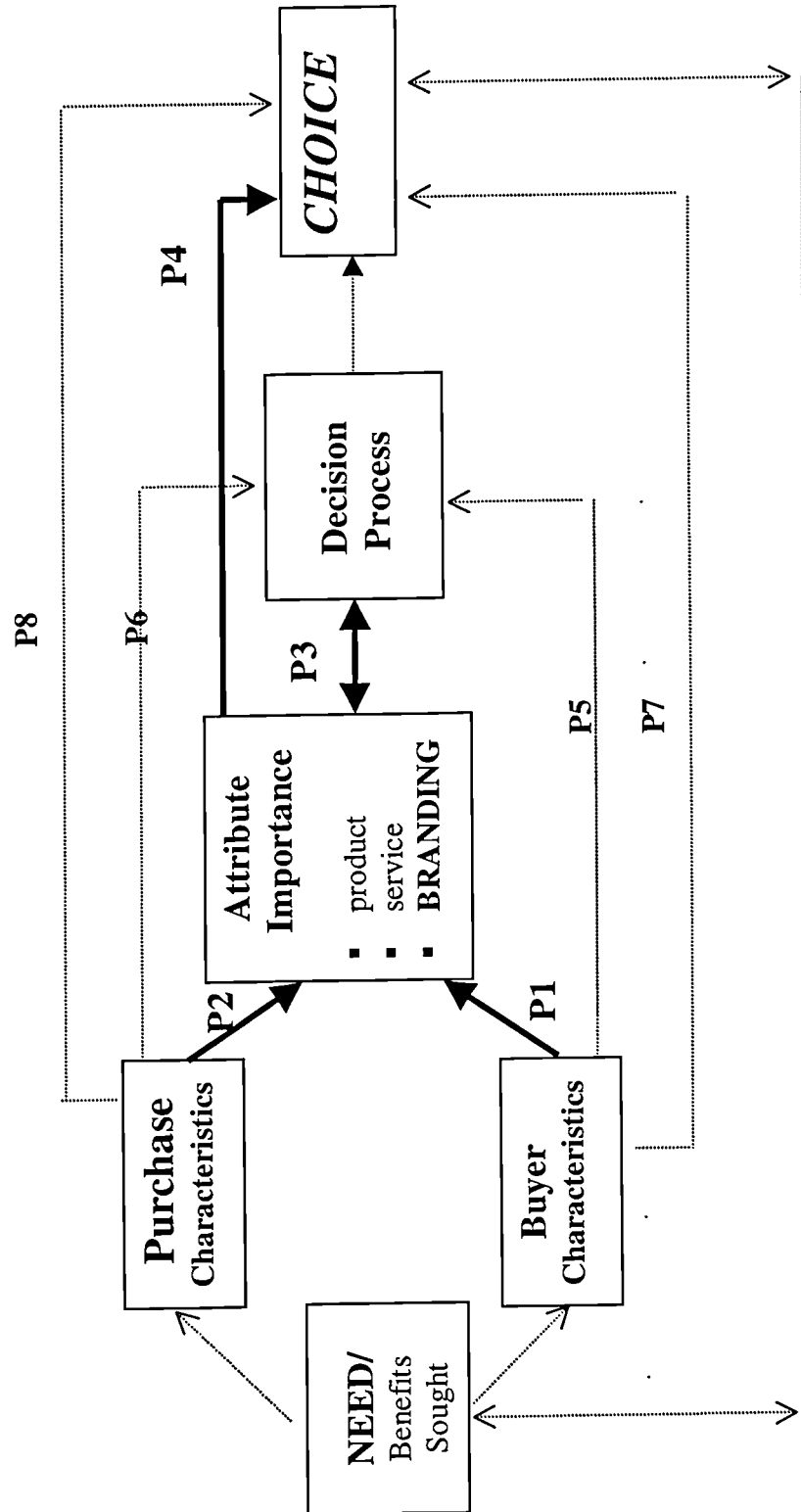
Figure 3.4 provides a simple diagram of these various relationships in the decision process. The propositions directly addressing the importance of branding are portrayed with solid lines, while the more indirect aspects of the buying behaviour model are represented using dotted lines.

Recognition or perception of a *purchase need* begins the process. Since the buyer interprets the purchase need, the buyer characteristics play an important role in the decision process. The buyer sets into motion a relatively formal process of identifying and describing the *purchase characteristics*, and thinks ahead as to how to best satisfy or fill the purchase need. The buyer's actions involve an assessment or expectation of how the need will be best met. The buyer implicitly develops an expectation of where the product to best meet the needs lies on the *continuum of industrial brands*. The visibility and importance of the product to the end user or final customer partly shapes the perception of need. In some cases, the end user's views are unknown or not sought out by the buyer. In other cases, they may be implicitly or explicitly considered.

Purchase characteristics involve more than the actual physical product attributes. In addition to the specific characteristics of the product, the specification process involves identifying how the product will be used, and the requirements for cost, delivery, support services, and all other aspects of the overall purchase. The specification process is in part motivated by the desire to reduce the level of perceived risk in the purchase decision.

FIGURE 3.4

A Model of Industrial Branding



Perceived risk takes several forms and is an importance characteristic of the purchase. Traditional ways of categorising the type of purchase situation, such as new design, standard rebuy, etc., may also affect the decision.

Buyer characteristics also influence the decision and the decision process. These take the form of buyer perceptions and attitudes and organisational demographics. Suppliers of industrial *products* have little opportunity for differentiation. Suppliers of industrial *brands* can offer meaningful differentiation and added value to their customers. Thus, it is important to understand how differentiated buyers perceive the competing alternatives to be. Buyer perception of the level of differentiation between suppliers and their offers can influence the perception of attribute importance and the ensuing decision process.

Manufacturers are keen to understand if branding is more important to some buyers than others, and if so, to whom, and why that is. To address this, one must determine which characteristics of the buyer influence how important branding is. Research has shown how buyer characteristics influence the perceived importance of various benefits of the competing offers. All buyers have unique and individual characteristics. As Webster and Wind (1972b, p.16) observed, few professional managers “will take offense at statements or behavior which recognize their individuality and worth as human beings.” Not all characteristics can be easily measured in a traditional questionnaire, but the relationship between measurable demographic buyer characteristics and the perception of attribute importance and the decision process can be examined.

Characteristics such as buyer age, years of experience, position, and annual value of purchases of this type are expected to be influential. Other buyer characteristics such as self-perception of technical expertise and market knowledge are expected to help explain why branding is more important to some buyers than to others.

Table 3.4 summarises the key buyer and purchase characteristics. These and other buyer and purchase characteristics influence the *perception of attribute importance*. Product, service and branding attributes are involved. The attribute importance, or benefits sought, reflect the purchase need and the purchasing priorities. The benefits or priorities can then be summarised as a position on the *continuum of industrial brands*. A question asked at this point is, will the defined need be best met by a commodity, a basic product or a brand. The place on the continuum of industrial brands then affects the perception of attribute importance for the particular purchase. Three bundles of attributes are relevant, namely, attributes of the basic product, attributes of the augmented services, and the branding attributes.

TABLE 3.4

Purchase and Buyer Characteristics

PURCHASE CHARACTERISTICS

- Perceived risk of the purchase
- How used – process input or product input
- Type of purchase – buyclass typology
- Cost of purchase

BUYER CHARACTERISTICS

- Line of business or sector
- Value of annual purchase of the product
- Frequency of purchases
- Level of technical expertise and market knowledge
- Perception of supplier differences
- Perception of subjectivity of the assessment of benefit attributes

DECISION PROCESS

- Supplier type (manufacturer or distributor)
- Primary decider
- Number of decision stages
- Decision protocol used (compensatory or hierarchical)

CHOICE

- Number of suppliers in consideration set and choice set
- Single or multiple sourcing
- Frequency of past purchases from choice set

Table 3.5 summarises the types of attributes of each of these levels. The table reflects the conceptual underpinning provided by the *pinwheel of industrial brand value* (Figure 3.3), detailed previously. The attributes relevant to a

particular purchase decision are shaped by the nature of the product, the buyer, and the purchase situation. The table does not purport to provide an exhaustive list, but does illustrate the attributes involved.

TABLE 3.5

Key Attributes by Position on the Industrial Brands Continuum

BASIC PRODUCT ATTRIBUTES
Price
Physical product properties
AUGMENTED SERVICES ATTRIBUTES
Technical support services
Ordering and delivery services
Coverage
Working relationship
BRANDING ATTRIBUTES
Name awareness
General reputation
Purchase loyalty

Basic product attributes include price and physical product properties. Price, or total price, includes aspects such as the quoted price, but also the degree of discount, payment terms, financial support, etc. Physical product properties vary considerably across purchase decisions. Still, basic attributes such as strength, precision, flexibility, and reliability are relevant for many product decisions.

Several types of augmented services are commonly evaluated, including technical support services, ordering and delivery services. Technical support services take the form of design advice, product testing support, and troubleshooting. Ordering and delivery services include aspects such as the availability of the product, ease of ordering, lead time requirements, delivery reliability and delivery convenience. Another augmented service can be summarised as coverage, not a commonly used term, but one which encompasses key concerns such as the geographic territory that the manufacturer covers or supports, and the depth and breadth of the product range of the manufacturer. The overall nature and quality of the working relationship can also be considered an augmented service.

Branding attributes contribute to the satisfaction of the purchase need. Buyers do not generally seek out branding itself, but seek the additional benefits that branding offers. Three branding attributes are especially important: (1) general name awareness, or how well known the brand is; (2) the general reputation of the brand, how others view the brand in general terms; and (3) purchase loyalty, which can be viewed as the number of prior purchases of the brand.

It is important to understand what benefits branding can offer in each particular situation that buyers face. Only then can one understand how important the buyer perceives branding to be for a decision, relative to the importance of the basic product attributes and the augmented services attributes. Research has provided helpful insights into the relative influence of various attributes on choice. Price and physical product quality nearly always top the list of important

criteria, yet the literature has identified a wide range of product and vendor attributes affecting industrial decisions. A number of studies have concluded that the more intangible psychological or emotive attributes such as reputation and image can be of equal or greater importance than tangible physical product attributes. The *pinwheel of brand value to the industrial customer* reflects the dynamic nature of the attributes and the range of benefits sought.

Agreement on the purchase need and the benefits sought leads to an assessment of the various offers using an explicit or implicit *decision process*. Buyer and purchase characteristics affect the decision process and decision protocols utilised, yet previous research has not directly addressed the role and importance of branding in the decision process. Branding affects the decision process in a number of ways, starting with how the problem or need was initially defined according to the *continuum of industrial brands*. Secondly, the choice of a manufacturer may involve a different decision process than the choice of an individual brand or the choice of a distributor.

Whatever decision process is utilised, ultimately the buyer makes a **choice**. The choice is made of the particular brand or brands, and of purchasing direct from the manufacturer or from a distributor. There is also the choice of whether to single or multiple source the purchase. Branding attributes influence each of these aspects of choice. Other important issues of the decision process relate to the determination and composition of the consideration set and the choice set. Branding attributes may be especially important in the creation of the consideration set. Branding attributes may also be important for the narrowing

of the consideration set to the choice set. Buyers also decide whether the purchase will be single sourced or multiple sourced, and how the order is to be split in terms of percentages. In some cases, this final choice decision depends on the strength of or importance of brand purchase loyalty.

Once made, these choice decisions are formally or informally evaluated, and the evaluation influences how future purchase needs are perceived, buyer and purchase characteristics, and the decision process. A more realistic Figure 3.4 would feature many connecting loops to illustrate these many interactions and influences.

In sum, the model elements of the buyer's need, purchase characteristics, buyer characteristics, perceived attribute importance, and the decision process all influence the final choice directly and indirectly. Branding is an important attribute to some buyers and in some purchase situations. In Section 3.5 the focus moves to identifying specific hypotheses regarding the importance of industrial branding. Then, Section 3.6 takes a more comprehensive approach and presents hypotheses to test the general buying behaviour relationships.

3.5 HYPOTHESES OF INDUSTRIAL BRANDING IMPORTANCE

3.5.1 Overview

Buyers differ in many ways, as do the types of purchases they make, the benefits they seek, and the decision processes they use. Branding is not important to all

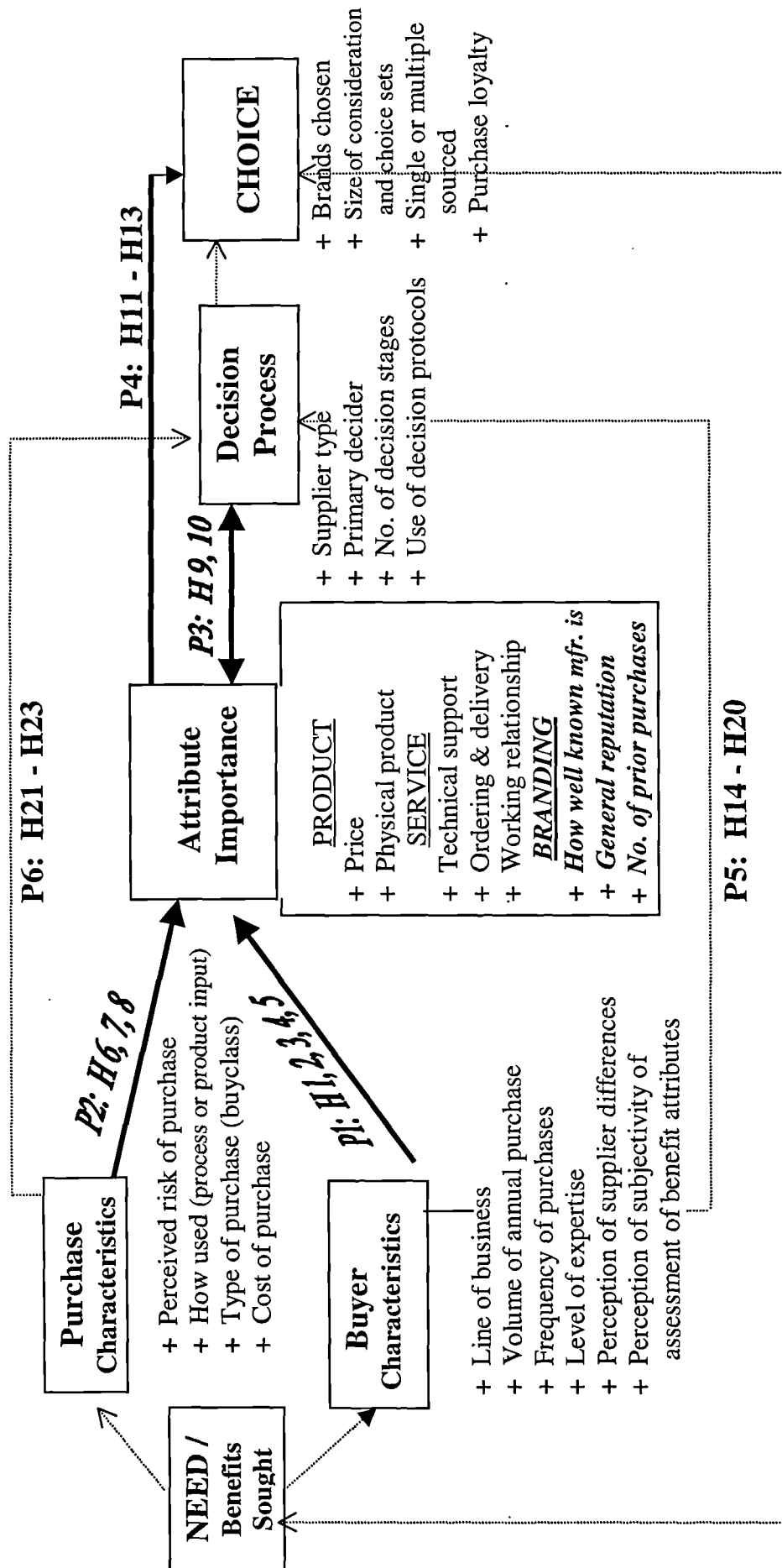
buyers, nor for all purchases. Starting at the beginning of the process described in the *model of industrial branding in the purchase decision*, the importance of branding reflects the benefits sought to satisfy a particular purchase need. The benefits sought are related to the positioning of the purchase on the *continuum of industrial brands*. Then, the perception of the importance of branding is linked to purchase and buyer characteristics, and the decision processes used. These relationships form the heart of the hypotheses regarding industrial branding importance, as shown in Figure 3.5.

The objective is to determine the importance of branding in the decision process, and how buyers differ in their perception of the importance of branding.

Although the process and research propositions may hold true across most buyers, each decision is unique. These differences provide the basis for meaningful customer segmentation and analysis.

FIGURE 3.5

Hypotheses of the Model of Industrial Branding



3.5.2 Buyer Characteristics and the Branding Importance

Buyers differ in many ways, although not all differences are entirely relevant to the purchase decision. Differences in organisational demographics are easier to measure and identify, while differences in buyer perception and attitudes may have more impact on the final choice. The following hypotheses address the links between organisational demographics and perceptions of branding importance.

Firms routinely distinguish between customers on the basis of the quantities of their purchases. Total purchase value is considered, as well purchase value of the particular product category. Firms in some industrial sectors regularly provide key account managers for their most important customers. By definition, the purchase behaviour of big customers differs from that of smaller customers. Yet, it remains to be tested whether the buyers differ in terms of the attributes they perceive to be important. The interviews suggested that purchase value is related to the perception of attribute importance, but few specifics emerge. The interviewees' views conflict. Some comments linked big customers to sophistication and interest in intangible attributes. Other comments linked big customers to the importance of price. Although prior research provides little guidance, buyers who purchase large amounts of a product category have more personal experience and involvement with the product category, and greater personal involvement may lead to the recognition of emotional and self-expressive benefits from the purchase of a brand (Webster and Wind 1972b). Because of the higher potential for emotional and self-expressive branding

benefits, branding is expected to be more important to buyers who purchase more of the product category.

H 1: Annual value of the buyer's purchases of the product category is positively related to the perception of branding importance.

Customer expertise is another key distinguishing characteristic. Expertise in the survey is measured in three ways, buyer self-perception of technical expertise regarding the product category (bearings or circuit breakers), buyer perception of company technical expertise, and buyer self-perception of knowledge about the product's suppliers and market. Although prior research has not addressed this aspect, the expectation is that the perception of expertise is directly related to the perception of branding importance. The more buyers know about the many relevant and subtle ways in which products and suppliers can differ, the more they may value branding.

H 2: Perceived customer expertise is positively related to the perception of branding importance.

Buyer recognition of supplier differences is an important part of the decision process. Assessment of supplier differences can influence how a buyer defines the purchase need and priorities. Buyers differ in their perception of the degree that suppliers of the same product differ. When suppliers are perceived to slightly differ, some attributes of the decision may become more important to the buyer. Buyer perception of the level of supplier differentiation is related to the perception of attribute importance. Collins (1977) proposed that brand names are more important when little difference between competitive products is perceived.

Parket (1972) also implied that branding is more important for less differentiated product offers.

H 3: The less the perceived differences in suppliers on key attributes, the greater the importance of branding.

Fundamental to the pinwheel model of industrial brand value is the notion that buyers value the importance of tangible and intangible attributes. Although the more tangible attributes, such as price, the physical product, and delivery and ordering services, are expected to be the most important for most buyers, the more intangible attributes of prior experience with the supplier, reputation, and technical support services are also expected to be important to buyers. To some buyers, the intangible attributes may be more important than the tangible attributes. Overall, it is expected that buyers recognise that their evaluations of attributes involve a mixture of objective and subjective judgement. Tangible attributes can be more objectively evaluated than intangible attributes, yet some subjectivity is involved (Scheuing 1989). Similarly, even intangible attributes can be objectively evaluated at least to some degree. Although the relationship has not been researched previously, this perception of subjectivity and objectivity of evaluation is expected to relate to the perception of the importance of branding. Branding is expected to be more important to buyers who see attributes as more objectively evaluated than to other buyers.

H 4: The more the perceived subjectivity of evaluating attributes, the greater the importance of branding.

Buyer and company expertise at least partially reflects the previous degree of experience with the particular type of purchase. Expertise can be developed through experience and involvement in previous decisions. Buyer age, years of experience and position have been shown to influence the perception of attribute importance (Sheth 1973). Buyers with little experience may turn to branding as a way of reducing search costs and perceived risk. Buyers with greater experience may be more aware of meaningful ways in which similar suppliers and products differ.

H 5: Buyer age, years of experience, and position affect the perception of attribute importance. Branding is more important to very inexperienced buyers and to very experienced buyers. (Tested for circuit breakers purchases only).

3.5.3 Purchase Characteristics and Branding Importance

Each purchase is unique, yet buyers recognise a number of areas of commonality across purchases. The recognition of differences in the purchase situation is a fundamental principle of organisational buying behaviour literature. Identifying and understanding these differences has been an important objective of a large body of literature. Purchases differ in many ways. The following hypotheses propose links between the purchase situation and the perception of branding importance. Buyers take the intended use of the product into account in their decision making (Johnston and Lewin 1996). The product may be used as a product input, to be incorporated into a product to be sold to others, or may be used as a process unit, for a production or manufacturing process. In response to

awareness of the intended use, the buyer may consider the beliefs or priorities of the end user. The issue of “conditional conspicuousness” (Saunders and Watt 1979) may influence the buyer’s perception of branding importance, especially if the product is highly visible to the end user.

H 6: The intended use of the product is related to the buyer’s perception of attribute importance. The importance of branding is expected to be higher for product inputs than for process inputs.

The influence of the type of purchase situation (using the buyclass typology of Robinson, Faris and Wind 1967) has been the subject of considerable prior research. The type of purchase has been shown to be an important influence on the perception of attribute importance and the decision process utilised. For example, Hutton (1997) proposed that branding is more important for complex purchases.

H 7: The type of purchase is related to the buyer’s perception of branding importance. Branding is expected to be more important for more complex purchase situations.

Perceived risk is another important and well-researched source of influence on the decision. The buyer plays a key role in identifying sources of risk relating to the purchase. The buyer is expected to respond to the presence of risk, and to implement purchasing strategies to reduce or eliminate perceived risk. Certain product attributes are expected to be more beneficial for risk reduction than others. For riskier purchases some attributes increase in importance. Branding

has been proposed to play a role in the reduction of perceived risk (Hutton 1997; Mitchell 1995).

H 8: The level of perceived risk is related to the perception of branding importance. Branding is more important for riskier purchases.

3.5.4 Decision Process Characteristics and Branding Importance

Buyers generally decide early in the process whether the purchase will be made directly from the manufacturer or through a distributor. Buyers purchasing from a distributor perceive attribute importance differently from buyers purchasing from the manufacturer. Gordon, Calantone and di Benedetto (1993) found that some buyers are more loyal to their distributor than to the brand. Thus, this choice of type of supplier is expected to be related to the buyer's perception of branding importance.

H 9: Branding is less important to buyers purchasing from a distributor than directly from the manufacturer.

Buyers vary in their degree of involvement in a purchase decision. Many factors affect a buyer's involvement, and the complexity of the decision process or protocols. Hutton (1997) proposed that branding is more important when the buyer is under time constraints, yet anecdotal evidence suggests that buyers in low involvement purchases may focus on more tangible attributes. Low involvement purchases often focus on one or two key aspects, such as price or availability. High involvement purchases consider a wider range of tangible and intangible attributes.

H 10: Buyers using a higher involvement decision process perceive branding to be more important than buyers using a low involvement decision process.

3.5.5 Choice Characteristics and Branding Importance

Eventually, the buyer makes a choice. As described earlier, choice involves a number of aspects other than the actual brand or brands chosen. These include the size of the consideration set and the size of the choice set (Roberts and Lattin 1991). It also involves the status of the brands chosen, that is, how frequently the buyer has chosen them in the past. How important the buyer perceives branding to be is expected to influence aspects of the choice (Dabholkar 1994). Buyers who perceive branding to be important are likely to consider more brands than buyers who do not perceive branding to be important. Buyers who perceive branding to be important are likely to be more loyal to industrial brands than buyers who do not perceive branding to be important (Jacoby and Kyner 1973; Noorrdewier, John and Nevin 1990).

H11: Buyer perception of branding importance is related to the brands chosen.

H12: Buyer perception of branding importance is positively related to the size of the consideration set and the choice set.

H13: Buyer perception of branding importance is positively related to the frequency of prior purchases of the brands in the choice set.

3.56 Summary

Table 3.6 summarises the branding hypotheses under the headings of the general propositions. In sum, these hypotheses detail how specific buyer characteristics, purchase characteristics and aspects of the decision and final choice are related to the buyer's perceived importance of branding.

The *model of industrial branding*, in turn, reflects the three main objectives of the conceptual framework for branding in industrial markets. The conceptual framework offers a way of *defining industrial brands* and branding in the industrial context. Secondly, the framework lends itself to test of *the role of industrial branding in the purchase decision process*. And, finally, the framework facilitates tests to identify *the determinants of industrial branding importance*. Empirically testing this conceptual model of industrial branding is of primary importance. Research methodological issues are discussed in detail in Chapter 4.

Before testing the hypotheses regarding branding importance, it is instructive to ground the hypotheses in the more general model. Section 3.6 identifies the other hypotheses tested in the research that are not directly related to the importance of branding, but that address the perceived importance of other decision attributes. Also, Section 3.6 presents the hypotheses that link buyer and purchase characteristics with the decision process.

TABLE 3.6

Summary of Branding Hypotheses

P1 Buyer characteristics are related to buyer perception of importance of branding and other attributes. Branding importance is positively related to:

H 1: Annual value of the buyer's purchases of the product category

H 2: Perceived customer expertise

H 3: Perceived differences in suppliers on key attributes

H 4: Perceived subjectivity of evaluating attributes

H 5: Buyer age, years of experience, and position

P2 Purchase characteristics are related to buyer perception of the importance of branding and other attributes. Branding importance is positively related to:

H 6: The intended use of the product in product inputs rather than process inputs.

H 7: More complex purchase situations

H 8: The level of perceived risk

P3 Buyer perception of the importance of branding and other attributes is related to the buyer decision process utilised. Branding is more important to:

H 9: Buyers purchasing directly from a manufacturer rather than from a distributor

H 10: Buyers using a higher involvement decision process

P4 Buyer perception of the importance of branding and other attributes is related to the choices made. Branding importance is positively related to:

H11: Brands chosen

H12: Size of the consideration set and the choice set

H13: Frequency of prior purchases of the brands in the choice set

3.6 HYPOTHESES REGARDING INDUSTRIAL BUYING BEHAVIOUR

3.6.1 Overview

The previous section focused on the relationships between perceived branding importance and the other elements of the model. To place the importance of branding in context, it is helpful to examine the relationships between the model elements and the perceived importance of other attributes as well. This involves a second look at the four main propositions concerning attribute importance. This section emphasises the propositions concerning the overall links, not the individual relationships. To review, the four main propositions concerning attribute importance are:

- P1 Buyer characteristics are related to buyer perception of attribute importance.
- P2 Purchase characteristics are related to buyer perception of attribute importance.
- P3 Buyer perception of attribute importance is related to the buyer decision process utilised.
- P4 Buyer perception of attribute importance is related to the choice made.

Specific hypotheses regarding the direction of the relationship for each attribute and each characteristic can theoretically be developed. For example, one could hypothesise that customer expertise is positively related to the importance of technical support services. However, since previous research findings in the

literature offer little guidance for the direction of each of these relationships, specifying each hypothesis would be misleading. Thus, tests of the individual relationships can be considered exploratory, with the results discussed in Chapters 6 and 7.

Secondly, this section explores several propositions addressing the broader buying behaviour orientation of the model. Hypotheses are developed and tested for:

- P5 Buyer characteristics are related to the buyer decision process utilised.
- P6 Purchase characteristics are related to the buyer decision process utilised.

Table 3.7 summarises the hypotheses developed and tested under the headings of the general propositions (P5) and (P6). Previous research has found weak empirical evidence of the link between accessible buyer and purchase characteristics and the choices made (P7 and P8). Therefore, the thesis does not offer specific hypotheses for these relationships, leaving them for future research.

TABLE 3.7

Summary of Organisational Buying Behaviour Hypotheses

P5 Buyer characteristics are related to the buyer decision process utilised.

H14: Annual value of purchases of the product category is positively related to the formality and complexity of the buyer's decision process.

H15: Perceived expertise of the customer is positively related to the formality and complexity of the buyer's decision process.

H16: Buyers perceive greater differences between suppliers at the screening stage than at the final decision stage.

H17: The greater the perceived differences in suppliers, the more likely buyers are to use a more formal or complex decision process.

H18: Buyer age, years of experience, and position are positively related to the formality or complexity of the decision process.

H19: Buyer perception of attribute importance in the screening stage differs from attribute importance in the final decision stage.

H20: The type of decision process utilised varies between the screening stage and final stage of the decision.

P6 Purchase characteristics are related to the buyer decision process utilised.

H 21: The more complex the purchase, the more likely the buyer is to use a more formal or complex decision process.

H 22: New designs or tasks are expected to be associated with higher perceived risk than are modified rebuys or straight rebuys.

H 23: The greater the perceived risk, the more likely a more formal or complex decision process will be used.

3.6.2 Buyer Characteristics and the Decision Process (P5)

Buyers who purchase large amounts of a product category typically have a higher level of involvement in the purchase than do buyers who purchase small quantities. Since the level of involvement in a purchase decision has been shown to affect buyer behaviour (Howard and Sheth 1969), the annual value of the buyer's purchases of the category is expected to affect the decision process utilised. The higher the annual value of purchases, the more likely the buyer's decision process will involve more than one decision stage. Also, the higher the annual value of purchases, the more likely the buyer is to use a formal evaluation protocol, of either a compensatory or hierarchical nature. This is tested in the survey by asking about use of a numerical rating or ranking of suppliers, and the use of one or more aspects to "knock out" suppliers from further consideration.

H 14: Annual value of purchases of the product category is positively related to the formality and complexity of the buyer's decision process.



Buyer perception of expertise is also related to the decision process (Howard and Sheth 1969). A higher level of expertise is expected to be associated with a more formal or complex decision process. The greater the customer's perception of his/her expertise, the more likely the buyer's decision process will involve more than one decision stage. Also, the higher the perceived expertise, the more likely the buyer is to use a formal evaluation protocol.

H 15: Perceived expertise of the customer is positively related to the formality and complexity of the buyer's decision process.

A key buyer role is to identify how suppliers differ on aspects important to the purchase decision. Not all purchase needs are defined in the same way, and buyers do not completely agree on how different suppliers actually are. Buyers differ in their perception of the degree of supplier differentiation. This may be related to buyer experience or expertise, but it can also be based on the buyer's individual perceptiveness. Buyers generally perceive greater supplier differences at the screening stage, when unsuitable suppliers are eliminated from further consideration (Lysons 1993). Suppliers considered at the final stage are expected to be more homogeneous on attributes important to the decision.

H 16: Buyers perceive greater differences between suppliers at the screening stage than at the final decision stage.

Similarly, recognition of supplier differences is expected to be related to how a buyer makes the decision. If all suppliers are perceived to be similar on important aspects, then less involvement in the decision process may be necessary (Howard and Sheth 1969; Lysons 1993).

H 17: The greater the perceived differences in suppliers, the more likely buyers are to use a more formal or complex decision process.

Buyers are often described using traditional buyer demographics. The expectation is that these descriptors are related to the decision process utilised. Specifically, buyer age, years of experience, and position are expected to be related to the decision process utilised. More experienced buyers are expected to use more formal and complex decision processes (Woodside and Vyas 1987).

H 18: Buyer age, years of experience, and position are positively related to the formality or complexity of the buyer's decision process. (Tested for circuit breakers purchase only).

Buyers do not all use the same decision process, even in similar situations.

Because of the great number of purchase decisions buyers make, and because many of these decisions are perceived to be routine and similar to previous decisions, informal supplier evaluation is more common than formal supplier evaluation. Yet, buyer decision processes are shaped by a number of situational factors. Previous research (Heide and Weiss 1995) has indicated that buyers perceive some attributes to be more important at an early stage in the decision process than at a later stage. Other research (Gensch and Soofi 1995; Woodside and Vyas 1987) has indicated that buyers may use one type of decision process in an early stage of the decision, and another in a late stage of the decision.

H 19: Buyer perception of attribute importance in the screening stage differs from attribute importance in the final decision stage.

H 20: The type of decision process utilised varies between the screening stage and final stage of the decision.

3.6.3 Purchase Characteristics and the Decision Process (P6)

The buyclass categories of new design or task, modified new design or task, modified rebuy, and straight rebuy can be considered a continuum of purchase complexity (Robinson, Faris and Wind 1972). These have long been accepted as meaningful ways of distinguishing purchases. The link between the buyclass

types and the decision process utilised is often assumed, but less often tested. Also, the underlying notion of perceived risk is an important aspect of the buyclass typology, with new designs associated with higher perceived risk and straight rebuys. Again, this relationship is widely assumed but not often tested. In fact, some findings (Newall 1977) partially contradict this assumption.

H 21: The type of purchase is related to the decision process used. The more complex the purchase, the more likely the buyer is to use a more formal or complex decision process.

H 22: The level of perceived risk is related to the buyclass types of purchase. New designs or tasks are expected to be associated with higher perceived risk than are modified rebuys or straight rebuys.

The decision process itself has been shown to be helpful in reducing the perceived risk of the decision (Mitchell 1995; Puto, Patton and King 1985). For riskier decisions, buyers often avoid taking short cuts that may be harder to explain after the decision has been made.

H 23: The level of perceived risk is related to the perception of the decision process. The greater the perceived risk, the more likely a more formal or complex decision process will be used.

3.6.4 Summary

The hypotheses of this section examine the context into which industrial branding is placed, rather than the issue of branding importance. One of the strengths of the new *model of industrial branding in the decision process* is that

it is integrated with accepted principles of industrial buying behaviour. It would be misleading and inappropriate to examine the importance of branding in isolation from other important attributes. Empirically testing all these hypothesised relationships is of primary importance. The next chapter, Chapter 4, discusses various research methodological issues regarding hypothesis testing in considerable detail.

Chapter 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

Research in industrial markets faces several unique measurement or data collection problems due to the complexity and dynamics of the buying process, unavailability of data, and issues of competitive secrecy (Webster 1978). To Weber (1997, p.546), identifying and measuring ratings for intangible attributes in industrial markets “present particularly difficult challenges.” The need for a data set large enough and rich enough to allow for meaningful statistical analysis can hamper the implementation of innovative research ideas. General concerns surfacing during the decision over the methodology include the expected costs and availability of data, and validity considerations. The research methodology described in the following sections emerged as other approaches were rejected as being too impractical, given the constraints.

The overall objective of the research methodology is to enable the research to make a meaningful and valuable contribution to knowledge about the importance of branding in industrial markets. At the least, the research strives to avoid the type of stinging criticism levelled by Frederick Webster (1978, p. 21): “There remains a disturbingly large portion of the work in industrial marketing that is trivially descriptive, unnecessarily repetitive of earlier work, based on small, unrepresentative samples and overly simple assumptions, and naively unaware of

real world complexity.” The particular objective of the methodology in the present context is to facilitate testing of the conceptual framework of branding in industrial markets presented in Chapter 3. The methodology described in this chapter provides a way to test the hypotheses emerging from this conceptual framework. Figure 3.5 shows how the hypotheses fit into the model.

