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Salesperson Attributes Preferred by Buyers in the Industrial Chemical Industry

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CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1 Introduction

The first chapter of this research report outlines the purpose of the study, the research problem and sub-problems, as well as the limitations and assumptions made by the researcher. The definitions required for the study are then discussed, followed by a brief outline of the subsequent chapters of the research.

1.2 Purpose of the Study

The purpose of this study is to determine the preferred attributes of sales representatives in the South African chemical industry as perceived by members of the professional buying team in the industry, to investigate whether clusters of buyer preferences exist, and to determine whether the buyers or members of the buying team have the authority to influence the sales process by choosing the supplier.

From the perspective of sales management and practice, salespeople are better prepared to meet positive expectations and to either avoid or engage negative ones when they are aware of buyers' perceptions (Hunt & Bashaw, 1989). Hence customer satisfaction can be increased, and marketing relationships enhanced, when buyer perceptions and expectations are more fully known (e.g. Solomon, Surprenant, Czepiel, & Gutman, 1985).

The information gained by the study would be used to highlight the preferred attributes of salespeople, and allow marketers to develop their sales strategies by focusing on these preferred attributes, and thereby optimise the performance of their sales team.

1.3 The Research Problem

The research problem is stated as follows:

Salespersons and sales managers in the industrial chemical industry may not know the types of attributes which are most valued by the buyers they call on, and whether they can benefit by knowing what these attributes are, by adjusting their behaviour to display these attributes.

The following sub-problems therefore arise:

Sub problem 1:

What are the attributes of sales representatives in the industrial chemical industry that are most valued by buyers?

Sub problem 2:

What is the relative importance of these attributes?

Sub problem 3:

Are there different segments of buyers with different preferences for the salesperson attributes?

Sub problem 4:

How much authority do buyers have to decide between suppliers?

1.4 Limitations

The study is limited to the perceptions of buyers and professional members of the buying group in the industry, and does not attempt to directly measure effective sales techniques. The study is further limited to chemical companies operating in South Africa

In the South African Chemical Industry, many different companies compete for business in the market. The types of products that are marketed range from specialty products with few suppliers, to commodity products with many different suppliers. The analysis of preferred sales representative attributes by product type is beyond the scope of this research.

In addition, the effect that salesperson attributes have on the buyers' decision-making process relative to other attributes, such as price and branding or company-specific attributes for example, is beyond the scope of this study.

1.5 Assumptions

The following assumptions are made:

1. Industrial buyer preferences are generally constant, and do not change significantly over short periods of time.

2. Buyers are consciously aware of, and are able to identify their preferences.

1.6 Definitions

Salesperson Attributes: These salesperson attributes are different to company-specific attributes, although these types of attributes may affect the attributes of salespeople. The ability to make regular calls, provide service and information, for example, may be affected by the company that employs the representative.

These salesperson attributes are also different to product-specific attributes. This distinction is fairly obvious, although product-specific attributes may affect the attributes of salespeople. The type and nature of the product being

marketed may affect the sellers' ability to provide technical information and samples, for example.

For the purpose of this study, salesperson attributes are broadly defined as those attributes of the seller that affect the buyer's decision to purchase from the supplier company.

Buyers: The term "buyers" refers to the professional members of the buying team, who interact with sales representatives. The buyer may also be referred to at the purchasing agent. Purchasing managers or procurement managers are included in the study, since they form part of the professional buying center, and interact with sales representatives.

In many organisations, particularly smaller ones, the role of the purchasing agent may be performed by members of management such as factory or operations managers.

Members of the Professional Buying Team: These are individuals who are employed to fulfill the purchasing or related functions. These are different from temporary members of the buying team, such as technical or financial individuals, who are employed for other functions, and occasionally become involved in the buying process.

1.7 Subsequent Chapters of the Research

Chapter 2: Significance of the Research Topic: This chapter examines the context of the research problem, and how the research will contribute to the current state of knowledge. It includes an overview of the South African Chemical Industry.

Chapter 3: Literature Review: This chapter reviews the literature relevant to the study, beginning with the difference between industrial and consumer markets, followed by a review of well-known models of buyer behaviour. Following this, the role of salespeople in the buying process is discussed, as well as several models of salesperson efficiency. This chapter rounds off with a discussion of previous research into the topic, and the propositions of the research.

Chapter 4: Research Methodology: This chapter discusses the methodology used for the research, outlining the sample and population, the preliminary study and derivation of variables, the design of the questionnaire, and the analytical tools used.

Chapter 5: Research Results: This chapter presents the results obtained from the survey, beginning with the demographics of the sample. Then the results from section 2 of the survey, the Likert Scale ranking of perceived level of influence of buyers in the 9 stages of the buying process, is presented and

discussed. Next, the results from section 3 of the survey, the conjoint questionnaire, are presented and discussed, followed by the cluster analysis.

Chapter 6: Discussion and Conclusion: This chapter reviews the results and discusses the research questions. It concludes with recommendations for future research.

CHAPTER 2: SIGNIFICANCE OF THE RESEARCH TOPIC

2.1 Introduction

This chapter examines the context of the research problem, and the contribution the research will make to the current state of knowledge. This is followed by an overview of the South African Chemical Industry.

2.2 Context of the Study

The South African Chemical industry is one of the largest sectors of economic activity in South Africa. The industry stands to benefit from preferential trade agreements that South Africa has entered into with the United States, European Union and sub-Saharan countries. The Department of Trade and Industry (DTI) website (*www.thedti.gov.za)* lists these agreements as follows:

- The Africa Growth and Opportunity Act with the United States,
- The European Union – South Africa Free Trade Agreement with the EU,
- The SADC trade protocol with 11 of the 14 SADC member countries,
- The South Africa Customs Union with Botswana, Namibia, Lesotho and Swaziland.

As a result, new market and business opportunities are opening up for businesses wanting to invest in South Africa, according to the DTI. There is also potential for the export market to grow as trade tariffs are reduced.

In this growing sector of the economy, sales representatives fulfil a vital role of marketing and selling chemical products directly to customers.

2.3 Significance of the Study

The significance of the study is that it will provide insight into understanding which attributes of sales personnel are regarded as being most valuable in the industry from the perspective of the buying team, and it provides insight into buyer behaviour in the industry. Organisations that market and sell industrial chemicals will benefit from the information gained from the study, by being able to maximise the efficiency of their sales personnel.

In industrial marketing, the sales force is the key channel of communication with customers. Sales representatives employed by organisations in the chemical industry are responsible for the vital function of growing the organisations' revenue, by maintaining existing customers, and by finding new customers. The Sales representative's role in business marketing is critical to a firm's long-term success (Boles, Hiram, Barksdale & Julie, 1997).

Sales managers would benefit from knowing what the buyers in industrial chemical companies require from their representatives, and what types of

attributes these buyers regard as being most important. This would help them to give the buyers what they want, and through this fulfilment of customer requirements, become preferred suppliers.

Management needs to understand the key attributes that increase sales, and then to use this information to select, train and supervise the representatives (Brashear, Bellenger, Ingram & Barksdale, 1997).

2.4 Overview of the South African Chemical Industry

In 2001, the chemical sector of the South African economy had an output of 62 billion Rand, accounting for 5% of GDP, according to the Department of Trade and Industry website (*www.thedti.gov.za*). Exports accounted for just under 50% of domestic production. The competitiveness of the South African Chemical Industry has been steadily improving, and exports from South Africa have increased in comparison to imports from 50% by value in 1996 to 81% by value in 2001.

The South African chemical sector comprises a few major integrated companies involved in primary and intermediate manufacturing. Small and medium-size enterprises are found mainly in downstream formulation and conversion processes. The industry is dominated by the basic chemical sector, with major production of liquid fuels, olefins, organic solvents and industrial mineral derivatives. South Africa, because of abundant access to

low-grade coal and leading edge process technology, is currently the lowest-cost producer of ethylene and propylene in the world. The table below gives a structure of the South African Chemical Industry:

Table 2.1: Structure of the south African Chemical Industry

APPLICATION	SHARE OF MARKET
LIQUID FUELS	33 %
BASIC INORGANIC	11 %
CONSUMER FORMULATED	11 %
PLASTIC CONVERSION	11 %
BASIC POLYMERS AND RUBBERS	7 %
PHARMACEUTICALS	6 %
BULK FORMULATED	5 %
RUBBER CONVERSION	5 %
BASIC ORGANIC	4 %
SPECIALITY AND FUNCTIONAL	4 %
SYNTHETIC AND TEXTILE	2 %
FINE CHEMICALS	1 %

Source: Department of Trade and Industry Website (www.thedti.gov.za)

CHAPTER 3: LITERATURE REVIEW

3.1 Introduction

The following literature review examines the literature relevant to the study. It begins with the difference between industrial and consumer markets, followed by a review of models of buyer behaviour and then a discussion of theory transitions in organisational buying behaviour research. The buying center composition and decision-making process, as well as the sales representatives role in the buying process are discussed, followed by a review of the previous research, and the research questions.

3.2 Industrial Markets Versus Consumer Markets

Industrial buying is the buying process that takes place between one organisation and another. The marketing of products by organisations to other organisations is often referred to as Business-to-business Marketing, abbreviated to B-2-B Marketing.

Much of the buying and selling in advanced economies is between organisations, that is, industrial rather than consumer market exchange. (Anderson & Oliver, 1987).

The industrial buying process differs from the consumer buying process in a number of ways, because the Industrial market differs from the consumer

market. Kotler (2000) defined a number of factors that differentiate these markets:

Fewer Buyers: Industrial sales representatives deal with far fewer buyers than the consumer market does.

Larger Buyers: A few large buyers do most of the purchasing. The large chemical manufacturers such as Sasol, AECI, Unilever, and others purchase large amounts of chemicals for a variety of applications.

Close Suppliers-Customer relationships: Suppliers are often expected to customize their offerings to the needs of individual customers. A close understanding between buyers and seller organisations is necessary in order for sellers to understand the requirements of their customers, and to provide the necessary support and service.

Building relationships between suppliers and customers is becoming one of the most discussed topics in marketing literature (Berry, 1995). This is particularly true for relationships between organisations in business-to-business marketing (Anderson, Håkansson & Johanson, 1994)

It is much more costly to get new customers than to retain existing ones, so the importance of building customer relationships is evident. Existing customers often purchase more than new customers (Weiser, 1995).

When there is a high degree of risk associated with the purchase, then the buyer is more likely to purchase from a supplier with whom a good relationship has already been forged.

Geographically Concentrated Buyers: In South Africa, Gauteng is the economic “hub” of the country, with over 50% of industrial activity taking place in the region. The following chart shows the distribution of registered chemical companies in South Africa:

Table 3.1: Density of Chemical Companies in South Africa *(Source:*

REGION	NO. OF COMPANIES
GAUTENG	891
KWAZULU NATAL	359
WESTERN CAPE	313
EASTERN CAPE	108
FREE STATE	45
NORTH WEST PROVINCE	23
MPUMALANGA	17
LIMPOPO PROVINCE	17
NORTHERN CAPE	4

Source: www.chemweb.co.za

Derived Demand: The demand for business goods, including industrial chemicals, is ultimately derived from demand for consumer goods. Industrial marketers are required to monitor buying patterns of consumers in order to track demand within their own industry.

Inelastic Demand: The total demand for many business goods and services is inelastic, which means that the demand is not much affected by price changes. If a customer uses a chemical raw material to manufacture finished goods, the amount that the customer uses will not vary if the price rises slightly.

Fluctuating Demand: The demand for industrial goods and services tends to be more volatile than the demand for consumer goods and services.

Professional Purchasing: Business goods are purchased by trained purchasing agents, who are required to follow organisational policies and requirements.

Several Buying Influences: More people typically influence industrial buying decisions.

Multiple Sales Calls: Because more people are involved in the buying process, it often takes multiple sales calls to win business orders.

3.3 Buying Behaviour

The work of Robinson, Faris and Wind (1967), Sheth (1973) and Webster and Wind (1972a) had a substantial impact on the field of organisational buying behaviour; these were the first deductively based, middle-range theoretical models dedicated to this particular phenomenon. (Wilson, 1996).

These three works laid the conceptual foundation for the study of organisational buying behaviour (Johnston & Lewin, 1996).

3.3.1 The Robinson, Faris & Wind ("RFW") Model

The "RFW" or Buyclass theory of purchasing (Robinson, Faris & Wind 1967) has been hailed as "one of the most useful analytical tools for both academics and practitioners interested in organizational buying behaviour" (Moriarty 1980). According to this model, there are three dimensions to the purchase process:

Information Needs: (how much information the prospect must gather before making a good decision,

Consideration of Alternatives: (the seriousness with which the prospects consider all possible alternatives),

Newness of the Task: (How unfamiliar the purchase situation is to the prospect)

The levels of each dimension may be classified as low, medium or high, giving rise to 27 possible situations. “RFW” found that in practice, only 3 combinations are possible, since the 3 dimensions are highly correlated. The research found that stable patterns of purchase behaviour exist in each situation.

The following table illustrates the findings:

Table 3.2: Summary of the RFW Buyclass Model

BUYCLASS	NEWNESS OF THE PROBLEM	INFORMATION REQUIREMENTS	CONSIDERATION OF ALTERNATIVES
NEW TASK	HIGH	MAXIMUM	IMPORTANT
MODIFIED REBUY	MEDIUM	MODERATE	LIMITED
STRAIGHT REBUY	LOW	MINIMAL	NONE

Source: Robinson, Faris & Wind, 1967

The New Task (high on all 3 dimensions) occurs less frequently, and may set the pattern for later purchases. The buying decision tends to be made by engineering or technical personnel, with the buying agent having little decision-making authority. When industrial chemicals are purchased, the first-time buying decision is made by the technical members of the buying group, since a working knowledge of chemistry is usually required.

The Straight Rebuy (low on all three dimensions) is the most common purchasing situation, and the purchasing agent is the prime decision maker. Outside suppliers have difficulty gaining consideration and usually only do so when the present suppliers make a mistake, or when a substantially lower price is offered.

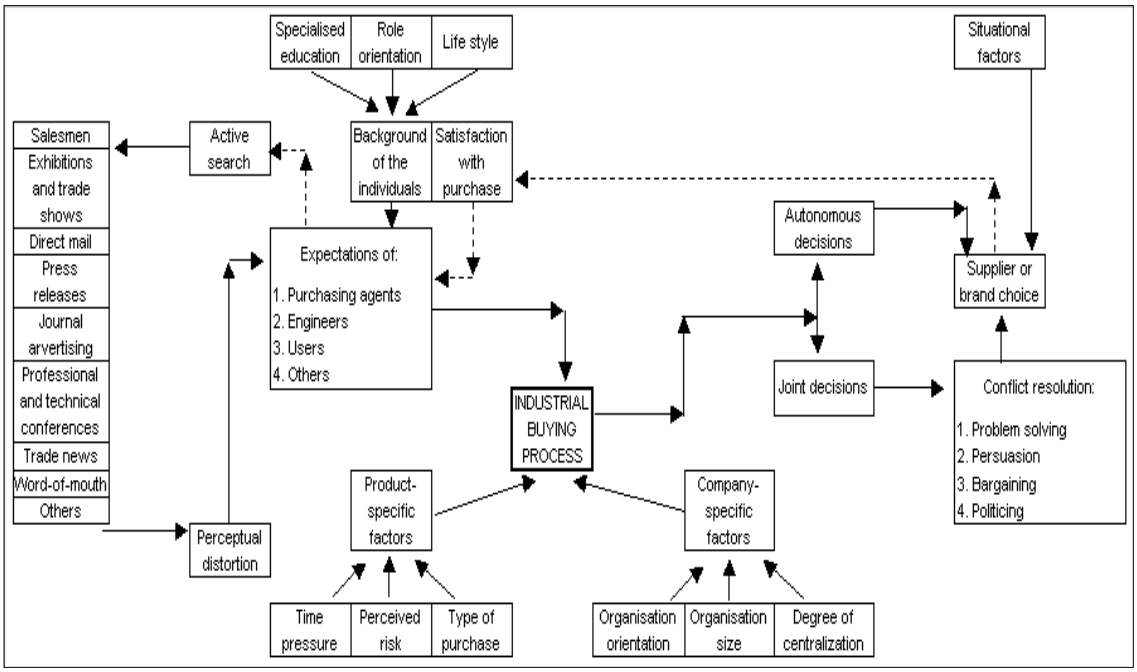
The Modified Rebuy (midrange on all three dimensions) has a mix of new task and straight rebuy features. It may be considered as a new task that has become familiar.

A particularly interesting aspect of the “RFW” model is that product type is not considered as a factor. Seemingly product related differences in involvement are actually a function of Buyclass stage.

3.3.2 The Sheth Model

This model proposed by Sheth (1973) is a generic model which attempts to describe and explain all aspects of industrial buying decisions. The model is best illustrated diagrammatically:

Figure 3.1: Diagrammatic Representation of The Sheth Model



Source: Sheth, 1973

It can be concluded from this model that organisational buyer behaviour consists of three distinct aspects (Sheth, 1973):

(I) The Psychological World of the Individuals Involved in the Buying Process:

The model describes five different processes which create differential expectations among the individuals involved in the purchasing process. These

are: the background of the individuals; information sources; active search; perceptual distortion; and satisfaction with past purchases.

(II) The Conditions Which Precipitate Joint Decisions Among These Individuals:

The Sheth model further states that not all industrial buying decisions are made jointly by the various members of the buying group. Some decisions are delegated to one party, which is not necessarily the buying agent. It is important for the buyer to know whether a buying decision is autonomous or not.

There are six primary factors which determine whether a decision will be joint or autonomous. These are Product/Service specific factors, (time pressure, perceived risk and type of purchase) and company-specific factors (organisation orientation, organisation size and degree of centralisation).

(III) The Process of Joint Decision Making Among the Decision Makers:

The process of joint decision-making includes the initiation of the decision to buy, gathering of information, evaluating alternative suppliers, and resolving conflict among the parties who must jointly decide.

The Sheth model also states that there is ample empirical evidence to suggest that the some of the industrial buying decisions are determined by *ad hoc* situational factors rather than by systematic decision making.

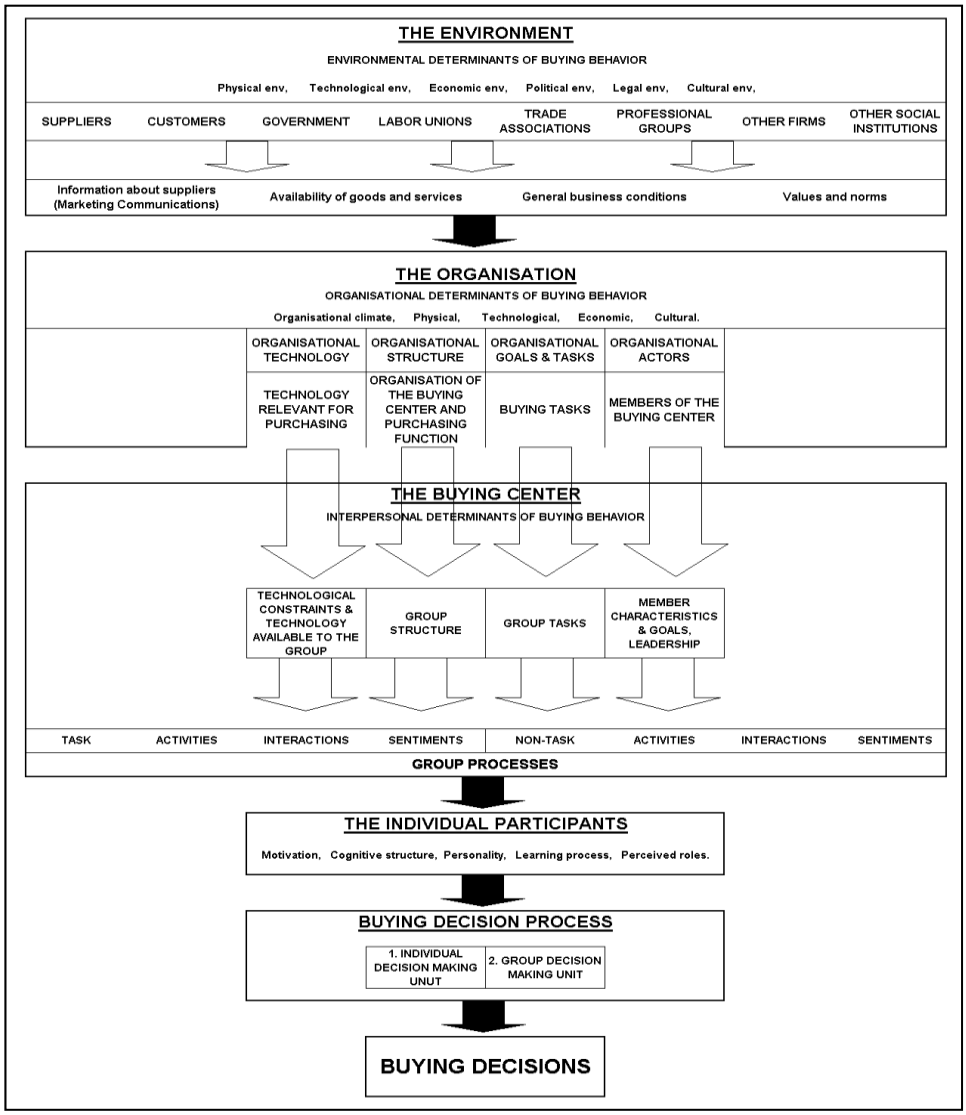
3.3.3 The Webster & Wind ("WW") Model

The Webster and Wind Model (Webster & Wind, 1972a), often referred to as the "WW" model, is a general model which enables one to evaluate the relevance of specific variables, and thereby permits greater insight into the basic processes of industrial buying behaviour.

According to this model, organisational buying is a decision-making process carried out by individuals, in interaction with other people, in the context of a formal organisation which is influenced by a variety of forces in the environment (Webster & Wind, 1972a). The four classes of variables determining buyer behaviour are individual, social, organisational and environmental.

The following diagram represents the WW model:

Figure 3.2: Diagrammatic Representation of the Webster & Wind model



Source: Webster & Wind, 1972a

(I) Environmental Influences: Environmental influences are subtle, and influence the buying process by providing information as well as constraints and opportunities. Environmental influences define the availability of goods and services, and the general business conditions facing the buying organisation, including the rate of economic growth, the level of national income, interest rates and unemployment.

Environmental influences also determine the values and norms guiding inter-organisational and interpersonal relationships buyers and sellers. These values and norms may be codified into laws, or they may be implicit. Cultural, social, legal and political forces are the dominant sources of values and norms.

Environmental forces influence the information flow into the buying organisation. The most important aspect is the flow of marketing communications from potential customers, through mass media and private channels.

(II) Organisational Influences: Organisational factors cause individual decision makers to act differently than they would if they were functioning alone or in a different organisation. Organisational buying behaviour is motivated and directed by organisations' goals, and constrained by its' financial, technological and human resources.

Organisations are defined as multivariate systems composed of four sets of interacting variables: tasks, organisational structure, technology and people.

Each of these subsets interacts with and is dependent upon the others for functioning. Together these four interacting sets of factors define the information, expectations, goals, attitudes, and assumptions used by the buying organisation in decision-making.

(III) Interpersonal Influences: Within the organisation as a whole there will be numerous decision makers. The buying center defined by Webster and Wind (1972a) includes five roles:

Users – The individuals who use the product.
Buyers – The individuals with the formal authority to place orders from suppliers.
Influencers – Those who influence the decision making process.
Deciders – Individuals with the authority to choose alternative buying actions.
Gatekeepers – Individuals who control the flow of information into the buying center.

An individual may occupy more than one role, and it is important to understand how each member expects the sales person to behave towards the individual.

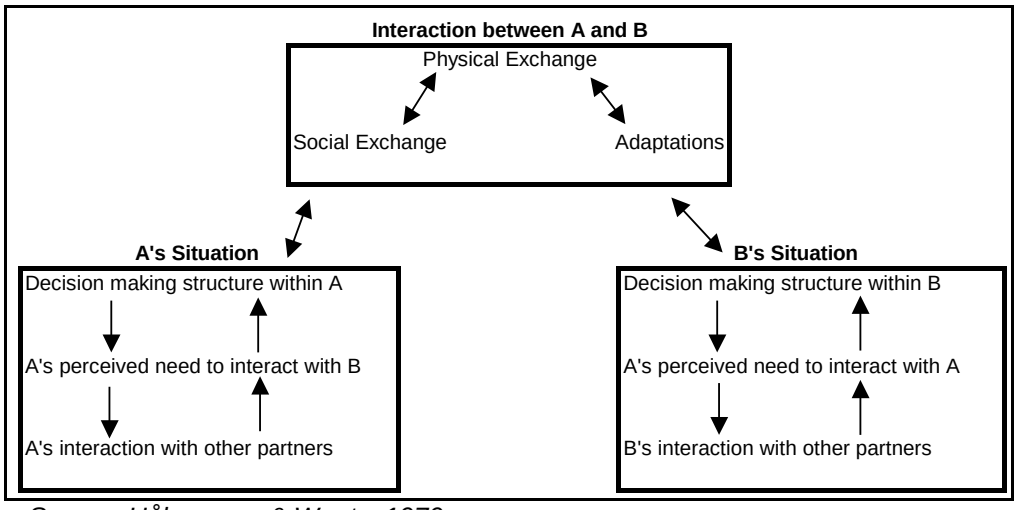
(IV) Individual Influences: Individual buyers are motivated by a complex combination of personal and organisational objectives. The organisational buyer's personality, perceived role, motivation, cognition and learning are the basic psychological processes which affect the response to buying situation and market stimuli provided by potential vendors.

It is important for the sales representative to understand the organisational buyers' psychological characteristics, predispositions, preference structure and decision model as a basis for marketing and sales strategy decisions.

3.3.4 The Interaction Approach

Håkansson & Wootz (1979) proposed a model of industrial purchasing which discusses the firms' need to interact with a certain partner, the physical and social interactions with the partner and the mutual adaptations required by the parties involved. These aspects are brought together in a comprehensive model, which is illustrated by the following diagram:

Figure 3.3: Diagrammatic Representation of the Interaction Approach



Source: Håkansson & Wootz, 1979

The model can be described in terms of factors attributable to each of the 2 partners (A' Situation & B's Situation) plus factors that affect the common interaction process (Physical & Social exchange; Adaptations). The need of an individual to interact with another is influenced by:

- The decision making structure within his own organisation
- Interaction with the other party in different dimensions
- Interaction with other parties.

If the interaction with the other party functions well, and there is a balance between the physical exchange, social exchange and adaptations, then the perceived need to interact with this individual will increase. If the interaction with other individuals functions better, then the perceived need to interact with the other party decreases.