The research methodology involves an extensive literature review, followed by several distinct research stages, including a series of exploratory interviews collecting qualitative information, and two quantitative surveys. As Downey and Ireland (1979) wrote: “Both qualitative and quantitative data have their place in organisational research. The objectivity that is desired in scientific inquiry refers to objectivity on the part of the researcher. Subjective behaviour on the part of those being studied, however, may well be a legitimate topic for scientific inquiry.”

The exploratory interviews with manufacturers, distributors and buyers examined in what ways practitioner views match or contrast with conventional descriptions of the decision making process. Ideas concerning the sources of industrial brand value were sought. The interviews also helped determine which product sectors would be most appropriate and feasible for further survey-based research.

A formal pilot survey served to pre-test the questionnaire. This was followed by the first survey, which asked industrial buyers about their most recent purchase of standard precision bearings. The second survey asked electrical contractors

about their most recent purchase of circuit breakers. The second survey was used to testing the previous findings and to extend the research.

4.2 SELECTION OF PRODUCT SECTORS

Industrial products have been categorised in a number of ways, as summarised in Chapter 1. For this research, industrial products can be described as ranging from commodities to differentiated products to durable goods to customised capital goods. The size and scale of the planned interviews and surveys necessitated that only two product sectors could realistically be examined. Consequently, the selection criteria were carefully developed, and reflected an objective of enabling the research to be as generalisable as possible. Malhotra (1988) emphasised the importance of the generalisability of measures and of findings. Good business research offers the potential for meaningful replication and extension of the research, and avoids examinations of phenomena that are rare or transitory. Empirical generalisations in business research have been the subject of considerable academic interest (see Barwise 1995; Bass and Wind 1995; Ehrenberg 1995).

Generalisability of the research was expected to be higher for purchase decisions that are made with some frequency and regularity. High priced industrial products that are customised to meet particular company needs were not seen to be appropriate subjects for study. Each purchase decision for products such as aircraft engines, industrial furnaces, and computer operating systems can be considered a unique experience, which makes further interpretation risky as

situations change over time. Purchases of industrial durables also involve lengthy periods between purchase decisions. At the other extreme lie products generally considered commodities, such as nuts and bolts, bulk oils, lumber and paper supplies. These were seen as offering too limited a scope for research on branding. Consequently, the target product sector is comprised of differentiated products, the industrial equivalent of a fast moving consumer good (fmcg).

Differentiated products are characterised as having some degree of product differentiation, added value, and product complexity, with some elements of risk involved in the purchase decision. These represent the middle ground of the continuum of industrial brands (Figure 3.1).

The first selection criterion was frequency of purchase. Interestingly, although most academic studies of branding have examined fmcg, “fast moving” is not clearly defined in many cases. Laundry detergent and cola are considered to be fast moving even though colas are generally much more frequently purchased. For example, some single member households may buy laundry detergent only a few times a year. Also, consumers purchase instant coffee nine times a year on average (Ehrenberg and Scriven 1996), which is considered frequently purchased, yet some households never purchase instant coffee, or do so only once a year. Similarly, especially given the nature of modern purchasing procedures, it is unrealistic to find an industrial product that is purchased frequently by all buyers. An average purchase frequency of at least once every two months for the sample was seen as desirable, although not essential.

In addition, selection of a well-established sector was important, so that the respondents had a history of purchases in the category to draw on. Products with internationally recognised physical product standards such as ISO were also preferred. Good customer access to multiple suppliers, both manufacturers and distributors, was desirable, as was high involvement by multinational suppliers.

The target population consists of UK industrial buyers in companies that cut across the range of industrial sectors. To facilitate this cross-sectional approach, it was desirable to concentrate on a purchase decision made across types of industries, such as heavy industry, general mechanical and engineering, automotive, and electrical product sectors. Products initially selected for the exploratory phase of the research included foundry filters, industrial adhesives, industrial thread, precision bearings, lubricants and circuit breakers.

Although no one product can completely satisfy all the relevant selection criteria, precision bearings were chosen as the subject of the first planned survey.

Bearings are generally small, round or cylindrical pieces of highly machined metal which facilitate the turning movements of mechanical parts. They were chosen because they are: frequently purchased industrial products; generally recognized by purchasing professionals as a product segment of consistently high quality (Avery 1994); offered in some circumstances as a commodity and in others as a product with augmented features or services; varied in their degree of product complexity and perceived risk of applications; available from multiple multinational suppliers; available directly from manufacturers and through distributors; and used in a wide range of products and manufacturing processes.

Bearings are used across industrial sectors, and have attracted previous research (Collis 1991) due to the nature of strategic competition between global bearings manufacturers.

Industrial adhesives were at first considered for the subject of the second survey, with metal-to-metal or anaerobic adhesives appearing to be especially suitable. However, interviews revealed a considerable overlap between the target population of users and buyers of bearings and metal-to-metal adhesives. For the second survey it was perceived important to avoid re-contacting companies from the first survey, as this would likely have a negative effect on response rates. A new sampling frame was seen as desirable. As a result, circuit breakers were chosen as the subject of the second survey. Circuit breakers met all the selection criteria and had the additional benefit of being an electrical rather than a mechanical product. Secondly, a previous study (Gordon, Calantone and di Benedetto 1993) had examined different aspects of brand equity in the U.S. circuit breaker market. That study utilised a list of electrical contractors as its sampling frame. The availability of a published list of UK electrical contractors (Dun & Bradstreet 1996) increased the attractiveness of the circuit breaker selection as well.

4.3 STAGE ONE – INTERVIEWS

4.3.1 Overview

The first stage of the field research involved a series of exploratory in-depth interviews in a number of product sectors meeting the general selection criteria,

including foundry filters, industrial adhesives, precision bearings, lubricants and circuit breakers. Given the selection criteria, knowledge gained from early interviews pointed to precision bearings as the most appropriate sector for the first wave of planned survey research. Consequently, a series of 15 in-depth interviews with bearings manufacturers, distributors, and purchasers were conducted to assist in the development of the survey instrument.

Although a wide range of bearings is available, the interviews focused primarily on decision making concerning precision bearings, especially standard, off-the-shelf or catalogue bearings. The interviews provided insights as to how to apply the well-established organisational buying behaviour frameworks to bearings decision making. The interviewees were asked to identify what specific aspects of the product offers were most important in bearings purchase decisions. They described a number of key issues that guided the development of the survey instrument, including aspects of the buyer, the purchase itself, and the decision process. The interviews also served to informally test different ways of collecting data and preliminary versions of the survey instrument.

4.3.2 The Interview Sample

The sample for the exploratory interviews was selected on a judgement basis. It reflects the intention to avoid known biases and to make the study representative of the sector's manufacturers, distributors and customers. The primary objective was to solicit insights into the decision making processes, steps or stages, and influences, as viewed by managers at different parts of the bearings supply chain. Secondary information sources were tapped to identify the top 10 manufacturers of bearings in the UK, all of which are large, multinational companies. Two of the largest companies were selected. Two other manufacturers were chosen, primarily on the basis of geographic convenience to the researcher. All of these

companies agreed to co-operate, and interviews with marketing managers and engineering or technical managers were conducted. Similarly, a list of bearings distributors was compiled, with the two largest distributors and one smaller distributor chosen and interviewed.

The manufacturers, distributors and published industry reports identified three key bearing customer segments. The segments were traditional segments by industry sector of the user, namely, automotive, household appliances and heavy machinery. Leading companies in each of these sectors were chosen which purchased large quantities of bearings, and which were relatively geographically convenient. Again, purchasing personnel at each company selected company agreed to co-operate. The customer sample included respondents involved in a wide range of purchases, including purchases for new designs and existing designs; for original product and replacement or service needs; for utilisation as product inputs, and as process inputs.

4.3.3 Interview Process and Analysis

Initial contact with the respondents to ask for co-operation was generally made via telephone. Where telephone contact proved difficult, a brief letter describing the project was sent, and subsequently followed up. In most cases, a copy of the types of questions to be asked in the interviews was mailed or faxed to the respondent prior to the interview, in preparation for a face-to-face interview at the respondent's place of work. The average interview lasted between 60 and 90 minutes. All of the interviews followed a semi-structured interview format.

Similar to the methodology used by Kohli and Jaworski (1990) and others, the conceptual framework was not shared in any way with the interviewees, nor was the word "branding" used in any of the questions. Open ended and closed ended

questions were used. Interviewees were also asked to draw a map or diagram to depict the process, including any important steps or stages, and to draw the various influences on the process. A series of probing questions were asked about the criteria customers used to decide among competing product offers. Interviewees then reviewed a preliminary list of choice criteria, and modified the list to more accurately reflect their preferred wording, etc. They ranked the criteria in terms of importance, and applied scaled and percentage weights to the rankings.

Various techniques were used to analyse the interviews. Responses to the open ended questions on the decision process were examined to identify patterns in word usage, and to see if and how words like brand, quality, relationship, and risk were used. Efforts were made to capture the language of the practitioners. Closed ended and scaled questions were summarised using descriptive statistics, but were not further analysed due to the small sample, and due to apparent differences in interpretation of the questions and terms by some respondents. Diagrams and pictorial representations by the respondents were not formally analysed, but provided insights on the processes involved. Chapter 5 summarises the findings and insights from this stage of the research.

4.4 STAGE TWO -- SURVEYS

4.4.1 Development of the Survey Instrument

The survey development began with an examination of previous research in organisational buying behaviour and other areas as reviewed in Chapter 2.

Efforts were made to use prior research as the foundation on which unique questions for the particular research hypotheses could rest, and for the source of

variables and measures. The exploratory interviews and a pilot survey informed subsequent development of the survey instrument and the operationalisation of the research propositions.

In the exploratory interviews, manufacturers and distributors were asked how they segmented their market. In response, they generally referred to the traditional segmentation bases of industrial sector, purchase volume and types of purchase akin to the buyclass categories. Then, when asked to draw on their experiences, they told numerous anecdotes about different types of bearings buyers and firms, purchase situations, and decision making processes. Taken together, these anecdotes evolved into distinctive profiles and typologies of how they categorised these various aspects. The survey attempted to find ways to measure aspects of the typologies and issues arising from the interviews. The pilot survey also served to formally pretest the survey instrument.

4.4.2 Sampling Plan and Method

The sampling plan and method involved a stratified random sample of companies based on several industry estimates of the breakdown of bearings sales across the four commonly used industry strata: automotive, heavy industry, general mechanical and engineering, and electrical. The UK 1996 Kompass Directory provided the company names and contact information in each of these strata. Eligible companies were numbered and then randomly selected using numbers generated randomly by an Excel function. Selected companies were telephoned to confirm their basic eligibility, that is, that they buy precision bearings, and to

obtain the name of the "person who is responsible for bearings purchases." In some cases, this was the purchasing manager. In others it was a specialist buyer or a technical manager. The survey cover letter encouraged the recipient to pass the survey on to a more appropriate colleague if the survey had been misdirected.

The literature on organisational buying behaviour emphasises that many industrial purchase decisions involve input from several people. The exploratory interviews indicated that for bearings purchases, the concepts of the decision making unit or buying centre are relevant, but less so than for purchases of durable or capital goods. Extensive surveys of multiple members of complex decision making units have been found to be impractical and arduous and can affect the behaviour of those involved (Rangan, Moriarty and Swartz 1992). The sampling method employed in this study assumes, as did Barclay and Ryan (1996), that the individual respondents are in a boundary spanning role which considers the desires of others in the decision making.

4.4.3 Survey Process

The key contact in each selected company was mailed a cover letter asking for cooperation, a copy of the survey, a fax cover sheet to be used in case they wished to respond by fax, and an addressed prepaid return envelope. The letter identified the researcher as an academic at the Open University Business School, and a doctoral student at the Warwick Business School, both well known and well respected academic institutions. This was expected to encourage good will and a good response rate. The survey consisted of a series of questions concerning the buyer's most recent typical purchase of bearings. Most of the

questions were closed-ended, and many involved scaled responses.

Approximately ten days after sending the surveys, non-respondents were faxed a reminder letter.

4.4.4 Pilot Survey

To test the sampling method, survey method, and survey instrument, a formal pilot study of bearings purchasers was conducted. The pilot study involved a stratified random sample of 50 companies from the general sampling frame taken from the Kompas Directory. Despite efforts to insure their appropriateness, 14 of the 50 selected companies responded that they “never or rarely” purchase bearings. Of the 36 remaining companies, 18 returned a fully or partially completed survey. Analysis of the process and the data indicated that the sampling and survey method was effective, but that processes of pre-screening for eligibility could be improved. No major problems were detected with the survey instrument, as indicated by questions that were avoided or answered in an unexpected way. A few minor wording or formatting modifications were made to improve the survey clarity.

4.4.5 Overview of the Surveys

The first full survey on bearings was conducted in late 1996 and early 1997. In all, 282 surveys were mailed following the procedures tested in the pilot survey. The surveys were sent out in a series of waves to facilitate tracking and follow-up. Complete or partially completed surveys were returned from 132 companies,

for a 46 percent response rate, quite high for industrial surveys of this nature (Diamantopoulos and Schlegelmilch, 1996), with 116 fully complete. To test for non-response bias, companies who responded before the fax reminder were compared with those who responded after the fax reminder. The respondents did not vary significantly in terms of the key buyer characteristics of annual size of bearings purchase and expertise. The quantitative data from the survey was then considered in conjunction with the qualitative findings of the in-depth interviews.

The second survey concerned purchases of circuit breakers. The first and second waves of the circuit breaker surveys were conducted in December 1997. The telephone pre-screening procedures used in the bearings survey were not followed for this survey, because it was expected that nearly all of the companies in the 1997 *Dun and Bradstreet* list of UK electrical contractors did purchase circuit breakers. This conclusion was based on prior research on circuit breaker purchases that used a list of electrical contractors as the sampling frame (Gordon, Calantone, and diBenedetto 1993). Consequently, pre-screening was less rigorous. However, without the pre-screening step the letters could not be personalised, so were sent to the “Chief Buyer” of each company in the sampling frame. Fax follow-ups to non-respondents were also sent to the “Chief Buyer.” Surveys in the third wave were mailed in mid-January 1998. Again, these were sent to the “Chief Buyer”. Unlike the previous wave, companies not responding were phoned, and a contact name was obtained. A follow-up fax was then sent to the named contact. Surveys in the fourth wave were mailed in late January, and were not personalised for the initial letter. Contact names were obtained and used for the follow-up faxes to non-respondents.

In all, 456 surveys were mailed, a census of UK electrical contractors listed in *Dun & Bradstreet*. Thirty-nine were returned addressee unknown or moved. Responding by post, fax or phone, 109 companies indicated that they do not purchase circuit breakers. Of the remaining 308 firms, 67 returned a completed questionnaire, for an overall response rate of 22 percent. This relatively low response rate may be explained by the omission of the rigorous pre-screening steps, the impersonal form of address, and the pre-Christmas timing for overall half of the sent questionnaires. Also, contrary to the prior research, most electrical contractors in the UK do not appear to purchase circuit breakers in quantity. However, although the response rate was lower than the bearings survey response rate, the rate is not atypical for industrial surveys of this nature. There is nothing to suggest that the respondents do not represent the target population of UK circuit breaker customers.

4.4.6 Measurements and Data

The questionnaire generated a rich data set of many measures. Several researchers (Peter and Churchill 1986; Peterson 1994) have identified the key research design characteristics that researchers should consistently report. Important sampling characteristics include: sample size; response rate; type of subjects utilised; method of data collection; and mode of survey administration. Important measure characteristics include: number of items for key constructs; question types; scale format; number of scale points or categories; forced choice or neutral point scales; presence of reverse scoring; scale orientation; and status

of scale. Table 4.1 summarises the key sampling and measure characteristics of the two surveys.

TABLE 4.1

Summary of Research Design Characteristics

(categories adapted from Peter and Churchill 1986; Peterson 1994)

	<i>Survey Characteristics</i>
Sampling Characteristics	
Sample size	Bearings: 116 circuit breakers:
Response rate	bearings: 41 % circuit breakers:
Type of subjects	industrial product buyers
Method of data collection	postal survey
Mode of survey administration	self-administered
Measure Characteristics	
Number of items for key constructs	one to five
Question type	primarily Likert scales, but also semantic differential scale, closed- ended, and open-ended
Scale format	primarily only endpoints were labelled, with numerical values on inner categories
Number of scale points or categories	generally seven-point scales
Forced choice or neutral point (even or odd number of scale points)	neutral point (odd number of scale points)
Presence of reverse scoring	None
Scale orientation	respondent centred
Status of scale	most were applications of prior developed scales, a few were newly developed

As Weber (1997) described, many techniques have been developed for collecting attribute data, for describing the relevant attributes, and for assessing and scaling the relative importance of alternative attributes. Direct rating and ranking methods are common in the literature for both the attributes and importance. Consequently, the questionnaire measured the importance of various benefits or attributes of the product offers using direct ratings and rankings of importance. For respondents whose decision making involved both a screening phase and a final phase, measures of importance were collected at both phases. The number of aspects included in the survey reflects a general acceptance that the typical number of influential attributes is in the range of seven to nine (Fishbein and Ajzen 1975). As an additional measure of appropriateness, the survey instrument described each aspect and asked if they were a "reasonable summary of what is important" to the respondent when making a bearings purchase decision. All respondents in the formal pilot and the final survey indicated that these aspects were indeed reasonable.

Table 4.2 summarises the key attributes or benefits that were measured. Product and service attributes reflect the measures commonly used in a wealth of organisational buying behaviour studies. Branding measures included measures for three major aspects of branding (Aaker 1996): brand name awareness, general reputation, and brand purchase loyalty, or number of prior purchases.

Respondents were asked to provide ratings of importance of the product, service, and branding attributes, on a scale of 1=fairly important to 7=extremely important. In addition, buyers were asked to rank the attributes by importance.

TABLE 4.2**Key Benefit Attributes of the Product Offers**

BENEFIT ATTRIBUTES	DESCRIPTION
PRODUCT	
Total price	quoted price, degree of discount, financial support services, payment terms, etc.
Physical product properties	bearings: precision, strength, durability, etc. circuit breakers: rated voltage, breaking capacity, short-circuit rating, level of insulation, etc.
SERVICE	
Technical support services	design advice, product testing support, troubleshooting, etc.
Ordering & delivery services	availability of product, ease of ordering, lead timed, delivery reliability and convenience
Coverage	geographic territory, or depth or breadth of product range (bearings only)
Working relationship	quality of the working relationship
BRANDING	
Brand Awareness	how well known is the manufacturer
Manufacturer's reputation	how others view the manufacturer in general terms
Brand purchase loyalty	number of prior purchases from the manufacturer

Asking for both measurements serves several purposes. First, the results can be compared. It may be that the overall stated importance of the aspects may be affected by how importance is measured. Also, a composite view of importance

can be assembled from the two measures of importance. In practice, some respondents may provide only the importance ratings, and not the rankings, while others may provide the rankings and not the ratings, due to personal preference. The rankings can act as a fallback measure in case, as sometimes happens, respondents conclude “everything is important”, and do not reveal differences in their perception of importance across the attributes. Yet, rankings can be criticised for forcing respondents to indicate a difference in importance between two attributes when no real difference is perceived.

The data collected on buyer and purchase characteristics and the decision process followed up on the characteristics described as most important in the literature and in the interviews. The questionnaire asked buyers to provide information about themselves, their company, and their most recent, typical purchase of precision bearings. This information was then used to complement managers' views on what constitutes accessible and meaningful customer segments.

Researchers in both psychology and marketing have found self-rating scales, particularly on knowledge, to be reliable and useful (Gensch 1987b, p. 199).

Table 4.3 summarises the various measures of buyer characteristics, while Table 4.4 summarises the purchase characteristics, and Table 4.5 describes the decision process and choice characteristics.

TABLE 4.3**Measures of Buyer Characteristics**

<i>Characteristics</i>	<i>Measures</i>
Line of business or sector	Respondent choice of automotive, heavy industry, electrical, or machinery & engineering, the traditional customer segments for bearings. Circuit breaker categories were electrical contractor, electrical engineering, electrical manufacturer. Both surveys included an “other (specify)” category.
Volume of annual purchases of the product	Some respondents wrote in amounts, most chose to mark one of 6 categories for bearings and 7 categories for circuit breakers. Amounts were converted to actual values.
Frequency of purchases of the product	Two items measured how long ago was the respondent’s most recent purchase decision on this product, and when the respondent expects to make the next purchase of this product. Six time period categories were used per item. An average of the two measures was calculated.
Level of customer's bearings expertise	Three items measured on a 7 point scale: Company's technical expertise on the product; Personal technical expertise on bearings/circuit breakers; Personal knowledge of bearings/circuit breaker suppliers and the bearings/circuit breaker market. The scale used 1=low, 7=very high, with numerical values on inner categories. The circuit breaker survey added a question on how many years the respondent has been involved in circuit breaker purchases, and the respondent’s age and current title or job position.
Perception of supplier differences	Asked at both the screening stage and final stage for the respondent’s perspective on how much the possible brands differ on aspects important to the decision. Scale used was 1=no differences to 7=extreme differences.
Perception of subjectivity of the assessment of benefit attributes	For each of the benefit attributes, respondents asked to describe the degree of subjectivity involved in their evaluations of manufacturers. Used a semantic differential scale of 1= subjective, art, judgement to 7= objective, science, evidence. Numerical values were used on inner categories.

TABLE 4.4**Measures of Purchase Characteristics**

<i>Purchase Characteristics</i>	<i>Measures</i>
Perceived risk of the purchase	<p>Three 7-point scaled measures on personal safety risk, downtime/recalls risk, and overall risk. Scales used 1=no risk and 7= high risk, with numerical values on inner categories.</p> <p>Circuit breaker survey added risk of overspending and risk of damage to your personal reputation or job.</p>
How used	<p>The bearings survey offered two categories: for a production or manufacturing process (e.g., for a machine in your factory); and incorporated into a final product to be sold to others. Adaptation to the circuit breaker survey resulted in four categories: for an in-house production or manufacturing process (e.g. for a machine in your factory); for a customer's production or manufacturing process; incorporated into a final product to be sold to others; and other (specify).</p>
Cost	<p>The circuit breaker survey added an open ended question: what was the approximate cost of this most recent purchase?</p>
Type of purchase	<p>Choice of four modified BuyClass categories: completely new product design; modified or updated product; existing product but with complicating factors; existing product with no major complicating factors.</p> <p>Circuit breaker survey added the more traditional wording: new design (for use in a completely new design or application); modified new design (for use in a modified or updated design); modified rebuy (for use in an existing design, but with complicating factors); and straight rebuy (for use in an existing design, with no major complicating factors).</p>

TABLE 4.5**Measures of Decision Process and Choice Characteristics**

<i>Characteristic</i>	<i>Measure</i>
Supplier type	Whether most recent purchase was bought from the manufacturer or from a distributor.
Primary decider	Whether the particular brand was primarily decided on by the distributor or the respondent. The circuit breaker survey added a third category of someone else in the respondent's company.
Number of stages or phases	Whether a one-stage process or a two-stage (screening and final) process was used. One-stage and two-stage were defined and described.
Use of compensatory decision process	Asked at screening stage and at final stage whether or not numerical rating or rankings of suppliers were used.
Use of hierarchical decision process	Asked at screening stage and at final stage whether or not any particular aspect was used to knock out or eliminate brands from further consideration
Size and composition of consideration set	Asked to circle or write in which manufacturers were considered at the screening stage.
Size and composition of choice set	Asked at final stage to name the brands the choice was narrowed down to.
Status of manufacturers in the choice set	How often has respondent purchased from the choice set manufacturers in the past, using 1=never before to 7=very often, with numerical values on inner categories.
Type of sourcing decision	Indication of whether the most recent purchase decision was single or multiple sourced, using an open-ended question of percentage of order awarded to the manufacturers in the choice set.

4.4.7 Summary of Validity Issues and Procedures

The identification and description of the measures utilised is a good starting point for evaluating the overall fit between what the research purports to measure and what is actually measured. Numerous types of validity have been examined in the literature, including construct, face, content, predictive, concurrent, pragmatic, convergent, criterion, discriminant, external, trait and nomological (Churchill 1979; Peter 1981; Peter and Churchill 1986; Peterson 1994; Singh 1991). The driving force behind these efforts is the desire to properly develop, test and operationalise the abstract concepts of marketing theory (Peter 1991).

Churchill's (1979) paradigm for developing measures of marketing constructs remains widely accepted and utilised. The paradigm consists of specific steps or stages, along with recommended techniques of implementation. The main steps are: specify domain of construct; generate sample of items; purify measures; assess reliability; assess validity; and develop norms. Several of the steps involve data collection. Previous sections of the thesis indirectly discussed the efforts to follow each of these steps, but further emphasis and summary is necessary. Accurate reporting of the procedures used to develop measures is an important part of the research process (Kopalle and Lehmann 1989).

First, a comprehensive literature review served as the primary vehicle for specifying the domain of constructs such as industrial branding, perceived risk, attribute importance, etc. The literature review highlighted the interdisciplinary nature of research in industrial branding, and how considerable research has

already been conducted in closely related areas. The general domains of the constructs used in the thesis research are well established in the literatures of organisational buying behaviour and consumer branding.

Secondly, the literature review also generated the initial sample of items to include. The series of in-depth interviews with manufacturers, distributors, and industrial customers significantly supplemented the initial sample. The interviews also played an important role in the third step of purifying the measures employed. The interviewees were asked how the constructs were best summarised, what else should be added, what should be deleted, etc. Cronbach's alpha coefficients were calculated for the multi-item measures, with good results. For example, the measures of expertise had a value of .6942; the measures of perceived risk had a value of .8445; and the three branding measures had a value of .8275.

The fourth step involves assessing reliability with new data, including assessment of face or content validity. The pilot survey provided an important means of identifying unreliable questions and improving ambiguous wording. Churchill (1979, p. 73) considered the final two steps to be less critical for applied research. The fifth step, construct validity involves empirical assessment of several validity forms. Convergent validity is the extent to which the measure correlates with other measures designed to measure the same thing. Discriminant validity is the extent to which the measure is indeed novel and not simply a reflection of another variable. Nomological validity is the extent to which the measure behaves in a manner consistent with theory. The sixth and final step is

the development of norms by making implicit standards of comparison explicit. The norms reflect an interpretation of what is normal or typical scoring on a particular measure.

4.4.8 Validity in Context

Formal, empirical procedures to test validity are not without their critics, and should be placed into a broader context. According to Peter (1991, p. 142), “there are few if any measures in marketing that could fully meet rigorous construct validation criteria in a series of studies.” Empirical testing is not enough. Good constructs are well grounded in theory, and have undergone a logical sequence of development and analysis. As Peter and Churchill (1986, p. 1) observed, “In general, measures that have undergone extensive development and scrutiny are judged to be more valid than those that are proposed haphazardly.”

Empirical testing of validity generally presumes multiple measures of each construct. Peter (1991, p. 133) warned of the unreliability of single item measures, but cautioned: “Though multi-item scales (or other multi-response methods) are generally required for formal validation procedures, multi-item scales for individual attributes of products, stores, or brands are often difficult to develop, very redundant, and tedious to respond to because of the narrow range of content they assess.” Multiple measures are quite common and expected in psychological testing, but may not be acceptable to potential respondents to industrial surveys. If repetition is spotted, a common reaction is to remember the

earlier response and repeat it without further thought. Construct validity requires that a measure does not “contain surplus characteristics that contaminate it” (Peter and Churchill 1986, p. 2).

Singh’s (1991) thorough examination of the redundancy of constructs highlighted the importance and prevalence of this problem. He found that even though constructs can be conceptually non-redundant, their operationalisations are often redundant. Redundancy of constructs is problematic at three levels: “Theoretically, unrecognized redundancy undermines scientific progress and accumulation of research. Empirically, when not explicitly documented, redundancy poses serious doubts on our understanding of the phenomena and on our ability to provide useful guidelines to interested constituencies. Pragmatically, redundancy is innately troublesome” (Singh 1991, p. 274).

Peter (1981, p. 143) also made a plug for exploratory research, rather than repetition of previous research in similar contexts. “Though valid measures of constructs are necessary for providing theoretical explanations, we clearly need to know what behaviors people perform before we can explain why they perform them...A useful first step in seeking explanations may be to observe, delineate, and define behaviors and classes of behaviors of interest to the area and perform a series of simple descriptive studies to investigate them.”

Construct validation is an important ingredient of good research, but does require common sense and judgement, not just statistical verification. According to Peter and Churchill (1986, p. 1), “the degree of construct validity is always an

inference of judgment made by researcher,” a judgement backed by the following of proper procedures, empirical evidence, and theoretical relationships.

Validity of the analysis itself is also critical. The validity of the analytical methods must also be considered. Cluster analysis is one of the primary methodological tools used. Although well-established as an appropriate methodology, its subjective nature increases the importance of validation.

The analysis following guidelines established by Saunders (1994) for internal validity, external validity, replicability, and operational validity. The validity of the clusters was tested as an integral part of the research. The internal validity of the clusters was examined by a series of cross tabulations of the clusters against important variables. The external validity of the clusters was examined by the comprehensive profiling or description of the characteristics of each of the three clusters, and the tests for significant difference. The replicability of the clusters was tested through the use of a simple split sample to test for the stability and validity of clusters. The sample was split in half randomly several times, followed by cluster analysis on the basis of attribute importance. The analysis consistently resulted in three clusters, very similar in nature to those described in Chapters 6 and 7. The final level of validity, operational validity, requires the results to be managerially useful. That aim has indeed driven the analysis, with managerial implications more fully discussed in Chapter 8.

Validity is, of course, not the final objective. Overall, the methodology is appropriate if it allows the model of branding in industrial markets to be tested. As explained previously, the model, as summarised in Figure 3.4, is intended to

address three main gaps in the understanding of industrial brands. These gaps include how branding is defined in an industrial context; whether industrial branding is important, and if so, to whom; and the managerial implications of industrial branding. The methodology is appropriate if it facilitates testing of the emerging hypotheses and answers to these questions.

Chapter 5

ANALYSIS OF THE EXPLORATORY INTERVIEWS

5.1 INTRODUCTION

The exploratory interviews comprise an essential part of the overall research. They interviews provided a practical starting point for studying what industrial branding is and to whom it is important, as well as the managerial implications. A series of exploratory interviews was conducted in a number of product sectors meeting the general selection criteria, including foundry filters, industrial adhesives, precision bearings, lubricants and circuit breakers. These were followed by 15 in-depth interviews with bearings manufacturers, distributors, and purchasers. This chapter summarises the findings of the bearings interviews. Highlighted are the interviews' insights on buyer characteristics, purchase characteristics, decision criteria, and the decision process.

5.1 BUYER CHARACTERISTICS

The interviews raised a number of issues relating to characteristics of the buyer and the buyer's company. Demographic characteristics of the buyer mentioned included the buyer's age, years of experience, and position. Organisational demographics of the buying company mentioned were industry sector, overall size of the company, and annual value of bearings purchases. The majority of buyers were described as male, middle aged, and experienced, holding positions

in purchasing. Some bearings buyers held positions in engineering, especially for product inputs, or in manufacturing, especially for process inputs, such as factory maintenance requirements. Companies with a low annual volume of bearings purchases sometimes had younger buyers who were characterised as inexperienced and with low expertise. Interestingly, younger buyers were also found in some of the largest volume and most sophisticated buying companies. These buyers did not stay in their positions for many years, but developed specialist buying experience, backed by a formal in-company purchase team.

Buyers and their companies were seen as differing in buyer technical expertise, company technical expertise, and in general knowledgeability of the bearings market and bearings suppliers. Not surprisingly, bearings purchases were less important to some buyers, who showed indifference or little interest in the decision compared to other purchase decisions. Most buyers were seen as “traditional purchasing professionals” who purchased bearings in much the same way as they purchased other industrial products. Others, as described previously, were technically and organisationally sophisticated, and often purchased large quantities.

5.3 PURCHASE CHARACTERISTICS

Customers generally described bearings and the bearings purchase decision to be of moderate to high complexity. Some compared bearings purchases to those of other products, such as, “Buying bearings is not like buying nuts and bolts. There is considerable technical precision and sophistication involved.”

Complexity was logically perceived to be lower for low precision applications. Certainly, complexity depended on the particular purchase context. Some buyers used the terminology of the buyclass types of new design or new task, modified design, modified rebuy and standard rebuy, while others used slightly different wording to describe their types of purchases. The complexity of the purchase also reflected perception of the degree of differentiation of the suppliers. “With all the mergers of the last few years, it is harder to keep all the companies straight,” one commented. If the companies were perceived to vary significantly in their product or service quality, then this created a more complex decision than if the companies were perceived to be “more or less the same.”

The interviews explored the issue of *risk* as an influence on the decision. The consequences of product risk in terms of bearing failure ranged widely. In many automotive and heavy machinery applications, bearing failure is a personal safety issue. For example, if a bearing in an automobile wheel failed, it could lead to a car crash with risk to human life. Bearings failure could also cause a product recall or warranty claims, which could cause damage a company’s quality reputation as well as damage it financially. In domestic appliance applications, the risk is that malfunction will result in a product recall, but more importantly in the permanent loss of a customer, with extensive negative word-of-mouth costs. For production processes, risk lies in manufacturing downtime, with its very measurable costs of lost production. Supply risk was also a critical factor, since many companies in recent years have suffered from shortages and delayed shipments of bearings. Price risk was also important, as bearings prices significantly vary across the globe, complicating sourcing and production

decisions. These risks were not always perceived to be relevant or high. Many bearings purchases were perceived as simply routine and low risk.

Purchase decisions for bearings to be used as process inputs raised slightly different issues than did decisions for bearings to be used as product inputs. Bearings used in-house for factory equipment, etc., were expected to be reliable above all and problem-free. Usually these decisions have a lower profile than decisions on product inputs. Bearings used for products to be sold to others raised other issues. As the purchasing manager of a large domestic appliance company explained, "Inexpensive Asian bearings are good enough quality for our bottom-of-the-range line. However, even if their physical quality were good enough, we would not use them in our top-of-the-range line. Customers of our top-of-the-range line would expect to see bearings from a leading company in their products."

5.2 DECISION CRITERIA

Buyers and sellers always mentioned *price* early in the conversations. Several suppliers warned that buyers would probably understate the importance of price, and would instead over-emphasise other criteria. However, buyers did generally rate price as the most important criteria, with some buyers estimating that price accounts for 70% of the final decision. Price was less important at the early screening stage, and more important in the final choice. Yet on several occasions buyers stated that it is "unprofessional" to put too much weight on price alone. Price was considered more important in replacement or after-markets than for

original equipment manufacturing. Pricing terms and conditions were perceived to be quite standard, but play an influencing role in some decisions. Large buyers often expected suppliers to adopt an "open book" policy in which development costs and expected margins were scrutinised. One purchasing manager admitted that price negotiation is risky. "We have been known to push our first choice too far and cause the supplier to withdraw itself from consideration. Then we have to settle for our second choice supplier at an even worse price."

Product quality was defined using a combination of technical product specifications, underlying design features, reliability, and innovation. Purchasers generally subjected products to a series of physical and technical tests both before and after initial purchases, in accordance with formal quality control procedures. Test results were cited as being of great importance to the decision making process, but "are placed into a broader context," in the words of one technical manager. Another manager noted, "so many other factors can affect even the best run test, that we don't take the test results literally," as factors such as operator error and environmental conditions could unfairly affect the results. Assessments of product quality involve "a measure of faith," said one manager. Specific design and product features were generally most critical in the early stages of the process, when the final specifications were being formalised by technical personnel. The views of non-technical personnel on technical characteristics are also important. As one marketing manager noted, "we also need to sell these features to the purchasing agents as a rationale for choosing us,

and to justify our [higher] price. Our unique features are a symbol of our quality."