3.3.5 Summary of models

Webster & Wind (1972b) in their book entitled Organizational Buying Behaviour, summarised the early work in the field, defining four main categories of model:

1. Task related
2. non-task related
3. Complex
4. Multi-dimensional

Task Related models are based on the view that the desire for optimal outcomes is a fundamental determinant of behaviour. These models focus on concepts such as the lowest price and lowest cost.

Non-task related models shift the perspective from the demands of the task to the personal interests that might be affected by the outcome. These personal interests include personal enhancements, risk avoidance and personal relationships.

Complex models are more comprehensive, and incorporate a large number of variables. These have been criticized for adopting partial approaches and failing to cover some of the important points covered by Webster & Wind. These models were also inadequate as descriptive representations of reality and as predictive tools.

Complex multidisciplinary models were developed to be more comprehensive, and included the following models, which have already been discussed:

- Sheth (1973)
- Webster & Wind (1972a)
- Håkansson & Wootz (1979)

3.3.6 Theory Transitions in Organisational Buying Behaviour Research

Although these models are useful as descriptive, organising frameworks, Merton (1957) suggests that the purpose of such middle-range paradigms is to provide a codified guide for functional analysis. Merton (1957) also points out that sociological paradigms generally do not apply over long periods of time.

Merton (1957) further points out that all sociological phenomena are subject to changes in the environment, from general human behaviour, to organisational and human behaviour in organisational buying as described by the three models. Researchers should use paradigms as a point of departure for empirical studies, and should integrate new developments into revised paradigms or entirely new paradigms.

Evidence of such evolution is present in organisational buying (Wilson, 1996). Choffray and Lilien (1978; 1980) proposed a sequential process of individual decision-making, followed by formation of organisational preferences, resulting in supplier choice. Anderson and Chambers (1985) offer a model of organisational buying behaviour based on rewards and measurements of performance. Building directly on the work of “RFW”, Bunn (1993) developed a taxonomy that categorizes buying decisions into six groups from casual purchase to strategic new purchase. This research offers process-orientated insight for buyers and adaptive selling insight for marketers. Finally, Johnson

& Lewin (1996) consider the models of “RFW”, Sheth and “WW” to develop an integrated model of organisational buying behaviour.

New models are proposed and new empirical studies are conducted to further our knowledge about organisational buying behaviour. As Merton (1957) observed evolving paradigms in sociology, we can see evidence of new frameworks or paradigms in organisational buying behaviour and also in business marketing.

The most dramatic shift in research focus has been the movement from studying buyers and sellers in isolation to studying the relationship between companies (Wilson, 1996). The whole area of relationship marketing is one that has received much attention recently, (e.g. Håkansson & Snehota 1995). Many theoretical and empirical studies that have been conducted to examine exchanges between buyers and sellers as ongoing relationships rather than discreet transactions, (e.g. Anderson & Narus, 1984; 1990; Dwyer, Schurr & Oh, 1987; Frazier, 1983; Frazier, Spekman & O’Neal, 1988). One explanation for this is the changes in the external business-to-business environment (Wilson, 1996).

3.4 THE BUYING CENTER

3.4.1. Buying Center Composition

Alexander, Cross & Cunningham (1961) found that in 75% of the companies they surveyed, 3 or more people were involved in the buying process. Anyon (1963) suggested that an average of 6 people were involved.

Bonoma, Zaltman & Johnston (1977) proposed that the complex, vague and often changing composition of the buying center makes it difficult to determine exactly who is involved in organisational buying.

Sheth (1973) suggests that the composition of the buying center will be determined by three factors:

1. The size of the organisation: The larger the organisation, the larger the size of the buying team.

2. The degree of centralisation: The greater the degree of centralisation, the more centralised the decision making process will be.

3. The orientation of the organisation: if the organisation is technically orientated, the buying center is likely to be dominated by engineers who will essentially make the buying decision.

Doyle, Woodside & Michell (1979) investigated the differences in organisational buying between new task and rebuy situations, and the following table summarizes their findings:

Table 3.3: The Difference Between New Task and Rebuy Situations

PROCESS VARIABLE	PROBLEM SITUATION	
	NEW TASK	STRAIGHT REBUY
Length of Time	Long	Short
Number in the Buying Center	Many	Few
Source of Contact of Supplier	Product user / engineer	Purchasing agent
Concession Limits	Negotiable	Fixed
Composition of the Buying Center	Fluctuates	Stable

Source: Doyle, Woodside & Michell, 1979

From this table it is evident that new task buying situations take longer and involve more members of the buying center. The composition of the buying center fluctuates, in the case of the new task, and the product user is the point of contact for the sales representative, while for the rebuy situation, the purchasing agent is the point of contact for the sales representative.

McWilliams, Naumann & Scott (1992) investigated buying center size in a wide variety of organisations, of which 37% were from light and heavy manufacturing firms.

The following table shows the number of individuals involved at each stage of the purchasing process:

Table 3.4: Two Way Analysis of Variance of Buying Center Size with Purchase Situation and Purchase Stage

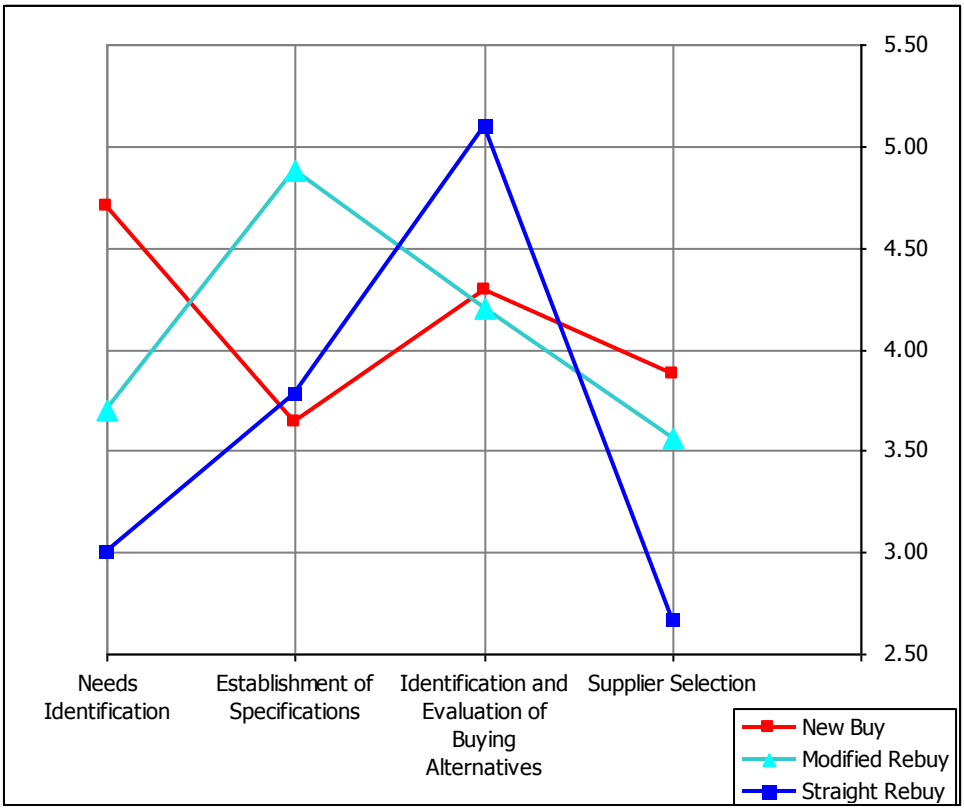
STAGE IN THE PURCHASING PROCESS	NEW BUY	MODIFIED REBUY	STRAIGHT REBUY	ROW MEAN
Needs Identification	4.70	3.70	3.00	3.83
Establishment of Specifications	3.64	4.88	3.78	4.04
Identification and Evaluation of Buying Alternatives	4.29	4.20	5.10	4.55
Supplier Selection	3.88	3.56	2.67	3.35
Column Mean	4.11	4.05	3.69	3.95

Source: McWilliams, Naumann & Scott, 1992

The results showed that the mean size of the buying center varied from 2.67 to 5.10 individuals with a mean of 3.95. Both purchase situation and purchase phase are significantly related to buying center size. From the New Buy to the Modified Rebuy and the Straight Rebuy, the number of individuals involved in the purchasing decision declines in each case..

The results can be illustrated by the following graph:

Figure 3.4: Two Way Analysis of Variance of Buying Center Size with Purchase Situation and Purchase Stage



Source: McWilliams, Naumann & Scott, 1992

The New Buy class has the most individuals involved at the Identification of Needs stage, and at the Supplier Selection stage. The Modified Rebuy class has the most individuals involved at the Establishment of Specifications stage, and the Straight Rebuy class has the most individuals involved at the Identification and Evaluation of Buying Alternatives stage.

The Straight Rebuy class has the lowest amount of individuals involved at the Needs Identification stage, and at the Supplier Selection stage.

The New Buy stage has the lowest amount of individuals involved at the Establishment of Specifications stage.

Crow & Lindquist (1985) proposed that the average number of persons in the buying center increases as the task becomes more complex.

Hill & Hillier (1977) used the term “Risky Shift” to explain how members of a group take decisions involving a higher degree of risk than they would as individuals. This concept is central to the composition of the buying center, and highlights the point that its’ composition will vary as a result of the characteristics of the product being purchased, and will vary in relation to the perceived risk of the buying center.

It can be summarised therefore that the composition of the buying center will be determined primarily by:

- The characteristics of the product being purchased,
- The perceived risk,
- The Buyclass stage,
- The size, orientation and degree of centralisation of the organisation.
- Complexity of the buying task.

3.4.2 The Role and Influence of the Purchasing Agent

Purchasing decisions in organisations are made by committees or buying centers whose members represent different departments and have different interests (Robinson, Faris & Wind, 1967; Sheth 1973). Consequently, organisational decision making processes involve considerable complexity (Webster, 1978)

Berkowitz (1986) researched the buying responsibility in the maintenance product industry (Industrial cleaners, lubricants, abrasives, adhesives and other maintenance chemicals), in which the buyclass category was a modified rebuy. The situation was one in which industrial purchasers have the opportunity to modify a straight rebuy purchase due to a change in price, service, delivery or quality (Berkowitz, 1986). While end-users and technical staff were overwhelmingly responsible for initiating the purchase activity by requesting and evaluating samples, purchasing was seen as dominant in having the final authority for selecting a supplier. Furthermore, the purchasing agent most often has final approval over a requisition

Weigand (1968) suggested that the purchasing agent may be no more than a clerical officer with little influence on the purchasing process, and that users with expert knowledge may exert sufficient influence to override other aspects of the purchasing decision.

Bellizzi & Walter (1980) proposed that the role of the purchasing agent varies throughout the purchasing process. Spekman & Stern (1979) found that the purchasing agent was perceived as more influential when the level of environmental uncertainty was high rather than when it was low.

The influence of an individual within the buying center can be defined as the changes in purchase-related opinions and behaviours of buying center members as a consequence of the individuals' participation in the decision making (kohli & Zaltmann, 1988). Several basic hypotheses in the organizational buying behaviour literature propose that new task, modified rebuy and straight rebuy situations produce distinct buying processes (Webster & Wind, 1972b; Robinson *et al,* 1967; Hill & Hillier, 1977). A number of studies suggest that the influence of the purchasing agent is greater is straight rebuy and modified rebuy situations (Cooley, Jackson & Ostrom, 1997; Weigand, 1966).

Further research supports the theory that engineering dominates the product selection decision, and purchasing dominated the supplier selection decision (Cooley *et al,* 1997).

With regard to the size of the firm, Crow & Lindquist (1985) proposed that, with respect to the number of employees in an organization, there is a general pattern where the larger the firm, the less influence the purchasing agent has on the purchasing decision.

It can be summarised therefore that in general, the influence of the purchasing agent is greater under the following conditions:

- In smaller firms
- In straight and modified rebuy situations
- When environmental uncertainty is high

The influence of the purchasing agent also varies depending on the stage of the buying process.

3.4.3 Sales Representatives' Influence on the Buying Decision

Salespersons are often required to play multiple roles, including seller, order-taker, consultant, educator, negotiator, market researcher, service representative, and expediter (Cardoso, Shi & Roering, 1987), which makes it difficult to identify and measure the factors which predict or explain successful sales performance (Morris, Davis, Allen, Avila & Chapman, 1991).

Sales performance research has tended to focus on the relationship of specific personality dimensions, such as empathy, achievement, motivation, dominance, etc. to salesperson effectiveness (Churchill, Ford, Hartley & Walker, 1985), yet, such attributes have yielded little empirical evidence in predicting sales performance (Lamont & Lundstrom, 1977). The characteristics of the successful salesperson appear to depend on the kind of measure of sales success employed (Lamont & Lundstrom, 1977). While

sales performance can be measured utilizing a variety of factors (Anderson & Oliver, 1987), sales quotas remain the most frequently used method of sales representative evaluation (Jackson, Keith & Schlacter, 1983). This is as a direct result of the emphasis by companies on sales volume or turnover as a measure of performance. In addition, there are several different types of measures of sales performance, which a firm may or may not choose to evaluate and reward (Walker, Churchill & Ford, 1977).

Understanding how customers view sellers is a critical issue (Stafford & Stafford, 2003). How a seller is perceived by a buyer influences that sellers' effectiveness (Webster, 1968). A negative view of sellers can degrade sales outcomes (Wotruba, 1990), just as positive perceptions can beneficially influence both current purchases and future interactions (Doney & Cannon, 1997).

One of the most difficult tasks that industrial marketers and sellers face is being able to identify what the customer desires, and then to develop programmes that deliver that desired level of service (Powers, 1988). McQuiston & Walters (1989) point out that sales training programmes need to focus on discovering each buyers evaluative dimensions, and then decide how best to present these attributes to create a differential advantage for the company.

3.5 Previous Research

Williams & Seminerio (1985) investigated the attributes of salespeople that provide industrial purchasers with the greatest level of satisfaction. The research was conducted each year between 1977 and 1983. The following table summarizes the findings of the study:

Table 3.5: Williams & Seminerio Table of Attributes

RANK	ATTRIBUTE	AVERAGE PERCENT MENTIONS
1	Thoroughness and Follow Through	65.0
2	Knowledge of his Product Line	58.9
3	Willingness to go to bat for the buyer within the suppliers' firm	54.3
4	Market knowledge and willingness to keep the buyer posted	40.6
5	Imagination in applying his products to the buyer needs	23.1
6	Knowledge of the buyers' product line	18.3
7	Diplomacy in dealing with operating departments	16.3
8	Preparation for well planned sales calls	12.4
9	Regularity of sales calls	8.7
0	Technical education	7.4

Source: Williams & Seminerio, 1985

Their work showed that the attributes are grouped into 3 sets:

First set: Thoroughness and follow through
Knowledge of his product line
Willingness to go to bat for the buyer within the suppliers' firm

Second set: Market knowledge and willingness to keep the buyer posted.

Third set: Imagination in applying his products to the buyer needs
Knowledge of the buyers' product line
Diplomacy in dealing with operating departments
Preparation for well-planned sales calls
Regularity of sales calls
Technical education

Bellizzi & Walter (1980) proposed that previous studies have shown that the role of the purchasing agent varies throughout the purchasing process. They measured the influence of purchasing agents throughout the buying process, which they defined as follows:

Stage 1: Anticipation or recognition of a problem (need) and a general solution.

Stage 2: Determination of general characteristics and quantity of needed item.

Stage 3: Specific description of characteristics and quantity of needed item.

Stage 4: Search for and qualification of potential sources.

Stage 5: Gathering of relative purchase information & acquisition of proposals.

Stage 6: Analysis of Information and proposals.

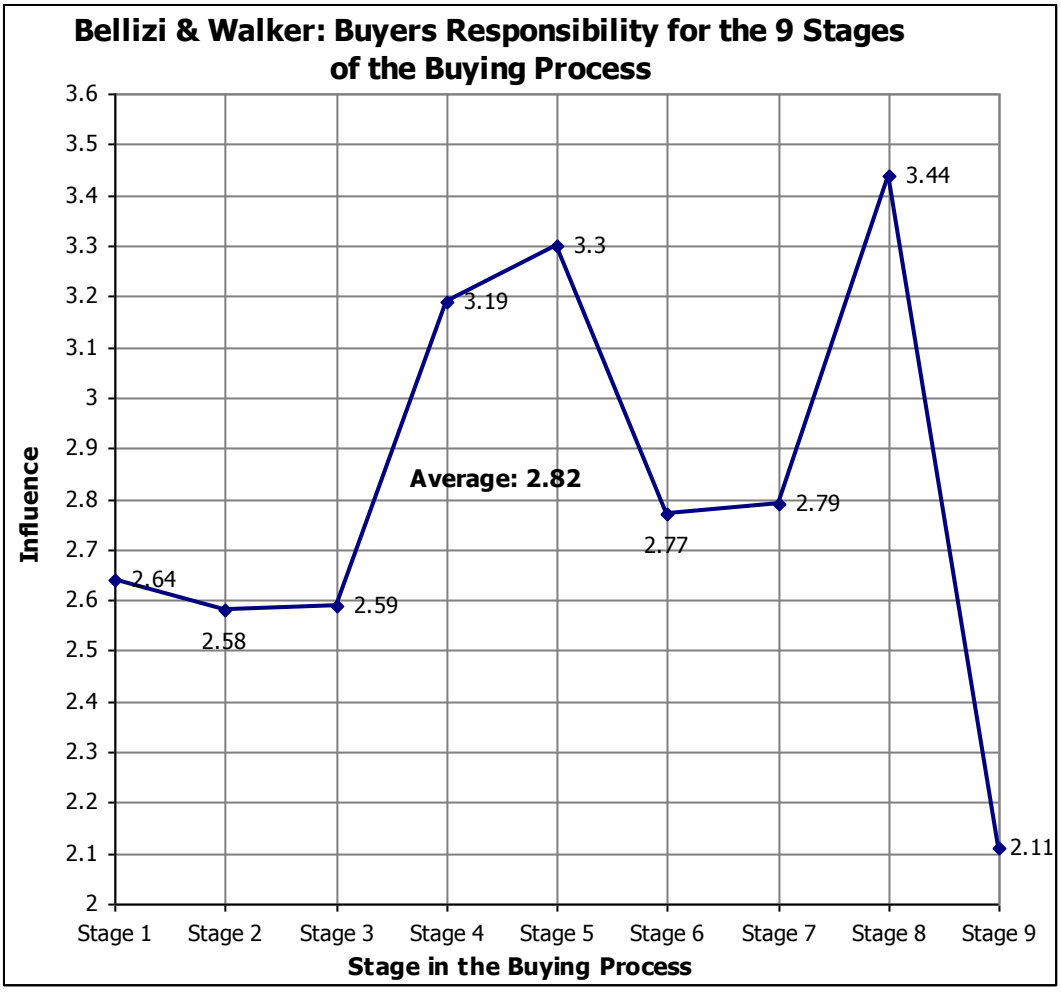
Stage 7: Evaluation of information and proposals, and selection of supplier.

Stage 8: Selection of an order routine.

Stage 9: Performance feedback and evaluation.

The results were tabulated as follows:

Figure 3.5: Bellizzi & Walter Research Results



Source: Bellizzi & Walter, 1980

This shows that the purchasing agent has the most influence on decision-making at stages 4, 5 and 8, which are:

- Search for and qualification of potential sources.
- Gathering of relative purchase information & acquisition of proposals.
- Selection of an order routine.

The purchasing agent had less influence on stages 6 and 7 which are:

- Analysis of Information and proposals.
- Evaluation of information and proposals, and selection of supplier.

And finally the stages where the purchasing agent had the least authority were stages 1, 2, 3 and 9:

- Anticipation or recognition of a problem (need) and a general solution.
- Determination of general characteristics and quantity of needed item.
- Specific description of characteristics and quantity of needed item.
- Performance feedback and evaluation.

3.6 Research Questions

The literature review has revealed that there are numerous role players in the buying center, and that the decision making process is complex, and varies depending on the nature of the purchase.

It is suggested that it is important for the sales representative to understand the organisational buyers' preference structure and decision model as a basis for marketing and sales strategy decisions (Webster & Wind, 1972a).

It has also been suggested that sales representatives who successfully identify the attributes that buyers prefer can adopt meaningful sales strategies (Brown *et al,* 1993).

Furthermore, when similar products are offered for similar prices and levels of service, buyers may be motivated by personal preferences for dealing with a particular salesperson. (Webster & Wind, 1972a).

This leads to the following 4 research questions:

3.6.1 Research Question 1

Which attributes of sales representatives in the industrial chemical industry are most valued by buyers?

The attributes of sales representatives which buyers most value in the industrial chemical industry have been determined by pilot study to be the following:

Table 3.6: Attributes Identified by the Preliminary Study

ATTRIBUTE
Good technical knowledge
Has information and samples readily available
Easy to contact
Experience in the industry
Helps me to solve my problems
Efficient and follows through

3.6.2 Research Question 2

What is the relative importance of these attributes?

The relative importance of these attributes was measured during the preliminary study, and will be fully tested using conjoint analysis. The indications from the preliminary study are that the attributes are preferred in the following order: (the lower score indicates a higher preference).

Table 3.7: Ranking of Attributes Identified by the Preliminary Study

RANK	ATTRIBUTE	AVERAGE SCORE
1	Good technical knowledge	2.0
2	Has information and samples readily available	3.7
3	Easy to contact	3.8
4	Experience in the industry	4.8
5	Helps me to solve my problems	5.0
6	Efficient and follows through	5.2

3.6.3 Research Question 3

Are there different segments of buyers with different preferences for the salesperson attributes?

Spekman (1981) used factor analysis and multiple discriminate analysis to demonstrate that buyers can be segmented based on the type of organisation in which they are employed.

Winter (1993) segmented buyers into 2 groups: high or low socialisers. The high socialisers allow their salesperson preferences to affect purchase decisions (Dubinsky & Ingram, 1981-1982, p 47).

3.6.4 Research Question 4

How much authority do buyers have to decide between suppliers?

A member of the purchasing department is often the marketer's primary contact point with the organisation. (Webster & Wind, 1972a). Buyers often have the authority for managing the contact of suppliers with other organisational actors, and thus also perform the "gatekeeper" function.

The buyer is in most cases the final decision maker, and the target of influence attempts by other members of the buying center. (Webster & Wind, 1972a).

The organisational buyer can be viewed as a constrained decision maker. In the event that two or more vendors offer products of comparable quality and service at a comparable price, then the organisational buyer may be motivated by nontask variables such as personal preferences for dealing with a particular salesperson (Webster & Wind, 1972a).

CHAPTER 4: RESEARCH METHODOLGY

4.1 Introduction

This chapter discusses the methodology used for the research, outlining the sample and population, the preliminary study and derivation of variables, the design of the questionnaire, and the analytical tools used.

4.2 Methodology

This research is quantitative in nature. A questionnaire (survey) was distributed to a representative sample of the population, and the results have been analysed using appropriate statistical methods, in order to test the propositions.

The research was be conducted in two phases, the first being preliminary questionnaire intended to aid in the design of the conjoint study, and the second being the survey itself.

4.3 The Research Population

The population includes any South African company that buys chemicals, whether for final use, for resale, or as raw materials for manufacturing. These may be locally owned, or local branches of multinational companies. These

organisations range in size from multi-billion Rand annual turnover companies to smaller organisations that turn over a few million per annum.

Respondents are professional members of the buying group, who meet with salespeople from other companies. These may be buyers, buying managers, chemical supply managers, factory managers, operations managers, market managers, materials managers, technical managers, procurement manager, purchasing managers, or other job titles, as long as their responsibilities include meeting with representatives, and making procurement decisions.

4.4 Preliminary Study

The preliminary study has been used to establish the attributes to be used in the conjoint analysis. Six respondents were chosen conveniently to list and describe the important attributes of sales representatives from their own perspective (Appendix C). The responses were analysed, and a list of the attributes which occurred more than once were assembled in a second survey (Appendix D), in which the same respondents ranked these attributes from the most important to the least important.

The following six attributes (refer to table 3.6) were chosen based on the ranking given during the pilot study: Good technical knowledge, has information and samples readily available; easy to contact; experience in the industry; helps me to solve my problems; efficient and follows through

4.5 Derivation of Variables

The preliminary study established the 6 attributes to be measured. Once these attributes were chosen, the researcher conducted interviews with the 6 buyers in the chemical industry to determine the levels for each attribute. The results of this qualitative part of the research are summarised in the following table:

Table 4.1: Attributes Determined by the Pilot Study, and their Levels

ATTRIBUTE	LEVEL		
Technical Knowledge	Knows formulation chemistry and what the product is used for.	Knows what the product is used for.	Does not have any technical knowledge.
Information and Samples are Readily Available	Within 1 day	Within 3 days	Within 5 days
Easy to Contact	Can be contacted 100% of the time	Can be contacted 50% of the time	
Experience in the Industry	5 Years experience	1 Year experience	
Helps Solve Problems	Helps me 100% of the time	Helps me 50% of the time	
Efficient and Follows Through	100% of the time	50% of the time	

4.6 Questionnaire Design

The questionnaire (Appendix B) consists of 3 sections, summarised by the following table:

Table 4.2: Summary of Survey Sections

	Section 1	Section 2	Section 3
Type:	Demographic	Likert Scale	Conjoint Analysis
Requirements:	Selection of appropriate category	Select which of the 4 options, from "*no influence*" to "*Strong influence*", the respondent feels is most applicable in each case.	Choose between 2 salesmen "cards" with different attributes on each occasion. There are 9 boxes ranging from "*strongly prefer left*" to "*strongly prefer right*". The respondent ticks the most applicable box in each case.
Derivation of Variables:	Study requirements	Williams & Seminerio (1985)	Pilot Study to determine variables
Analysis:	Cross tabulation, Frequency	Correspondence analysis to convert data from Ordinal to Interval level data.	Conjoint software outcomes based on the attributes and levels
Outcomes:	Trends	Mean values indicating stage in the buying process where the buyer has the most Influence	Utility / Importance of attributes

4.7 The Sample and Data Collection

The sampling methodology was one of convenience. Chemical companies were contacted by telephone or email, following which the survey questionnaire was emailed or faxed to them.

4.8 Data Analysis

The data has been analysed in three stages, following the structure of the survey. The demographic data has been analysed, followed by the analysis of the Likert scale responses, and then analysis of the Conjoint Analysis responses.

4.8.1 Likert Scale Analysis

To carry out interval level analysis of Likert scale data, it is necessary to convert the ordinal scale in which the responses were captured into interval scale. This helps to achieve more meaningful interpretation of the results of the analysis. Bendixen & Sandler (1995) clearly illustrate why it is incorrect to assume linear or proportionate intervals between Likert scale rating points, and provide a procedure for the conversion.

Correspondence analysis was used to re-scale the Likert scale responses from ordinal to interval data, by calculating the Euclidean distances between scale points on the first two axes and apportioning these distances to re-

calculate numerical values of the scale points between 1 and 4 for the four-point Likert scale (Appendix F).