In general, product quality was seen as the foundation for overall product and company reputation. When asked what is the key to a bearings manufacturer reputation, the responses were remarkably similar to the comments of one customer: "The key to reputation is no quality issues of any kind ever." To another, "For some types of purchases we tolerate a quality slip up now and then, but not with bearings."

Buyers and sellers cited *ordering and delivery services*, and other aspects of distribution services as key decision criteria. Nearly all interviewees highlighted aspects of product availability and delivery reliability. This is especially understandable in the bearings market as it has suffered from significant product shortages in recent years. Standard lead times were important, but the ability to respond quickly to emergency requests was seen as more critical. Also, the willingness of the manufacturer to control or limit the buyer's inventory carrying requirements was a factor. Just in Time (JIT) delivery was a plus (especially if it was not accompanied by requirements for "just in time payments," one joked). Purchasers frequently described the kinds of record keeping activities they undertook to track delivery performance, although some admitted that they hoped to improve this type of record keeping in the future. "There is sometimes a halo effect," said one. "Sometimes we come to realise that a favoured supplier hasn't been as perfect as we thought."

Buyers do not want their reputations to be tarnished by a supplier that is perceived to be unsatisfactory, but they also do not want their decisions to draw attention to themselves. In some business environments, turning to a new supplier may involve bypassing a supplier that has been heavily relied upon in the past. This choice may attract the attention of a manager or other colleagues, and may necessitate an explanation. Some buyers find it hard to admit that a long-term supplier is not as good as it once was or should be. Other companies have addressed this problem through explicit purchasing policies that all incumbent suppliers must re-prove themselves with each new purchasing contract. This stated policy of “an even playing field” may not actually and always be implemented in practice, but it does help to give buyers “an excuse to walk away” from even a long-term supplier that is under-performing.

Ease of ordering was another factor, with EDI and related electronic communications facilities commonplace. Buyers noted the differences in the clarity and comprehensiveness of computer-based and paper-based product catalogues. As one buyer said, “Some suppliers just don’t seem to make an effort with their catalogues.” Others cited the day-to-day “ease of ordering” at the interpersonal level, which in some instances came down to efficient telephone answering and competent clerical assistance. Ease of ordering in emergencies was also mentioned, with words such as trust and teamwork used. “I like to know that if I make a mistake and forget to place an order, the supplier will be willing to do me a favour and keep me out of trouble,” summed up one purchasing manager, “even though sometimes I feel I end up repaying the favour many times over.” Senior managers were said to be more likely than junior

managers to remember the times when the supplier failed to perform, and be less willing to credit past good behaviour.

A global supply network was important to companies who operated in several international markets, but this depended on their particular sourcing policies.

“We want to do business with companies that think globally and operate globally,” said one purchasing manager. In contrast, some small UK-based companies who rely on bearings distributors do not perceive a strong need for their distributor to have even a national network. One observed, “We feel comfortable working with a locally based company.”

A wide range of *technical support services* were consistently mentioned, depending in part on the perceived importance of technical product evaluation. Companies without extensive in-house technical expertise tend to seek out distributors or manufacturers who were generous with technical advice. More sophisticated customers also view technical input and product design advice from the manufacturers as an important part of the development and decision process.

The ability to provide technical support and troubleshooting for products in the field was important on both an on-going and emergency basis. The availability of hotlines, on-call services, and regular site visits were cited. Training of technical staff upon request was also expected and commonly provided.

Increasingly, the technical support is expected earlier in the decision process, with suppliers actively participating in design brainstorming sessions. One manufacturer said its willingness to help with design was a way of "getting a foot in the door" and saw technical support as a strategic asset. "We make it a point

to emphasise that our support comes without strings attached, unlike some of our [larger] competitors."

Although technical support is generally provided free of charge, it often comes with the expectation of a future order. As one manufacturer said, "We expect to be paid for the advice one way or another." In some instances, if the market leader has a reputation for technical leadership, it "can afford to play hard to get." Said one leading company, "we sometimes let the customer struggle with another manufacturer before offering to step in. We don't want to throw our expertise away and be taken for granted." The technical advice was placed in the context of general rapport and understanding of the customer requirements. Said one manufacturer, "our customers stay with us because we understand the nuances of their business." A buyer said, "we try to get the supplier to feel part of our team."

The company itself was described as having various influences on the decision. After systematic evaluation and negotiation of the price, product, delivery and availability, and support services, the differences between competing offers may be quite slight and subtle. The process then becomes one of price negotiation and the choice of company. To some buyers, the decision comes squarely down to price. Others "go out of their way" to choose a particular supplier. A marketing manager of a leading manufacturer explained this as the customers "buying [our] message." The "message" was described as made up of technical experience, a history of innovation, a stable future supply, and world-wide coverage. More intangible associations with leading company included "less

risk" and "no need to explain or justify the choice." Several respondents went so far as to claim that "some buyers feel they gain prestige or status" by buying from a market leader, and that buyers "feel good to be a [market leader] buyer, proud to wear [our] hat."

Some disagreement emerged over which type of buyers are more influenced by the "big names" in the industry. To a medium sized manufacturer, "the big names give confidence to smaller replacement buyers, but big companies aren't influenced by that as much." A market leader had a different view: "to the [big] companies it matters. We are a company they can feel comfortable working with. They know they can count on us when something goes wrong." A supplier's large size and market share does appear to inspire confidence in buyers, but can be a negative factor as well. Some thought medium-sized companies were "more interested in the concerns of smaller customers," a sentiment not always disputed by market leaders. Several large purchasers of bearings emphasised the importance of buying from a "global" company, with the ability to support their operations in the US, Europe and the Far East. "Ideally, our suppliers think globally, and understand why moving to a global design is important to us." Another customer noted that in the early screening phase it was important for the supplier to "look world class, and be able to make our price requirements."

The importance of developing a relationship with the company, was often mentioned. The relationships were described in relatively formal terms.

Multiple (5-7) year contracts were common, with contracts for a particular part

number covering the life of the production run, plus a service replacement period. These contracts had multiple "out clauses" for the customer, "but we have never broken one," said one buyer. Even so, the pervasive sentiment seemed to be the "door is open for the next generation [of product]. The current supplier may think it has the edge, but that is not always the case."

Throughout the discussions, the interviewees often highlighted decision criteria that involved subjective evaluations and elements. Nearly all mentioned that the final decision sometimes "simply comes down to personal preference." This led to questions seeking to identify the components of personal preference, and their relative influence. Some of the components were admittedly reflective of "non-professional attitudes", such as favouritism, "politics" and the reliance on outdated information. These were seen as "unfortunate realities that need to be fought against." Yet, in general, the interviewees generally characterised personal preference as a key aspect of professional judgement. "No one can know everything," noted one manager. "It makes sense to want to feel comfortable about working with a company and its representatives."

5.5 DECISION PROCESS

The manufacturers, distributors and customers were all asked about the nature of the decision process customers use. Customers characterised the decision process in various ways. Customers were asked to explain whether the decision making process on bearings was primarily a decision on the supplier, or a decision on the product. Practical guides to purchasing (Lysons 1993; Syson

1992) often characterise the industrial purchasing process as one of *supplier* sourcing. In contrast, consumer decision making is primarily presented as one of *product* evaluation. Presentation of this distinction generated a lively discussion at times. Responses varied, but senior managers were more likely to emphasise supplier selection, while junior managers emphasised product selection.

When asked to draw a map or diagram of the process, the resulting drawings were relatively similar across companies and applications. Screening of the suppliers and screening of the products are depicted as occurring simultaneously or in parallel, until the final steps of the decision process. At the choice stage, the decision was usually characterised as one of choice of supplier. The processes did vary in the degree of regimentation or formality of the process, although this was not always obvious from the diagrams themselves. In some cases, the drawings were rather simplistic, but the description of the formal steps and procedures indicated a highly structured process.

5.6 IMPLICATIONS

In preparation for the survey phase of the research, it was helpful to identify any commonalities or categories emerging from the interviews. The interviews described how buyers, purchases, and decision processes vary from situation to situation. Several interviewees mentioned “the unique nature of each purchase.” Still, throughout the interviews, it became obvious that many of the experts did try to simplify this complex situation and to categorise or summarise types of buyers, purchases and decision processes. These categorisations were rarely

explicit or clearly defined. Rather, the implicit categories shaped and were shaped by the overall judgement and experience of the individuals involved in bearings purchases. The typologies of Table 5.1 are an attempt to formalise these implicit categories emerging from the interviews.

TABLE 5.1
Summary of Typologies Emerging From Interviews

BUYER Typologies	PURCHASE Typologies	PROCESS Typologies
low interest, indifferent	routine, low risk	convenience, low involvement
traditional, moderate views, objective	middle of the road, product-oriented	by the book, structured
large volume, sophisticated	highly important, relatively risky	open-minded, structured

The pinwheel model of industrial brand value to the customer identified four sources of value or performance, namely, product, distribution services, support services, and company. Manufacturers, distributors, and customers repeatedly mentioned these sources of value in the field interviews, although these were sometimes described in unexpected ways. Table 5.2 provides an example of how

the decision criteria arising from the interviews relate to the pinwheel conceptual model. The examples can be used to illustrate the model, but cannot be said to prove or confirm the model, especially given the exploratory nature of the research. In any event, the examples help to bring to life the practical aspects of the sources of brand value to industrial customers, and suggest ways in which customers differ in their perceived importance of branding.

TABLE 5.2

Summary of Customer Perceived Sources of Value

PRODUCT	DISTRIBUTION	TECHNICAL SUPPORT	COMPANY
<i>Tangible</i>	<i>Tangible</i>	<i>Tangible</i>	<i>Tangible</i>
Precision	Stated availability	Design advice	Financial stability
Load Bearing	Stated lead times	Product testing	Years of experience
Dimensions	EDI and JIT	Site support	Global coverage
<i>Intangible</i>	<i>Intangible</i>	<i>Intangible</i>	<i>Intangible</i>
Innovative	Ease of ordering	Understands our needs/business	World class
Fit for purpose	Reliable delivery	Troubleshooting expertise	Technical leadership
Not over-engineered	Responds in an emergency		Global perspective

The interviews helped to clarify the specific purchase concerns of each particular market and emphasised the role of the tangible and intangible elements. As one purchasing manager explained, "We are very aware of the subjectivity involved. What we try to do is develop relatively objective measurements for each of the

subjective elements." That judgement in many ways captures the spirit of the pinwheel of brand value and motivated efforts to quantitatively measure the importance of branding in the purchase decision. The next two chapters, Chapters 6 and 7, discuss this next stage of the research.

Chapter 6

BEARINGS SURVEY RESULTS

6.1 INTRODUCTION

Analysis of the role and importance of branding involves a number of steps. The first step is to determine what attributes are important to customers for their decision making. Section 6.2 describes the perceived importance of the various attributes for the overall sample. This lays the groundwork for further analysis.

The second step is to test the relationship between the importance of branding and the situational variables. Chapter 3 specified a number of hypotheses under the general propositions linking the importance of branding with the identifiable characteristics of the buyer (P1), the purchase (P2), the decision process (P3), and the final choice (P4). Section 6.3 reports on the results of the hypothesis testing for the bearings survey data. Also reported are the results of the analysis of the links between the importance of non-branding attributes and buyer, purchase, decision process and choice characteristics.

The model also incorporates relationships regarding more general organisational buying behaviour. In Figure 3.4, these more general relationships are summarised by the link between buyer characteristics and the decision process (P5), purchase characteristics and the decision process (P6), buyer characteristics and choice (P7), and purchase characteristics and choice (P8). Section 6.4

summarises the evidence from the bearings data regarding the general relationships of P5 and P6.

Then, returning to the main focus of branding importance, the fourth step is to determine to whom branding is important. Section 6.5 describes the analysis to learn if industrial customers can be segmented on the basis of benefit importance, and on the basis of brand importance in particular. This involves cluster analysis and tandem cluster analysis. Clustering customers on benefit/attribute importance generated three clear clusters, in which the perceived importance of branding plays a key role.

An important measure of the value of the research is whether benefit segmentation and the model of industrial branding provide practical benefits to firms. One aspect of this is whether segmentation by branding importance enhances traditional segmentation bases such as industrial sector, purchase volume and buyclass. Section 6.6 examines the distinguishing buyer, purchase, and decision process characteristics of each of the three benefit clusters.

The final subsection, 6.7, summarises these findings for the bearings survey as a whole. Again, the emphasis is on the evidence of answers to the question of whether industrial branding is important, and if so, to whom. Chapter 8 addresses the broader question regarding the implications for managers.

6.2 PERCEIVED ATTRIBUTE IMPORTANCE IN THE SAMPLE

The first step is to determine what attributes buyers perceive to be the most, and least, important. Table 6.1 summarises the perceived attribute importance at the final decision stage. These results reinforce the findings of the exploratory interviews and are consistent with existing theories and assumptions of organisational buying behaviour, as described in Chapter 3. The more tangible attributes of ordering and delivery services, physical product properties, and price were perceived to be of the highest importance, with these evaluations exhibiting the smallest standard deviation across the sample. Of moderate importance, and with a moderate standard deviation were the working relationship with the manufacturer, technical support services, and general reputation of the manufacturer. Of less importance, and with the largest standard deviation in response were how well known the manufacturer is, and the number of prior purchases from the manufacturer.



Despite being mentioned in a number of the qualitative interviews, the pilot survey results, and the preliminary analysis of the final survey revealed that *coverage* was not clearly understood by the respondents. Many respondents failed to rate or rank the importance of coverage, even though they provided evaluations of all of the other aspects. Also, follow up conversations with several respondents indicated that the term used was unclear. Because of this, attitudes regarding coverage are reported in Table 6.2, but are not analysed further.

TABLE 6.1**Overall Perceived Attribute Importance Rating in the Final Decision****Bearings**

1= fairly important to 7= extremely important

Attribute	Mean	Std. Dev.	Comment
Delivery and ordering services	6.06	1.10	highest importance, smallest s.d., most tangible
Physical product	5.99	1.34	
Price	5.84	1.27	
Working relationship	5.13	1.51	moderate importance, moderate s.d.
Technical support services	5.01	1.48	
Reputation	4.72	1.62	
How well known	3.88	1.79	lowest importance, biggest s.d.
Number of prior purchases	3.82	1.74	

Information on perceived importance was collected in several ways, as detailed in Chapter 4. As shown in Table 6.1, buyers provided ratings of importance, on a scale of 1=fairly important to 7=extremely important. In addition, buyers were asked to rank the attributes by importance. In practice, as expected, some respondents provided only the importance ratings, and not the rankings, while others provided the rankings and not the ratings, for no explicable reason. Nearly twice as many respondents supplied ratings than supplied rankings.

Table 6.2 summarises the means of the importance rankings and ratings and indicates the ordering that resulted. Somewhat surprisingly, the two measures of

importance resulted in a number of differences in how the attributes are ordered, in both the screening and final decision stages.

TABLE 6.2
Perceived Importance of Benefit Attributes *
Bearings Survey

	Screening Stage				Final Stage			
	Ranking n=30		Rating n=59		Ranking n=68		Rating n=119	
Price	7.68	1	5.71	3	7.68	1	5.84	3
Physical product properties	7.58	2	6.17	1	7.36	2	6.0	2
Ordering & delivery services	6.73	3	5.97	2	6.89	3	6.04	1
Technical support services	6.10	4	4.97	5	6.01	4	5.01	5
Quality of working relationship with manufacturer	4.70	5	5.29	4	4.74	5	5.13	4
Manufacturer's general reputation	4.30	6	4.59	6	4.14	6	4.73	6
How well known the supplier is	3.27	7	3.83	8	3.36	7	3.92	7
Number of previous purchases from manufacturer	3.17	8	3.73	9	2.89	8	3.82	9
Manufacturer's product line and geographic coverage	3.10	9	4.07	7	2.83	9	3.91	8

* Mean ranking of 1=least important to 9=most important
Mean rating of 1=fairly important to 7=extremely important

The three most important attributes were always price, physical product, and ordering and delivery, but their ordering varied depending on the measure used. Technical support was fourth in importance and the working relationship was

fifth, using the rankings. This order was reversed using the rating measure.

Regardless of which measure was used, the three least important attributes were

the three branding attributes, the general reputation and how well known the

manufacturer is, and the number of prior purchases from the manufacturer.

General reputation was significantly more important than the midpoint on the

importance scale, while the other two branding factors were perceived as at

approximately the midpoint. More research will be necessary to give a definitive

answer for these changes connected to the type of importance measure used.

Buyers who indicated that they use a two-stage decision process were asked

about importance at the screening stage and again at the final decision stage.

Buyers using a one-stage process were asked about attribute importance at the

final decision stage. Collecting importance measures at the screening and final

stages was done to follow up on prior research (e.g., Gensch 1987) that indicated

that buyers weight attributes differently at different stages of the decision

process. Also, comments made in the literature and the exploratory interviews

suggested that although price may be very important in the final decision, other

attributes are more critical at the screening stage.

The perception of importance varied little between the two decision stages. Six

of the eight attributes maintained the same order of importance between the

screening and final stages. The only difference lay at the top of the ordering. In

the screening stage, physical product properties were rated as the most important,

and ordering and delivery services as second most important. In the final stage,

the order was reversed, with ordering and delivery services topping the physical product in importance.

Measuring what is perceived to be important by the sample as a whole does provide interesting information. Perhaps more importantly, these measures provide the basis for the hypothesis testing and the cluster analysis in the following sections.

6.3 RELATIONSHIP BETWEEN PURCHASE SITUATION VARIABLES & BRANDING IMPORTANCE

There are two main ways of developing and testing the links between the buyer, purchase and decision process characteristics and the firms' perceived importance of branding and other attributes. The first method is to test the relationships for the sample as a whole, using the hypotheses detailed in Chapter 3. This section summarises the results of these overall tests. The second approach is to conduct cluster analysis of the firms by benefit importance, and then test whether firms in the benefit clusters differ in their buyer, purchase and decision process characteristics. Section 6.6 presents the results of this cluster-by-cluster analysis.

Branding importance is described using perceived importance of the three branding attributes. Measures were taken of the three major aspects of branding (Aaker 1996): brand name awareness, general reputation, and brand purchase loyalty, or number of prior purchases. As described in Tables 4.3, 4.4, and 4.5,

the questionnaire collected a number of measures describing buyer characteristics, purchase characteristics, and the decision process. Since some of the data are metric, some ordinal, and some nominal or categorical, several tools of statistical analysis are utilised to examine the differences between clusters. The metric and scaleable data are compared using ANOVA and several GLM multivariate post hoc multiple comparisons for observed means from SPSS Version 7. These include Tukey's honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. The categorical data are analysed using several crosstabs statistics in SPSS Version 7 for nominal data, including the Phi coefficient, Cramer's V, and the contingency coefficient, in order to determine if statistically significant differences exist between the clusters.

6.3.1 Buyer Characteristics and Branding Importance (P1)



Table 6.3 summarises the buyer characteristics of the overall sample. Four main hypotheses (H1 to H4) were tested regarding the general proposition (P1) of a relationship between buyer characteristics and the perception of branding and other attribute importance. These hypotheses are displayed diagrammatically in Figure 3.5. Each the hypotheses are presented and discussed in turn. The relationships between the variables were generally tested by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data.

TABLE 6.3

Buyer Characteristics of the Bearings Survey

Buyer Characteristic	<i>overall sample</i> n=116
Line of business	%
Automotive	36.5
machinery & engineering	40.0
electrical	12.2
heavy industry	11.3
Annual bearings purchases (in £)	249,469
Frequency of purchases (in weeks)	3.48
Bearings expertise <i>1=low to 7=very high</i>	
Personal technical expertise	3.37
Company technical expertise	4.71
Personal market knowledge	4.80
Perception of supplier differences <i>1=no differences</i> <i>7=extreme differences</i>	
screening stage	3.30
final stage	2.54
Perception of objectivity of evaluating the attributes <i>1=subjective to 7=objective</i>	
price	5.62
physical product properties	5.46
ordering & delivery	5.30
technical support services	4.83
prior experience with supplier	4.61
general reputation	4.61

H 1: Annual value of the buyer's purchases of the product category is positively related to the perception of branding importance.

Result: In the sample, the relationship between purchase value and the three branding attributes is positive, but is not statistically significant. Buyers who

purchase large amounts of bearings do not rate the importance of branding significantly higher than buyers who purchase smaller amounts of bearings. Thus, the hypothesis is not supported.

Other attributes - The annual value of bearings purchases is not highly correlated to perception of other attribute importance, with two exceptions. The annual value of bearings purchases and the importance of price had a statistically significant inverse relationship, with $R_s = -.156$ ($p=.049$). The higher the annual value of bearings purchase, the less important price was perceived to be, relative to other attributes. Also, purchase value and importance of technical support services had a statistically significant direct relationship, with $R_s = .294$ ($p=.001$). The higher the annual value of bearings purchases, the more important technical support services were perceived to be. No significant relationship was found between purchase value and the perceived importance of delivery, the working relationship, or physical product.

H 2: Perceived customer expertise is positively related to the perception of branding importance.

Result: Aspects of customer expertise are related to the perception of attribute importance. Three measures of customer expertise were evaluated in relation to perceived attribute importance. These include: personal technical expertise of the buyer, company technical expertise, and the buyer's knowledge of bearings suppliers and the bearings market. Of the three measures, the most significant relationships involve the buyer's market knowledge. The buyer's market knowledge was highly correlated to the perceived importance of all three

branding attributes, including how well known the supplier is ($p=.003$), reputation ($p=.006$), and prior purchases ($p=.011$). The higher the buyers perceived their knowledge of the bearings market, the more highly they perceived the importance of branding attributes. No statistically significant relationships were found between the company's technical expertise or the buyer's personal technical expertise and the importance of the branding attributes. Thus, the hypothesis is partially supported.

Other attributes - Market knowledge was highly correlated to the perceived importance of price ($p=.001$), the working relationship ($p=.034$), and technical support services ($p=.000$). The higher the buyers perceived their knowledge of the bearings market, the more highly they perceived the importance of branding attributes, price, technical support services, and the working relationship. Market knowledge was more related to attribute importance than the other measures of technical expertise. A statistically significant relationship was found between the *company's technical expertise* and the perceived importance of only one attribute, namely, technical support services ($p=.025$). No statistically significant relationships were found between the *buyer's personal technical expertise* and perceived importance of any of the attributes.

H 3: The less the perceived differences in suppliers on key attributes, the greater the importance of branding.

Result: The level of perceived supplier differentiation was not found to be highly related to the perception of branding importance. Both Collins (1977) and Parket (1972) hypothesised that branding is more important for less differentiated

offers, but this is not confirmed by the bearings survey data. In the survey, branding importance is not related to the perceived level of supplier differentiation. Thus, the hypothesis is not supported.

Other attributes - No statistically significant correlation was found between perception of supplier differentiation at the screening stage and other attribute importance. Only one attribute, physical product properties, was significantly and inversely related to supplier differentiation at the final decision stage ($R_s = -.164$, $p = .043$). This result can be interpreted as implying that the more suppliers are perceived to differ at the final decision stage, the less important physical product properties are perceived to be relative to other attributes. Overall, the perception of attribute importance is quite stable, and not related to the level of perceived supplier differentiation. One implication of this is that even if suppliers try new ways to differentiate themselves from their competitors, the key purchase attributes of ordering and delivery services, physical product, and price may remain the most salient to customers. Yet, given the nature of the relationship between perceived supplier differences and physical product, the result implies that branding attributes have the potential to play an important role when differences in suppliers are perceived to be high.

H 4: The more the perceived subjectivity of evaluating intangible attributes, the greater the importance of branding.

Result: The data indicate that buyers do recognise that evaluating various attributes of a product or brand involves a mixture of subjective and objective evaluation, or a mixture of “art” and “science”, as described in the interviews.

Table 6.3 includes a summary of the overall objectivity of the evaluations of the various attributes. Not surprisingly, price was perceived to be the attribute that is the most objectively evaluated (5.62), and *reputation* is the attribute that is perceived to be the least objectively evaluated (4.61). Yet, even reputation was perceived to be more objective than the midpoint value of 4.0 between subjective and objective. Reputation, prior experience, and technical support services were perceived to be the most subjective or intangible attributes. From interviews with buyers it is clear that some buyers perceive their previous experience with suppliers in narrow terms, such as the number of late or incomplete deliveries or the number of defective products, which can be relatively objectively measured, while others perceive the experience in a broader way, involving more subjective evaluations.

The data do support the notion of a range of tangibility and intangibility inherent in the pinwheel of industrial brand value. The more important branding attributes were perceived to be, the more objective the evaluations of the intangible aspects were perceived to be. The overall perceived attribute importance is summarised in Table 6.1. Table 6.4 presents the correlation between perceived importance and perceived objectivity of the attribute evaluations. This relationship between importance and objectivity reflects the comments made in the interviews that buyers make considerable efforts to find objective measures for even the most subjective aspects of the decision. Those who perceive the importance of branding appear to make an effort to find objective measures for branding. Thus, the hypothesis is partially supported.

TABLE 6.4**Branding Attributes and Perception of Objectivity of Evaluations****Bearings**

Spearman's rho correlation coefficient

	Objectivity of prior experience with the supplier (branding attribute)	Objectivity of reputation of the supplier (branding attribute)	Objectivity of technical support services
Importance of prior experience	.351 (p=.000)	.302 (p=.001)	.164 (p=.044)
Importance of reputation	.310 (p=.001)	.330 (p=.000)	.122 (p=.104)
Importance of how well known	.294 (p=.001)	.426 (p=.000)	.109 (p=.129)

**6.3.2 Purchase Characteristics and Branding Importance (P2)**

Table 6.5 presents a summary of the purchase characteristics of the sample.

Proposition 2 of the model proposes a relationship between purchase characteristics and the perceived importance of branding, and other attributes.

Three hypotheses (H6 to H8) were tested regarding this relationship. The relationship between the variables was generally tested by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data.

TABLE 6.5

Purchase Characteristics in the Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>
Perceived risk <i>1=no risk to 7=high risk</i>	
personal safety	2.28
financial	3.27
overall	3.14
How used	%
In a process	31.9
In a product	68.1
Buy class	%
New design	15.8
Modified design	7.9
Modified rebuy	7.9
Standard rebuy	68.4

H 6: The intended use of the product is related to the buyer's perception of branding importance. The importance of branding is expected to be higher for product inputs than for process inputs.

Result: There was no evidence of a link between intended use of the product, as measured, and the perception of importance of branding. Branding is not perceived to be more important for bearings purchases used in products to be sold on to others. Thus, the hypothesis is not supported.

Other attributes - No significant relationships were found between type of end use and any of the other attributes. Buyers do not appear to weight attributes higher according to the overall type of end use. This may reflect a general feeling that the end users' opinions on the product component are not important.

Alternatively, it may reflect a perception that the end user and the buyer share similar attitudes about the importance of product attributes. Further exploration of this issue is called for.

H 7: The type of purchase is related to the buyer's perception of attribute importance. Branding is expected to be more important for more complex purchase situations.

Result: Purchase types can be seen as existing on a continuum of purpose and complexity along the buyclass typology. Purchases used in a new design are the most complex, followed by use in a modified design, modified rebuy and standard rebuy. The type of purchase, using the buyclass typology, was found to be related to the one aspect of branding importance, the number of prior purchases. The more complex the purchase, the more important are the number of prior purchases from the manufacturer ($R_S = -.815, p=.024$). However, no significant relationship was found between the buyclass typologies and how well known the supplier is or the supplier's reputation. For these, branding was equally important for all types of purchases. Thus, the hypothesis is partially supported.

Other attributes - The more complex the purchase, the more important are technical support services ($R_S = -.166, p=.038$), and physical product properties ($R_S = -.150, p=.056$). These attributes are less important for more routine purchases. These findings reinforce prior research on the difficulty of interpreting analyses of the buyclass typology.

H 8: The level of perceived risk is related to the perception of branding importance. Branding is expected to be more important for riskier purchases.

Result: Perceived risk was measured in three ways, risk to personal safety, financial risk, and overall risk. None were significantly related to the perception of branding importance. The lack of this relationship may be at least partially explained by the low levels of perceived risk in the sample. Buyer perception of the riskiness of their most recent bearings purchase decision was relatively low overall, as summarised in Table 6.6, with a mean below the midpoint of the scale of 1=no risk to 7=high risk. For decisions with a high degree of perceived risk, other attributes such as branding may be more important. Thus, the hypothesis is not supported.

TABLE 6.6

Perceived Risk of Most Recent Bearings Purchase Decision

1=no risk to 7=high risk

Risk Measure	N	Min	Max	Mean	Std.Dev.
Personal safety	109	1	7	2.28	1.94
Financial	109	1	7	3.27	2.12
Overall	107	1	7	3.05	1.95

Other attributes - Two significant links were found. First, a relationship was found between perceived risk to personal safety and the importance of technical support services ($R_s = .264$, $p = .003$). Secondly, there was a strong relationship between overall risk and the importance of physical product properties ($R_s = .213$, $p = .014$). One interpretation of this is that technical support and physical product

properties are perceived in the sample as the attributes that best reduce the perceived risk associated with bearings purchases.

TABLE 6.7
Decision Process Characteristics in the Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>
Supplier type	%
distributor	52.6
manufacturer	47.4
No. of decision stages	%
two-stage	35.4
one-stage	64.6
Decision protocol used in screening stage	number
compensatory	n=54
hierarchical	17
none	26
both	20
some protocol used	9
	63 %
Decision protocol used in final stage	number
compensatory	n=113
hierarchical	27
none	43
both	55
some protocol used	12
	51 %

6.3.3 Decision Process and Branding Importance (P3 and P4)

Another central part of the model of industrial branding is the proposed relationship (P3) between decision process characteristics and the perception of branding importance. Table 6.7 summarises the decision process data of the sample. Two specific hypotheses (H9 and H10) are tested by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data.

H 9: Branding is less important to buyers purchasing from a distributor than directly from the manufacturer.

Result: Customers buying from a distributor and customers buying directly from the manufacturer did not significantly differ in perceived importance of branding. Whether they buy from a distributor or directly from a manufacturer, bearings customers generally agree on the importance of branding. Thus, the hypothesis is not supported.

Other attributes - Customers buying from a distributor and customers buying directly from the manufacturer exhibited several differences in perceived attribute importance. Technical support services are more important to customers buying directly from the manufacturer than to customers buying from a distributor ($R_s = .302, p = .000$). Physical product properties ($R_s = .126, p = .086$) and price ($R_s = .142, p = .060$) are more important to buyers who buy directly from the manufacturer. Overall, however, the attributes important to the decision were relatively consistent across bearings customers. Whether they buy from a distributor or directly from a manufacturer, bearings customers generally agree on what attributes are most important to the decision.

H10: Buyers using a higher involvement decision process perceive branding to be more important than buyers using a lower involvement process.

Result: Involvement in the decision process is measured in two ways, use of a one-stage or two-stage decision process, and use or not of a compensatory or hierarchical decision protocol. Higher involvement is signalled by the two-stage

decision process and/or use of a decision protocol. Lower involvement is represented by a one-stage decision process and/or no use of a decision protocol. Branding importance appears to be related to use of a higher involvement decision process. Although use of a two-stage process and importance of the branding attributes is not significantly related, use of a decision protocol and branding importance is. Use of a decision protocol is significantly correlated to how well known is the supplier ($R_s = .146$, $p=.059$), and to reputation ($R_s = .163$, $p=.040$). This indicates that buyers using higher involvement decision processes perceive branding to be more important than buyers using a lower involvement decision process. Thus, the hypothesis is supported.

Other attributes - The use of a two-stage process is significantly related to only one other attribute, price ($R_s=.259$, $p=.003$). Buyers using a two-stage decision process perceive price to be more important than buyers using a one-stage process. The use of more formal decision protocols, such as compensatory or hierarchical, is significantly related to the importance of several attributes. Use is correlated with price ($R_s = .147$, $p=.058$), physical product ($R_s = .193$, $p=.019$), and the working relationship ($R_s=.148$, $p=.057$). Buyers who use decision protocols value price, physical product, and the working relationship more highly than do buyers who use more informal decision protocols.

6.3.4 Choice and Branding Importance (P4)

Another central part of the model of industrial branding is the proposed relationship (P4) between the perception of branding importance and choice.

Three specific hypotheses (H11 to H13) test the relationship by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data. Table 6.8 summarises the choice characteristics in the sample.

TABLE 6.8
Choice Characteristics in the Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>
Number of suppliers in consideration set <i>mean</i>	4.37
Number of suppliers in choice set or purchased from <i>mean in most recent order</i>	1.66
Purchase loyalty for first choice <i>frequency of purchases from choice set</i> <i>1=never before</i> <i>7=very often</i>	6.05

H11: Buyer perception of branding importance is related to the brands chosen.

Result: The choice of brands can be summarised in several ways. One way is to separate brands chosen into two groups, the top two brands by market share (SKF and NSK/RHP), and all other brands. Another way is to group the top eight brands named in the survey (FAG, INA, Koyo, Nadella, NSK/RHP, NTN, SKF, and Timken), and place all other brands in the other group. Either way, the importance of branding was not significantly related to selection of the top two brands or top eight brands, with p-values ranging from .105 to .424. Buyers who view branding as highly important are not significantly more likely to purchase a top brand. Thus, the hypothesis is not supported.

Other attributes - Similarly, no significant relationship was found between other attribute importance and the choice of a top brand of bearings.

H12: Buyer perception of branding importance is positively related to the size of the consideration set and the choice set.

Result: The mean size of consideration set in the sample is 4.37, while the mean number of suppliers in the choice set is 1.66. Contrary to expectation, little relationship can be seen between attribute importance and size of consideration set. The most significant relationship is found between size of consideration set and the importance of how well known is the supplier ($R_S = -.192$, $p = .094$), and this indicates an inverse relationship. In contrast, a stronger relationship is found between the size of the choice set and the importance of branding. The number of suppliers chosen is related to how well known is the supplier ($R_S = .223$, $p = .012$), reputation ($R_S = .169$, $p = .045$), and number of prior purchases ($R_S = .126$, $p = .103$). Respondents who view the importance of branding more highly choose to purchase from more brands than do those who do not perceive branding to be important. Thus, the hypothesis is partially supported.



Other attributes: The only other significant relationship between attribute importance and number of suppliers is with the importance of ordering and delivery services ($R_S = .220$, $p = .013$). Buyers who highly perceive the importance of ordering and delivery services are likely to buy from more suppliers.

H13: Buyer perception of branding importance is positively related to the frequency of prior purchases of the brands in the choice set.

Result: The survey data reveal significant relationships between branding importance and the frequency of prior purchases from the choice set. Frequency

of prior purchases from the first choice supplier is significantly related to the importance of how well known is the supplier ($R_s = .227$, $p=.009$), reputation ($R_s = .127$, $p=.094$), and number of prior purchases ($R_s = .280$, $p=.002$). The frequency of prior purchases from the second choice supplier is significantly related to the importance of how well known is the supplier ($R_s = .185$, $p=.039$), and number of prior purchases ($R_s = .171$, $p=.052$). Respondents who highly view the importance of branding exhibit a higher purchase loyalty to their suppliers than do buyers who do not highly value the importance of branding. Thus, the hypothesis is supported.