4.8.2 Conjoint Analysis

The main analytical tool which was used in the analysis was conjoint analysis of the attributes. The value of conjoint analysis is that it assesses the weight that people give to various factors that underlie their decisions.

In a real purchase situation buyers do not make choices based on a single attribute. They examine a range of features or attributes and then make judgements or trade-offs to determine their final purchase choice. Conjoint analysis examines these trade-offs to determine the combination of attributes that will be most satisfying to the buyer. By using conjoint analysis a company can determine the optimal attributes for their sales staff. This analysis has been used to generate a measure of importance attached to each attribute.

There are 2 principal methods for collecting conjoint analysis data: The 2 factor evaluations, and the multiple factor evaluations.

The 2 factor at a time approach is easier to complete but is more difficult from a data collection and capture perspective. The multiple factor approach has been used for the study.

The Software used to construct the conjoint questionnaire and analyse the responses was Sawtooth Software 4.7.4 CVA System 3.0.4, Copyright 1985 – 2004.

The conjoint analysis was be followed by cluster analysis of the part-worth preferences of attributes to determine whether clusters of buyers exist, and if so how these clusters are composed.

4.9 Reliability

Reliability refers to the accuracy and consistency with which the instrument produces results. (Leedy & Omrod, 2004).

A comprehensive review of conjoint reliability studies is provided by Bateson, Reibstein & Boulding (1987). They consider 4 types of reliability:

- Reliability over time,
- Reliability over attribute set,
- Reliability over stimulus sets,
- Reliability over data collection methods.

The authors examined over 30 studies over the 1973-1984 period, finding that the authors used a variety of reliability measures with the median reliability correlation of 0.75.

4.10 Validity

The validity of an instrument is how well it measures what it is supposed to be measuring (Leedy & Omrod, 2004).

In their review of conjoint analysis validity, Green & Srinivasan (1990) note that there have been a large number of studies addressing validity issues. Most of the studies have involved tests of cross-validity, which is the ability of the model to predict the ranking of a set of profiles. Several studies have successfully shown the ability of conjoint analysis to predict actual choice behaviour.

Green & Srinivasan (1990) conclude that the empirical evidence supports the validity of conjoint analysis as a predictive technique.

CHAPTER 5: RESEARCH RESULTS

5.1 Introduction

This chapter presents the results obtained from the survey, beginning with the Demographics of the sample. Then the results from section 2 of the survey, the Likert Scale ranking of perceived level of influence of buyers in the 9 stages of the buying process, is presented and discussed. Next, the results from section 3 of the survey, the conjoint questionnaire, are presented and discussed, followed by the cluster analysis.

5.2 Demographic Data

The survey was sent via email to 68 subjects and 30 properly completed surveys were collected, after two were rejected as being unusable due to errors made by the respondents while filling in the document. In both of these cases, the respondents omitted parts of the survey. The demographic profile of the respondents was as follows:

Total Contacted: 68

Total Useable Respondents: 30

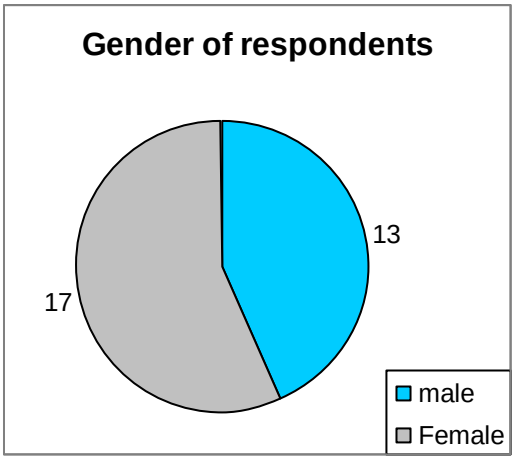
Response Rate: 44%

Sample Size: 30

5.2.1 Gender of Respondents:

The following chart indicates the gender of respondents:

Figure: 5.1: Gender of Respondents

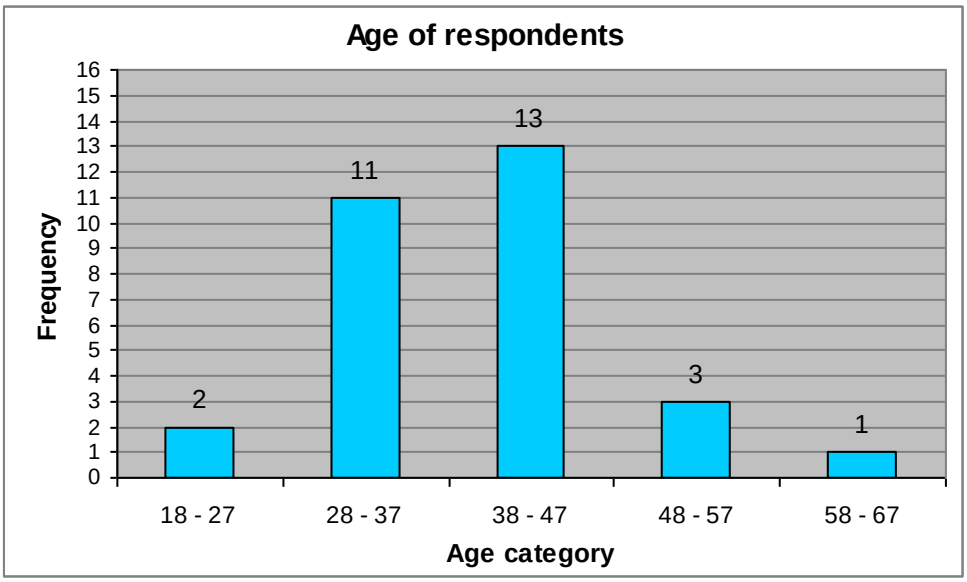


There were slightly more female than male respondents, with females constituting 57% of the sample, and males making up the remaining 43%.

5.2.2 Age of Respondents:

The graph below indicates the frequency of respondents falling into each of the age categories:

Figure: 5.2: Age of Respondents



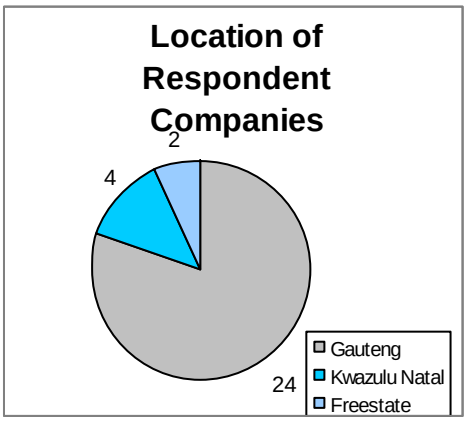
Most of the respondents (80%) fall within the range of 28-47 years old. The category from 38-47 has the highest number of responses constituting 43% of the sample, while the category from 28-37 constitutes 37% of the sample.

The remaining 20% of responses fall into the other three categories, with 2 responses (7%) falling in the category from 18-27 years old, 3 respondents (10%) falling in the category from 48-57 years old, and 1 respondent (3%) falling in the category from 58-67 years old.

5.2.3 Location of Respondent Companies:

The chart below illustrates the location of respondent companies whose purchasing agents took part in the survey.

Figure: 5.3: Location of Respondent Companies



80% of the respondents' companies are located in Gauteng. 13% are located in Kwazulu-Natal, and the remaining 7% are located in the Free State.

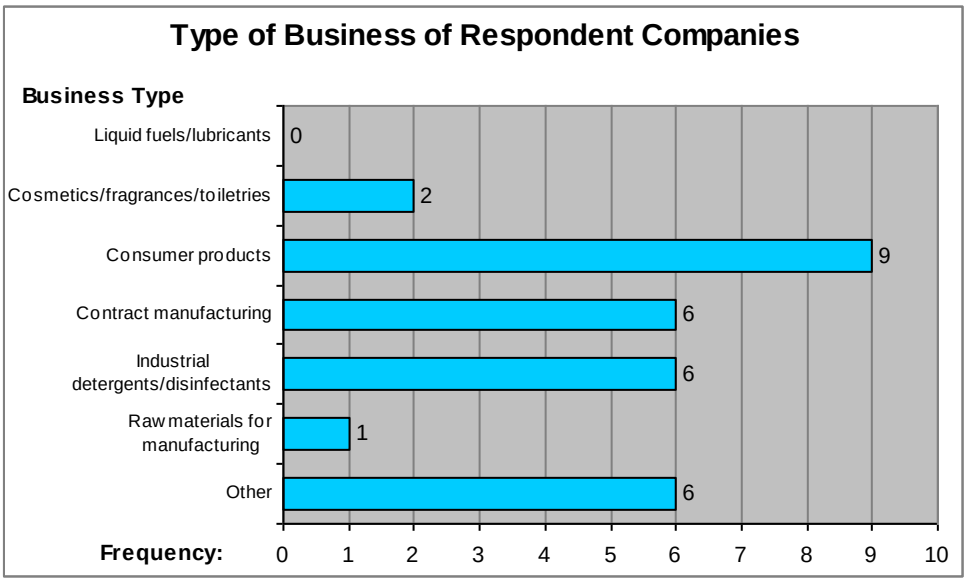
93% of the respondents are from regions in which over 70% of chemical companies in South Africa are located.

There where no respondents from the Eastern or Western Cape, where 24% of the chemical companies in South Africa are located.

5.2.4 Type of Business of Respondent Companies:

The graph below illustrates the type of business activity in which the respondents' organisations are involved:

Figure: 5.4: Business Type of Respondent Companies



The types of businesses listed as “Other” include the following:

- Plastics (1)
- Explosives (2)
- Wax manufacture (2)
- “Most of the presented categories, as well as a few more” (1).

The largest category of respondents (30%) is from the “Consumer Products” market. The next three categories each represent 20% of the sample: “Contract Manufacturing”, “Industrial Detergents/Disinfectants” and “Other”.

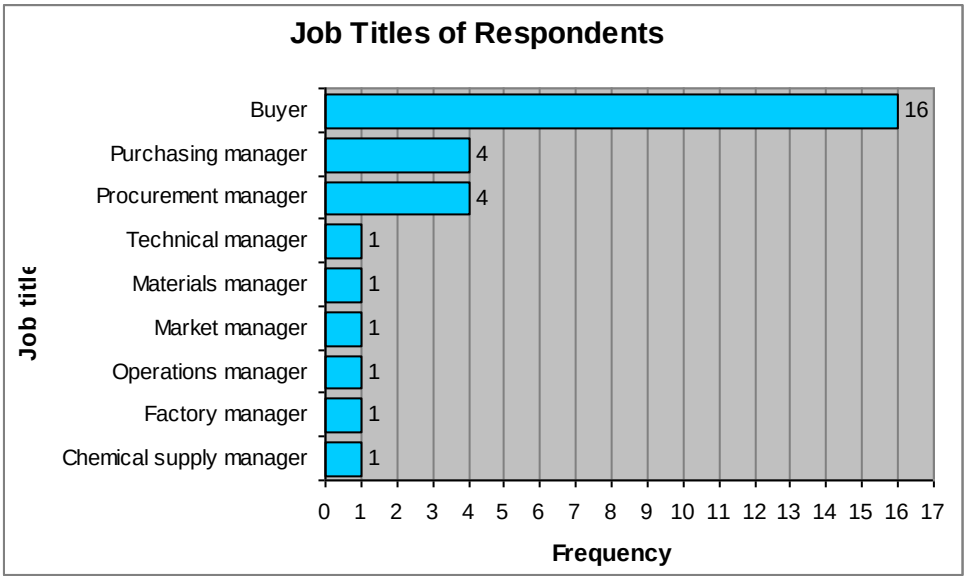
The remaining 10% of the sample consists of “Cosmetics and Toiletries” (7%) and “Raw Materials for Manufacturing” (3%).

No responses were received from the “Liquid Fuels/Lubricants” category.

5.2.5 Job Titles of Respondents:

The following chart indicates the job titles of the respondents:

Figure: 5.5: Job Titles of Respondents



There were 16 respondents (53%) with the job title of “Buyer” and 14 respondents (47%) with a range of different job titles. “Purchasing Manager” and “Procurement Manager” each constitute 13% of the sample, with 4 responses each.