Other attributes - The frequency of prior purchases from the first choice supplier is significantly related to the importance of ordering and delivery services ($R_s = .189$, $p=.024$), and the working relationship ($R_s = .218$, $p=.011$). Buyers who value ordering and delivery and the working relationship tend to demonstrate more purchase loyalty than do buyers who do not value these relationships as highly.

6.3.5 Summary of Branding Importance Findings

Overall, the analysis found evidence to support a number of the hypotheses specified in the preliminary *model of industrial branding*. Buyer characteristics, purchase characteristics, the decision process, and choice are related to the perception of branding importance. These findings are highly consistent with prior research in the area of organisational buying behaviour. Even though not all of the results were as hypothesised, the main contribution of the research is an

additional insight into the role of branding in the decision process. This is especially important since many of the hypothesised relationships have never before been tested empirically.

Branding can be as important to the small buyer as the large buyer (*H1*). The buyer's knowledge of the bearings market is highly correlated to the perceived importance of all three branding attributes (*H2*). This may imply that knowing more about the suppliers and their competitive environment encourages one to conclude that branding and other intangible attributes matter. The test of (*H3*) reveals that buyers to whom branding is important do not necessarily perceive greater differences in the suppliers. The role of branding in the decision depends partly on whether buyers view branding attributes as legitimate decision criteria. The results (*H4*) indicate that buyers who perceive branding to be important also perceive that the benefits of branding can be measured objectively, and have found ways to do so. Branding was expected to be more important for purchases used as product inputs than as process inputs (*H6*), but this is not supported by the results. Some support is evident for the hypothesis (*H7*) that branding is more important for the more complex buyclass purchases. Branding is seen as a less effective way to reduce perceived risk than technical support and physical product properties (*H8*), but further examinations of these relationships are necessary due to the relatively low level of perceived risk in the sample.

Buyers to whom branding is important are not more likely to purchase from a manufacturer than from a distributor (*H9*), so branding can be important in both types of purchase decisions. Branding importance is found to be greater for

buyers using a higher involvement decision process (*H10*). No support was found for the hypothesis (*H11*) that when branding considerations are important, buyers choose the top brands. Buyers who perceive branding to be important appear to keep an open mind about the most appropriate brand for their situation. These buyers do appear to rely on a larger consideration set and choice set (*H12*), yet exhibit higher levels of purchase loyalty (*H13*) to the brands they purchase from than do other buyers.

Table 6.9 summarises the findings and indicates whether the specific hypotheses are supported or partially supported (S), or are not supported (NS). These results support the main thesis that branding plays a more important role in industrial decision making than has generally been recognised. However, as is often the case, the results raise as many questions as they answer, and support the need for further research into related issues.

TABLE 6.9

Summary of Hypothesis Testing on Branding Importance

Bearings Survey

	<u>S</u>	<u>NS</u> *
<u>P1 Buyer characteristics and branding importance</u>		
Branding importance is positively related to:		
<i>H 1: Higher annual purchase value</i>		NS
<i>H 2: Higher customer expertise</i>	S	
<i>H 3: Greater perceived differences in suppliers</i>		NS
<i>H 4: Greater perceived subjectivity of evaluating attributes</i>	S	
<u>P2 Purchase characteristics and branding importance</u>		
Branding importance is positively related to:		
<i>H 6: Intended use as product input, not process input</i>		NS
<i>H 7: More complex purchase situations</i>	S	
<i>H 8: Level of perceived risk</i>		NS
<u>P3 Decision process and branding importance</u>		
Branding importance is positively related to:		
<i>H 9: Purchase from a manufacturer, not a distributor</i>		NS
<i>H 10: Using a higher involvement decision process</i>	S	
<u>P4 Choice and branding importance</u>		
Branding importance is positively related to:		
<i>H11: Choosing top brands</i>		NS
<i>H12: Larger consideration set and the choice set</i>	S	
<i>H13: Higher purchase loyalty</i>	S	

* S= supported or partially supported, NS = not supported

6.4 Analysis of General Buying Behaviour Relationships

Although not the main focus of the research, the survey data enables the testing of some of the widely accepted relationships of organisational buying behaviour, as summarised by propositions P5 to P8. Many of these form the foundation of accepted theory, but are not frequently tested empirically.

6.4.1 Buyer Characteristics and the Decision Process (P5)

H 14: Annual value of purchases of the product category is positively related to the formality and complexity of the buyer's decision process.

Result: Aspects of the decision process include whether the buyer uses: a two-stage or a one-stage decision process; numerical ratings or rankings in screening; any particular aspect to knock out suppliers from further consideration in the screening stage; numerical ratings or rankings in the final stage; and any particular aspect to knock out suppliers from further consideration in the final stage. Three significant relationships are found. The higher the value of bearings purchases, the more likely the buyer is to use a two-stage decision process ($p=.005$), the more likely the buyer is to use a knock out process during the screening stage ($p=.028$), and the more likely the buyer is to use numerical ratings or rankings during the final decision stage ($p=.000$). Thus, the hypothesis is supported.

H 15: Perceived expertise of the customer is positively related to the formality and complexity of the buyer's decision process.

Result: The three measures of customer expertise are examined in relation to the five aspects of the decision process. The analysis indicates that the higher the buyer's personal technical expertise on bearings, the more likely the buyer is to use numerical ratings or rankings in the screening stage ($p=.005$), and in the final decision stage ($p=.025$), and the more likely the buyer is to use a knock out process in the final stage ($p=.012$). The company's technical expertise had significant links to all five of the decision process aspects. The higher the company technical expertise, the more likely the buyer is to use a two-stage decision process ($p=.048$), to use numerical ratings or rankings during the screening stage ($p=.027$) and in the final decision stage ($p=.007$), and the more likely the buyer is to use a knock out process in the screening stage ($p=.040$) and in the final decision stage ($p=.002$). The buyer's knowledge of the bearings market was significantly related to three decision process aspects. The higher the market knowledge, the more likely the buyer is to use numerical ratings or rankings in the screening stage ($p=.004$) and in the final decision stage ($p=.000$), and to use a knock out process in the final decision stage ($p=.022$).

Customer expertise does appear to be related to various aspects of the buyer's decision process. Interestingly, buyer expertise is linked to increased formality or complexity of the decision process. There is no evidence that expertise encourages buyers to take short cuts in the decision process, or to take the decision less seriously. Thus, the hypothesis is supported.

H 16: Buyers perceive greater differences between suppliers at the screening stage than at the final decision stage.

Result: Buyers do perceive greater differences between suppliers on aspects important to the purchase decision at the screening stage than at the final decision stage. With 1=no differences and 7=extreme differences, the mean differences at the screening stage was 3.30, and 2.54 at the final decision stage. A t-test indicated this difference to be statistically significant ($p < .000$). Thus, the hypothesis is supported.

H 17: The greater the perceived differences in suppliers, the more likely buyers are to use a more formal or complex decision process.

Result: It was expected that the greater the perceived difference in suppliers at the screening stage, the more likely a formal decision process would be used at the screening stage. Similarly, it was expected that the greater the perceived difference in suppliers at the final stage, the more likely a formal decision process would be used at the final stage. Instead, a relationship was found between perceived differences at the screening stage and the use of a knock out decision process at the final decision stage ($p = .007$). The higher the perceived differences, the more likely a knock out process was used. Also, an inverse relationship was found ($p = .029$) between the use of a knock out decision process at the screening stage and perceived differences at the final stage. The use of a knock out decision process at the screening stage was linked to smaller perceived differences between suppliers at the final stage. This result indicates the need to further explore how buyers decide to use a particular decision process. The

results of this test were inconclusive, and not fully as expected. Thus, the hypothesis is partially supported.

H 19: Buyer perception of attribute importance in the screening stage differs from attribute importance in the final decision stage.

Result: Table 6.2 provides the data for this comparison. In the screening stage, physical product properties are the most important, with ordering and delivery services the second most important. In the final decision stage, these priorities were reversed, with ordering and delivery services the most important, and physical product properties second. In both stages, these were followed by price, working relationship, technical support services, general reputation, how well known is the supplier, and the number of prior purchases from the supplier. One interpretation of this is that in the final decision it is ordering and delivery services that tip the scales in the direction of one supplier over another. Thus, the hypothesis is supported.

❖ *H 20: The type of decision process utilised varies between the screening stage and final stage of the decision.*

Result: At the screening stage, 37 percent of the buyers indicated that they did not use a formal decision process, and 49 percent did not use a formal decision process at the final stage. This reinforces the findings of Woodside and Vyas (1987) and others, but contradicts the common assumption of many marketing textbooks. Of buyers who use a formal decision process, more used a knock out decision process than a numerical rating or ranking process. Buyers were more likely to use a formal decision process at the screening stage than at the final stage ($p=.000$). These results, taken from data in Table 6.7 and 6.8, and

summarised in Table 6.10, partially support Gensch's (1987) proposal that buyers are more likely to use a knock out or other hierarchical process at the screening stage, and a numerical rating or ranking scheme or other compensatory process at the final stage. Thus, the hypothesis is partially supported.

TABLE 6.10

Decision Process by Decision Stage in Bearings Survey

	SCREENING	FINAL
Numerical rating or ranking (compensatory)	31.5 %	24 %
Knock out process (hierarchical)	48 %	38 %
Both	16.5 %	11 %
None	37 %	49 %
Total	116.5 %	111 %

4

6.4.2 Purchase Characteristics and the Decision Process (P6)

H 21: The type of purchase is related to the decision process used. The more complex the purchase, the more likely the buyer is to use a more formal or complex decision process.

Result: No statistically significant relationships are found between the buyclass types and the decision process used. This finding reflects a common view in the literature that buyclass alone does not explain buyer behaviour. The underlying

reasons for a buyer using a particular decision process defy simple explanation and need further analysis. Thus, the hypothesis is not supported.

H 22: The level of perceived risk is related to the buyclass types of purchase. New designs are expected to be associated with higher perceived risk than are modified rebuys or straight rebuys.

Result: This survey collected data on three aspects of perceived risk: risk to personal safety, financial risk through recalls or downtime, and overall risk. The perceived risk of the purchase to personal safety is inversely related ($R_s = -.253$, $p=.004$) to buyclass. The more routine the purchase, the less perceived risk. The more complex the purchase, the higher the perceived risk. The notion of perceived risk is an important aspect of the buyclass typology as initially formulated. This finding reinforces that role or relationship. Thus, the hypothesis is supported.

H 23: The level of perceived risk is related to the perception of the decision process. The greater the perceived risk, the more likely a more formal or complex decision process will be used.

Result: No significant relationship is found between perceived risk and decision process utilised. Again, this may be at least partially explained by the relatively low levels of perceived risk in the sample. Or, it may be that the decision processes themselves are not perceived to be an effective way of reducing the perceived risk of bearings purchases. Thus, the hypothesis is not supported.

6.4.3 Summary

The bearings survey enables an insightful test of general organisational buying behaviour relationships. Evidence is found in support of all of the hypotheses concerning the relationship between buyer characteristics and the decision process utilised. In contrast, the hypotheses of the relationship between purchase characteristics and the decision process were not supported. This may indicate a need to develop better variables to represent meaningful purchase characteristics. Understanding these general relationships aids in the understanding of how branding enters into the decision process, and places the importance of branding into a broader context.

6.5 CLUSTERING FIRMS BY PERCEIVED IMPORTANCE OF ATTRIBUTES

A common way of looking at product benefits is to examine what buyers consider to be the most important aspects of the products or services on offer. K-means cluster analysis is a commonly accepted way of clustering firms. In addition, Lilien and Rangaswamy (1998) and others have suggested that using factor analysis to reduce data before doing cluster analysis for market segmentation purposes can be effective, especially when the results are compared to standard cluster analysis. A number of articles have reviewed and critiqued the use of cluster analysis and factor analysis in marketing (Arabie and Hubert 1993; Malhotra 1988; Punj and Stewart 1983; Saunders 1995). Consequently,

both “standard” and “tandem” cluster analyses were conducted and compared, as the following sections summarise.

6.5.1 Standard Cluster Analysis

Standard cluster analysis generated three clusters of firms, as shown in Table 6.11, with the greatest distances between final cluster centres between Cluster 1 and Cluster 2 (7.1337), and with more moderate distances between C1 and C3 (3.7802) and C2 and C3 (3.9878). To test the differences in the clusters’ perceived relative importance of the purchase attributes, several GLM multivariate post hoc multiple comparisons for observed means were conducted following ANOVA, using SPSS Version 7, including Tukey's honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. These tests of differences are summarised in Table 6.12.



The formation of the clusters reveals many interesting aspects. Differences between the clusters can be measured by the F-statistic, and its statistical significance is indicated by the p value, or power. The actual values of these measures is less important than their relative values. The clusters differ the least on the perceived importance of the physical product properties, with an F-statistic of 2.208 and a p-value of .136. As emphasised in the exploratory interviews, the importance of the physical product is a given, is uncontroversial and undisputed. Strongly significant differences with a p-value of .000, and with

F-statistics in a moderate range (9 to 15), were found amongst the firms on the importance of price, technical support services, ordering and delivery services, and the working relationship. Very large differences (F-statistics of 67 to 88) were found amongst the firms on the importance of the three branding attributes.

TABLE 6.11

Standard Cluster Analysis of Firms by Attribute Importance

Bearings Survey *

Attribute Importance	Sample n=116	Branding receptive Cluster 1 n=43	Low relevancy Cluster 2 n=16	High tangibility Cluster 3 n=57	F	p
Physical product	5.99	6.116	5.375	6.070	2.028	.136
Price	5.84	5.884	4.625	6.158	10.687	.000
Technical support services	5.01	5.465	3.375	5.123	14.761	.000
Ordering & delivery services	6.06	6.535	5.313	5.912	9.463	.000
Working relationship	5.13	5.767	4.125	4.930	9.013	.000
How well known	3.88	5.605	1.813	3.158	88.498	.000
Reputation	4.72	5.884	2.125	4.561	69.444	.000
Number of prior purchases	3.82	5.419	2.00	3.123	67.895	.000

- Means of perceived importance of attribute in final decision, on a scale of 1=fairly important to 7=extremely important.

TABLE 6.12

Results of Tests of Differences Between Standard Clusters

Bearings Survey

Perceived Importance of Attribute Importance	Branding Receptive	Low Relevancy	High Tangibility
	Cluster 1 (C1)	Cluster 2 (C2)	Cluster 3 (C3)
Ordering and delivery services	> C2 ^a > C3 ^a	< C1 ^a < C3 ^c	< C1 ^a > C2 ^c
Physical product properties	--	--	--
Price	> C2 ^a	< C1 ^a < C3 ^a	> C2 ^a
Technical support services	> C2 ^a	< C1 ^a < C3 ^a	> C2 ^a
Quality of the working relationship	> C2 ^a > C3 ^a	< C1 ^a < C3 ^c	< C1 ^a > C2 ^c
How well known the supplier is	> C2 ^a > C3 ^a	< C1 ^a < C3 ^a	< C1 ^a > C2 ^a
General reputation of supplier	> C2 ^a > C3 ^a	< C1 ^a < C3 ^a	< C1 ^a > C2 ^a
Number of prior purchases from supplier	> C2 ^a > C3 ^a	< C1 ^a < C3 ^a	< C1 ^a > C2 ^a

^a $p < .01$ ^b $p < .05$ ^c $p < .10$

Firms in Cluster 1 can be considered *branding receptive*, and account for 37 percent of the sample, or 43 cases. Branding receptive firms perceived all three branding elements to be of significantly higher importance ($p < .01$) than did firms in the other two clusters. As explained in Chapter 3, the branding element consists of: how well known is the manufacturer, a measure of brand name awareness; general reputation of the manufacturer, a measure of brand image or reputation, and the number of prior purchases from the manufacturer, an indication of brand purchase loyalty. Branding receptive firms also perceived a

significantly higher importance ($p < .01$) of the service aspects of the quality of the ordering and delivery service and the quality of the working relationship. As the interviews revealed, the often-lengthy lead times for bearings purchases emphasise the importance of ordering and delivery service in determining the state of working relations.

Cluster 2 can be described as one of *low relevancy*. Bearings purchases have low relevance to these firms, which account for 14 percent of the sample, or 16 cases. To these firms, none of the attributes were perceived to be more important than in other clusters. Price, technical support service, how well known is the supplier, general reputation of the supplier, and number of prior purchases from the supplier were statistically lower in perceived importance ($p < .01$) than in both the other clusters.

Cluster 3 firms can be characterised as *high tangibility* firms for bearings purchases, and constituted 49 percent of the sample, or 57 cases. To these firms, the branding and more intangible aspects of the offer were significantly less important ($p < .01$) than to the branding receptive firms. The more tangible aspects such as price and physical product properties were most highly rated, although they were not significantly higher than in the branding receptive cluster.

The formation and composition of these clusters indicates that the perceived importance of branding attributes can be a powerful basis for clustering customers. To further examine the data and to evaluate the reliability of the

cluster analysis, the data was used for a tandem clustering analysis, as described in the following section.

6.5.2 Tandem Cluster Analysis

A common way of looking at benefits is to examine what buyers consider to be the most important aspects of the products or services on offer. Factor analysis was conducted on these key attributes of the decision. For reasons explained previously, the attribute “coverage”, was not included in the factor analysis reported in Table 6.13. Cluster analysis of the attributes generated similar and supportive results, which were consistent across various clustering methods such as average linkage and Ward's linkage.

Principal component factor analysis with varimax rotation extracted three clear factors, as indicated by eigenvalues and factor score coefficients in Table 6.13. The number of factors extracted was determined on the basis of the latent root test (Churchill 1995). This specifies that each factor must “represent” at least one variable, measured by the size of its eigenvalue. In this analysis, the third factor has an eigenvalue of 1.085, indicating that the number of factors to be extracted is three.

TABLE 6.13**Factor Analysis of the Perceived Importance of Attributes****Bearings Survey**

Principal component analysis, varimax rotation.

Attribute	Factor 1: <i>Branding</i>	Factor 2: <i>Service</i>	Factor 3: <i>Technical quality</i>	Communality
Price	-0.03275	.57971	.15322	.347
Physical product properties	-0.00488	.02403	<u>.90186</u>	.804
Technical support services	.26393	.30173	<u>.63017</u>	.560
Delivery and ordering services	.11627	<u>.66990</u>	.16771	.491
Working relationship	.24108	<u>.81516</u>	-.09525	.734
How well known	<u>.89447</u>	.06535	.05529	.807
Reputation	<u>.85540</u>	.06892	.24521	.795
Prior purchases	<u>.79209</u>	.17920	-.02176	.661
% of variance	35.2	16.5	13.6	
Eigenvalue	2.818	1.316	1.085	

The first of these can be considered the *branding* factor (eigenvalue = 2.82), as it is composed of the three branding elements. This factor explains 35.2 percent of the variation in the data. General name awareness, in the form of how well known is the manufacturer, featured most strongly, with a factor score coefficient

of .895. The general reputation of the manufacturer (.855) and the number of prior purchases from the manufacturer (.792) also featured strongly.

The second factor can be considered the *service* factor (eigenvalue = 1.32). The service factor accounts for 16.5 percent of the variation in the data. It includes measures of the quality of the ordering and delivery services (.670) and the quality of the working relationship (.815). For many industrial products, especially those, like bearings, which often require lengthy lead times, the ordering and delivery service plays a key role in determining the state of working relations.

Price also features in the service factor, but not as strongly (.580) as did the other two aspects. The role of price merits additional consideration. During the exploratory interviews, bearings manufacturers were asked what aspects of the purchase were most important to their customers. The manufacturers consistently mentioned price first, yet in the customer survey, price came in third in perceived importance. Respondents rated ordering and delivery services and physical product properties more highly. One-way ANOVA of price across the clusters indicates that the difference in importance of price across the clusters was not statistically significant ($F= 1.572$, $p=.212$). This lack of variation and the large variation with the clusters can explain why price did not feature more strongly in the factor analysis.

The third factor, *technical quality* (eigenvalue = 1.09), incorporates two aspects of quality. The tangible quality of the physical product properties (.902), and the

intangible quality of the technical support provided by the vendor (.630) combine to create the factor. This factor accounts for 13.6 percent of the variation in the data.

TABLE 6.14

Tandem Cluster Analysis of Firms by Factor Scores, Bearings survey

Final centroids

Factor	Branding receptive Cluster 1	Low Relevancy Cluster 2	High Tangibility Cluster 3
Branding Factor	<u>.7619</u>	-.0739	<u>-.9044</u>
Service Factor	-.1286	-.2149	.2857
Technical Quality Factor	.3610	<u>-1.4142</u>	.3610
percentage of cases	44%	21%	35%
number of cases	51	24	41

The next step involved clustering the firms by the factor scores. This tandem clustering resulted in three clusters quite similar to those of the standard cluster analysis, as summarised in Table 6.14. To test the differences between the clusters, several GLM multivariate post hoc multiple comparisons for observed means were conducted using SPSS Version 7, including Tukey's honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. Table 6.15 presents the summary of means of perceived attribute importance of the sample overall and of each of the three tandem clusters.

TABLE 6.15**Summary of Means of Perceived Attribute Importance by Tandem Cluster****Bearings Survey**

Perceived Importance of Benefit Attributes	Overall n=116	Branding Receptive Cluster 1 n=51	Low Relevancy Cluster 2 n=24	High Tangibility Cluster 3 n=41
Ordering and delivery services	6.06	6.18	5.54	6.22
Physical product properties	5.99	6.47	4.00	6.56
Price	5.84	5.82	5.50	6.07
Technical support services	5.01	5.51	3.96	5.00
Quality of the working relationship	5.13	5.16	4.96	5.20
How well known the supplier is	3.88	5.25	3.50	2.39
General reputation of supplier	4.72	5.88	4.17	3.59
Number of prior purchases from supplier	3.82	4.75	3.54	2.83

1= fairly important to 7=extremely important

As with the standard cluster analysis, a *branding receptive* cluster emerged. The centroid analysis features a large positive value for the branding factor (.7619). Evaluations of the importance of all three branding elements were significantly higher ($p < .01$) than in either of the other clusters. In this cluster, conditions may be most conducive to branding messages.

Given that this cluster accounted for 44 percent of the sample (51 firms), it is especially important to determine what else is important to firms within this

cluster. Physical product properties was the most important attribute, followed by ordering and delivery, and price. The perceived importance of ordering and delivery services was significantly more important in this cluster than in the low relevancy cluster (C2). However, in contrast to the standard cluster analysis, quality of the working relationship was not found to be significantly more important than in either of the other clusters. Technical support services had the highest importance mean of the three clusters. This was significantly higher than in the low relevancy cluster, but not significantly higher than in the high tangibility cluster (C2).

The *low relevancy* firm cluster accounted for 21 percent of the sample (24 firms). The cluster's perception of attribute importance was generally lower than in the other clusters. The centroid analysis indicated a high negative value for technical quality (-1.4142), with no high centroid positives. As technical quality clearly was not a priority, it was not surprising that the cluster valuations of physical product properties and technical support services were significantly lower ($p < .01$) than in either of the other clusters.

It is important to determine what firms in this cluster do perceive as important. As in the standard cluster analysis, no attribute was valued more highly than in the other clusters. Ordering and delivery service was the most highly valued attribute, yet this importance rating was significantly lower than the levels in the other two clusters ($p < .05$). Quality of the working relationship had the lowest mean of the sample, but this was not statistically significant. Finally, the three measures of branding importance were significantly lower than in the branding

receptive cluster, but not significantly greater than in the high tangibility cluster.

Overall, the main aspects of the bearings purchase were of low importance or relevance to firms in this cluster.

The *high tangibility* firm cluster accounted for 35 percent of sample (41 firms). The centroids in this cluster had a large negative value for the branding factor (-.9044). The cluster's evaluations of each the three branding elements had the lowest mean values of the clusters. These were significantly lower ($p < .01$) than in the branding receptive cluster, but not significantly lower than in the low relevancy cluster. The cluster centroids analysis provided few clues as to what firms in the cluster valued highly. Further analysis revealed that firms in the cluster rated the importance of physical product properties significantly higher ($p < .01$) than in the low relevancy cluster, but not significantly higher than in the brand receptive cluster. Similarly, ordering and delivery services ($p < .05$) and technical support services ($p < .01$) were rated significantly higher than in the low relevancy cluster, but not significantly higher than in the brand receptive cluster. Despite having the highest mean importance value for price (6.07), this was not significantly higher than in the other clusters. Cluster evaluations of each of the three branding elements had the lowest mean values of the clusters. How well known is the supplier was significantly lower in importance than in either of the two other clusters ($p < .01$). Reputation and number of prior purchases were both significantly lower in importance than for the branding receptive cluster ($p < .01$), while the differences with the low relevancy cluster were not as strong ($p = .08$). Overall, evaluations in this cluster generally emphasised the physical,

tangible and directly measurable aspects of the product such as price, and minimised the importance of intangible or branding aspects.

TABLE 6.16
Results of Tests of Differences Between Tandem Clusters
Bearings Survey

Perceived Importance of Attribute Importance	Branding Receptive	Low Relevancy	High Tangibility
	Cluster 1 (C1)	Cluster 2 (C2)	Cluster 3 (C3)
Ordering and delivery services	> C2 ^b	< C3 ^b < C1 ^b	> C2 ^b
Physical product properties	> C2 ^b	< C3 ^a < C1 ^a	> C2 ^a
Price	--	--	--
Technical support services	> C2 ^b	< C3 ^a < C1 ^a	> C2 ^a
Quality of the working relationship	--	--	--
How well known the supplier is	> C2 ^a > C3 ^a	< C1 ^a > C3 ^a	< C2 ^a < C1 ^a
General reputation of supplier	> C2 ^a > C3 ^a	< C1 ^a > C3 ^c	< C2 ^c < C1 ^a
Number of prior purchases from supplier	> C2 ^a > C3 ^a	< C1 ^a > C3 ^c	< C2 ^c < C2 ^a

^a $p < .01$

^b $p < .05$

^c $p < .10$

Table 6.16 summarises the results of the tests of differences between the tandem clusters. No significant differences were found between the clusters on the importance of price or the quality of the working relationship. The three

branding attributes appear to have stimulated the greatest number of significant differences amongst the clusters. Important differences are also found on the importance of ordering and delivery services, physical product properties, and technical support services.

6.5.3 Comparison of Clustering Results

The standard clustering and tandem clustering approaches generated very similar findings, and can be considered complementary. Three similar clusters were generated, which can be described as branding receptive, low relevancy, and high tangibility. Table 6.17 compares the distribution of these segments resulting from the two analytic methods. A chi-square test revealed no statistically significant difference between the clusters at the .05 level. Differences were significant at the .10 level.

TABLE 6.17

Comparison of Customer Segments in Bearings Survey

Segments	Standard Clustering % of sample	Tandem Clustering % of sample
Branding receptive	37	44
Low relevancy	14	21
High tangibility	<u>49</u> 100	<u>35</u> 100

$$X^2 = 4.893$$

The tandem clustering generated fewer significant differences between the clusters. Prior research has also surfaced this problem, which is generally attributed to the data reduction involved. Also, although the end results of the cluster analysis appear quite similar, it is important to note that the tandem clustering approach caused 38 percent of the firms in the sample to change cluster membership. This was calculated by noting the cluster of each firm following the standard clustering, and comparing it to the cluster membership after tandem clustering. This high level of changes in cluster membership may indicate the existence of some overlap between clusters, which depends on the particular purchase decision. This finding is consistent with previous research, and is one reason why tandem clustering has been criticised in the past, as it complicates the interpretation of results. Discrepancies between the standard and tandem clustering approaches increase the relevance and importance of further analysis of the buyer, purchase and decision process characteristics of the firms in the three clusters.

6

The clusters of branding receptive, low relevancy and high tangibility have strong conceptual appeal. The clusters reflect strong differences in how customers perceive the importance of branding and other intangible attributes. Recognition of these differences is an important first step in developing strong and effective industrial branding strategies, as Chapter 8 details. However, it is fair to say that the clusters will have greater practical value if firms are able to identify how the clusters relate to their customer base. The cognitive aspects of what is important to buyers should ideally be linked to characteristics that are easily accessible and recognisable to vendors.

6.6 DISTINGUISHING CHARACTERISTICS OF THE CLUSTERS

The next step of the research is to move from the more general analysis of the purchase situation to an analysis of the distinguishing characteristics of the three previously identified clusters. Since the importance of branding played an important role in determining the clusters, it is important to ascertain whether companies within a cluster share identifiable characteristics that will facilitate accessibility. This analysis involves identifying discernible or distinguishing features of each of the three firm clusters by using the data collected on buyer, purchase, and decision process characteristics. The objective is to analyse the links between the benefit importance clusters and the more accessible and discernible buyer and purchase characteristics. Understanding these links can facilitate the development of customised marketing approaches.

The following sections present the results of the analyses of the distinguishing characteristics. For the metric and scaleable variables, ANOVA, followed by several GLM multivariate post hoc multiple comparisons for observed means were conducted using SPSS Version 7, including Tukey's honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. The categorical data are analysed using several crosstabs statistics in SPSS Version 7 for nominal data, including the Phi coefficient, Cramer's V, and the contingency coefficient.

6.6.1 Buyer Characteristics by Cluster

Buyer characteristics were examined by cluster for both the standard cluster (Table 6.18) and tandem cluster (Table 6.19) analysis.

TABLE 6.18

Buyer Characteristics by Standard Cluster in Bearings Survey

Buyer Characteristic	Overall Sample n=116	branding receptive cluster 1 n=43	low relevancy cluster 2 n=16	high tangibility cluster 3 n=57
Line of business	%	%	%	%
automotive	36.5	31.0	43.75	38.6
machinery & engineering	40.0	45.2	25.0	40.3
electrical	12.2	11.9	12.5	12.3
heavy industry	11.3	11.9	18.75	8.8
Annual bearings purchases (in £)	249,469	269,560	119,649	271,946
Frequency of purchases (in weeks)	3.48	2.77	4.50	3.74
Bearings expertise <i>1=low to 7=very high</i>				
Personal technical expertise	3.37	3.64	3.38	3.16
Company technical expertise	4.71	4.79	4.44	4.73
Personal market knowledge	4.80	5.16	4.19	4.70
Perception of supplier differences <i>1=no differences 7=extreme differences</i>				
screening stage	3.30	3.57	3.57	3.0
final stage	2.54	2.64	2.60	2.44
Perception of subjectivity of evaluating the attributes <i>1=subjective to 7=objective</i>				
ordering & delivery	5.30	5.58	4.86	5.21
physical product properties	5.46	5.20	5.08	5.73
price	5.62	5.59	5.29	5.73
technical support services	4.83	5.10	3.93	4.86
prior experience with supplier	4.61	5.88	3.92	4.89
general reputation	4.61	5.40	3.29	4.38

TABLE 6.19

Buyer Characteristics by Tandem Cluster in Bearings Survey

Buyer Characteristic	Overall Sample n=116	branding receptive cluster 1 n=51	low relevancy cluster 2 n=24	high tangibility cluster 3 n=41
Line of business	%	%	%	%
automotive	36.5	36.0	37.5	36.6
machinery & engineering	40.0	46.0	29.2	39.0
electrical	12.2	10.0	16.7	12.2
heavy industry	11.3	8.0	16.7	12.2
Annual bearings purchases (in £)	249,469	391,020	80,435	164,051
Frequency of purchases (in weeks)	3.48	3.21	4.56	3.20
Bearings expertise 1=low to 7=very high				
Personal technical expertise	3.37	3.50	2.96	3.45
Company technical expertise	4.71	4.96	4.29	4.65
Personal market knowledge	4.80	5.06	4.42	4.70
Perception of supplier differences 1=no differences 7=extreme differences				
screening stage	3.30	3.38	3.67	2.94
final stage	2.54	2.43	3.04	2.37
Perception of subjectivity of evaluating the attributes 1=subjective to 7=objective				
ordering & delivery	5.30	5.39	5.59	5.03
physical product properties	5.46	5.35	4.76	5.97
price	5.62	5.60	5.38	5.77
technical support services	4.83	5.02	4.45	4.79
prior experience with supplier	4.61	5.57	4.59	4.89
general reputation	4.61	5.12	4.59	3.97

Line of business. Although the exploratory interviews indicated that segmenting by line of business and volume of purchases remains a common industrial practice, the clusters did not significantly vary along these characteristics.

Roughly speaking, about one-third of the respondents were in automotive related

sectors, one-third in machinery and engineering, and one-third in electrical or heavy industry sectors.

Annual bearings purchases. Segmentation by annual value of purchases is another common practice. The branding and high tangibility clusters had mean values higher than the overall sample mean of £250,000, while the low relevancy cluster had annual purchases of half that amount. Even so, due to within cluster variation, the differences between the clusters were not statistically significant.

Frequency of bearings purchases. Firms in the branding receptive cluster purchase bearings the most frequently, with purchases about every 3 weeks. Firms in the low relevancy cluster purchased bearings the least frequently, and firms in the high tangibility cluster in the middle. Although these differences were not statistically significant, the ordering of purchase frequency was consistent in the standard and tandem cluster analysis. The annual value of bearings purchases follow similar patterns.

Bearings expertise. Both the standard and tandem cluster analysis indicated that firms in the branding receptive cluster have the highest levels of all three aspects of bearings expertise. In the standard clusters, firms in the branding receptive cluster perceived their knowledge of the bearings market to be significantly higher ($p < .05$) than in both the other clusters. Firms in the branding receptive tandem cluster perceived their knowledge of the bearings market to be significantly higher ($p < .05$) than the low relevancy tandem cluster only.

Perception of supplier differences. Not surprisingly, buyers in all three clusters perceived a greater difference ($p < .01$) between suppliers at the screening phase of the decision than at the final phase. Although the differences were not statistically significant, firms in the low relevancy clusters generally perceived the greatest differences between suppliers, both at the screening and final decision stages. Firms in the branding receptive clusters generally perceived the least degree of differences between the suppliers.

Perception of subjectivity of evaluating the attributes. Not only did firms in the standard branding receptive cluster value the importance of prior purchases and general reputation more highly than the other clusters, but they viewed that evaluations of these attributes were more objective ($p < .01$) than did both of the other clusters. Firms in the high tangibility cluster viewed their evaluations of physical product properties to be more objective ($p = .05$) than did firms in the branding receptive cluster. They evaluated the objectivity of the attributes of prior purchases, reputation and technical support to be higher ($p < .05$) than did firms in the low relevancy cluster.

Fewer significant differences were found after tandem clustering. After tandem clustering, the branding receptive firms evaluated the number of prior purchases to be more objective ($p < .05$) than did those in the low relevancy tandem cluster, and evaluated reputation to be more objective ($p < .05$) than did the high tangibility tandem cluster. Firms in the high tangibility tandem cluster viewed their evaluations of physical product properties to be more objective ($p < .05$) than did firms in the other tandem clusters.

6.6.2 Purchase Characteristics by Cluster

Purchase characteristics were examined by cluster for both the standard cluster and tandem cluster analysis. Table 6.20 summarises the purchase characteristics by standard cluster, with tandem cluster results presented in Table 6.21.

TABLE 6.20
Purchase Characteristics by Standard Cluster in Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>	<i>branding receptive Cluster 1 n=43</i>	<i>low relevancy Cluster 2 n=16</i>	<i>high tangibility Cluster 3 n=57</i>
Perceived risk <i>1=no risk to 7=high risk</i>				
personal safety	2.28	2.51	1.81	2.26
financial	3.27	3.53	2.38	3.34
overall	3.14	3.45	2.56	3.08
How used	%	%	%	%
in a process	31.9	29.3	18.8	37.5
in a product	68.1	70.7	81.2	62.5
Buy class	%	%	%	%
new design	15.8	26.2	6.2	10.7
modified design	7.9	7.1	12.5	7.1
modified rebuy	7.9	4.8	18.8	7.1
standard rebuy	68.4	61.9	62.5	75.0

TABLE 6.21

Purchase Characteristics by Tandem Cluster in Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>	<i>branding receptive Cluster 1 n=51</i>	<i>low relevancy Cluster 2 n=24</i>	<i>high tangibility Cluster 3 n=41</i>
Perceived risk <i>1=no risk to 7=high risk</i>				
personal safety	2.28	2.57	1.95	2.13
financial	3.27	3.55	3.00	3.08
overall	3.14	3.60	2.68	2.81
How used	%	%	%	%
in a process	31.9	36.7	41.7	20.0
in a product	68.1	63.3	58.3	80.0
Buy class	%	%	%	%
new design	15.8	22.0	8.3	12.5
modified design	7.9	4.0	8.3	12.5
modified rebuy	7.9	8.0	4.2	10.0
standard rebuy	68.4	66.0	79.2	65.0

Perceived risk. As previous sections discussed, the overall levels of perceived risk in the sample were relatively low, which hinders the realisation of statistical differences. In both the standard and tandem clusters, firms in the branding receptive cluster had the highest mean values of all three measures of perceived risk, and firms in the low relevancy cluster had the lowest mean values. The branding receptive tandem cluster had statistically higher ($p < .10$) perceived overall risk than both of the other clusters.

How used. In the sample overall, approximately one-third of the purchases were used for a manufacturing process, while two-thirds were incorporated into another product for further sale. Firms in the branding receptive clusters generally reflected this overall proportion, while firms in the other two clusters

showed considerably more variation. For example, firms in the high tangibility cluster went from roughly a 40%/60% split in the standard clusters to a 20%/80% split in the tandem clusters. The low relevancy firms showed a similar variation. Thus, this aspect seems to have been especially affected when 38 percent of the firms changed cluster membership between standard and tandem clustering.

Buy class. Standard rebuys were heavily represented in the sample, accounting for 68 percent of the purchases overall. The biggest difference between the clusters was apparent with the number of purchases for a new design. In percentage terms, firms in the branding receptive cluster had twice as many new design purchases as firms in the high tangibility cluster, and three to four times as many as in the low relevancy cluster. Due to within cluster variation, this difference was not statistically significant.

6.6.3 Decision Process and Choice Characteristics by Cluster



Decision process and choice characteristics were examined by cluster for both the standard cluster and tandem cluster analysis. Table 6.22 summarises the decision process and choice characteristics by standard cluster, with tandem cluster results in Table 6.23.

TABLE 6.22

Decision Process and Choice Characteristics by Standard Cluster

Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>	<i>branding receptive Cluster 1 n=43</i>	<i>low relevancy Cluster 2 n=16</i>	<i>high tangibility Cluster 3 n=57</i>
Supplier type	%	%	%	%
distributor	52.6	53.5	56.2	50.9
manufacturer	47.4	46.5	43.8	49.1
No. of decision stages	%	%	%	%
two-stage	35.4	32.5	31.2	38.6
one-stage	64.6	67.5	68.8	61.4
Decision protocol used in screening stage	Number n=54	number n=22	number n=11	number n=21
compensatory	17	10	0	7
hierarchical	26	10	3	13
none	20	6	8	6
both	9	4	0	5
some protocol used	63 %	73 %	27 %	71 %
Decision protocol used in final stage	Number n=113	number n=42	number n=18	number n=53
compensatory	27	14	1	12
hierarchical	43	17	7	19
none	55	17	10	28
both	12	6	0	6
some protocol used	51 %	60%	44 %	47 %
Number of suppliers in consideration set <i>mean</i>	4.37	4.20	4.67	4.43
Number of suppliers in choice set or purchased from <i>mean in most recent order</i>	1.66	1.94	1.55	1.50
Purchase loyalty for first choice <i>frequency of purchases from choice set 1=never before 7=very often</i>	6.05	6.36	6.00	5.84

TABLE 6.23

Decision Process and Choice Characteristics by Tandem Cluster

Bearings Survey

<i>Characteristic</i>	<i>Overall Sample n=116</i>	<i>branding receptive Cluster 1 n=51</i>	<i>low relevancy Cluster 2 n=24</i>	<i>high tangibility Cluster 3 n=41</i>
Supplier type	%	%	%	%
distributor	52.6	51.0	62.5	48.8
manufacturer	47.4	49.0	37.5	51.2
No. of decision stages	%	%	%	%
two-stage	35.4	32.7	37.5	37.5
one-stage	64.6	67.3	62.5	62.5
Decision protocol used in screening stage	Number n=54	number n=24	number n=13	number n=17
compensatory	17	11	1	5
hierarchical	26	11	5	10
none	20	7	7	6
both	9	5	0	4
some protocol used	63 %	58 %	46 %	65 %
Decision protocol used in final stage	Number n=113	number n=50	number n=23	number n=40
compensatory	27	17	3	7
hierarchical	43	22	5	16
none	55	20	15	20
both	12	9	0	3
some protocol used	51 %	60 %	35 %	50 %
Number of suppliers in consideration set mean	4.37	4.09	4.09	4.94
Number of suppliers in choice set or purchased from mean in most recent order	1.66	1.83	1.74	1.41
Purchase loyalty for first choice frequency of purchases from choice set 1=never before 7=very often	6.05	6.34	5.67	5.92

Supplier type. The sample reflected a good mixture of customers who buy bearings directly from the manufacturer and those who buy through a distributor. This was fairly consistent across the clusters. Firms in the low relevancy cluster tended to purchase a higher proportion of bearings through a distributor.

Number of decision stages. Few differences in the number of decision stages used by buyers were apparent across the clusters. Roughly one-third of the buyers indicated that they use a two-stage decision process, involving a screening and a final decision stage. Two-thirds of the buyers used a simpler one-stage process.

Decision protocols used in the screening stage. In the sample overall, 63 percent of the buyers indicated that they used either of the two kinds of decision protocols (rating or ranking and the knock out process) at the screening stage. The standard cluster results indicated that a higher proportion of branding receptive buyers used a formal process, while the tandem cluster results indicated that it was buyers in the high tangibility cluster that were most likely to use a formal process. Compensatory processes were more popular with branding receptive buyers, and high tangibility buyers preferred hierarchical processes. The results indicated that branding receptive firms are significantly ($p < .05$) more likely to formally numerically rate or rank suppliers at the screening stage than are the buyers in both of the other clusters. Buyers in the low relevancy cluster are the least likely to use a formal decision process at the screening stage.

Decision protocols used in the final stage. Similar results were found regarding the final stage. In the sample overall, 51 percent of the buyers indicated that they used either of the two kinds of decision protocols (rating or ranking and the knock out process) at the final stage, understandably lower than in the screening stage. The standard and tandem cluster results indicated that branding receptive buyers had the highest proportion of use of a formal process. Compensatory processes were more popular with branding receptive buyers, and high tangibility buyers preferred hierarchical processes.

Buyers in the branding receptive cluster are also significantly ($p < .10$) more likely to formally numerically rate or rank suppliers at the final stage than are other buyers. Again, this may reflect a higher level of involvement in the purchase and formality of approach by branding receptive firms.

Number of suppliers in consideration set. Firms in the sample typically considered four to five bearings suppliers. The tandem cluster analysis found that high tangibility firms considered significantly more firms ($p < .05$) than did branding receptive firms. However, in the standard cluster analysis, it was the low relevancy firms that considered the highest number of firms. This discrepancy may again be explained by potential overlap between the firms in these two clusters along some aspects.

Number of suppliers purchased from. Firms in the sample generally purchased from one to two firms in their most recent order, with a sample mean of 1.66. Both clustering analyses indicated that firms in the branding receptive cluster used significantly more suppliers ($p < .05$) for the most recent purchase than in

the high tangibility cluster. More high tangibility firms single-sourced their order than did firms in the other clusters.

Purchase loyalty for first choice supplier. Firms in the sample obviously tend to rely on suppliers from whom they have purchased previously. Firms had frequently purchased from the first supplier used in the most recent purchase, with an overall mean of 6.05 on a scale of 1 = never before to 7 = very often. Branding receptive firms had the highest mean value. This is an interesting result, especially when compared to the previous result regarding the number of suppliers purchased from. The standard clustering indicated that branding receptive firms had significantly more ($p < .05$) previous purchases from the suppliers in their final choice set than did firms in the high tangibility cluster. The tandem clustering indicated that branding receptive firms purchased more from the choice set than did firms in the low relevancy cluster ($p < .05$). One interpretation of this is that branding receptive buyers may utilise more suppliers than other buyer types, but exhibit more purchase loyalty to them. This could imply a practice of developing and maintaining a buyer-supplier relationship with a few key bearings suppliers.

6.6.4 Summary and Validity of Cluster Analysis

The cluster analysis revealed a number of important and practical differences between the clusters. Many of the differences between the clusters on the various characteristics were nominal or apparent, yet not statistically significant. Following established guidelines (Saunders 1994) as outlined in Chapter 4, the validity of the clusters were tested as an integral part of the research. The

internal validity of the clusters was examined by a series of cross tabulations of the clusters against important variables. The external validity of the clusters was examined by the comprehensive profiling or description of the characteristics of each of the three clusters, and the tests for significant difference. The replicability of the clusters was tested through the use of a simple split sample to test for the stability and validity of clusters. The sample was split in half randomly several times, followed by cluster analysis on the basis of attribute importance. The analysis consistently resulted in three clusters, with one cluster appearing to be a branding receptive cluster, one a high tangibility cluster, and one a low relevancy cluster. The final level of validity, operational validity, requires the results to be managerially useful. That aim has indeed driven the analysis, with managerial implications more fully discussed in Chapter 8.

Tables 6.24 and 6.25 summarise the significant differences between the clusters.

It is appropriate to re-examine the insights gained from prior research and the exploratory interviews, and to place the survey results in a broader context.

The typology emerging from the interviews (Table 5.1) identified three types of buyers, purchases and decision processes in the words of the interviewees.

Revisiting the typology reveals close parallels to the empirical findings discussed in the previous sections. Table 6.26 brings together the typologies of Table 5.1 with the numerous empirical findings. This integrated approach provides an insightful way of describing the clusters, and a way of interpreting the findings using the terminology of the qualitative research.

TABLE 6.24

Summary of Distinguishing Buyer Characteristics of Clusters

Bearings Survey

Buyer Characteristics	<i>Branding Receptive (C1)</i>	<i>Low Relevancy (C2)</i>	<i>High Tangibility (C3)</i>
Line of business	Cross-section	cross-section	cross-section
Annual value of bearings purchases	> £250 K	< £250 K	> £250 K
Frequency of bearings purchases	Every 2-4 wks.	every 4-5 wks.	every 3-4 wks.
Bearings expertise	Highest of the sample	lowest of sample	moderate level
Perception of supplier differences	generally smallest differences of sample	greatest differences of sample	generally perceived moderate differences
Perception of subjectivity of evaluations	Evaluations, esp. those of branding, are considered the most objective of the sample	evaluating attributes is generally subjective	evaluations are of moderate objectivity

TABLE 6.25

**Summary of Distinguishing Purchase, Decision Process and Choice
Characteristics of Clusters**

Bearings Survey

<i>Characteristic</i>	<i>Branding Receptive (C1)</i>	<i>Low Relevancy (C2)</i>	<i>High Tangibility (C3)</i>
Purchase Characteristics			
Perceived risk	Highest of the sample	lowest of the sample	moderate level
How used	mixture of applications	mixture of applications	mixture of applications
Buyclass type	Mixture, but new designs more common than in other clusters	mixture, but new designs are least likely	mixture of buyclass types
Decision Process Characteristics			
Supplier type	mixture of distributors & manufacturers	mixture of distributors & manufacturers	mixture of distributors & manufacturers
Number of decision stages	Approx 2/3 are 1-stage and 1/3 are 2-stage	approx 2/3 are 1-stage and 1/3 are 2-stage	approx 2/3 are 1-stage and 1/3 are 2-stage
Decision protocol used in screening	prefer compensatory protocol	prefer an informal process	prefer hierarchical protocol
Decision protocol used in final stage	prefer compensatory protocol	prefer an informal process	prefer hierarchical protocol
Choice Characteristics			
Number of suppliers in consideration set	4-5	4-5	4-5
Number of suppliers purchased from	highest in sample	moderate level	lowest in sample
Purchase loyalty for first & second choice	highest in sample	moderate level	lowest in sample

TABLE 6.26

Integration of Qualitative and Quantitative Results

Bearings Survey

	% of sample	Cluster descriptor	Buyer Descriptor	Purchase descriptor	Process descriptor
1	std. 37% tandem 44%	branding receptive	large volume, sophisticated	highly important, risky	structured, open-minded
2	std. 14% tandem 21%	low relevancy	low interest, indifferent	routine, low risk	convenience, low involvement
3	std. 49% tandem 35%	high tangibility	Traditional, moderate, objective	typical, product- oriented	textbook, structured

The *branding receptive* buyers can be described as sophisticated and large volume. The phrases relatively risky and highly important can describe the purchases, and the words open-minded and thorough can describe the decision process. For the *low relevancy* cluster, the words low interest and indifferent best describe the buyers. Routine and low risk can be used to describe purchases in this cluster. Low involvement, informal and convenience can describe this

decision process. For the high tangibility cluster, the words traditional and moderate appear to describe the buyers. The words typical and product-oriented can describe their purchases, and by-the-book, objective and structured can describe this decision process.

Although these particular descriptors lack definitive measures, they have resonance and relevance to the participants in the bearings decision process. The descriptors are qualitative, but are backed by hard evidence from the survey. The point was made earlier that there is little point in developing a new approach to market segmentation if no one is able to use it for decision making. The clustering approach described in this chapter does have practical relevance. By identifying customer groups with the greatest potential and the best fit with firm competencies, segmentation can facilitate the setting of priorities. Also, by identifying customer needs and preferences, segmentation can be used to develop customised marketing approaches.



The data analysis provided support for the role of benefit segmentation. First, segmentation by benefits enhances traditional segmentation by industrial sector, value of purchases, and buyclass factors. The benefit segmentation generated a number of insights that were not forthcoming from the more traditional segmentation. Secondly, branding was shown to be an important factor in some customer segments. Difference in the perceived importance of branding was a primary determinant of the customer clusters. The branding receptive cluster of firms constituted more than 40 percent of the sample, so is a force to be reckoned with.

6.7 SUMMARY

The analysis of the bearings survey data provides a preliminary answer to the main research questions of the thesis. The first question, *what is industrial branding*, is primarily addressed through the development of the pinwheel of brand value to the industrial customer, the model of industrial branding, and the findings of the exploratory interviews. This chapter has focussed more on the second question of *is industrial branding important, and if so, to whom*. Prior research has not directly addressed this question. Consequently, the development of testable hypotheses in itself constitutes an important contribution. The evidence suggests that branding is important in the purchase decision. Section 6.3.5 summarises the results of the specific hypothesis testing on branding importance. These results directly address the question of to whom branding is the most important, and in what purchase situations. The cluster analysis, summarised in Section 6.6.4, reveals that the perceived importance of branding can be an important and meaningful way of examining the customer base. Branding is not important to all customers, and the research has provided important, although preliminary insights into customer differences.

In a similar way, Chapter 7 discusses the empirical findings of the circuit breaker survey, and compares the results with those of the bearings survey. With an improved understanding of the importance of branding to customers, marketers are better equipped to develop and implement effective branding strategies. Thus, Chapter 8 offers a preliminary answer to the third main question of the research, namely, *what are the implications of industrial branding for managers*.

Chapter 7

ANALYSIS OF THE CIRCUIT BREAKER SURVEY

7.1 INTRODUCTION

The analysis of the bearings survey in Chapter 6 resulted in a number of interesting and important findings. However, a study of branding in only one industrial product area does have its limitations. The analysis of the circuit breaker survey data described in this chapter replicates the analysis of the bearings survey. In addition, a few extra questions added to the survey enable other hypotheses to be tested. As before, the research focuses on the importance of branding in the industrial purchase decision and attempts to determine to whom and in which situations branding is more important.

The structure of this chapter parallels that of the previous chapter. Section 7.2 describes the perceived importance of the various attributes for the overall sample, and lays the groundwork for further analysis. Section 7.3 reports the results of the hypothesis testing concerning the links between the importance of branding and identifiable characteristics of the buyer, the purchase, and the decision process (P1 to P4). Section 7.4 presents the results of the analysis of general buying behaviour relationships (P5 and P6). Section 7.5 describes the results of the cluster analysis on the basis of perceived benefit importance. Section 7.6 identifies the distinguishing characteristics of the clusters, and highlights to whom and in which situations is branding important. Finally,

Section 7.7 summarises the findings of the circuit breaker survey on the importance of branding and compares the findings to those of the bearings survey.

7.2 PERCEIVED ATTRIBUTE IMPORTANCE IN THE SAMPLE

The first step of the analysis is to determine what attributes buyers perceive to be important. Table 7.1 summarises the perceived attribute importance at the final decision stage.

TABLE 7.1

Overall Perceived Attribute Importance Rating in the Final Decision *

Circuit Breaker Survey

1 = fairly important to 7 = extremely important

Attribute	Mean	Std. Dev.	Comment
Delivery and ordering services	5.96	1.37	highest importance, moderate s.d., most tangible
Price	5.86	1.25	
Physical product	5.56	1.38	
Technical support services	5.28	1.31	moderate importance, moderate s.d.
Reputation	5.04	1.35	
Working relationship	4.99	1.34	
How well known	4.56	1.55	lowest importance, biggest s.d.
Number of prior purchases	3.93	1.77	

* n=69

The more tangible attributes of ordering and delivery services, price, and physical product properties are perceived to be of the highest importance, with these evaluations exhibiting the smallest standard deviation across the sample. Of moderate importance, and with a moderate standard deviation are the working relationship with the manufacturer, technical support services, and general reputation of the manufacturer. Of lower importance, and with the largest standard deviation, are how well known the manufacturer is, and the number of prior purchases from the manufacturer. These results reinforce the findings of the bearings survey and exploratory interviews, and are consistent with existing theories and assumptions of organisational buying behaviour.

Table 7.2 summarises the two ways in which importance is measured. The table provides the means of the importance rankings and ratings and places the attributes in order of importance. The most notable difference in ordering between the two measures of importance is found in the final stage. Rankings indicate the most important attributes to be price, then physical product, then ordering and delivery, while ratings generate the priorities of ordering and delivery, then price, then physical product. Technical support is fourth in importance and the manufacturer's general reputation is fifth, according to the final ratings and rankings. Circuit breaker purchasers evaluated the importance of all three branding attributes more highly than did bearings purchasers.

Buyers indicating that they use a two-stage decision process were asked about importance at the screening stage and again at the final decision stage. Buyers using a one-stage process were asked about attribute importance at the final

decision stage. Compared to the bearings survey, the perception of importance varied slightly more between the two decision stages. Only four of the eight attributes maintained the same order of importance between the screening and final stage ratings and rankings, and these were the four attributes of least importance. The differences between the stages lie at the top of the ordering. The most notable difference is in the perceived importance of ordering and delivery services. These are more important in the final stage, which reinforces the findings of the exploratory interviews.

TABLE 7.2

Perceived Importance of Benefit Attributes in Circuit Breaker Survey*

	Screening Stage				Final Stage			
	Ranking n=14		Rating n=16		Ranking n=44		Rating n=69	
Ordering & delivery services	5.57	4	5.50	4	5.93	3	5.96	1
Price	6.71	2	5.94	1	6.64	1	5.86	2
Physical product properties	7.0	1	5.88	2	6.02	2	5.56	3
Technical support services	5.64	3	5.63	3	5.02	4	5.28	4
Manufacturer's general reputation	4.86	5	5.0	5	4.72	5	5.04	5
Quality of working relationship with manufacturer	3.79	6	4.81	6	3.70	6	4.99	6
How well known the supplier is	3.71	7	4.25	7	3.65	7	4.56	7
Number of previous purchases from manufacturer	2.64	8	3.63	8	2.67	8	3.93	8

* Mean ranking of 1=least important to 8=most important
Mean rating of 1=fairly important to 7=extremely important

7.3 RELATIONSHIP BETWEEN PURCHASE SITUATION VARIABLES & BRANDING IMPORTANCE

There are two main ways of testing the links between the buyer, purchase and decision process characteristics and the firms' perceived importance of branding and other attributes. The first method is to test the relationships for the sample as a whole, using the hypotheses detailed in Chapter 3. This section summarises the results of these overall tests. The second method is to test whether firms in the three benefit clusters differ in their buyer, purchase and decision process characteristics. Section 7.6 presents the results of the cluster-by-cluster analysis.

The questionnaire collected a number of measures describing buyer characteristics, purchase characteristics, and the decision process (Tables 4.3, 4.4, and 4.5). Since some of the data were metric, some ordinal and some nominal or categorical, several tools of statistical analysis were utilised to examine the differences between clusters. The metric and scaleable data were compared, as before, using ANOVA and several GLM multivariate post hoc multiple comparisons for observed means from SPSS Version 7. These include Tukey's honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. The categorical data were analysed using several crosstabs statistics in SPSS Version 7 for nominal data, including the Phi coefficient, Cramer's V, and the contingency coefficient, in order to determine if statistically significant differences exist between the clusters.

TABLE 7.3

Buyer Characteristics of the Circuit Breaker Survey

Buyer Characteristic	Sample n=69
Line of business	%
electrical contractor	84.1
electrical engineering	8.7
electrical manufacturer	4.3
electricity supplier	2.9
Primary decider	
Distributor	3.0
Purchaser	70.1
someone else in the company	22.4
customer	4.5
Annual circuit breaker purchases (<i>in £</i>)	77,630
Years of purchasing circuit breakers	16.8
Age	43.9
Frequency of purchases (<i>in weeks</i>)	2.57
Circuit breaker expertise <i>1=low to 7=very high</i>	
Personal technical expertise	4.38
Company technical expertise	5.12
Personal market knowledge	5.26
Perception of supplier differences <i>1=no differences</i> <i>7=extreme differences</i>	2.58 check
Perception of objectivity of evaluating the attributes <i>1=subjective to 7=objective</i>	
price	5.89
ordering & delivery	5.50
physical product properties	5.30
reputation	5.30
working relationship	5.17
technical support services	5.17

7.3.1 Buyer Characteristics and Branding Importance (P1)

Table 7.3 summarises the buyer characteristics of the overall sample. Four main hypotheses (H1 to H4) were tested regarding the general proposition (P1) of a relationship between buyer characteristics and the perception of attribute importance and the decision process utilised. In addition, hypothesis (H5) regarding buyer age, years of experience, and position is tested. The relationships between the variables were generally tested by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data.

H 1: Annual value of the buyer's purchases of the product category is related to the perception of branding importance.

Result: In the sample, the relationships between purchase value and the three branding attributes are not statistically significant. Branding is not more important to large buyers than to small buyers of circuit breakers. Thus, the hypothesis is not supported.

Other attributes - The annual value of circuit breaker purchases is somewhat related to the importance of other attributes. Purchase value and importance of technical support services have a direct relationship, with $R_s = .190$ ($p=.060$). The higher the annual value of circuit breaker purchases, the more important technical support services are perceived to be. Also, purchase value has a significant relationship with the importance of the working relationship ($R_s=.283$, $p=.009$). The higher the annual value of circuit breaker purchases, the more

important is the working relationship. The bearings survey also revealed a significant relationship between purchase value and the importance of technical support services. In addition, the bearings survey found a significant inverse relationship between purchase value and the importance of price.

H 2: Perceived customer expertise is positively related to the perception of branding importance.

Result: Three measures of customer expertise were evaluated in relation to perceived attribute importance. These include: personal technical expertise of the buyer, company technical expertise, and the buyer's knowledge of circuit breaker suppliers and the circuit breaker market. The perceived importance of the branding attributes of how well known the supplier is ($R_s=.202$, $p=.049$), and reputation of the supplier ($R_s=.210$, $p=.043$) are significantly related to buyer's market knowledge. Thus, the hypothesis is supported.

Other attributes - Market knowledge is also related to the perceived importance of price ($R_s=.177$, $p=.073$), the working relationship ($R_s=.185$, $p=.064$), and technical support services ($R_s=.164$, $p=.090$). The higher the buyers perceived their knowledge of the circuit breaker suppliers and the market, the more highly they perceived the importance of branding attributes, price, technical support services, and the working relationship. The buyer's personal technical expertise on circuit breakers is found to be related to the importance of only one attribute, the working relationship ($R_s=.179$, $p=.070$). The technical expertise of the buyer's company is also related to the importance of the working relationship ($R_s=.321$, $p=.004$), as well as to the importance of reputation ($R_s=.197$, $p=.054$)

and technical support services ($R_s=.267$, $p=.014$). Thus, the higher buyers perceived their personal or company technical expertise, the more highly they perceived the importance of the working relationship, and technical support services, and company reputation.

Both surveys found the greatest degree of relationship between attribute importance and the buyer's market knowledge, and the least degree of relationship between attribute importance and the buyer's personal technical expertise. Thus it may be that in assessing the relationship between customer expertise and customer attitudes, the most influential aspect of expertise is non-technical in nature. Most buyers cannot be expected to acquire high levels of technical expertise in every product area they purchase, but they can be expected to develop in-depth knowledge of vendors and market conditions. Knowledge of vendors involves the assessment of tangible and intangible aspects of the companies. In many cases this comes down to the perceived reputation and image of the company, or more specifically, the company brand. This highlights the importance of vendor efforts to assess their current company brand image, to develop a cohesive company brand identity, and to communicate their brand identity consistently and effectively within the company and to customers and other supply chain intermediaries.

Another point to consider is what the buyer considers most important to a good working relationship with the manufacturer. For bearings, importance of the working relationship was highly correlated to the importance of ordering and delivery services ($R_s=.322$, $p=.000$), and to the importance of technical support

services ($R_s=.312$, $p=.000$). For circuit breakers, the quality of the working relationship is most related to technical support services, with ordering and delivery services of secondary importance. This may be due to the fact that the majority of the circuit breaker purchases were made via a distributor. Interestingly, buyers in the circuit breaker generally evaluated their circuit breaker expertise more highly than did the buyers in the bearings survey.

H 3: The less the perceived differences in suppliers on key attributes, the greater the importance of branding.

Result: Perception of supplier differentiation at the final stage is significantly related to two branding attributes, the importance of how well known the supplier is ($R=.208$, $p=.045$), and reputation ($R=.282$, $p=.010$). The more suppliers are perceived to differ at the final decision stage, the more important branding is to buyers. Thus, the hypothesis is supported.

Other attributes - Perception of supplier differentiation is also related to technical support services ($R=.168$, $p=.087$), and the working relationship ($R=.173$, $p=.078$). This result can be interpreted as implying that the more suppliers are perceived to differ at the final decision stage, the more important these attributes are perceived to be to buyers.

In contrast, in the bearings survey, the perception of attribute importance is quite stable, and is not related to the level of perceived supplier differentiation. One implication of this is that circuit breaker suppliers may have more opportunities to try new ways to differentiate themselves from their competitors. The result

implies that branding attributes have the potential to play an important role when differences in suppliers are perceived to be high.

H 4: The more the perceived subjectivity of evaluating attributes, the greater the importance of branding.

Result: Circuit breaker buyers recognise that evaluating attributes of a product or brand involves a mixture of subjective and objective evaluation, or a mixture of “art” and “science”, as described in the interviews. Evaluations of all attributes were perceived to be more objective than the midpoint value of 4.0. In the sample as a whole, the more tangible attributes were not notably more objectively evaluated than the more intangible attributes. As in the bearings survey, price is seen as the most objectively evaluated attribute (5.89). Ordering and delivery services were seen as the next most objectively evaluated attribute (5.50). Technical support services and the working relationship were seen as the least objectively evaluated attributes (5.17). In the bearings survey, the evaluation of technical support services was also perceived to be relatively low in objectivity. The branding attributes of how well known the supplier is, and general reputation, assumed a moderate evaluation (5.30) in the circuit breaker survey. Reputation is considered more objectively evaluated than in the bearings survey, both in absolute and relative terms.

The data support the notion of a range of tangibility and intangibility inherent in the pinwheel of industrial brand value. Evaluating branding, or the benefits of branding to the buyer, is seen as partly objective and partly subjective by buyers. The more objective the evaluations of the tangible aspects are perceived to be,

the more important branding attributes are perceived to be. Table 7.4 presents the correlation between perceived importance of branding attributes and the perceived objectivity of the attribute evaluations. The perceived objectivity of the branding attributes of reputation and how well known are positively related to the importance of the branding attributes. Thus, the hypothesis is partially supported.

TABLE 7.4
Branding Attributes and Perception of Objectivity of Evaluations
Circuit Breaker Survey

Spearman's rho correlation coefficient

<i>Perceived objectivity</i>	Importance of reputation of supplier	Importance of how well known is the supplier
Price		-
Physical product properties	.342 (p=.003)	.214 (p=.043)
Ordering and delivery services	-	-
Technical support services	-	.177 (p=.079)
Working relationship	.169 (p=.090)	-
Reputation	.182 (p=.073)	.167 (p=.092)
How well known	.184 (p=.072)	.190 (p=.065)

The objectivity of the working relationship, technical support services, and physical product properties are also related to the importance of branding. Interestingly, the relationship is strongest with physical product properties. This may imply that the importance of branding has at its foundation an objective

evaluation of the physical, tangible benefits of the brand. As it has been so often stated, the starting point for a strong brand is a high quality physical product.

The relationship between importance and objectivity reflects the comments made in the interviews that buyers make considerable efforts to find objective measures for even the most subjective aspects of the decision. Those who perceived the importance of branding and other intangible attributes appear to make an effort to find objective measures for them. It would appear that it is in the best interest of vendors to assist their customers in finding ways to objectively evaluate the benefits and value of their company brand and individual brands.

H 5: Buyer age, years of experience and position affect the perception of attribute importance. Branding is more important to very inexperienced buyers and to very experienced buyers.

Result: Buyer age is significantly related to several aspects of branding importance. Buyer age is positively related to brand purchase loyalty, the number of prior purchases from the manufacturer ($R_s = .372$, $p = .001$). Older buyers perceive prior purchases to be more important than younger buyers do. Buyer age and years of experience in purchasing circuit breakers were highly related to each other ($R_s = .513$, $p = .000$), consequently, the years of experience in purchasing circuit breakers is strongly positively related to the number of prior purchases from the manufacturer ($R_s = .266$, $p = .016$). Buyers with more experience perceive the importance of the number of prior purchases more highly than do buyers with less experience. Also, there is a positive relationship

between years of experience and the importance of how well known the manufacturer is ($R_s=.222$, $p=.039$). Buyers with more experience perceive how well known the manufacturer is to be more important than do less experienced buyers.

The relationship between title or position of the respondent and perceived attribute importance was measured in several ways. Respondents selected the most appropriate title of their position from five possibilities. A few chose to write in their specific titles. These responses were then regrouped in two ways. The first way ordered the positions in terms of seniority, with buyer and engineer as 1, purchasing and engineering managers as 2, and senior manager as 3. In the sample, seniority is positively related to the perceived importance of how well known is the manufacturer ($R_s = .190$, $p=.062$).

The second way of analysing the information on title or position was to group the responses as being either generalist or technical, with 1=buyer, purchasing manager and senior manager, and 2=engineer or engineering manager. Of special interest in industrial purchases are the differences in attitudes of non-technical and technical members of the buying centre. Most decisions involve to some degree both technical and non-technical personnel. In some cases, the technical person makes the final decision, and in other cases it is a non-technical employee. In this survey, 55% of the respondents can be considered to be in non-technical or generalist positions, while 46% of the respondents identified themselves as being in technical positions, that is, as engineers or engineering

managers. Technical managers and non-technical managers did not significantly differ in their perception of branding importance.

Data were not collected in the bearings survey on buyer age, years of experience purchasing the product in question, and buyer title or position. This information from the circuit breaker survey is especially interesting, and points to other aspects of buyer characteristics that could be examined in future research. Overall, the hypothesis is supported.

Other attributes - Buyer age is significantly related to the perceived importance of several other attributes. Age is inversely related to the importance of ordering and delivery services ($R_s = -.113$, $p = .073$). Older buyers perceive ordering and delivery to be less important than younger buyers do. Age is also inversely related to the importance of technical support services ($R_s = -.195$, $p = .057$). Older buyers perceive technical support services to be less important than younger buyers do. The relation of years of experience to the importance of delivery is not significant. In the sample, seniority is positively related to the perceived importance of price ($R_s = .185$, $p = .066$). Senior managers perceived price to be more important than less senior managers.

Buyer technicality is inversely related to the perceived importance of several attributes. In the sample, technicality is inversely related to the perceived importance of ordering and delivery services ($R_s = -.230$, $p = .030$), price ($R_s = -.293$, $p = .008$), technical support services ($R_s = -.236$, $p = .027$), and the quality of the working relationship ($R_s = -.169$, $p = .084$). Engineering personnel perceived

these attributes to be less important than did more generalist or non-technical personnel.

7.3.2 Purchase Characteristics and Branding Importance (P2)

Three hypotheses (H6 to H8) are tested regarding purchase characteristics and their relationship to the perception of branding importance. Table 7.5 summarises the purchase characteristics.

TABLE 7.5
Purchase Characteristics in Circuit Breaker Survey

<i>Characteristic</i>	<i>Overall Sample n=66</i>
Perceived risk <i>1=no risk to 7=high risk</i>	
personal safety risk	3.79
financial risk	3.75
overspending risk	2.95
reputation risk	3.48
overall	3.78
How used	%
in-house process	4.3
customer's process	58.0
in a customer product	37.7
Buy class	%
new design	60.9
modified design	17.4
modified rebuy	1.4
straight rebuy	20.3
Cost of most recent purchase (£)	6142

The relationship between the variables was generally tested by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data.

H 6: The intended use of the product is related to the buyer's perception of attribute importance. The importance of branding is expected to be higher for product inputs than for process inputs.

Result: Respondents described the intended use of the circuit breaker as for either an in-house process, a customer process, or for incorporation into a product to be sold to others. These responses were regrouped for analytical purposes. The first way was to consolidate the three use categories into two, with 1=process input, and 2=product input. In the sample, 62% of the purchases were intended for an in-house or customer process, and 38% of the purchases were intended for incorporation into a product to be sold to others. Analysis reveals that the intended use is related to the perceived importance of two branding attributes, how well known ($R_s = .207$, $p=.045$), and reputation ($R_s=.364$, $p=.015$).

The second categorisation was to consolidate the three use categories into two, with 1=in-house process, and 2=customer process or products. In the sample, 4.3% of the purchases were intended for in-house use, and 95.7% of the purchases were intended for customer use. This categorisation is related to the importance of how well known is the supplier. For purchases intended for customer use, how well known is the manufacturer appears more important ($R=.171$, $p=.081$). If customers are interested in the circuit breaker brand, this

may imply an important potential for ingredient branding. Thus, the hypothesis is supported.