5.3 Buyers Influence

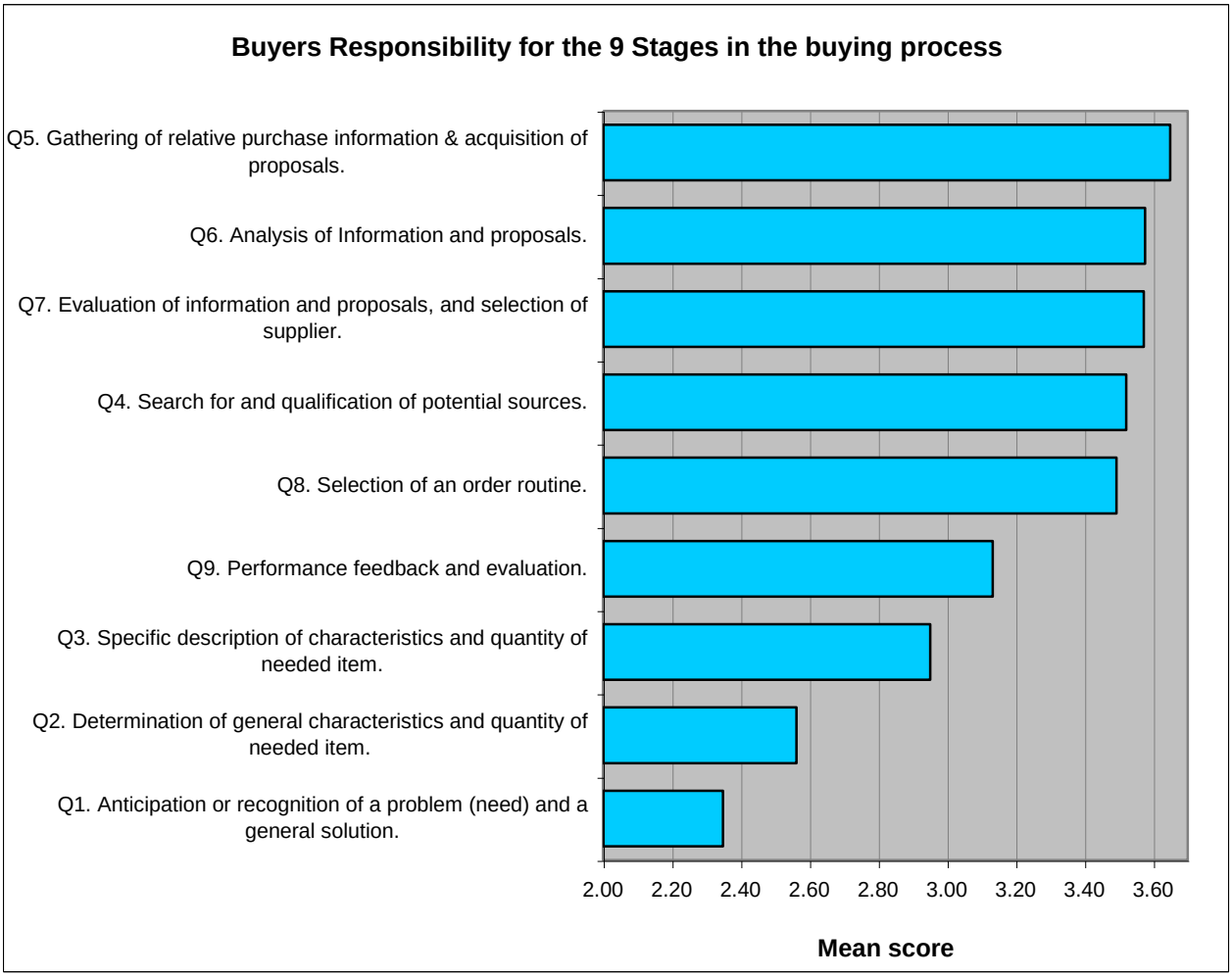
The data collected from section 2 of the survey investigates the perceived level of influence of the buyers during the 9 stages of the buying process, from their own perspective. The data is has been converted from ordinal to Interval level by correspondence analysis, using the method outlined by Bendixen & Sandler (1995). The means for the data thus calculated are shown below:

Table 5.1: Mean scores from Likert Scale ratings of The Buyers Level of Influence over the 9 Stages of the Buying Process

RANK	STAGE NO.	STAGE	MEAN
1	**5**	Gathering of relative purchase information & acquisition of proposals.	**3.65**
2	**6**	Analysis of Information and proposals.	**3.58**
3	**7**	Evaluation of information and proposals, and selection of supplier.	**3.57**
4	**4**	Search for and qualification of potential sources.	**3.52**
5	**8**	Selection of an order routine.	**3.49**
6	**9**	Performance feedback and evaluation.	**3.13**
7	**3**	Specific description of characteristics and quantity of needed item.	**2.95**
8	**2**	Determination of general characteristics and quantity of needed item.	**2.56**
9	**1**	Anticipation or recognition of a problem (need) and a general solution.	**2.35**

The results can be tabulated as follows:

Figure 5.6: Buyers Influence over the 9 Stages of the Buying Process



The buyers perceived their Influence to be highest for stages 5, 6 and 7. These are “Gathering of Relative Purchase Information and Acquisition of Proposals”, the “Analysis of Information and Proposals “ and “The Evaluation of Information and Proposals, and the Selection of Supplier”.

The buyers' influence is perceived to be a little bit lower for Stage 4 "Search for and Qualification of Potential Sources" and Stage 8 "Selection of an Order Routine".

Interestingly, the buyers perceive their influence to be greater during the middle to latter stages of the buying process. Stages 1, 2 and 3 which are the "Anticipation or Recognition of a Problem (need) and a General Solution", "Determination of General Characteristics and Quantity of Needed Item" and "Specific Description of Characteristics and Quantity of Needed Item", which occur at the beginning of the buying process, and have the three lowest mean scores.

5.3.1 Discussion of Buyers Influence

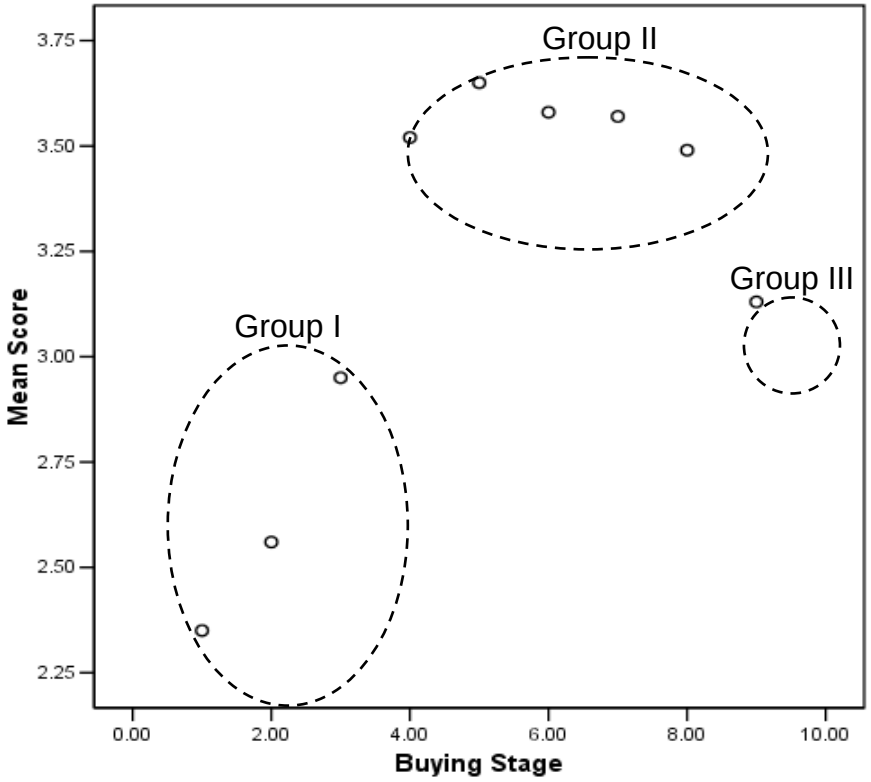
The means for stages 5, 6, 7, 4 & 8 are very close to one another. The range in the means for these five stages is 0.16, while the total range of means is 1.30. Therefore the range of means for these 5 stages constitutes just 12% of the total data range.

This implies that the buyers perceive their involvement in the buying process to be high for each of these stages from stage 4 to stage 8, but they do not believe that they have very much more influence in any one of these particular five stages over any other of these five stages.

This would be expected since the end-users and technical staff is overwhelmingly responsible for initiating the purchase activity (Berkowitz, 1986), while purchasing is usually dominant in having the final authority for selecting a supplier.

The following figure shows the three distinct categories of responses:

Figure 5.7: Scatter plot of Mean Scores for Buyers Influence over the 9 Stages of the Buying Process



Group I: The early stages in the buying process, where the buyers perceive that they have little influence.

Group II: The stages in the buying process where the buyers perceive that they have the most Influence, occurring in the middle of the process.

Group III: The final stage in the buying process where the buyers perceive that they have little influence.

5.3.2 Comparison with Bellizzi & Walter (1980)

The study conducted by Bellizzi & Walter (1980) measured the influence of purchasing agents throughout the buying process. The following table compares the two studies:

Table 5.2: Comparison of the Ranking of Buyers Influence over the 9 Stages of the Buying Process with the Study Conducted by Bellizzi & Walter (1980)

STAGE NO.	STAGE	RANK BY THIS STUDY	RANK BY BELLIZZI & WALTER (1980)	AVERAGE RANK
5	Gathering of relative purchase information & acquisition of proposals.	1	2	1.5
6	Analysis of Information and proposals.	2	4	3
7	Evaluation of information and proposals, and selection of supplier.	3	5	4
4	Search for and qualification of potential sources.	4	3	3.5
8	Selection of an order routine.	5	1	3
9	Performance feedback and evaluation.	6	9	7.5
3	Specific description of characteristics and quantity of needed item.	7	7	7
2	Determination of general characteristics and quantity of needed item.	8	8	8
1	Anticipation or recognition of a problem (need) and a general solution.	9	6	7.5

The two studies differ significantly in that the study by Bellizzi & Walter (1980) measured the influence of purchasing agents throughout the buying process, from the perspective of other members of the organisation. This study, on the other hand, measures from the perspective of the buyer.

There may be a tendency for other individuals who do not know the purchasing agents' role in detail to stereotype the buyers responsibility. For example, the "Selection of an Order Routine" stage of the buying process (Stage 8) was ranked 5th by this study, while this stage was ranked 1st by Bellizzi & Walter (1980). This illustrates that a stage where the buyer is believed to have the most influence as perceived by other members of the organisation is considered a lot less important by the buyers themselves.

The obvious commonality that is evident in both studies is that stages 1, 2, 3 & 9 are stages where the buyer has less influence on the buying process than at other stages in the buying process.

5.4 Conjoint Analysis

The Conjoint Analysis output data is shown in Appendix G. The utilities for the attributes are given as well as the relative importance of the attributes.

5.4.1 Ranking of Attributes

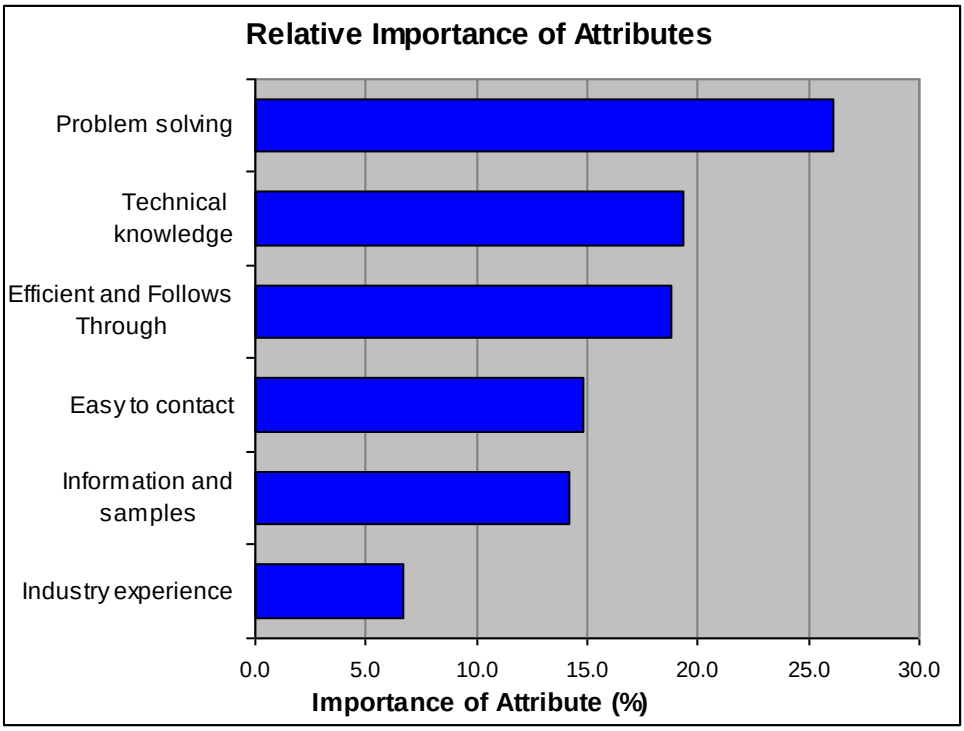
The following table shows the most important attributes identified by the conjoint study:

Table 5.3: Ranking of the Attributes of Salespeople Preferred by Buyers

RANK	ATTRIBUTE	IMPORTANCE
1	PROBLEM SOLVING	26.1 %
2	TECHNICAL KNOWLEDGE	19.4 %
3	EFFICIENT AND FOLLOWS THROUGH	18.8 %
4	EASY TO CONTACT	14.8 %
5	HAS INFORMATION AND SAMPLES READILY AVAILABLE	14.2 %
6	INDUSTRY EXPERIENCE	6.7 %

The following bar chart illustrates these results:

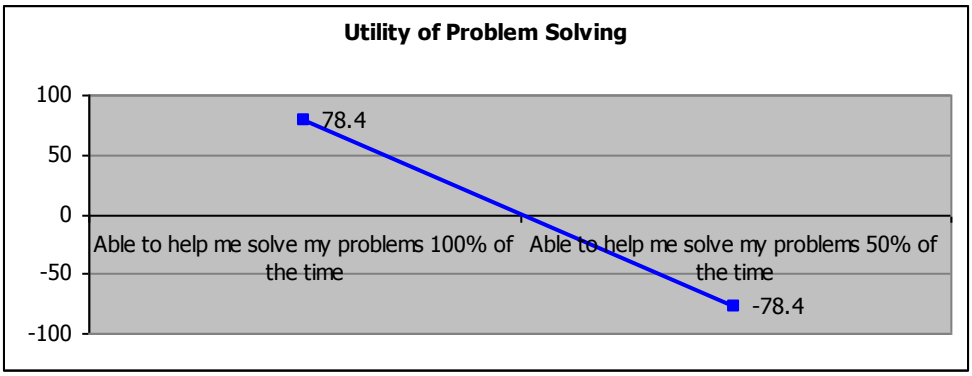
Figure 5.8: Relative Importance of Attributes



"Problem Solving" is seen as the most important attribute of sales persons in the industrial chemical industry, followed by "Technical Knowledge", being "Efficient and Following Through", being "Easy to Contact", and the "Ability to Supply Information and Samples". "Industry Experience" is seen as the least important attribute.