Other attributes - The intended use of process versus product input is related to the perceived importance of the working relationship ($R_s=.333$, $p=.003$). This is a stronger result than in the bearings data, in which little relationship is found. For purchases intended for customer use, price is less important ($R=-.196$, $p=.053$).

This analysis provides evidence of some link between intended use of the product, as measured, and the perception of attribute importance. Buyers may weight attributes higher according to the type of end use. This may reflect a general feeling that the end users' opinions on the product component are important, but further exploration of this issue is needed.

H 7: The type of purchase is related to the buyer's perception of attribute importance. Branding is expected to be more important for more complex purchase situations.

Result: Using the buyclass typology, purchase types can be seen as a continuum of purpose and complexity, with 1= a new design; 2= a modified new design; 3= a modified rebuy; and to 4= a straight rebuy. The circuit breaker sample had a much higher proportion of new design purchases and a lower proportion of standard rebuys than the bearings survey. In the circuit breaker sample, 60.9% of the purchases were for new design, 17.4% for modified new design, 1.4% for modified rebuy, and 20.3% for standard rebuy. The type of purchase, using the

buyclass typology, is not shown to be related to the perception of branding importance. In the sample, branding is not more important for new designs than for standard rebuys. These findings reinforce prior research which has found that analysis of the buyclass typology is sometimes difficult to interpret. Thus, the hypothesis is not supported.

Other attributes - The more complex the purchase, the more important is price ($R_s = -.226$, $p=.031$). The more routine the purchase, the more important is the working relationship ($R_s = .187$, $p=.062$).

H 8: The level of perceived risk is related to the perception of attribute importance. Branding is more important for riskier purchases.

Result: The relationship between perceived risk and branding importance is not strong in the sample. The lack of a stronger relationship between perceived risk and the importance of branding may be at least partially explained by the relatively low levels of perceived risk in the sample. Buyer perception of the risk of their most recent circuit breaker purchase decision was relatively low overall, as summarised in Table 7.6, with means of all aspects of perceived risk below the midpoint of the scale of 1=no risk to 7=high risk. For decisions with a high degree of perceived risk, other attributes such as branding may be more important. Thus, the hypothesis is not supported.

Other attributes - Perceived risk is strongly related to the perception of the importance of several other attributes. The importance of price was directly related to perceived overall risk ($R_s=.321$, $p=.005$), personal safety risk

($R_s=.197$, $p=.057$), financial risk ($R_s=.351$, $p=.002$), risk of over-spending ($R_s=.275$, $p=.015$), and risk to buyer reputation (.303, $p=.008$). The importance of technical support services was directly related to perceived overall risk ($R_s=.170$, $p=.091$), financial risk ($R_s=.218$, $p=.042$), risk of over-spending ($R_s=.247$, $p=.026$), and risk to buyer reputation (.183, $p=.075$). In addition, one inverse relationship is found where the higher the perceived risk, the lower the importance, between perceived risk to personal safety and the importance of ordering and delivery services ($R_s= -.170$, $p=.086$). One interpretation of these results is that technical support and price are perceived by the respondents as the attributes that best reduce the perceived risk associated with circuit breaker purchases.

TABLE 7.6

Perceived Risk of Most Recent Circuit Breakers Purchase Decision

1=no risk to 7=high risk

<i>Type of risk</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std.Dev.</i>
Personal safety	66	1	7	3.79	2.20
Financial	64	1	7	3.75	2.14
Overspending	63	1	7	2.95	1.91
Reputation	63	1	7	3.48	2.15
Overall	63	1	7	3.78	1.91

7.3.3 Decision Process Characteristics and Branding Importance (P3)

Table 7.7 summarises the decision process characteristics. Two hypotheses (H9 and H10) are tested regarding decision process characteristics and their relationship to the perception of branding importance. The relationship between the variables was generally tested by calculating correlation using Spearman's rho correlation coefficient (R_s) due to the ordered nature of the data.

TABLE 7.7

Decision Process Characteristics of the Circuit Breaker Survey

<i>Characteristic</i>	<i>Sample n=69</i>
Supplier type	%
distributor	88.4
manufacturer	11.6
Decision process	%
consider others' recommendation	22.1
consider only those used before	54.4
screening stage & final stage	23.5
Decision protocol used in final stage	<i>number</i> %
compensatory	11.6
hierarchical	31.9
both	10.1
some protocol used	53.6
none used	46.4

H 9: Branding is less important to buyers purchasing from a distributor than directly from the manufacturer.

Result: The choice of type of supplier was significantly related to two branding attributes, how well known ($R_s = -.200$, $p=.051$), and the number of prior purchases ($R_s = -.306$, $p=.005$). Contrary to expectations, branding attributes

were more important to respondents buying from a distributor than to those buying directly from the manufacturer. Thus, the hypothesis is not supported.

Other attributes - Customers buying from a distributor and customers buying directly from the manufacturer exhibited few other differences in perceived attribute importance. Overall, the attributes important to the decision were relatively consistent across circuit breaker customers. Whether they buy from a distributor or directly from a manufacturer, circuit breaker customers generally agree on the attributes most important to the decision.

H10: Buyers using a higher involvement decision process perceive branding to be more important than buyers using a low involvement decision process.

Involvement in the decision process is measured in several ways. First, buyers were asked to choose whether they (1) consider brands others recommend; (2) consider only brands they have used before; or (3) use a two-stage decision process of a screening and final stage. Secondly, buyers were asked about their use in the screening and/or final stage of a compensatory and/or hierarchical decision protocol. Higher involvement is signalled by a higher valued decision process and/or use of a decision protocol. Lower involvement is represented by the lack of a two-stage decision process and/or no use of a decision protocol.

Most buyers in the sample buy from a distributor and thus use a relatively simple decision process. Still, it is surprising that the simpler or less involved the process, the more important is branding. Involvement in the decision process is inversely related to the importance of how well known is the supplier ($R_s = -.197$, $p = .055$), and the number of prior purchases ($R_s = -.165$, $p = .089$). In the

bearings survey, this relationship was not significant. In addition, the use of a decision protocol is found to be inversely related to branding importance in the sample. Use of a decision protocol is negatively correlated to how well known is the supplier ($R_s = -.194$, $p=.057$), and to reputation ($R_s = -.159$, $p=.098$). This indicates that buyers using lower involvement decision protocols perceive branding to be more important than buyers using higher involvement decision process. Thus, the hypothesis is not supported.

Other attributes - The use of a more involved two-stage process is significantly related to the importance of only one other attribute, ordering and delivery ($R_s = -.235$, $p=.027$). Buyers using a two-stage decision process perceive ordering and delivery services to be less important than buyers using a one-stage process. This may be interpreted as follows. If the need is immediate, and time is of an essence, the buyer is not likely to use a more formal, two-stage process. The use of more formal decision protocols, such as compensatory or hierarchical decision protocols are not significantly related to the importance of any of the other attributes. Buyers who use decision protocols do not significantly differ in the valuations of the importance of other attributes from buyers who use more informal decision protocols.

7.3.4 Choice and Branding Importance (P4)

Another central part of the model of industrial branding is the proposed relationship (P4) between the perception of branding importance and choice. Three specific hypotheses (H11 to H13) test the relationship by calculating

correlation using Spearman's rho correlation coefficient (R_S) due to the ordered nature of the data. Table 7.8 summarises the choice characteristics in the sample.

TABLE 7.8
Choice Characteristics of the Circuit Breaker Survey

<i>Characteristic</i>	<i>Sample n=69</i>
Number of suppliers in consideration set <i>(mean)</i>	2.93
Number of suppliers purchased from <i>mean in most recent order</i>	2.02
Purchase loyalty for first choice <i>frequency of purchases from choice set</i> <i>1=never before</i> <i>7=very often</i>	6.38

H 11: Buyer perception of branding importance is related to the brands chosen.

Result: In the sample, the two most frequently chosen brands were MEM or BILL/MEM, followed by MG. The remaining purchases were scattered amongst a dozen other brands. The choice of a top two brand is somewhat related to the perceived importance of branding. Choice of a top two brand is related to the importance of how well known is the brand ($R_S=.206$, $p=.080$). Thus, the hypothesis is partially supported.

Other attributes - No significant relationships were found between the choice of a top two brand of circuit breakers and the importance of other attributes.

H 12: Buyer perception of branding importance is positively related to the size of the consideration set and the choice set.

Result: The mean size of the consideration set is 2.92 brands. The mean size of the choice set is 2.02 brands. No significant relationship is found between size of

the consideration or choice set and branding importance. Thus, the hypothesis is not supported. This is in contrast to the findings of the bearings survey in which respondents who view the importance of branding more highly choose to purchase from more brands than do those who do not perceive branding to be important.

Other attributes - Size of the consideration set is related to two other attributes. The more important price is, the larger the consideration set ($R_s=.279$, $p=.011$). The larger the consideration set, the less important is the quality of the working relationship ($R_s=-.257$, $p=.018$). Size of the choice set is also inversely related to the working relationship ($R_s=-.188$, $p=.070$), and, similar to the findings of the bearings survey, is directly related to the importance of ordering and delivery ($R_s=.189$, $p=.069$).

H 13: Buyer perception of branding importance is positively related to the frequency of prior purchases of the brands in the choice set.

Result: The survey data reveal no significant relationships between branding importance and the frequency of prior purchases from the choice set. Thus, the hypothesis is not supported. This is in contrast to the bearings survey, in which respondents who highly view the importance of branding exhibit a higher purchase loyalty to their suppliers than do buyers who do not highly value the importance of branding.

Other attributes - The frequency of prior purchases from the first choice supplier is not significantly related to any other attributes.

7.3.5 Summary of Branding Importance Findings

Overall, the analysis found evidence to support a number of the hypotheses specified in the preliminary *model of industrial branding*. Buyer characteristics, purchase characteristics, the decision process, and choice are related to the perception of branding importance. These findings are highly consistent with prior research in the area of organisational buying behaviour. Even though not all of the results were as hypothesised, the research adds to the insights of the bearings survey and the exploratory interviews into the role of branding in the decision process.

In the circuit breaker survey, branding is as important to the small buyer as the large buyer (*H1*). The buyer's knowledge of the bearings market is correlated to the perceived importance of branding (*H2*). This may imply that knowing more about the suppliers and their competitive environment encourages buyers to conclude that branding and other intangible attributes matter. The test of (*H3*) indicates that the more suppliers are perceived to differ at the final stage, the more important branding is to buyers. The role of branding in the decision depends partly on whether buyers view branding attributes as legitimate decision criteria. The results (*H4*) indicate that buyers who perceive branding to be important also perceive that the benefits of branding can be measured objectively, and have found ways to do so. Branding is more important to older, more experience, and more senior buyers (*H5*). Branding is more important for purchases used as product inputs than as process inputs (*H6*). No support is evident for the hypothesis (*H7*) that branding is more important for the more

complex buyclass purchases. Branding is seen as a less effective way to reduce perceived risk than technical support and physical product properties (*H8*).

Buyers to whom branding is important are not more likely to purchase from a manufacturer than from a distributor (*H9*), so branding can be important in both types of purchase decisions. Branding importance is not found to be greater for buyers using a higher involvement decision process (*H10*). Some support is found for the hypothesis (*H11*) that when branding considerations are important, buyers choose the top brands. Buyers to whom branding is important do not appear to rely on a larger consideration set and choice set (*H12*), nor do they exhibit higher levels of purchase loyalty (*H13*) to the brands they purchase from than do other buyers.

Table 7.9 compares the findings of the bearings and circuit breaker surveys, and indicates whether the specific hypotheses are supported or partially supported (S), or are not supported (NS). Of course, the analysis does not provide definitive proof of the existence or lack of the hypothesised relationship (Sawyer and Peter 1983). However, the results support the main thesis that branding plays a more important role in industrial decision making than has generally been recognised. As is often the case, the results raise as many questions as they answer, and indicate a need for further research into related issues.

TABLE 7.9

Comparison of Hypothesis Testing on Branding Importance

Bearings (B) and Circuit Breaker (CB) Surveys

	<u>B</u>	<u>CB</u> *
<u>P1 Buyer characteristics and branding importance</u>		
Branding importance is positively related to:		
<i>H 1: Higher annual purchase value</i>	NS	NS
<i>H 2: Higher customer expertise</i>	S	S
<i>H 3: Greater perceived differences in suppliers</i>	NS	S
<i>H 4: Greater perceived subjectivity of evaluating attributes</i>	S	S
<i>H5: Greater age, experience, and seniority of position</i>	<i>n.a.</i>	S
<u>P2 Purchase characteristics and branding importance</u>		
Branding importance is positively related to:		
<i>H 6: Intended use as product input, not process input</i>	NS	S
<i>H 7: More complex purchase situations</i>	S	NS
<i>H 8: Level of perceived risk</i>	NS	NS
<u>P3 Decision process and branding importance</u>		
Branding importance is positively related to:		
<i>H 9: Purchase from a manufacturer, not a distributor</i>	NS	NS
<i>H 10: Using a higher involvement decision process</i>	S	NS
<u>P4 Choice and branding importance</u>		
Branding importance is positively related to:		
<i>H11: Choosing top brands</i>	NS	S
<i>H12: Larger consideration set and choice set</i>	S	NS
<i>H13: Higher purchase loyalty</i>	S	NS

* S= supported or partially supported, NS = not supported

7.4 ANALYSIS OF GENERAL BUYING BEHAVIOUR RELATIONSHIPS

7.4.1 Buyer Characteristics and the Decision Process (P5)

H 14 : Annual value of purchases of circuit breakers is positively related to the formality and complexity of the buyer's decision process.

Result: Annual purchase value of circuit breakers was examined in relation to several aspects of the buyer's decision process. Buyers indicated whether their most recent decision process was to consider others' recommendations, consider only those brands used before, or to use a more formal two-stage process involving a screening stage and a final stage. Buyers were also questioned regarding their decision protocols used, that is, a compensatory or hierarchical protocol. Buyers were asked if they used numerical ratings or rankings during the screening stage and/or final stage (compensatory protocol); and whether they used any particular aspect to knock out suppliers from further consideration during the screening stage and/or final stage (hierarchical protocol). A number of statistically significant relationships are found.

The higher the annual value of circuit breaker purchases, the more likely the buyer is to use a more involved decision process ($R=.306$, $p=.006$), rather than solely relying on the recommendations of others. The use of more formal buyer decision protocols is also related to the value of purchases. The higher the annual value of circuit breaker purchases, the more likely the buyer is to use either a compensatory or hierarchical protocol, or both ($R_S=.381$, $p=.001$). The

value of purchases does appear to be related to various aspects of the buyer's decision process. Thus, the hypothesis is supported.

H 15: Perceived expertise of the customer is positively related to the formality and complexity of the buyer's decision process.

Result: The three measures of customer expertise are examined in relation to the decision process and decision protocol aspects also tested in Hypothesis 2. The analysis indicates that the likelihood of the buyer using a more formal decision process, rather than rely solely on the recommendations of others, is related to the buyer's personal technical expertise ($R_s=.223$, $p=.034$), and the buyer's market knowledge ($R_s=.246$, $p=.022$). Expertise is not, however, related to the use of compensatory or hierarchical decision protocols. Company technical expertise is not significantly related to any of the decision process measures. The relationship between customer expertise and the decision process overall appears less significant for circuit breakers than for bearings. However, the direction of the relationship is consistent. Customer expertise is linked to increased formality or complexity of the decision process. There is no evidence that expertise encourages buyers to take short cuts in the decision process. Thus, the hypothesis is supported.

H 16: Buyers perceive greater differences between suppliers at the screening stage than at the final decision stage.

Result: With 1=no differences and 7=extreme differences, the mean differences at the screening stage was 3.67, and 2.58 at the final decision stage. A t-test indicated this difference to be statistically significant ($p=.04$). Buyers perceive

greater differences between suppliers on aspects important to the purchase decision at the screening stage than at the final decision stage. This result was consistent with expectations and with the results of the bearings survey. Thus, the hypothesis is supported.

H 17: The greater the perceived differences in suppliers, the more likely buyers are to use a more formal and complex decision process.

Result: The perceived level of supplier differentiation at the final decision stage is related to several aspects of the decision process. The perceived level of differentiation is related to the likelihood of the buyer using a more formal decision process, rather than rely solely on the recommendations of others ($R=.170$, $p=.084$). Perceived differentiation is also related to the use of compensatory or hierarchical decision protocols ($R_s=.252$, $p=.019$).

This provides a contrast to the findings of the bearings survey, where the perception of supplier differentiation had little relation to the decision process or protocols. One implication of this for circuit breaker manufacturers is they may have a greater incentive to understand the types of decision processes their customers use. If they are able to successfully differentiate their company brand, this may imply the greater use of formal processes. Formal processes are more open and less mysterious than their informal counterparts, and this openness may be associated with greater opportunities for manufacturers to influence the purchase decision. Thus, the hypothesis is supported.

H 18: Buyer age, years of experience, and position are positively related to the formality or complexity of the buyer's decision process (not tested with bearings data).

Result: No significant relationships are found between the decision process and the buyer characteristics of age, years of experience, and title or position.

Contrary to expectations, no evidence was found to suggest that more experienced buyers take any shortcuts in their purchase decision process.

However, nor was there evidence to suggest that experience is associated with more formal decision processes either. More research is required to better understand these relationships. Thus, the hypothesis is not supported.

H 19: Buyer perception of attribute importance in the screening stage differs from attribute importance in the final decision stage.

Result: The perception of the importance of attributes differs somewhat between the screening and the final decision stages, as shown in Table 7.2. Buyers who indicated that they use a two-stage decision process were asked about importance at the screening stage and again at the final decision stage. In the screening stage, price and physical product properties are evaluated as the most important, with technical support services and ordering delivery services evaluated as third and fourth. In the final decision stage, physical product is less important, and ordering and delivery services are more important.

Compared to the bearings survey, the perception of importance varied slightly more between the two decision stages. Only four of the eight attributes maintained the same order of importance between the screening and final stage

ratings and rankings, and these were the four attributes of least importance. The differences between the stages lay at the top of the ordering. The most notable difference was in the perceived importance of ordering and delivery services. These were more important in the final stage, which reinforces the findings of the exploratory interviews. One interpretation of this is that in the final decision it is ordering and delivery services that tips the scales in the direction of one supplier over another. Thus, the hypothesis is supported.

H 20: The type of decision process utilised varies between the screening stage and final stage of the decision.

Result: In the circuit breaker sample, only 23.5% of the respondents indicated that their decision process involved both a screening and a final decision stage. More than three-quarters of the respondents utilised a relatively low-involvement decision process. Although comparing the process utilised on such a small sample may be misleading, no significant difference in decision protocol can be detected between the screening and final stage. Thus, the hypothesis is not supported.

7.4.2 Purchase Characteristics and the Decision Process (P6)

H 21: The more complex the purchase, the more likely the buyer is to use a more formal or complex decision process.

Result: No statistically significant relationships are found between the buyclass types and the decision process used. The previous finding indicated a relationship between the buyclass categories and the perception of attribute

importance. In contrast, this finding reflects an accepted view in the literature that buyclass alone does not determine buyer behaviour. Again, the underlying reasons for a buyer using a particular decision process defy simple explanation and need further analysis. Thus, the hypothesis is not supported.

H 22: The level of perceived risk is related to the buyclass types of purchase.

New designs or tasks are expected to be associated with higher perceived risk than are modified rebuys or straight rebuys.

Result: As previously explained, this survey collected data on the three aspects of perceived risk of the bearings survey: risk to personal safety, financial risk through recalls or downtime, and overall risk. In addition, the circuit breaker survey collected data on the perceived risk of over-spending, and the perceived risk to the buyer's reputation. An inverse relationship was expected between the level of perceived risk and the buyclass categories, with 1=new design to 4=straight rebuy. The notion of perceived risk is an important aspect of the buyclass typology as initially formulated. Strong relationships exist between perceived risk and the buyclass types of purchase. All measures of perceived risk in the survey are significantly related to the buyclass typology. The more routine the purchase, the less perceived risk. The more complex the purchase, the higher the perceived risk. The most significant inverse relationships are found for risk to personal safety ($R_s = -.280, p=.011$), risk to buyer reputation ($R_s = -.407, p=.000$), and overall risk ($R_s = -.385, p=.001$). Somewhat less significant are relationships to financial risk ($R_s = -.187, p=.069$) and the risk of over-spending ($R_s = -.177, p=.082$). Thus, the hypothesis is supported.

H 23: The level of perceived risk is related to the perception of the decision process. The greater the perceived risk, the more likely a more formal or complex decision process will be used.

Result: As before, the level of involvement in the decision process was measured with 1=consider other's recommendations; 2=consider only those used before; and 3=follow a process with a screening and final decision stage. A significant relationship was found between the process and the perceived risk to personal safety ($R_s = .219$, $p=.040$), financial risk ($R_s = .179$, $p=.080$), risk of over-spending ($R_s = .297$, $p=.010$), and overall risk ($R_s = .165$, $p=.100$). The relationship with risk to buyer's reputation was somewhat weaker ($R_s=.159$, $p=.108$). The perception of higher risk is strongly associated with a more involved decision process for circuit breakers in the sample.

However, the use of formal decision protocols such as compensatory or hierarchical protocols is not related to perceived risk of circuit breaker purchases. None of these relationships are found to be statistically significant. Thus it appears that, in this sample, the use of numerical ratings or rankings (compensatory) and knock out processes (hierarchical) are independent of perceived risk. Thus, the hypothesis is partially supported.

7.4.3 Summary

The circuit breakers survey enables an insightful test of general organisational buying behaviour relationships. Evidence is found in support of five of the seven hypotheses concerning the relationship between buyer characteristics and the

TABLE 7.10

Comparison of Hypothesis Testing on Buying Behaviour

Bearings (B) and Circuit Breaker (CB) Surveys

	<u>B</u>	<u>CB</u> *
<u>P5 Buyer characteristics and decision process</u>		
<i>H 14: Annual purchase value & decision process complexity</i>	S	S
<i>H 15: Customer expertise & decision process complexity</i>	S	S
<i>H 16: Greater perceived differences in suppliers at screening</i>	S	S
<i>H 17: Perceived differences & decision process complexity</i>	S	S
<i>H 18: Age, experience and seniority & decision process</i>	<i>n.a.</i>	NS
<i>H 19: Difference in attribute importance at screening & final</i>	S	S
<i>H 20: Difference in decision process at screening & final</i>	S	NS
<u>P6 Purchase characteristics and decision process</u>		
<i>H 21: Buyclass and decision process</i>	NS	NS
<i>H 22: Buyclass and perceived risk</i>	S	S
<i>H 23: Perceived risk and decision process complexity</i>	NS	S

* S= supported or partially supported, NS = not supported

decision process utilised. The only one supported in the bearings survey but not supported in the circuit breaker survey is H20, regarding the difference in the decision process at the screening and final stages. This is not surprising, given how few of the circuit breaker respondents utilised both a screening and the final decision stage. Interestingly, the new hypothesis (H18) regarding the traditional demographic variables and the decision process is not supported. As in the

bearings survey, the link between buyclass and the decision process (H21) is not supported, and the link between buyclass and perceived risk (H22) is supported. The hypotheses regarding perceived risk and decision process complexity is supported in the circuit breaker survey, although not in the bearings survey. Understanding these general relationships aids in the understanding of how branding enters into the decision process, and places the importance of branding into a broader context.

7.5 CLUSTERING FIRMS BY PERCEIVED IMPORTANCE OF ATTRIBUTES

A common way of looking at product benefits is to examine what buyers consider to be the most important aspects of the products or services on offer. As in Chapter 6, cluster analysis was conducted. However, because of the smaller size of the circuit breaker sample, tandem cluster analysis was not conducted.

K-means cluster analysis generated three clusters of firms, as shown in Table 7.11. To test the differences in the clusters' perceived relative importance of the purchase attributes, several GLM multivariate post hoc multiple comparisons for observed means were conducted following ANOVA, using SPSS Version 7, including Tukey's honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. These tests of differences are summarised in Table 7.12.

TABLE 7.11**Cluster Analysis of Firms by Attribute Importance Rating****Circuit Breaker Survey *****Final Cluster Centres**

Attribute	Sample n=65	Cluster 1 n=19 29 %	Cluster 2 n=15 23 %	Cluster 3 n=31 48 %	F	p
Ordering & delivery services	5.96	5.47	5.27	6.58	7.24	.001
Price	5.86	6.63	5.07	5.87	8.10	.001
Physical product	5.56	6.37	4.07	5.90	21.22	.000
Technical support services	5.28	5.32	4.07	5.90	13.25	.000
Working relationship with manufacturer	4.99	4.00	4.67	5.74	15.13	.000
Number of prior purchases	3.93	2.42	3.87	4.90	16.44	.000
How well known	4.56	3.00	4.33	5.55	32.78	.000
Reputation	5.04	3.89	4.40	6.00	32.19	.000

* Means of perceived importance of attribute in final decision, on a scale of 1=fairly important to 7=extremely important.

The formation of the clusters reveals many interesting aspects. Differences between the clusters can be measured by the F-statistic, and the statistical significance is indicated by the p-value, or power. The actual values of these measures is less important than their relative values. The clusters differ the least on the perceived importance of ordering and delivery services, and price, with F-statistics of 7.24 and 8.10 respectively, and with p-values of .001. Greater differences with a p-value of .000 and with F-statistics in a range of 13 to 21 are found among physical product, technical support services, the working relationship, and the number of prior purchases. Very large differences (F-

statistics of 32 to 33) are found amongst the firms on the importance of the branding attributes of how well known and reputation, with the number of prior purchases with a lower F-statistic of 16.44.

In contrast to the bearings survey results, bigger differences were found over the importance of the physical product, with an F-statistic of 21.22 and a p-value of .000, compared to an F-statistic of 2.03 and a p-value of .136. The branding attributes revealed highly significant differences in the circuit breaker data, but considerably lower F-values than in the bearings data (16 to 33 versus 68 to 89).

TABLE 7.12

Results of Tests of Differences Between Circuit Breaker Clusters

Perceived Importance of Attribute Importance	High tangibility	Low relevancy	Branding receptive
	Cluster 1 (C1)	Cluster 2 (C2)	Cluster 3 (C3)
Ordering and delivery services	< C3 ^a	< C3 ^b	> C1 ^a > C2 ^b
Physical product properties	> C2 ^a	< C1 ^a < C3 ^a	> C2 ^a
Price	> C2 ^a > C3 ^b	< C1 ^a < C3 ^b	< C1 ^b > C2 ^b
Technical support services	> C2 ^a > C3 ^c	< C1 ^a < C3 ^a	< C1 ^c > C2 ^a
Quality of the working relationship	< C2 ^c < C3 ^a	< C3 ^a > C1 ^c	> C1 ^a > C2 ^a
How well known the supplier is	< C2 ^a < C3 ^a	< C3 ^a > C1 ^a	> C1 ^a > C2 ^a
General reputation of supplier	< C3 ^a	< C3 ^a	> C1 ^a > C2 ^a
Number of prior purchases from supplier	< C2 ^a < C3 ^a	< C3 ^b > C1 ^a	> C1 ^a > C2 ^b

^a p< .01 (LSD)

^b p< .05 (LSD)

^c p< .10 (LSD)

Firms in Cluster 3 can be considered *branding receptive*, and account for 48 percent of the sample, or 31 cases. Branding receptive firms perceive all three branding attributes to be of significantly higher importance ($p < .01$) than do firms in the other two clusters. To review, the branding attributes include: how well known is the manufacturer, a measure of brand name awareness; general reputation of the manufacturer, a measure of brand image or reputation, and the number of prior purchases from the manufacturer, an indication of brand purchase loyalty. Branding receptive firms also perceive a significantly higher importance ($p < .01$) of the service aspects of the ordering and delivery service, technical support services, and the quality of the working relationship. The importance of short lead times and of good technical support play an important role in the quality of working relations. These comparative results were very similar to those of the bearings survey.

Cluster 2 can be described as one of *low relevancy*. Circuit breaker purchases have low relevance to these firms, which account for 23 percent of the sample, or 15 cases. To these firms, three of the four most important attributes (price, technical support service, physical product) are perceived to be statistically less important ($p < .01$ or $.05$) than in both of the other clusters. Ordering and delivery services were statistically less important ($p < .05$) than in Cluster 3, and general reputation was statistically less important ($p < .01$) than in Cluster 3. The importance of other three attributes (quality of the working relationship, how well know the supplier is, and number of prior purchases) were statistically lower than in Cluster 3 ($p < .01$ or $.05$), but higher than in Cluster 1 ($p < .01$ or $.10$).

Cluster 1 firms can be characterised as *high tangibility* firms for circuit breaker purchases, and constitute 29 percent of the sample, or 19 cases. To these firms, the branding and more intangible aspects of the offer are significantly less important ($p < .01$) than to the branding receptive firms of C3 and the low relevancy firms of C2 ($p < .01$). The more tangible aspects such as price, physical product properties, and technical support services are most highly rated, and are significantly more important than in the low relevancy cluster ($p < .01$). Price ($p < .05$) and technical support services ($p < .10$) are more important than in the branding receptive cluster. Perhaps the most interesting contrast is in how the sample is distributed across the clusters. Table 7.13 compares the customer segments of the bearings standard clustering, bearings tandem clustering, and circuit breaker standard clustering.

TABLE 7.13

Comparison of Customer Segments

Bearings Survey and Circuit Breaker Survey

Segments	Standard Clustering Bearings % of sample	Tandem Clustering Bearings % of sample	Standard Clustering Circuit Breakers % of sample
Branding receptive	37	44	48
Low relevancy	14	21	23
High tangibility	<u>49</u> 100	<u>35</u> 100	<u>29</u> 100

As before, the formation and composition of the clusters emphasises the role of the perceived importance of branding attributes in developing customer segments. The company clusters of branding receptive, low relevancy and high tangibility reflect strong differences in how customers perceive the importance of branding and other intangible attributes. The next step is to link these attitudinal aspects with company and behavioural characteristics.

7.6 DISTINGUISHING CHARACTERISTICS OF THE CLUSTERS

The next step in the research is to move from the more general analysis of the purchase situation to an analysis of the distinguishing characteristics of the three previously identified clusters. Since the importance of branding played an important role in determining the clusters, it is important to ascertain whether companies within a cluster share identifiable characteristics that will facilitate accessibility. This analysis involves identifying discernible or distinguishing features of each of the three firm clusters by using the data collected on buyer, purchase, and decision process characteristics. The objective is to analyse the links between the benefit importance clusters and the more accessible and discernible buyer and purchase characteristics. Understanding these links can facilitate the development of customised marketing approaches.

The following sections present the results of the analysis of the distinguishing characteristics of the clusters. For the metric and scaleable variables, ANOVA, followed by several GLM multivariate post hoc multiple comparisons for observed means were conducted using SPSS Version 7, including Tukey's

honestly significant difference test of pairwise comparisons, Scheffe's test of linear combinations of the group means, and the least significant difference (LSD) pairwise multiple comparison test. The categorical data are analysed using several crosstabs statistics in SPSS Version 7 for nominal data, including the Phi coefficient, Cramer's V, and the contingency coefficient, to determine if statistically significant differences between the clusters exist.

7.6.1 Buyer Characteristics by Cluster

Table 7.14 summarises the buyer characteristics by cluster. Each characteristic is discussed in turn.

Line of business

Line of business is less relevant in this survey than in the previous survey, due to the nature of the sampling frame, a list of UK electrical contractors. Most of the respondents did indicate electrical contracting as their primary line of business (84.1%). The line of business for the rest of the sample is: electrical engineering (8.7%), electrical manufacturing (4.3%), and electricity supplying (3.1%). No significant differences were found in these proportions across the three clusters.

Annual circuit breaker purchases

Segmentation by annual value of purchases is another common practice. The mean value of circuit breaker purchases in the sample was £77,630. The high tangibility cluster had the highest sample mean of £119,500. Analysis of the differences in annual value across the clusters revealed no significant differences

TABLE 7.14

Buyer Characteristics by Circuit Breaker Cluster

Buyer Characteristic	Sample n=69	Cluster 1 n=19	Cluster 2 n=15	Cluster 3 n=31
Line of business	%	%	%	%
electrical contractor	84.1	78.9	86.7	87.1
electrical engineering	8.7	10.5	0	9.7
electrical manufacturer	4.3	0	13.3	3.2
electricity supplier	2.9	10.5	0	0
Primary decider				
distributor	3.0	5.3	0	3.4
purchaser	70.1	63.2	80.0	69.0
someone else in the company	22.4	31.6	13.3	20.7
customer	4.5	0	6.7	6.9
Annual circuit breaker purchases (in £)	77,630	119,500	98,667	45,677
Years of purchasing circuit breakers	16.8	17.1	14.3	18.1
Age	43.9	41.3	45.2	44.8
Frequency of purchases (in weeks)	2.57	3.99	3.95	1.33
Circuit breaker expertise <i>1=low to 7=very high</i>				
Personal technical expertise	4.38	4.32	4.13	4.55
Company technical expertise	5.12	5.11	4.53	5.42
Personal market knowledge	5.26	5.21	4.93	5.48
Perception of supplier differences (final stage) <i>1=no differences</i> <i>7=extreme differences</i>	2.58	2.16	2.67	2.78
Perception of subjectivity of evaluating the attributes <i>1=subjective to 7=objective</i>				
price	5.89	6.0	5.93	5.90
ordering & delivery	5.50	5.33	5.53	5.59
physical product properties	5.30	5.33	4.80	5.48
technical support services	5.17	5.06	5.07	5.24
general reputation	5.30	5.22	5.13	5.31
how well known	5.30	5.11	5.13	5.38
working relationship	5.17	4.88	4.67	5.52

amongst the clusters ($F=1.15$, $p=.323$). Due to high variation within the clusters, the differences between the clusters were not statistically significant.

Frequency of circuit breaker purchases

Firms in the sample on average purchase circuit breakers approximately every 2.57 weeks. Firms in C3, the branding receptive cluster, purchase circuit breakers the most frequently, with purchases every 1.3 weeks. Firms in the low relevancy cluster and the high tangibility cluster purchase circuit breakers every 4 weeks. Differences between the clusters were not highly significant ($F=2.22$, $p=.117$), yet firms in the branding cluster do purchase circuit breakers significantly more frequently ($p=.075$) than do firms in the low relevancy cluster.

Circuit breaker expertise

Buyers in the sample evaluate their circuit breaker expertise highly, on a scale of 1=low and 7=very high. The sample means and cluster means are all above the midpoint value. Market knowledge has the highest mean value (5.26), followed by company technical expertise (5.12), and personal technical expertise. Firms in the branding receptive cluster have the highest mean values of all three aspects of circuit breaker expertise. Their company technical expertise is significantly higher ($p=.022$) than in the low relevancy cluster. The other differences are not statistically significant, but are similar in nature to those of the bearings survey, which are more significant.

Perception of supplier differences

To measure the degree of perceived differentiation at the final decision stage, the respondents were asked how much the brands they consider in the final stage typically differ on aspects that are important to their decision, with 1=no differences and 7=extreme differences. The sample mean is quite low (2.58), and each cluster mean is also below 3.0 on the scale. Firms in the branding receptive cluster have the highest of the three cluster means (2.78), with firms in the high tangibility cluster having the lowest mean (2.16). Although firms in the branding receptive cluster perceive greater differences amongst the considered suppliers, this is not a statistically significant difference.

Perception of subjectivity of evaluating the attributes

Respondents were asked to describe how subjective or objective their evaluations of seven circuit breaker decision attributes are, using a scale of 1=subjective to 7=objective. The only significant difference arising from the data is that firms in the branding receptive cluster perceive their evaluations of the working relationship as more objective ($p = .049$) than did firms in the low relevancy cluster.

After tandem clustering, the branding receptive firms evaluated the number of prior purchases to be more objective ($p < .05$) than did those in the low relevancy tandem cluster, and evaluated reputation to be more objective ($p < .05$) than did the high tangibility tandem cluster. Firms in the high tangibility tandem cluster viewed their evaluations of physical product properties to be more objective ($p < .05$) than did firms in the other tandem clusters.

7.6.2 Purchase Characteristics by Cluster

Purchase characteristics were examined by cluster for the sample. Table 7.15 summarises the findings.

TABLE 7.15

Purchase Characteristics by Circuit Breaker Clusters

<i>Characteristic</i>	<i>Overall Sample</i> n=66	<i>Cluster 1</i> n=18	<i>Cluster 2</i> n=15	<i>Cluster 3</i> n=29
Perceived risk <i>1=no risk to 7=high risk</i>				
personal safety risk	3.79	3.78	4.80	3.62
financial risk	3.75	4.22	3.33	3.79
overspending risk	2.95	3.41	2.40	3.07
reputation risk	3.48	3.65	3.27	3.67
overall	3.78	3.83	3.66	3.93
How used	%	%	%	%
in-house process	4.3	10.5	0	3.2
customer's process	58.0	68.4	60.0	51.6
in a customer product	37.7	21.1	40.0	45.2
Buy class	%	%	%	%
new design	60.9	68.4	53.3	61.3
modified design	17.4	15.8	6.7	22.6
modified rebuy	1.4	5.3	0	0
straight rebuy	20.3	10.5	40.0	16.1
Cost of most recent purchase (£)	6142	18,620	2832	1359

Perceived risk

The levels of perceived risk in the sample were relatively low, with each measure evaluated below the midpoint value. This may be below the threshold

Gemunden (1985) referred to. Firms in the branding receptive cluster had the highest mean values of the clusters for overall risk and risk to buyer reputation.

Firms in the low relevancy cluster had the lowest mean values for four of the five

measures of perceived risk. The two additional measures of perceived risk in the circuit breaker survey generated good information, yet did not cast much new light on the relationship between perceived risk and the cluster formation. The generally low levels of risk limit the realisation of statistical differences.

How used

In the sample overall, approximately two-thirds of the circuit breaker purchases were used for a manufacturing process, while one-third were incorporated into another product for further sale. This is the reverse of the proportion found in the bearing survey. The purchases of the branding receptive firms are significantly more likely to be used as a product input than are the purchases of the high tangibility cluster ($p=.091$). Brand receptivity may be related to the need to keep the expected views of the end user in mind.

Buy class

In the circuit breaker sample, 60.9% of the purchases are considered new design, with 20.3% considered straight rebuys. In contrast, in the bearings survey, straight rebuys accounted for 68 percent of the purchases overall. In the circuit breaker survey, the high tangibility cluster is characterised by the most complex purchase situations, and the low relevancy the most straightforward, and with the firms in the branding receptive cluster in the middle. The high tangibility firms have significantly more complex purchase situations than the low relevancy firms ($p=.096$). It is logical that low relevancy firms would have the highest proportion of straight rebuys and the lowest proportion of new designs.

7.6.3 Decision Process and Choice Characteristics

Decision process and choice characteristics were examined by cluster. Table

7.16 summarises the decision process characteristics by cluster.

TABLE 7.16

Decision Process and Choice Characteristics by Circuit Breaker Clusters

<i>Characteristic</i>	<i>Sample</i> n=69	<i>Cluster 1</i> n=15	<i>Cluster 2</i> n=13	<i>Cluster 3</i> n=29
Supplier type	%	%	%	%
Distributor	88.4	78.9	86.7	93.5
Manufacturer	11.6	21.1	13.3	6.5
Decision process	%	%	%	%
consider others' recommendation	22.1	22.2	20.0	22.6
consider only those used before	54.4	33.3	46.7	67.7
screening stage & final stage	23.5	44.4	33.3	9.7
Decision protocol used in final stage	number n=69	number n=19	number n=15	number n=31
	%	%	%	%
Compensatory	11.6	15.8	6.7	9.7
Hierarchical	31.9	31.6	40.0	25.8
Both	10.1	5.3	0	16.1
some protocol used	53.6	52.6	46.7	51.6
none used	46.4	47.4	53.3	48.4
Number of suppliers in consideration set (mean)	2.93	3.17	2.67	2.80
Number of suppliers purchased from mean in most recent order	2.02	2.19	1.71	1.97
Purchase loyalty for first choice				
frequency of purchases from choice set	6.38	6.59	6.07	6.43
1=never before 7=very often				

Supplier type

The sample reflects the dominance of the industrial distributors for relatively small quantities of circuit breakers. Eighty-eight percent of the sampled firms purchased their most recent circuit breaker from a distributor. The branding receptive cluster has an even higher percentage of firms buying from a distributor (93.5%), with the high tangibility cluster having the lowest proportion (78.9%). However, the clusters do not significantly differ in type of supplier for the most recent purchase.

Decision process

Most buyers in the sample used a relatively low involvement decision process, with 22 percent considering only those brands recommended by someone else. The cluster breakdown is very close to the overall mean, with all three clusters between 20 and 22.6 percent using this lowest involvement process. The bigger differences lie with the breakdown of the next two categories, in which the sample mean of firms considering only brands used before is 54.4 percent, and 23.5 percent of the firms use the higher involvement process of the two-stage decision. Thirty-three percent of the high tangibility cluster relied on brands used before, with 44 percent using the higher involvement two-stage decision process. In contrast, 68 percent of the branding receptive cluster relied on brands used before, while only 10 percent used a two-stage process. Indeed, the high tangibility cluster uses a more-involved process than the branding receptive cluster ($p=.087$). The high reliance of the branding receptive cluster on brands used before is an indication of the strength of brand purchase loyalty in the

cluster. Incumbent suppliers appear to have considerable advantage over non-incumbent suppliers to these firms.

Decision protocols used

In the sample overall, 52 percent of the buyers indicated that they used either of the two kinds of decision protocols (rating or ranking and the knock out process). The cluster results reveal no significant differences in the clusters on use of a particular decision protocol or the use or non-use of such protocols overall. Branding receptive buyers were not more or less likely to use a formal decision protocol than were buyers in either of the other clusters

Number of brands in the consideration set

Firms in the sample on average considered three circuit breaker brands, which is considerably lower than the bearings survey average of four to five brands. The high tangibility firms considered slightly more (3.2) than did the low relevancy firms (2.7), but this was not statistically significant. This lack of variation may be explained by the heavy use of distributors, which do not always offer a full range of brands.

Number of suppliers purchased from

Firms in the sample generally purchased from one to two firms in their most recent order, with a sample mean of 2.0. Firms in the high tangibility cluster purchased from the most suppliers (2.2), and firms in the low relevancy cluster purchased from the least (1.7), but this difference was not statistically significant. Some evidence of single sourcing could be found, but this was not widespread.

Purchase loyalty for first choice supplier

Firms in the sample tend to rely heavily on suppliers from whom they have purchased previously. In the most recent purchase, firms frequently purchased from their first choice supplier, with an overall mean of 6.38 on a scale of 1 = never before purchased from to 7 = very often purchased from. The low relevancy firms have the least purchase loyalty, but the differences in clusters is not significant. This finding may imply a widespread practice of developing and maintaining a buyer-supplier relationship with a few key circuit breaker suppliers.

7.7 SUMMARY AND COMPARISON TO BEARINGS SURVEY RESULTS

The cluster analysis revealed a number of important and practical differences between the clusters, as summarised in Tables 7.17 to 7.19. Many of the differences between the clusters on the various characteristics are nominal or apparent, yet not statistically significant. Yet, as a number of authors have discussed in detail (Dibb and Stern 1995; Sawyer and Peter 1983), many problems arise in correctly interpreting empirical findings. Care has been taken not to overstate the results or to make claims as to their replicability. However, given the dearth of previous empirical research on industrial branding, the research does make an important contribution to understanding of to whom and in what circumstances industrial branding is important. Consequently, it is

appropriate to re-examine the insights gained from prior research and the exploratory interviews, and to place the survey results in a broader context.

TABLE 7.17

Summary of Distinguishing Buyer Characteristics of Circuit Breaker Clusters

Buyer Characteristics	C1 High tangibility	C2 Low relevancy	C3 Branding receptive
Line of business	more senior managers	more engineering managers	more purchasing professionals
Annual value of circuit breaker purchases	highest value £120,000	middle £99,000	lowest value £46,000
Frequency of circuit breaker purchases	less frequent, every 4.0 wks	less frequent, every 4.0 wks	most frequent 1.3 wks
Age	- mean of 41 to 45 years -		
Years of purchasing circuit breakers	- mean of 14 to 18 years -		
Circuit breaker expertise	middle	lowest	highest
Perception of supplier differences	lowest	middle	highest
Perception of subjectivity of evaluations	middle	most subjective	most objective

TABLE 7.18

Summary of Distinguishing Purchase Characteristics of Circuit Breaker Clusters

<i>Characteristic</i>	C1 High tangibility	C2 Low relevancy	C3 Branding receptive
Perceived risk			
personal safety risk	mid	high	low
financial risk	high	low	mid
overspending risk	mid	low	high
risk to reputation	mid	low	high
overall	mid	low	high
How used	More in-house use	mixed	more use in products for sale to customers
Buyclass type	more new design	more straight rebuy	mixed
Cost of most recent purchase	Highest	middle	lowest

TABLE 7.19

Summary of Distinguishing Decision Process and Choice Characteristics of Circuit Breaker Clusters

<i>Characteristic</i>	C1 High tangibility	C2 Low relevancy	C3 Branding receptive
Decision Process Characteristics			
Supplier type	- dominance of distributors in all clusters -		
Number of decision stages	Higher involvement		higher reliance on brands used before
Decision protocol used in final stage	- no real differences in clusters -		
Choice Characteristics			
Number of brands in consideration set	Slightly more	average of 3 brands	slightly less
Number of brands most recently purchased from	Slightly more	average of 1 to 2 brands	slightly less
Purchase loyalty for first & second choice	Average loyalty	least loyalty	average loyalty

Although some of the descriptors in the tables lack hard measures, they have resonance and relevance to the participants in the circuit breaker decision process. The descriptors are qualitative, but are supported by the survey results. There is little point in developing a new approach to market segmentation if it cannot be useful for decision making. The clustering approach utilised in the thesis does have practical relevance. By identifying customer groups with the greatest potential and the best fit with firm competencies, segmentation can facilitate the setting of priorities. Also, by identifying customer needs and preferences, segmentation can be used to develop customised marketing approaches.

As described earlier, the objectives of the thesis centre on better understanding to whom and in what situations industrial branding is important. The importance of branding is related to a number of identifiable buyer, purchase and decision process aspects. The empirical findings summarised in this chapter integrate with the findings of the exploratory interviews in Chapter 5, and the findings of the bearings survey in Chapter 6.

The perceived importance of branding plays a role in the strategic segmentation of industrial markets. Segmentation by benefits enhances traditional segmentation by industrial sector, value of purchases, and buyclass factors. The benefit segmentation generated a number of insights that were not forthcoming from the more traditional segmentation. Difference in the perceived importance of branding was a primary determinant of the customer clusters. The branding

receptive cluster of firms constituted more than 48 percent of the sample, so the potential is great.

Understanding of the role and importance of branding enables marketers to act on the insights about their customers and to develop effective branding strategies. These strategies are discussed in more detail in Chapter 8.

Chapter 8

IMPLICATIONS, CONTRIBUTIONS, AND LIMITATIONS

In this final chapter, it is natural to return to the main questions stimulating the research. The previous chapters have described and explained what industrial branding is, have provided evidence that industrial branding is important to sellers and to some buyers in certain purchase situations, and have raised a number of important managerial issues.

The following sections attempt to directly answer the third research question regarding the managerial implications of industrial branding. Section 8.1 views industrial branding from the seller's perspective, and details a number of implications for industrial brand management. Section 8.2 takes the perspective of the buyer or buying company, and discusses the implications for strategic industrial purchasing. Section 8.3 recaps the contributions of the research on a chapter by chapter basis. Finally, Section 8.4 identifies the limitations of the research, and the implications for future research.

8.1 IMPLICATIONS FOR INDUSTRIAL BRAND MANAGEMENT

The objectives of industrial branding are quite straightforward. Effective brand management has the potential to increase a company's financial performance and long run competitive position. As Court (1997, p. 26) observed, "Relatively few

companies establish true power brands... yet many companies manage to create substantial shareholder value by prudent investment in brand building.”

Industrial branding involves a complex process of strategic development and implementation. Others have identified and discussed general marketing strategies (e.g., Hooley, Lynch and Jobber 1992). This section focuses on the implications for industrial branding strategies. A common theme of this research is that branding is not equally important to all companies or to all customers.

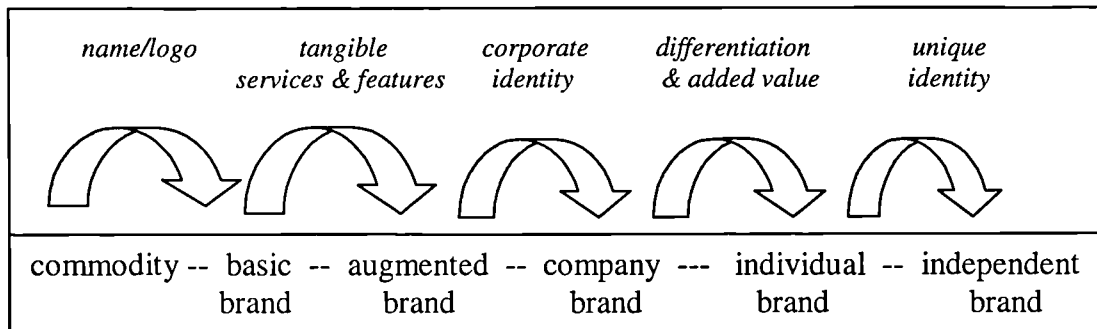
8.1.1 Industrial Branding Strategies

Industrial branding is *the process of increasing the meaningful differentiation of an industrial product through the development of added values or benefits of the brand and their communication to the customer*. Branding involves the positioning or re-positioning of the brand in the mind of the customer relative to other competing brands. The pinwheel model of value highlights that successful branding engineers a close fit between the benefits desired by customers and the tangible and intangible features of the brand. Secondly, industrial branding requires a co-ordinated programme to communicate those benefits internally within the organisation, and to current and potential customers.

Brand management decisions need to consider the current position of the brand on the continuum of industrial products and brands. Figure 8.1 summarises various elements of the process of using a name/logo to tangible services and features, to corporate identity building, to differentiation and added value, and to a unique identity.

FIGURE 8.1

Strategy and the Continuum of Industrial Products and Brands



Development and promotion of the *brand name and logo* provides a focal point for awareness within the internal organisation, as well as a focus for external customer and supply chain partner awareness. The name facilitates communication by offering a shorthand way of referring to the brand. Given the plethora of industrial products and companies, and the multitude of purchase decisions that a typical organisational buyer makes, anything a company can do to eliminate noise in the communication channel can be beneficial.

Examinations of catalogues, brochures, and sales presentations often reveal inconsistencies in the way a company refers to its brands. These may indicate to the buyer that the company is not dedicated to consistency and co-ordination of effort. Secondly, it may simply add unnecessary complexity to the decision, since the buyer may need to first decide if the various communications refer to slightly different product alternatives, or to the same one.

Development of *tangible services and features* adds value to the physical product and provides functional benefits to customers. The most direct method of adding

value is to enhance the physical product. Physical product quality is the foundation of any industrial brand's success. Given the complexity of many industrial products, meaningful differentiation can be difficult to identify, and even more difficult to communicate. The difficulty often lies in the lack of understanding of the difference between a features approach and a benefits approach. If customers do not understand or highly value technical improvements, the costly race to achieve them may be an ineffective allocation of firm resources. Customers that are hard to impress with technology are generally less willing to fully pay for it. Instead, they may be looking elsewhere for additional value.

Development of augmented services and features add value to the core product and provide additional benefits to customers. These help to build and cultivate the buyer-supplier relationship and encourage purchase loyalty. Distribution performance, in terms of required lead times, and on-time delivery, can be a critical factor. Increasing product availability and decreasing lead times can be costly to the manufacturer, so the benefits to the customer need to be calculated in a meaningful way. Sometimes buyers complain about the costs of product unavailability, yet do not significantly change their purchasing patterns because of it. Short-term and long-term purchase loyalty must be considered. Even if customers do not always choose to vote with their feet and switch suppliers, it is unfair and unwise to conclude that the buyer-supplier relationship is robust and healthy. Advances in electronic ordering technology offer new challenges to buyer-supplier relationships and brand purchase loyalty. Technical support services also offer tangible and intangible benefits to customers. Many

customers increasingly rely on their suppliers for design advice, training, and troubleshooting. Tangible aspects of the offer are enhanced through the development of trust and confidence in the quality of support.

The heart of a branding strategy is the development of *intangible differentiation and added value* to provide emotional and self-expressive benefits to customers. These features stimulate positive perceptions and expectations, help build the intangible aspects of the buyer-supplier relationship, and encourage future purchases. The more intangible features and their accompanying benefits are generally more difficult to develop, but often have more lasting value.

Tangible and intangible differentiation and added values are important for company brands and individual brands, and both of these involve different industrial branding strategies. Figure 8.2 introduces one approach to describing the strategic options. Some overlap is involved, and the strategies can be combined to create integrated approaches.

The *company push* strategy targets the intermediary customer and typically emphasises the more tangible aspects of the company brand, such as the core product and the augmented services. Intangible attributes of the company may also be promoted. Advertisements in the general business press that emphasise the more intangible attributes and benefits of the company as a whole can be effective. Some of these advertisements may be targeted to stockholders or potential investors rather than product buyers, especially if aspects of the firm's financial performance history are featured.

FIGURE 8.2
Typology of Industrial Branding Strategies

		TARGET CUSTOMER	
		Intermediary (Push Strategy)	End User (Pull Strategy)
BRAND TYPE	Company Brand	company push	company pull
	Individual Brand	brand push	brand pull

The *company pull* strategy targets the end user, and typically emphasises the more intangible attributes and benefits of the company as a brand, such as reputation, leadership and image. Communication of the more tangible attributes of the company such as financial performance, market share and global coverage may also be important to some customers. Company pull strategies have become an important aspect of a branding strategy for high-tech firms (Blankenhorn 1997), and to a lesser degree for manufacturers in automotive sectors. The potential for traditional manufacturing sectors may be more limited.

The *brand push* strategy targets the intermediary customer and typically emphasises the more tangible aspects of the individual brand, and its particular strengths and benefits. Technical details of the product are often featured. The choice of media is very important. As part of a company push strategy, a firm may attempt to explain the tangible benefits of a particular brand to potential buyers or purchasing managers. Trade press and direct mail may be the most appropriate for a brand push strategy.

Finally, the *brand pull* strategy targets the end user, and emphasises the more intangible attributes and benefits of the individual brand, such as risk reduction, innovation, and image. Brand comparison may play an important role in this strategy, especially if tangible features of the brand are expected to be important. Brand pull strategies emphasise the individual brand, with the company identity often intentionally underplayed. Brand pull strategies are becoming increasingly common in a number of areas including textile fibres and pharmaceuticals.

Perhaps the most central recommendation arising from the literature and the research is to recognise that intangible factors matter, even in rational and systematic decision making. Price and the hard, tangible attributes of the physical product do not fully explain purchase decisions and the resulting market share. General notions of the quality of the company's people, and its skill in satisfying customers are important to customers. Also, technical competence is not always available in a fully tangible form, relying instead on perception of

technological leadership. The challenge is to learn how to communicate the benefits of leadership and other intangibles to customers.

It is important for firms to talk with customers to better understand how important the intangible attributes of industrial brands are to the choice decision. Secondly, firms need to develop ways to effectively communicate the intangible attributes of their brands and to explain their benefits to the customer. Court (1997, p.34) offers a general word of advice:

“Companies in industries that have not historically used brands to build value should put brand building on their management agenda. They should not, however, get lost in the challenge. All the while they are putting intelligent energy into conveying an emotionally engaging message, companies must not forget that their core product assets – proprietary technologies in the case of computer manufacturers, say, or investment expertise in the case of mutual fund providers – will continue to be a source of functional superiority over branded competitors. It is, after all, differentiation of this sort that built their brands in the first place.”

Realistic appraisals of company capabilities, competitor activity and customer needs remain the basis of effective branding strategies.

8.1.2 Implications and Recommendations for Customer Benefit Segments

To respond to customer needs, the best strategy is to consider changes in each aspect of the overall marketing mix in a co-ordinated and timely fashion. The physical product itself may need to be modified to better suit particular customer groups. For industrial products, this may involve extensive research and development (R&D) time and expenditure. Proliferation of product variations

can be confusing to customers and within the organisation. Transaction costs can be significant.

Pricing is sometimes inflexible. List prices are formally stated, printed and distributed, and can be difficult to adjust, as regulations may be involved, especially for government contracts. The negotiated price can be more easily adjusted, but customers might not perceive real changes. Customer expectations of price often focus on negotiated rather than on list price, yet list prices are easier to compare. As discussed earlier, care must be taken to ensure that the pricing reflects the product offered and the competitive conditions.

In addition, ordering and delivery services are often the most important aspect of customer satisfaction. Employees influencing customer satisfaction cut across multiple levels of employees, make them difficult to manage. Changes and expansions of the distribution channels often involve legal agreements, multiple parties, contracts and substantial lag times. Product-oriented advertising directed to users or purchasers often is not co-ordinated with company-oriented advertising. Web sites are increasingly used, but may have conflicting objectives. Personal selling remains the primary tool of promotion in many business-to-business markets. Additional service implies added costs and stimulates raised expectations. Tangible aspects of added services are relatively easy for competitors to copy. Good service requires a company-wide approach. Service providers are sometimes contract employees to the parent company. Changing service agreements often involve lengthy negotiations and time delays.

Customised marketing approaches can incorporate a wide range of potential modifications to the product or service on offer, involving the adjustment of the overall marketing mix. Research may indicate that various components of the marketing mix need to change to please particular customer groups. Still, developing and implementing customised approaches remain difficult.

Chapter 6 identified three clusters or segments of customers. Customers in these segments significantly differed in their perception of the importance of branding in the purchase decision. Marketers can benefit by analysing the branding implications for each cluster regarding brand naming, the physical product, pricing, distribution, advertising and promotion, and personal selling.

A branding strategy focusing on customers in the *low relevancy* cluster, may attempt to emphasise the potential importance of the bearings purchase decision. Product catalogues and websites can be made attractive and appealing in an attempt to increase buyer interest in the product and in the purchase decision. Mini case studies or testimonials from customers who in the past did not take the purchase seriously could be shared. Additional resources may not be necessary for further development of the physical product. Instead, it may be worthwhile to dedicate resources to improving the ease of ordering. Ease of ordering can be enhanced through a co-ordination of telephone, fax and on-line ordering systems, and personal selling.

Branding strategies to attract more business from the *high tangibility* cluster may emphasise the many tangible, quantifiable, and objective benefits of the product

itself, and of the manufacturer behind the product. Physical product improvements may be important, yet the emphasis needs to be on closely matching the physical features to the benefits to the customer. Customers in the sector may be more impressed by technological innovation, but only if its benefits can be explained and measured. Communications need to identify ways to more objectively evaluate even the more intangible benefits of the brand, such as reduction of perceived risk and uncertainty, and corporate financial stability.

Efforts to attract sales from the *branding receptive* cluster should emphasise the unique nature of each purchase, and the need for objective advice and support from a well-established, highly reputable and flexible manufacturer.

Communications will acknowledge the foundation of a high quality physical product, and the functional benefits of augmented services, but will highlight the emotional and self-expressive benefits of the brand. A combination of a strong company brand and an effort to differentiate an individual brand is likely to be the most worthwhile in this segment.

A broad-based integration of the most appropriate aspects of the marketing mix is the ideal. In the short run, however, the emphasis is often on linking the results of segmentation analysis to current promotion and marketing communications efforts. In consumer product markets, segmentation analysis is frequently utilised to shape advertising and direct marketing campaigns to appeal to target customers. In contrast, personal selling remains the primary tool of promotion in many business-to-business markets. In business-to-business markets, the responsibility for implementing segmentation recommendations

generally falls to the sales representative, not the advertising executive (Robertson and Barich 1992).

Some intellectually sound and logical segmentation efforts fall flat, not because they are wrong, but because they fail to reflect this difference in implementation. The experts who come up with a new approach may convince top management of its important strategic implications, but may have more difficulty explaining the benefits to sales managers and the sales representatives themselves. Successful segmentation demands that the practicalities of implementation be fully taken into account.

Understanding differences in the nature of trust of a salesperson and trust of a company is “particularly important in business marketing situations in which the sales force plays a key role in implementing the supplier’s marketing strategies and managing customer relationships” (Doney and Cannon 1997, p. 35). Theodore Levitt’s early studies (1965) on the differing effects of the sales person’s company and the presentation itself on buyer perceptions remains very relevant today.

8.2 IMPLICATIONS FOR STRATEGIC INDUSTRIAL PURCHASING

Buyers often find themselves required to purchase in an unfamiliar product sector, or in a sector characterised by extensive competitor activity. In these situations, the company brand can signal or symbolise expected brand performance. To a buyer, a first line of inquiry is often to determine which of the

competing brands commands the largest market share. If the manufacturer is a large multinational company with prominence in a number of sectors, it may be relevant to determine the relative importance of this particular product sector to the company as a whole. Also, a large manufacturer may lack the resources and motivation to serve small orders or small companies. On the other hand, if the manufacturer is relatively small, it is important to determine if it has sufficient resources backing its product and services.

Yet, there is more to a successful brand than market share. The next step is for the buyer to examine the alternative suppliers in an effort to identify meaningful areas of differentiation and sources of added value. Scrutiny of news reports, the company literature, advertising, and questioning of the sales person should reveal a consistent message concerning how the company perceives its source of competitive advantage. This may be at the company or individual brand level. It may be revealing to note, for example, how competing companies differ in their brand naming strategies.

The company brand is likely to be more important to the buyer buying a wide range of related products. The individual brand characteristics may be more relevant to other buyers. Similarly, the main differentiation may be on the physical product or on service or on more intangible aspects of the purchase. Differentiation may be on the basis of functional benefits or on emotional and self-expressive benefits. It is important for each buyer and buying organisation to assess its purchasing priorities.

With leading brands come higher expectations. Yet everything has an associated cost. Buyers who choose a leading brand should be aware of the range of services that are available, and the likelihood that the company can consistently do what it claims. The maxim, “you get what you pay for” may be generally true, but is not necessarily an accurate or helpful guide for a particular purchase. Sometimes a buyer gets more than he/she thought was needed, especially in terms of emotional or self-expressive benefits of a brand. Other times a buyer pays for more than he/she gets or needs. Leading brands offer additional features and benefits, but if they do not correspond to a buyer’s set of needs and priorities, they do not provide good value.

Purchase decisions must be based on facts and reason, yet the research indicates that effective industrial purchasing recognises that intangible factors matter, even in rational and systematic decision making. Purchasing management should take that understanding and try to find more objective measures for the most subjective aspects. Still, strategic purchasing managers realise that not everything can be quantified. Managers should encourage buyers to use their professional judgement, and not strictly rely on textbook approaches to purchase decisions.

8.3 OVERVIEW OF RESEARCH CONTRIBUTIONS

Chapter 1 - Introduction

The first chapter raises the main questions stimulating the research, and explains the relevance of the research to academics and practitioners. In addition, the

chapter clarifies several issues of terminology concerning industrial products and markets. These insights emphasise the need to refrain from oversimplifying the nature of industrial products and industrial markets.

Chapter 2 - Literature Review

Although the extant literature on industrial branding *per se* is quite limited, the literature review of Chapter 2 highlights the importance and relevance of the literature in a number of other areas. The chapter challenges academics and managers to place industrial branding into a broader context, and highlights pertinent aspects of five distinct management literatures: consumer branding, organisational buying behaviour, choice modelling, buyer-supplier relations, and industrial segmentation. Each offers unique theories and models which industrial branding research must acknowledge and utilise as appropriate. The challenge of industrial branding research, and indeed any cross-disciplinary research, is to identify which concepts and models are the most relevant. The literature review makes a good effort to do this.

Chapter 3 - Conceptual Framework and Hypotheses

Chapter 3 answers the deceptively simple question of what is industrial branding by introducing a *continuum of industrial brands* (Figure 3.1). Industrial branding is the process of increasing the meaningful differentiation of an industrial product through the development of added values or benefits of the brand and their communication to the customer. Several tables provide detailed guidance

for distinguishing amongst various types of industrial brands along the continuum.

The *pinwheel of brand value to the industrial customer* provides a way of organising the very complex origins of added value, with tangible and intangible aspects reinforcing the four basic components of performance. The *general model of industrial branding* places branding in the broader context of organisational buying behaviour. The model offers a way of empirically testing the interrelationships involved.

Webster and Wind established insightful standards for good, practical models of organisational buyer behaviour (1972b, p. 5). To them, a good model should: (1) help identify, guide and evaluate the need for market information; (2) aid in the analysis and interpretation of available information; and (3) improve the firm's marketing strategies toward the various organisational market segments. The pinwheel of brand value to the industrial customer (Figure 3.3) and the general model of industrial branding in the purchase decision process (Figure 3.4) have demonstrated their contributions in each of these aspects.

The multi-part conceptual framework for industrial branding of Chapter 3 enables the key questions surrounding industrial branding to be addressed and answered. The first part addresses the question of what industrial branding is, and provides a way of integrating the many aspects of branding as perceived by customers. The second question is whether industrial branding is important, and if so, to whom. The model of branding in the decision process enables these

questions of branding importance to be systematically examined. The model also facilitates efforts to answer the third key research question of what are the implications of industrial branding for managers. Only by understanding the role of branding in the decision process can effective managerial responses and strategies be formulated. Chapters 6 and 7 discuss the testing of the model. Then, this final chapter revisits the model and assesses the model's overall contributions and limitations (see p. 315).

Chapter 4 - Research Design and Methodology

Chapter 4 on research design and methodology provides a practical step forward for exploring, measuring and testing the importance of industrial brands. The methodology makes an effort to combine the strengths of qualitative and quantitative research methods. The particular objective of the methodology in the present context is to facilitate testing of the conceptual framework of branding in industrial markets presented in Chapter 3.

The chapter focuses primarily on the second question of: *is industrial branding important, and if so, to whom*. Prior research has not directly addressed this question. Consequently, the development of testable hypotheses in itself constitutes an important contribution. The methodology described in this chapter provides an effective way to test the hypotheses emerging from this conceptual framework. The chapter also provides sufficient background information so that the reader can evaluate the appropriateness and validity of the chosen methods.

Chapter 5 - Analysis of the Exploratory Interviews

Chapter 5 presents the findings of the exploratory interviews with industrial buyers, manufacturers and distributors. This chapter's strength is its ability to present the views of practitioners on the sources of industrial value in their own language, without resorting to a detailed debate on semantics and terminology of branding.

The chapter explains how the exploratory interviews contributed to the preparation for the survey phase of the research. Discussion focuses on the identification of commonalities emerging from the interviews, to go beyond the accepted reality of the unique nature of each purchase. The chapter summarises how the interviewees go about simplifying this complex purchase situation and to the diversity of buyers, purchases and decision processes. The resulting typologies in Table 5.1 are a good effort to formalise these implicit categories emerging from the interviews. The chapter also explores how the interviews shaped development of the pinwheel model of industrial brand value and the model of industrial branding, as well as the specific development of the questionnaire.

Chapter 6 - Analysis of the Bearings Survey

This chapter analyses the results of the first survey, regarding purchases of precision bearings. It focuses on the question of whether industrial branding is

important, and if so, to whom. The evidence suggests that branding is important in the purchase decision. Section 6.3.5 summarises the results of the specific hypothesis testing on branding importance. These results directly address the question of to whom branding is the most important, and in what purchase situations.

Overall, the analysis found evidence to support a number of the hypotheses specified in the preliminary *model of industrial branding*. Buyer characteristics, purchase characteristics, the decision process, and choice are related to the perception of branding importance. These findings are highly consistent with prior research in the area of organisational buying behaviour. Even though not all of the results were as hypothesised, the main contribution of the research is an additional insight into the role of branding in the decision process. This is especially important since many of the hypothesised relationships have never before been tested empirically.

Branding can be as important to the small buyer as the large buyer (*H1*). The buyer's knowledge of the bearings market is highly correlated to the perceived importance of all three branding attributes (*H2*). This may imply that knowing more about the suppliers and their competitive environment encourages one to conclude that branding and other intangible attributes matter. The test of (*H3*) reveals that buyers to whom branding is important do not necessarily perceive greater differences in the suppliers. The role of branding in the decision depends partly on whether buyers view branding attributes as legitimate decision criteria. The data (*H4*) indicate that buyers who perceive branding to be important also

perceive that the benefits of branding can be measured objectively, and have found ways to do so. Branding was expected to be more important for purchases used as product inputs than as process inputs (*H6*), but this is not supported by the data. Some support is evident for the hypothesis (*H7*) that branding is more important for the more complex buyclass purchases. Branding is seen as a less effective way to reduce perceived risk than technical support and physical product properties (*H8*), but further examinations of these relationships are necessary due to the relatively low level of perceived risk in the sample.

Buyers to whom branding is important are not more likely to purchase from a manufacturer than from a distributor (*H9*), so branding can be important in both types of purchase decisions. Branding importance is found to be greater for buyers using a higher involvement decision process (*H10*). No support was found for the hypothesis (*H11*) that when branding considerations are important, buyers choose the top brands. Buyers who perceive branding to be important appear to keep an open mind about the most appropriate brand for their situation. These buyers do appear to rely on a larger consideration set and choice set (*H12*), yet exhibit higher levels of purchase loyalty (*H13*) to the brands they purchase from than do other buyers. These results support the main thesis that branding plays a more important role in industrial decision making than has generally been recognised.

The cluster analysis, summarised in Section 6.6.4, reveals that the perceived importance of branding can be an important and meaningful way of examining

the customer base. Branding is not important to all customers, and the research has provided important, although preliminary insights into customer differences. The analysis provides evidence of the importance of branding in the strategic segmentation of industrial markets. Segmentation by benefits enhances traditional segmentation by bases such as industrial sector, value of purchases, and buyclass factors. The perception of branding importance is an important factor in the creation of three distinct customer segments, described as branding receptive, high tangibility, and low relevance. The importance of branding appears to be related to a number of identifiable buyer, purchase and decision process characteristics. The chapter summarises these differences and, in addition, integrates the findings with those of the qualitative research and previous research in other areas.

Chapter 7 - Analysis of the Circuit Breaker Survey

The analysis of the bearings survey in Chapter 6 resulted in a number of interesting and important findings. However, a study of branding in only one industrial product area does have its limitations. The analysis of the circuit breaker survey data described in this chapter replicates the analysis of the bearings survey. In addition, a few extra questions added to the survey enable other hypotheses to be tested. As before, the research focuses on the importance of branding in the industrial purchase decision and attempts to determine to whom and in which situations branding is more important.