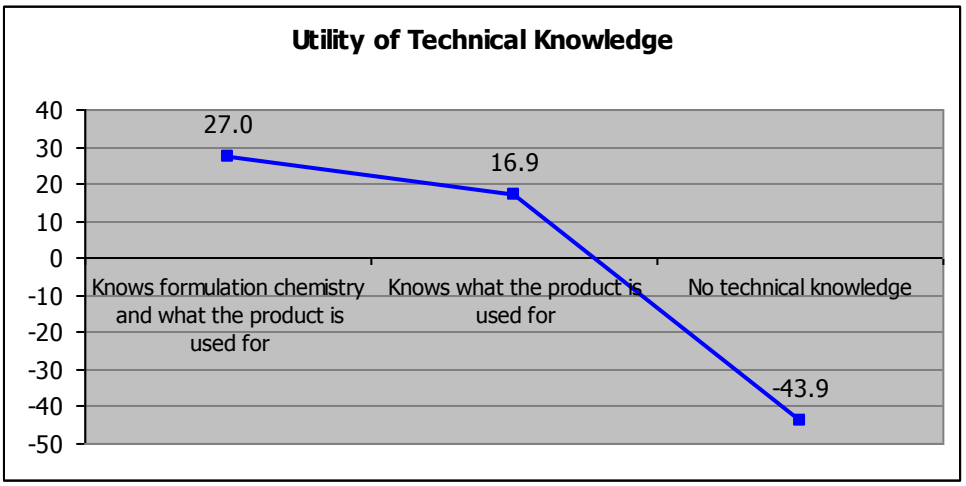
5.4.2 Utilities from the Conjoint Analysis

Figure 5.9: Utility of Problem Solving:



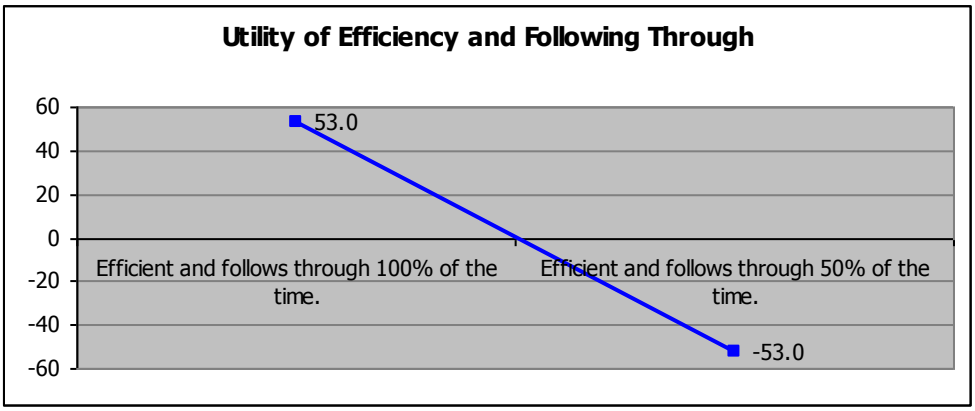
Problem solving was ranked as the most important attribute (26.1%). The utility of problem solving shows a large difference between the buyers' preference for sales representatives who are able to solve problems 100% of the time, and those that are able to solve problems 50% of the time.

Figure 5.10: Utility of Technical Knowledge:



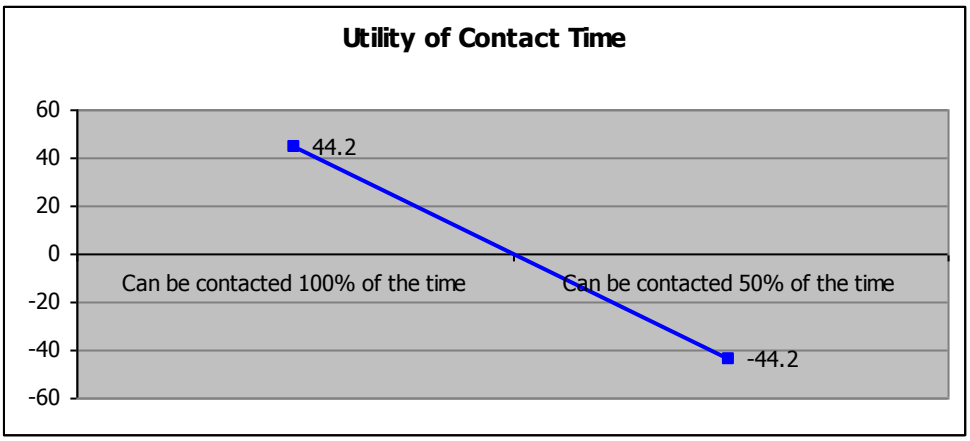
Technical knowledge was the second most important attribute (19.4%). The utility of technical knowledge shows a large difference between the preference for sales representatives who have no technical knowledge, and those that have knowledge of what the product is use for. The difference in Utility between sales representatives that know what the product is used for, and those who know formulation chemistry and what the product is used for is considerably less.

Figure 5.11: Utility of Efficient and Follows Through:



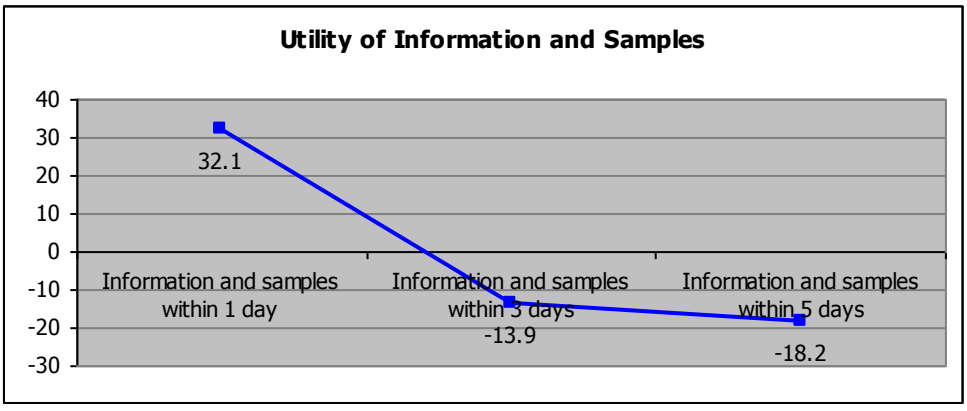
Being Efficient and Following Through was the third most important attribute (18.8%). This utility shows that the being efficient and following through 100% of the time is clearly preferred by buyers in the industry over the ability to be efficient and follow through 50% of the time.

Figure 5.12: Utility of Contact Time



The ease with which the sales representative can be contacted is the forth most important attribute 14.7%. The utility of "contact time" shows that there is a fairly large difference between the buyers preference for sales representatives who can be contacted 100% of the time over sales representatives that can be contacted 50% of the time.

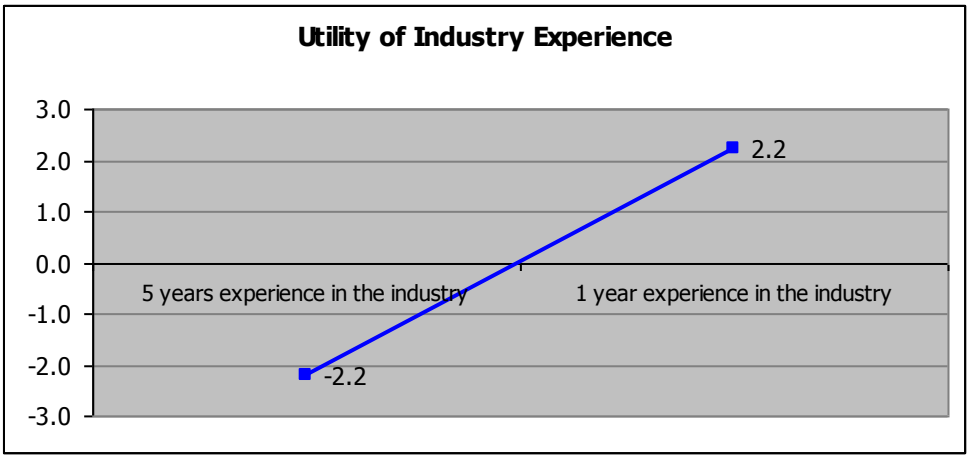
Figure 5.13: Utility of Information and Samples



The ability of sales representatives to provide Information and samples was the fifth most important attribute (14.2%).

The Utility of Information and samples shows that the buyer preference for representatives that supply samples within 1 day over those that supply within 3 days is considerably greater than the preference for sales representatives who supply information and samples within 3 days over those that supply samples within 5 days.

Figure 5.14: Utility of Industry Experience:



The utility of industry experience was the sixth and least most important attribute (6.7%). The Utility of industry experience shows that there is a very small preference for sales representatives with 1 years' experience in the industry over those with 5 years' experience within the industry.

This is the opposite of what one might expect, but the preference is so low, that it indicates there is virtually no preference either way.

There are obvious benefits for sales representatives who have built up relationships with buyers over time, but this measures only the preference for experienced over inexperienced sales representatives, and not strength of relationships.

5.4.3 Discussion of the Preferred Attribute Results

The study conducted by Williams & Seminerio (1985) measured the attributes of salespeople preferred by buyers. The Attributes measured by this study are similar to those established for the study. This is summarised in the following table:

Table 5.4: Attributes Determined by the Study compared to attributes determined by Williams & Seminerio

ATTRIBUTE	RANK DETERMINED BY STUDY	RANK DETERMINED BY WILLIAMS & SEMINERIO (1985)
Good technical knowledge	2	2 / 6
Has information and samples readily available	5	Not measured
Easy to contact	4	Not measured
Experience in the industry	6	4
Helps me to solve my problems	1	3
Efficient and follows through	3	1

Source: Williams & Seminerio 1985

Although the two studies use different variables, there are some common attributes which are worded slightly differently, or have similar meaning. These are listed below:

Attribute 1: *"Good Technical Knowledge"*

Williams & Seminerio (1985) established 2 separate technical knowledge attributes: "*Knowledge of his product line"*, and "*knowledge of the buyer's product line"*.

Attribute 2: "*Readiness of Information and Samples"*

Not measured by Williams & Seminerio (1985).

Attribute 3: "*Ability to contact the salesperson".*

Not measured by Williams & Seminerio (1985).

Attribute 4: "*Experience in the industry".*

Williams & Seminerio (1985) established an attribute called "*Market knowledge and willingness to keep the buyer informed".* Market knowledge and industry experience are similar attributes.

Attribute 5: "*Helps me solve my problems"*

Williams & Seminerio (1985) established a similar attribute named "*Willingness to go to bat for the buyer within the suppliers' firm".* This attribute refers to helping the buyer to solve problems, but is more specific than the one determined by the pilot study.

Attribute 6: *Efficient and follows through.*

Williams & Seminerio (1985) established a very similar attribute named *“Thoroughness and follow through”.*

There are certain trends which can be highlighted by comparing the two studies. While they are both different, the results of Williams & Seminerio (1985) validate this study by confirming that the top three attributes of sales representatives are “Solving Problems”, “Technical Knowledge” and “Being Efficient and Following Through”. These have been the top three attributes in both studies.

5.5 Clustering of Attributes

A K-means cluster analysis was conducted to identify groups of respondents with preferences for any of the attributes. The first table in Appendix H shows the percentage of variance explained by the data. 5 Clusters explains 100% of the data. Choosing more than 5 clusters results in clusters with only one data point.