Overall, the analysis found evidence to support a number of the hypotheses specified in the preliminary *model of industrial branding*. Buyer characteristics,

purchase characteristics, the decision process, and choice are related to the perception of branding importance. These findings are highly consistent with prior research in the area of organisational buying behaviour. Even though not all of the results were as hypothesised, the research adds to the insights of the bearings survey and the exploratory interviews into the role of branding in the decision process.

In the circuit breaker survey, branding is as important to the small buyer as the large buyer (*H1*). The buyer's knowledge of the bearings market is correlated to the perceived importance of branding (*H2*). This may imply that knowing more about the suppliers and their competitive environment encourages buyers to conclude that branding and other intangible attributes matter. The test of (*H3*) indicates that the more suppliers are perceived to differ at the final stage, the more important branding is to buyers. The role of branding in the decision depends partly on whether buyers view branding attributes as legitimate decision criteria.

The results (*H4*) indicate that buyers who perceive branding to be important also perceive that the benefits of branding can be measured objectively, and have found ways to do so. Branding is more important to older, more experience, and more senior buyers (*H5*). Branding is more important for purchases used as product inputs than as process inputs (*H6*). No support is evident for the hypothesis (*H7*) that branding is more important for the more complex buyclass purchases. Buyers regard branding as a less effective way to reduce perceived risk than technical support and physical product properties (*H8*).

Buyers to whom branding is important are not more likely to purchase from a manufacturer than from a distributor (*H9*), so branding can be important in both types of purchase decisions. Branding importance is not found to be greater for buyers using a higher involvement decision process (*H10*). Some support is found for the hypothesis (*H11*) that when branding considerations are important, buyers choose the top brands. Buyers to whom branding is important do not appear to rely on a larger consideration set and choice set (*H12*), nor do they exhibit higher levels of purchase loyalty (*H13*) to the brands they purchase from than do other buyers.

Table 7.9 compares the findings of the bearings and circuit breaker surveys, and indicates whether the specific hypotheses are supported or partially supported (S), or are not supported (NS). Of course, the analysis does not provide definitive proof of the existence or lack of the hypothesised relationships. However, the results support the main thesis that branding plays a more important role in industrial decision making than has generally been recognised.

In addition, the cluster analysis reveals a number of important and practical differences between the clusters, as summarised in Tables 7.17 to 7.19. Given the dearth of previous empirical research on industrial branding, the chapter's comparison of results from the two surveys makes an important contribution to understanding of to whom and in what circumstances industrial branding is important. The perceived importance of branding plays a role in the strategic segmentation of industrial markets and enhances traditional segmentation by industrial sector, value of purchases, and buyclass factors. Differences in the

perceived importance of branding were a primary determinant of the customer clusters. The branding receptive cluster of firms constituted more than 48 percent of the sample, so the potential is great. The chapter contributes to understanding by highlighting the key differences between clusters, and how managers can utilise this understanding.

At this point, it is appropriate to take a step back and revisit this model of industrial branding, to assess its robustness and appropriateness. Chapter 3 presented it as a “preliminary model”, as indeed, many of the hypothesised relationships had never previously been tested. The model builds on earlier organisational research, yet differs in that it explicitly focuses on the role of branding in the buying decision process. Despite the necessary simplification of a very complex process, the model facilitates the empirical testing of the hypotheses. Although not all of the hypothesised relationships are supported, there is no indication that the basic structure of the model is flawed. Indeed, the general organisational buying behaviour relationships appear to be consistent with much recent research.

Future expansions of the model may wish to incorporate specific measures of the type of need or requirement, as well as additional measures for more visible or discernible purchase and buyer characteristics. Other aspects of branding could also be incorporated and tested. The next logical step in the testing of the model would be to specify it as a structural equation model and to conduct path analysis using a modelling package such as LISREL or EQS. This additional testing will

likely result in further refinements and improvements in a model that at this point gives indications of being both robust and appropriate.

Overall Contributions

The thesis makes a contribution at several broad levels. First, the thesis contributes at the conceptual level by defining and describing industrial branding and industrial branding strategies. Unlike previous research on industrial branding, the thesis clearly defines industrial branding and distinguishes it from industrial marketing and industrial brand naming. Distinctions are made amongst types of industrial brands along a continuum from commodities to independent brands. Differences are also made between industrial brands and industrial products, and between individual brands and company brands. Also, unlike previous research, the thesis provides a typology and description of industrial branding strategies, including company push and company pull, and brand push and brand pull strategies. These conceptual contributions provide a context for meaningful discussion and analysis of industrial branding.

Also at the conceptual level, the thesis contributes two conceptual models. First, the pinwheel model of industrial value helps to explain the dynamics of tangible and intangible features and perceived benefits. Secondly, the model of industrial branding incorporates the importance of product, service, and branding benefits or attributes in the purchase decision.

At an empirical level of contribution, the model of industrial branding plays a key part. The thesis develops and empirically tests a series of hypotheses on the

role and importance of branding. Industrial branding is shown to be important to some buyers and in some purchase situations. The research provides evidence of the power of industrial branding, and helps explain its importance in the purchase decision process. Three clusters of customers by perceived importance of benefits or attributes are formed, with the relative importance of branding playing a significant role in the formation of the clusters. The thesis contributes one of the first efforts to find out to whom industrial branding is important, and in what situations. Importantly, preliminary links are identified between the benefit segments and more discernible descriptive characteristics.

At the next level of contribution, the thesis contributes to the clarification of practical implications of the industrial branding for managers, from both the buying and selling perspectives. Recommendations are made for the implementation of industrial branding strategies. For a significant portion of industrial buyers, the purchase decision comes down to the relatively intangible attributes of the company brand. Branding may not be important to everyone, but as long as it is important to some customers or in some situations, it justifies further research.

8.4 LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

8.4.1 Limitations of the Research

This study has contributed important insights into the importance of branding in industrial markets, yet has its limitations. This study examines two product

sectors, precision bearings and circuit breakers, and surveys a high percentage of UK companies purchasing these products, however, the total sample size is modest. In contrast, previous studies on industrial branding focused on a single product sector, e.g., rolled steel (Schorsch, 1994); textiles (Saunders and Watt, 1979); prefabricated board (Sinclair and Seward, 1988); and circuit breakers (Gordon et al., 1993). *Additional empirical studies are necessary to test the comparability or generalisability of these various studies' approaches and findings.*

The conceptual models of the thesis integrate theory from the consumer branding and organisational buying behaviour literature. As such, the research is difficult to place in a traditional academic category, and requires some rethinking of traditional research boundaries. Although the MSI and others have called for more cross-disciplinary research, many practical difficulties remain. To some, the multi-disciplinary nature of research in industrial branding may be considered a strength, while to others this nature is a limitation.

More generally, the research is limited by a common problem inherent in much of management research. That is, the reliance on indirect measurement rather than direct measurement of actual and relevant behaviours. Measuring attitudes and testing their relationships to behaviour is notoriously difficult (Dibb and Stern 1995), and no one study can provide all the answers. Although a high degree of marketing practice and research makes some assumption of a linkage between attitudes and behaviour, and the researcher must take a critical approach and continually explore the practical implications of this assumption.

Another problematic area is the interpretation of the cluster analysis results. In the standard clustering of the bearings and the circuit breaker data, the importance of branding accounted for the greatest differences amongst the clusters, as indicated by the F-statistic. Buyers in the branding receptive cluster certainly rated the importance of branding most highly. However, except for price, branding receptive buyers also rated the importance of all other attributes more highly than did buyers in the other two clusters. As with a number of other similar cluster analyses, the results could lead to an interpretation of the three clusters as one cluster rating most attributes as highly important, one cluster rating most attributes as relatively low in importance, and one cluster rating most attributes as of medium importance. This pattern is relatively common with cluster analyses (see Rao and Wang 1995). Interestingly, this pattern did not hold using the arguably more advanced method of tandem clustering. As shown in Table 6.15, the tandem clustering analysis results are more in line with the expectations associated with the cluster names. The high tangibility cluster rated price, physical product properties and ordering and delivery service more highly than did the branding receptive cluster and the low relevancy cluster.

As with all cluster analysis, the final interpretation depends on the researcher's judgement (Saunders 1994). Other researchers (e.g., Rangan, Moriarty and Swartz 1992; Schorsch 1994) have used judgement to identify benefit clusters, by using the most important criteria of utility to managers (Doyle and Saunders 1985). Given the overall importance of the differences in the importance of branding, and the differences between the clusters in buyer, purchase, and

decision process characteristics, the three clusters of branding receptive, highly tangible, and low relevance do offer a thought-provoking and potentially important insight into industrial buying segments.

Benefit segments have been shown to be more stable and marketing responsive than traditional demographic segments (Calantone and Sawyer 1978). Still, as the comparison of the cluster membership resulting from the standard and the tandem cluster analysis revealed, some overlap of the clusters may exist.

Perhaps the best way of approaching the question of cluster stability and cluster membership is to shift the focus of the interpretation away from individual buyers or buying companies and towards buying situations. Thus, the three clusters may most accurately be interpreted as clusters summarising purchase situations rather than as clusters summarising buyers. Buyers recognise that purchase decisions regarding a particular product vary considerably depending on the particular purchase needs and purchase characteristics. A buyer may choose one brand in one situation and another in a different situation. That variation may indeed be greater and more predictable than variations between buyers in similar purchase situations. Preliminary evidence indicates that although a particular purchase may involve single sourcing, industrial buyers, like consumer buyers, rely heavily on 3-4 brands in a given product category (Ehrenberg 1988). The top choice may account for 50 to 70% of the purchases over a period of time. For sellers, the first step is to get their brands included in the buyer's consideration and final choice sets, with the goal of ultimately becoming the buyer's first choice brand. This research has not directly addressed this issue of where the greatest variation lies, or the resulting managerial

implications, but does provide a starting point for further research along these lines.

8.4.2 Ideas and Challenges for Future Research

The thesis has made an important start toward answering the main questions of what is industrial branding; is it important, and if so, to whom and in what situations; and what are the managerial implications. Yet, as is typical for this type of research, the research raises more questions than it answers. This is more reassuring than alarming. The exploratory field interviews provide a starting point for broader, sector specific and cross-sector qualitative and empirical research. Further research is needed to test the consistency of the way customers in different industrial markets value different tangible and intangible attributes, and the effects of a wider range of product and buyer characteristics.

Practical brand naming issues also merit further attention. Further research is necessary to describe and analyse the many variations in international and inter-segment usage of brand names. In addition, guidelines are needed for naming products obtained through acquisitions and brand extensions, and the coordination of multinational communications.

Industrial branding strategies and tactics remain to be developed for a range of situations. Each aspect of the marketing mix carries branding implications. These need to be developed in greater detail for customers in each of the three customer segments implied by the research. Modification of product

development, pricing, ordering and distribution services, technical support services, communications, and personal selling practices can result in a customised approach to meet the particular needs of branding receptive, high tangibility and low relevancy customers.

Branding and pricing interaction issues merit further exploration. Most managers who have not been thinking strategically about branding and pricing snap to attention when told that raising prices by 10% can double company profits (Doyle 1994). Pricing must reflect the product offered and the competitive conditions to avoid the pricing mismatch found amongst less successful machine tool firms (Shaw 1995).

Similarly, industrial advertising may play a relatively minor role in the industrial marketing mix (Lynch and Hooley 1987), but can play a more important role in industrial branding. Decision making regarding the use of industrial advertising budgets is becoming more sophisticated (Lynch and Hooley 1989). The relative effectiveness of advertising, trade shows and personal selling need to be examined in the context of industrial branding.

The linkages between branding and financial performance provide a fertile ground for future research. A more behavioural approach would involve an estimate of the degree of branding of brands purchased in various segments, and would identify brand choice and loyalty patterns for different degrees of branding. Then, the relationship between degree of branding and objective measurements of brand performance can be explored. Calculation of the

branding payoffs in terms of brand equity, market share premiums and price premiums is especially challenging. Yet, those branding payoffs constitute the heart of the matter for many industrial companies. Academic research lags behind industry practice in many respects. Branding research may be intellectually challenging to academics, but that is not what motivates company research and practice. More and more industrial companies are investing in industrial branding because they can see the bottom line results and can envision the future potential. Despite this, the potential of industrial branding remains relatively untapped.

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APPENDICES

BEARxxx.oubs

Thank you for answering these questions concerning your purchases of off-the-shelf "precision bearings". Your help is vital for my research.

1. Which of the following best describes your company's line of business?
(Mark one with an X).

☐ automotive ☐ electrical ☐ other (specify)
☐ machinery & engineering ☐ heavy industry

2. What is the annual value of the **bearings** purchases in which you are involved? (If your company never or very rarely purchases bearings, there is no need for you to answer further questions. Just tick here _____ and return this page to me. Thanks.)

___ < £1000	___ £10,000 - £49,000	___ £100K -199K
___ £1000 - £9999	___ £50,000 - £99,000	___ > £200,000

3. Please rate your company's in-house **technical expertise** on bearings.
(Please circle a number from 1 to 7, with 1=low and 7=very high).

low very high

1 2 3 4 5 6 7

4. Please rate your personal **technical expertise** concerning bearings.

low 1 2 3 4 5 6 7 very high

5. Please rate your personal knowledge of bearings suppliers and the bearings market.

low 1 2 3 4 5 6 7 very high

Questions 6 to 10 concern your most recent and typical purchase of bearings.

6. Approximately how long ago was this most recent purchase decision?

☐ < 1 week ago ☐ 2 - 4 weeks ago ☐ 2 - 6 months ago
☐ 1 - 2 weeks ago ☐ 5 - 8 weeks ago ☐ > 6 months ago

7. How was your most recent bearings purchase used? (Mark one with an X).

☐ For a production or manufacturing process (e.g., for a machine in your factory)
☐ Incorporated into a final product to be sold to others

8. Which of the following best describes the purchase? (Mark one with an X).

☐ For use in a completely new product design
☐ For use in a modified or updated product
☐ For use in an existing product, but with complicating factors
☐ For use in an existing product, with no major complicating factors

9. Please rate the **potential risks** involved in this **most recent** bearings application. (Please circle a number from 1 to 7, with 1=no risk and 7=high risk).

	no risk						high risk
Personal safety	1	2	3	4	5	6	7
Downtime/recalls	1	2	3	4	5	6	7
Overall risk	1	2	3	4	5	6	7

10. **Many factors are taken into consideration when deciding which brand of off-the-shelf precision bearings to buy, such as:**

Total price

(quoted price, degree of discount, financial support services)

Physical product properties

(precision, strength, durability)

Technical support services

(design advice, product testing support, troubleshooting)

Ordering & delivery services

(availability of product, ease of ordering, lead time, delivery reliability & convenience)

Coverage

(geographic territory, depth or breadth of product range)

Reputation

(how well known the manufacturer is and how others view it in general terms)

Previous experience with company

(the number of previous purchases, and the quality of the working relationship)

Are these categories a reasonable summary of what is important to you when making a bearings purchase decision? (Circle one).

Yes

No (please explain)

11. Who was the supplier of your most recent and typical bearings purchase?

___ a distributor (GO TO 12)

___ a manufacturer (GO TO 14)

12. Who primarily decided on the particular **brand** of bearing?

___ the distributor

___ you (the purchaser)

13. What is the main reason you purchased from a distributor, rather than directly from the manufacturer? (GO TO 15)

14. What is the main reason you purchased directly from a manufacturer, rather than from a distributor?
15. Which of the following descriptions best summarises the process you use for bearings purchases: (Mark one with an X).
- ___ Your decision is made in two phases. In the **screening phase**, you take the list of possible brands or companies and narrow it down. Then in the **final phase**, you more thoroughly examine the final few and decide which brand(s) you will purchase.
(GO TO 16)
- ___ You consider only a few brands that your distributor or someone in your company has recommended and make a choice from them.
(GO TO 21)

The following questions (16-20) are about the **screening phase**.

16. At the **screening phase**, do you numerically rate or rank the possible brands of bearings? (Circle one).
- Yes No
17. How much do the possible brands typically differ on aspects that are important to your decision? (Circle a number on the scale)
- No differences 1 2 3 4 5 6 7 Extreme differences
18. Is there any particular aspect that you use at the **screening phase** to "knock out" or eliminate brands from further consideration? (Mark with an X).
- ___ No
___ Yes (please specify which aspect/s)
19. For your most recent and typical bearings purchase:
- Please circle all of the bearings companies you **considered** purchasing from.
- FAG INA Koyo Nadella NSK/RHP NTN SKF Timken
- Other (please name)

20. Please evaluate the importance of the following aspects of **bearings manufacturers** at this **screening phase** of your decision. Please indicate the order of importance of the aspects by **RANKING** them **A to I**, with A=most important and I=least important. Also, please **RATE** each aspect by circling a number from **1 to 7**, with 1=fairly important and 7=extremely important.

RANKING		RATING						
A = most important B = next most important, etc.		fairly important				extremely important		
___	Total price	1	2	3	4	5	6	7
___	Physical product properties	1	2	3	4	5	6	7
___	Technical support	1	2	3	4	5	6	7
___	Ordering & delivery service	1	2	3	4	5	6	7
___	Coverage (territory & product range)	1	2	3	4	5	6	7
___	How well known the manufacturer is	1	2	3	4	5	6	7
___	General reputation of the manufacturer	1	2	3	4	5	6	7
___	No. of prior purchases from manufacturer	1	2	3	4	5	6	7
___	Working relationship	1	2	3	4	5	6	7

Questions (21-28) are about the **FINAL phase** of the decision, when only a few suppliers are seriously considered, and the final decision is made.

21. At the **final phase**, do you use numerically rate or rank the brands of bearings under consideration? (Circle one).
- Yes No
22. How much do the brands you consider in the **final phase** typically differ on aspects that are important to your decision? (Circle a number on the scale).
- No differences 1 2 3 4 5 6 7 Extreme differences
23. Is there any particular aspect that you use in the **final phase** to "knock out" or eliminate brands from further consideration? (Mark with an X).
- ___ No ___ Yes (specify which aspect/s)

24. Please evaluate the importance of the following aspects of **bearings manufacturers** at this **final phase** of your decision. Please indicate the order of importance of the aspects by **RANKING** them **A to I**, with A=most important and I=least important. Also, please **RATE** each aspect by circling a number from **1 to 7**, with 1=fairly important and 7=extremely important.

RANKING		RATING						
A = most important B = next most important, etc.		fairly important			extremely important			
_____	Total price	1	2	3	4	5	6	7
_____	Physical product properties	1	2	3	4	5	6	7
_____	Technical support	1	2	3	4	5	6	7
_____	Ordering & delivery service	1	2	3	4	5	6	7
_____	Coverage (territory & product range)	1	2	3	4	5	6	7
_____	How well known the manufacturer is	1	2	3	4	5	6	7
_____	General reputation of the manufacturer	1	2	3	4	5	6	7
_____	No. of prior purchases from manufacturer	1	2	3	4	5	6	7
_____	Working relationship	1	2	3	4	5	6	7

25. For your **most recent** typical bearings purchase, please name the 2 or 3 brands of bearings you narrowed the choice down to.

	#1 Choice	#2 Choice	#3 Choice
Company Name			

26. How often have you purchased these brands of bearings in the past?
(Please circle a number from 1 to 7, with 1=never before to 7=very often).

	never before	very often
#1 Choice	1 2 3 4 5 6 7	
#2 Choice	1 2 3 4 5 6 7	
#3 Choice	1 2 3 4 5 6 7	

27. Please estimate the % of the order each received in **this recent** purchase.

	#1 Choice	#2 Choice	#3 Choice
% of Order			

28. For your **most recent** purchase, please rate your final choices of bearings **manufacturers** by circling a number on the scale of **1=Fair** to **7=Excellent**.

If you purchased the bearings from a distributor, please tick the **NA** column for any aspect that is not applicable to the manufacturer. (e.g., tick NA if you receive technical support from the distributor rather than from the bearings manufacturer).

	NA	#1 Choice Fair -- Excellent	#2 Choice Fair -- Excellent	#3 Choice Fair -- Excellent
Total price		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Physical product properties		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Technical support services		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Ordering and distributive services		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Coverage (territory & product range)		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
How well known the manufacturer is		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Manufacturer's general reputation		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Quality of working relationship		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
OVERALL RATING		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7

This information is very important for my research.
Please be assured that your identity will not be revealed.

29. Purchasers rarely have perfect or complete information. Some people even consider purchasing to be more of an "art" than a "science". Please describe how **subjective** or **objective** your evaluations of bearings manufacturers are.

Circle a number on the scale of: **1=subjective, based on soft evidence, instinct and judgment;** to **7=objective, based on facts, hard evidence.**

	"Art" SUBJECTIVE				"Science" OBJECTIVE			
Total price	1	2	3	4	5	6	7	
Quality of physical product	1	2	3	4	5	6	7	
Quality of technical support services	1	2	3	4	5	6	7	
Quality of ordering & delivery services	1	2	3	4	5	6	7	
Quality of coverage (territory & product range)	1	2	3	4	5	6	7	
Manufacturer's reputation	1	2	3	4	5	6	7	
Previous experience with manufacturer	1	2	3	4	5	6	7	

30. When do you expect to make your **NEXT** purchase of off-the-shelf precision bearings?

☐ within 1 week
☐ in 1 - 2 weeks

☐ in 2 - 4 weeks
☐ in 5 - 8 weeks

☐ in 2 - 6 months
☐ in 6 or more months

31. Please use this space to make any additional comments you feel would be helpful to my research. Attach another sheet if necessary.

Thank you very much for completing the questionnaire.

Please fax your completed questionnaire to me on 01908 655898 using the enclosed fax cover sheet, or post it to me using the enclosed pre-addressed envelope.

Please be assured that your identity will be kept confidential.

**Susan Mudambi
Lecturer in Marketing
The Open University Business School
Walton Hall
Milton Keynes MK7 6AA**

ECxx.oubs

Thank you for answering these questions concerning your purchases of circuit breakers. Your help is vital for our research in industrial marketing.

1. Which of the following most closely describes your company's line of business?
(Mark one with an X).

☐ electrical contractor ☐ electrical manufacturer
☐ electrical engineering ☐ other (specify)

2. Which of the following best describes your title or job position?

☐ purchasing manager ☐ head buyer ☐ buyer
☐ engineering manager ☐ electrical engineer ☐ other (specify)

3. Estimate the annual value of **circuit breaker** purchases you are involved with.
(Please write in the amount or mark the closest category.) _____

___ < £1000	___ £10,000 - £49,000	___ £100 K - £200 K	___ > £500K
£1000 - £9999	£50,000 - £99,000	£200 K - £500 K	

If your company never or rarely purchases circuit breakers, please tick here _____, then fax this page to me or send it in the enclosed envelope. Thank you.

4. For how many years have you been involved in purchases of circuit breakers?

5. What is your age? (Sorry to ask!)

____ 20 - 29 ____ 30 - 39 ____ 40 - 49 ____ 50 - 59 ____ 60 +

6. Please rate your company's in-house **technical expertise** concerning circuit breakers. (Please circle a number from 1 to 7, with 1=low and 7=very high).

low very high
1 2 3 4 5 6 7

7. Please rate your personal **technical expertise** concerning circuit breakers.

low very high

1 2 3 4 5 6 7

8. Please rate your personal **knowledge of circuit breaker suppliers and the circuit breaker market.**

low very high

1 2 3 4 5 6 7

Questions 9 to 20 concern your most recent and typical purchase of circuit breakers.

9. Approximately how long ago was this most recent purchase decision?

☐ < 1 week ago ☐ 2-4 weeks ago ☐ 2-6 months ago
☐ 1-2 weeks ago ☐ 5-8 weeks ago ☐ > 6 months ago

10. How was your most recent circuit breaker purchase used? (Mark one with an X).

☐ For an in-house production or manufacturing process (e.g. for a machine in your factory)
☐ For a customer's production or manufacturing process
☐ Incorporated into a final product to be sold to others
☐ Other (specify)

11. Which of the following best describes the purchase? (Mark one with an X).

☐ **New design** - for use in a completely new design or application
☐ **Modified new design** - for use in a modified or updated design
☐ **Modified rebuy** - for use in an existing design, but with complicating factors
☐ **Straight rebuy** - for use in an existing design, with no major complicating factors

12. What was the approximate cost of this purchase? _____

13. For this most recent purchase of circuit breakers, please rate how you perceived the **potential risks** involved. (Circle a number from 1 to 7, with 1=no risk and 7=high risk).

	no risk					high risk	
Risk to physical safety from a wrong choice	1	2	3	4	5	6	7
Risk of downtime, recalls, etc. from a wrong choice	1	2	3	4	5	6	7
Risk of overspending	1	2	3	4	5	6	7
Risk of damage to your personal reputation or job	1	2	3	4	5	6	7
Overall risk	1	2	3	4	5	6	7

14. Many factors are considered when making a purchase decision on circuit breakers. Is the following list a reasonable summary of what is important to you?

☐ Yes ☐ No (please explain)

Total price

(quoted price, degree of discount, payment terms, etc.)

Physical product properties

(rated voltage, breaking capacity, short-circuit rating, level of insulation, etc.)

Technical support services

(design advice, product testing support, troubleshooting, etc.)

Ordering & delivery services

(product availability, ease of ordering, lead times, delivery reliability & convenience)

Manufacturer's reputation

(how well known the manufacturer is and how others view it in general terms)

Previous experience with the manufacturer

(the number of previous purchases, and the quality of the working relationship)

15. From what type of supplier did you most recently buy circuit breakers?

- ☐ a distributor (GO TO 16)
☐ a manufacturer (GO TO 18)

16. Who primarily decided on the particular brand or manufacturer? (Mark with an X).

☐ the distributor ☐ you (the purchaser) ☐ someone else in your company

17. What is the main reason you purchased from a distributor, rather than directly from the manufacturer? (GO TO 20)

18. What is the main reason you purchased directly from a manufacturer, rather than from a distributor?

19. Who primarily decided on the particular brand or manufacturer? (Mark with an X).

☐ you (the purchaser) ☐ someone else in your company

20. Which of the following descriptions best summarises the process you use for circuit breaker purchases: (Mark one with an X).

- ☐ You consider only a few brands or manufacturers that someone else in your company or a distributor has recommended and make a choice from them. (*Skip the screening stage questions and GO TO 26*).
- ☐ You consider only a few brands or manufacturers that you have used before and make a choice from them. (*Skip the screening stage questions and GO TO 26*).
- ☐ Your decision is made in two stages. In the **screening stage**, you take a list of possible brands or manufacturers and narrow it down. Then in the **final stage**, you more thoroughly examine the final few and decide which brand(s) you will purchase. (*GO TO 21*).

The following questions (21-25) are about the screening stage.

21. At the **screening stage**, do you numerically rate or rank the possible brands of circuit breakers? (Mark one with an X).

☐ Yes ☐ No

22. How much do the circuit breaker brands typically differ on aspects that are important to your decision? (Circle a number on the scale)

No differences 1 2 3 4 5 6 7 Extreme differences

23. Is there any particular aspect that you use at the **screening** stage to "knock out" or eliminate suppliers from further consideration? (Mark with an X).

___ Yes (specify which aspect/s)
___ No

24. For your most recent and typical circuit breakers purchase, please circle all of the circuit breaker brands you **considered** purchasing from.

ABB Control AEG GEC Matsushita Siemens Square D Westinghouse

Distributor brands (please name)

Other (please name)

25. Please evaluate the importance of the following aspects of **circuit breaker suppliers** at this **screening** stage of your decision.

Please indicate the order of importance by **RANKING** them **A to H**, with A=most important and H=least important. Also, please **RATE** each aspect by circling a number from **1 to 7**, with 1=fairly important and 7=extremely important.

RANKING

RATING

A = most important B = next most important, etc.		fairly important							extremely important
___	Total price	1	2	3	4	5	6	7	
___	Physical product properties	1	2	3	4	5	6	7	
___	Technical support	1	2	3	4	5	6	7	
___	Ordering & delivery service	1	2	3	4	5	6	7	
___	How well known the manufacturer is	1	2	3	4	5	6	7	
___	General reputation of the manufacturer	1	2	3	4	5	6	7	
___	No. of prior purchases from the mfr.	1	2	3	4	5	6	7	
___	Quality of working relationship	1	2	3	4	5	6	7	

Questions 26-29 are about the **FINAL stage** of the decision, when only a few suppliers are seriously considered, and the final decision is made.

26. At the **final stage**, do you numerically rate or rank the brands of circuit breakers under consideration? (Mark one with an X).

☐ Yes

☐ No

27. How much do the brands you consider in the **final stage** typically differ on aspects that are important to your decision? (Circle a number on the scale).

No differences 1 2 3 4 5 6 7 Extreme differences

28. Is there any particular aspect that you use in the **final stage** to "knock out" or eliminate suppliers from further consideration? (Mark with an X).

☐ Yes (specify which aspect/s)

☐ No

29. Please evaluate the importance of the following aspects of circuit breaker suppliers at this **final stage** of your decision.

Please indicate the order of importance by **RANKING** the aspects **A to H**, with A=most important and H=least important. Also, please **RATE** each aspect by circling a number from **1 to 7**, with 1=fairly important and 7=extremely important.

RANKING

RATING

A = most important B = next most important, etc.		fairly important							extremely important
<input type="checkbox"/>	Total price	1	2	3	4	5	6	7	
<input type="checkbox"/>	Physical product properties	1	2	3	4	5	6	7	
<input type="checkbox"/>	Technical support	1	2	3	4	5	6	7	
<input type="checkbox"/>	Ordering & delivery service	1	2	3	4	5	6	7	
<input type="checkbox"/>	How well known the manufacturer is	1	2	3	4	5	6	7	
<input type="checkbox"/>	General reputation of the manufacturer	1	2	3	4	5	6	7	
<input type="checkbox"/>	No. of prior purchases from the mfr.	1	2	3	4	5	6	7	
<input type="checkbox"/>	Quality of working relationship	1	2	3	4	5	6	7	

APPENDIX 3

Summary of Hypothesis Testing

Bearings and Circuit Breaker Data

		BEARINGS			CIRCUIT BREAKERS		
#	HYPOTHESISED RELATIONSHIP	VARIABLE	+-	p-value	VARIABLE	+-	p-value
1	<i>Annual purchase value and attribute importance</i>	-price	-	.049	-working relat	+	.009
		-tech support	+	.001	-tech support	+	.060
2	<i>Annual purchase value and decision process</i>	-use of 2-stage process	+	.005	-more involved decision process	+	.006
		-hierarchical in screening stage	+	.028	-use in final stage of hierarchical or compensatory protocol	+	.001
		-hierarchical in final stage	+	.064			
		compensatory in final stage	+	.000			
3	<i>Expertise and attribute importance -personal technical</i>	-well known	+	.075	-working relat	+	.070
		-prior purchases	+	.058			
		-working relat	+	.066			
		-tech support	+	.060			
	<i>-company technical</i>	-tech support	+	.025	-tech support	+	.014
					-working relat	+	.004
					-reputation	+	.054
	<i>-market knowledge</i>	-well known	+	.003	-well known	+	.049
		-reputation	+	.006	-reputation	+	.043
		-price	+	.001	-price	+	.073
		-working relat	+	.034	-working relat	+	.064
		-tech support	+	.000	-tech support	+	.090
		-prior	+	.011			
		-delivery	+	.053			

		BEARINGS			CIRCUIT BREAKERS		
#	HYPOTHESED RELATIONSHIP	VARIABLE	+-	p-value	VARIABLE	+-	p-value
4	<i>Expertise and decision process</i> <i>-personal technical</i>	-compensatory in screening	+	.005	-more involved decision process	+	.034
		-compensatory in final stage	+	.025			
		-hierarchical in final stage	+	.012			
	<i>-company technical</i>	-use of 2-stage decision process	+	.048			
		-compensatory in screening	+	.027			
		-compensatory in final stage	+	.007			
		-hierarchical in screening	+	.040			
		-hierarchical in final stage	+	.002			
	<i>-market knowledge</i>	-compensatory in screening	+	.004	-more involved decision process	+	.022
		compensatory in final stage	+	.000			
		hierarchical in final stage	+	.022			

		BEARINGS			CIRCUIT BREAKERS		
#	HYPOTHESISED RELATIONSHIP	VARIABLE	+-	p-value	VARIABLE	+-	p-value
5	<i>More differentiation at screening than at final stage</i>			.000			.004
6	<i>Differentiation and attribute importance</i>	-phys. product	-	.043	-well known	+	.045
					-reputation	+	.010
					-working relat	+	.078
					-tech support	+	.087
7	<i>Differentiation and decision process</i>	<i>none</i>			-more involved decision process	+	.084
					-use in final stage of hierarchical or compensatory protocol	+	.019
8	<i>Objectivity of evaluating attributes and importance</i>	<i>see Table 6.17</i>			<i>see Table 7.11</i>		
9	<i>Other characteristics & attribute importance</i>						
	- age	<i>not tested</i>			-delivery	-	.073
					-tech support	-	.057
					-prior purchases	+	.001
	- years of experience	<i>not tested</i>			-prior purchases	+	.016
					-well known	+	.039
	- title seniority	<i>not tested</i>			-well known	+	.062
					-price	+	.066
	- technicality of position	<i>not tested</i>			-delivery	-	.030
					-price	-	.008
					-tech support	-	.027
					-working relat	-	.084
10	<i>Buyer age, years, title, and decision process</i>	<i>not tested</i>			<i>none found</i>		

		BEARINGS			CIRCUIT BREAKERS		
#	HYPOTHESED RELATIONSHIP	VARIABLE	+-	p-value	VARIABLE	+-	p-value
11	<i>How used and attribute importance</i> <i>-as product input</i> <i>-for customer use</i>	<i>none found</i>			-well known -reputation -working relat -price -well known	+ + + - +	.003 .045 .015 .053 .081
12	<i>Buyclass and attribute importance</i>	-prior purchases -tech support -phys product	- - -	.024 .038 .056	-price -working relat	- +	.031 .062
13	<i>Buyclass and decision process</i>	<i>none found</i>			<i>none found</i>		
14	<i>Perceived risk and buyclass</i>	-safety risk	-	.004	-safety risk -reputation risk -financial risk -overspend risk -overall risk	- - - - -	.011 .000 .069 .082 .001
15	<i>Perceived risk and attribute importance</i> <i>-safety risk</i> <i>-financial risk</i> <i>-overspending risk</i> <i>-buyer reputation risk</i> <i>-overall risk</i>	-tech support <i>none</i> <i>not measured</i> <i>not measured</i> -phys product	+ +	.003 .014	-price -delivery -price -tech support -well known -price -tech support -price -tech support -price -tech support	+ - + + - + + + +	.057 .086 .002 .042 .096 .015 .026 .008 .075 .005 .091
16	<i>Perceived risk and level of involvement of decision process</i>	<i>none found</i>			-safety risk -financial risk -overspend risk -overall risk	+ + + +	.040 .080 .010 .100
17	<i>Decision stage and attribute importance</i>	<i>see text</i>			<i>see text</i>		
18	<i>Decision stage and decision process</i>	<i>see text</i>			<i>see text</i>		

		BEARINGS			CIRCUIT BREAKERS		
#	HYPOTHESED RELATIONSHIP	VARIABLE	+-	p-value	VARIABLE	+-	p-value
19	<i>Supplier type and attribute importance -via distributor</i>	-tech support	-	.000	-well known	+	.051
		-phys product	-	.086	-prior purchases	+	.005
		-price	-	.060			