The 5 clusters identified have been analysed and have been labeled as follows:

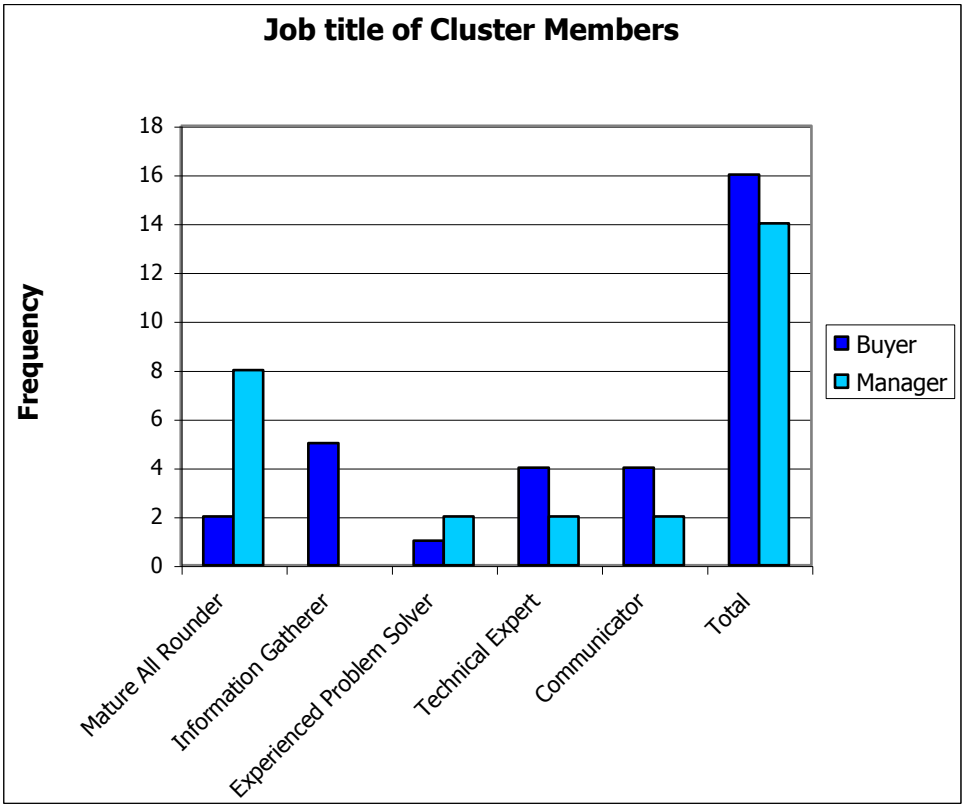
Table 5.5: The Clusters:

CLUSTER 1	THE MATURE ALL-ROUNDER	10 MEMBERS
CLUSTER 2	THE INFORMATION GATHERER	5 MEMBERS
CLUSTER 3	THE EXPERIENCED PROBLEM SOLVER	3 MEMBERS
CLUSTER 4	THE TECHNICAL EXPERT	6 MEMBERS
CLUSTER 5	THE COMMUNICATOR	6 MEMBERS

5.5.1 Cluster Demographics

The job titles of the cluster members have been classified into two types: “Management” and “Buyer”. The following figure illustrates the composition of the clusters by job title:

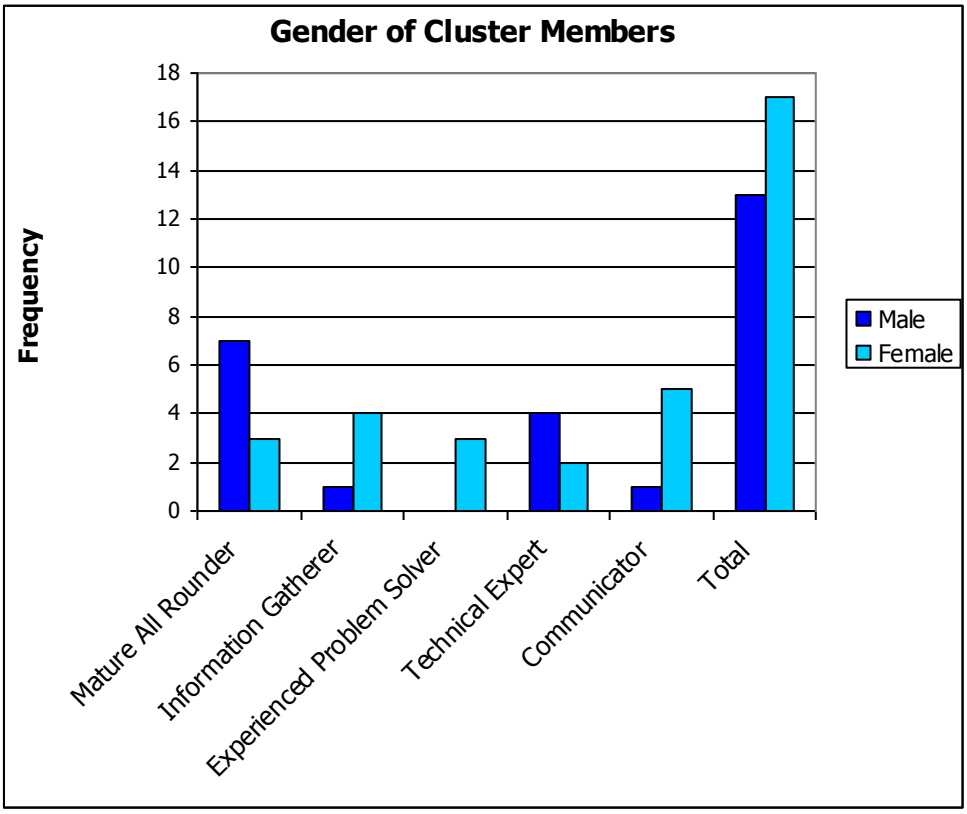
Figure 5.15: Job Title of Cluster Members



The most important conclusion which can be drawn from this data is that the "Mature All-Rounder" cluster consists of considerably more managers than buyers. In addition, the "Information Gatherer" cluster consists only of buyers.

The composition of the clusters by gender are shown below:

Figure 5.16: Gender of Cluster Members



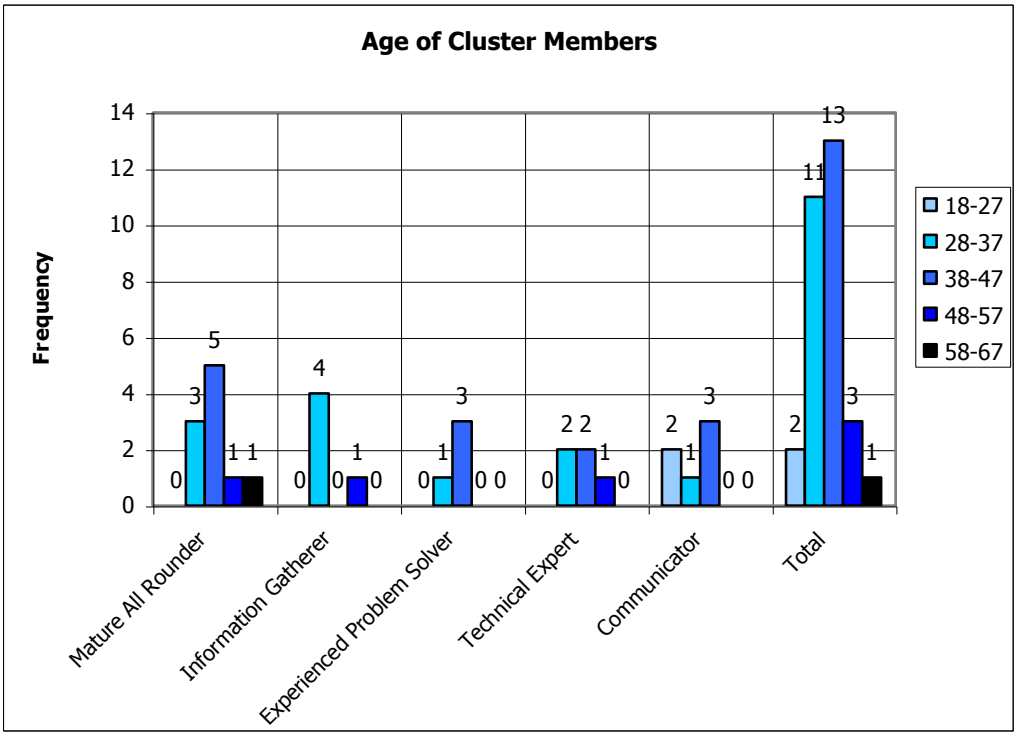
The most important conclusions which can be drawn from this data is that the "Mature All-Rounder" cluster, (which has already been identified as having more managers than buyers) consists of considerably more males than females. The "Technical Expert" cluster also contains proportionally more males than females. The opposite is true for the "Information Gatherer", the "Experienced Problem Solver" and the "Communicator" clusters.

While these findings are not unimportant, a larger sample size would be required to draw more in depth conclusions on the preference of members of the buying group for sales representative attributes by gender. In the context of this study, the above information does not provide information which would

allow the representative to consider displaying specific attributes based on the gender of the buyer.

The age of the cluster members is shown below:

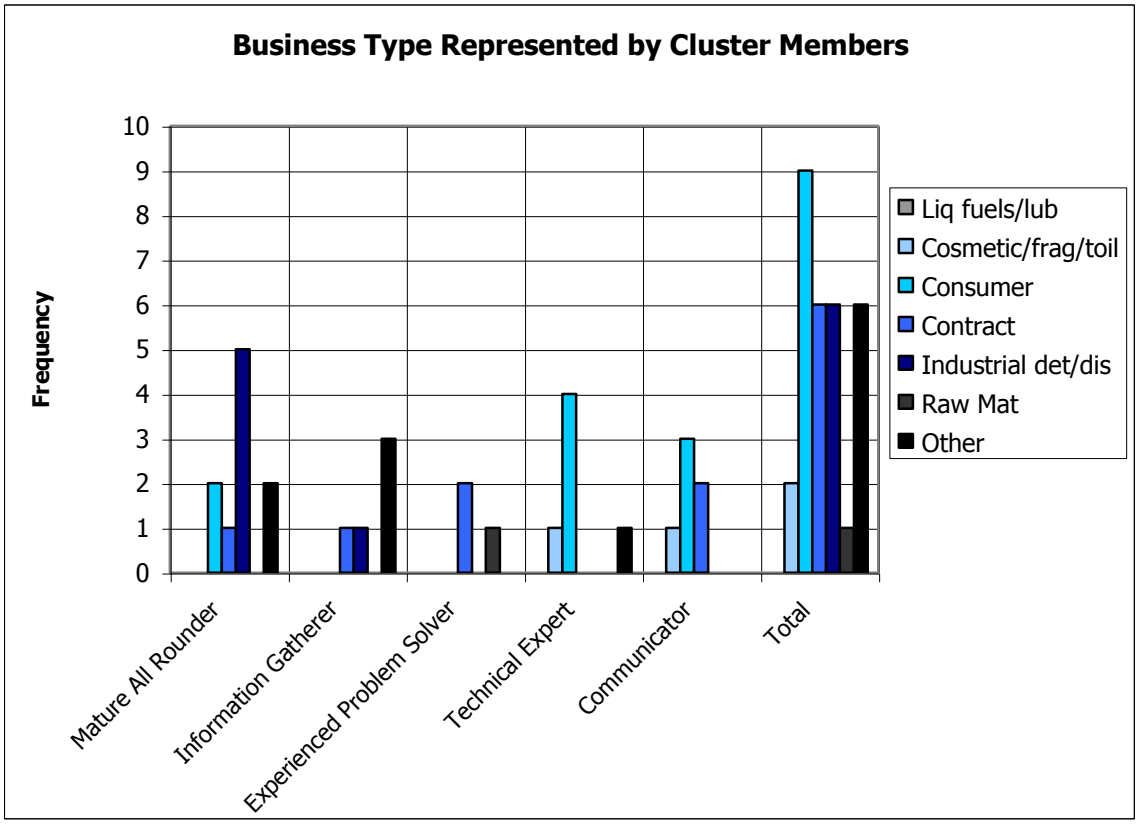
Figure 5.17: Age of Cluster Members



This information shows that the age of the "Mature All-Rounder" tends to be above average, since the minimum, maximum, median and mode age category value equals the maximum for all of the clusters in each case.

The business type represented by cluster members is shown below:

Figure 5.18: Business Type Represented by Cluster Members



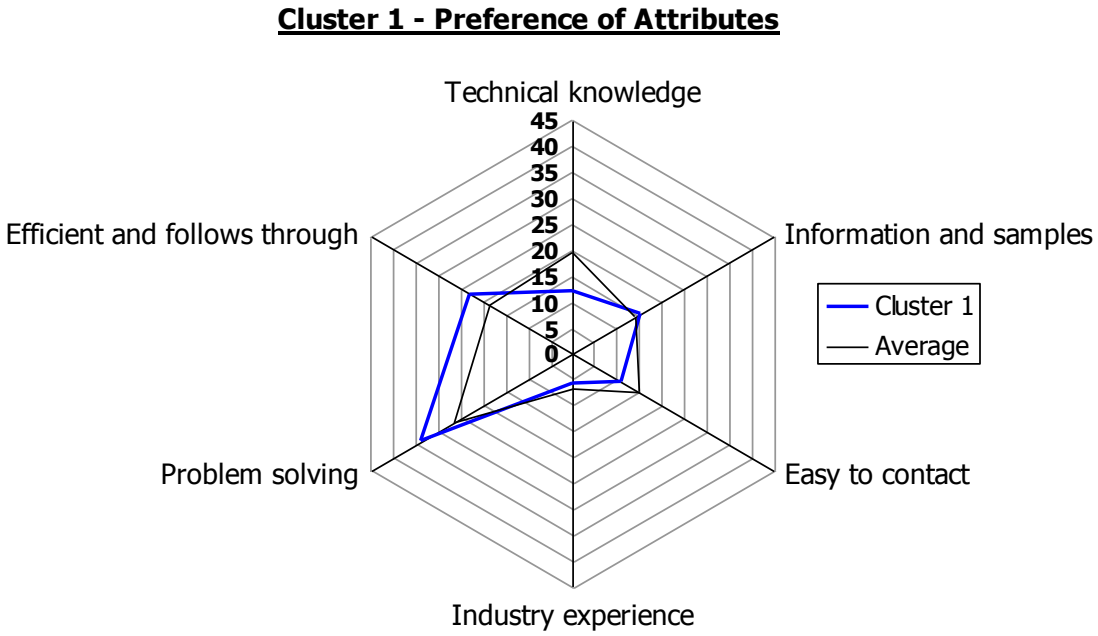
It can be concluded from this data that the “Mature All-Rounder” cluster consists of considerably more buyers from the industrial detergents industry, the “Technical Experts” cluster consists of considerably more buyers from the consumer product industry.

The clusters are reasonably well represented by the industry types. Once again, in the context of this study, the above information does not provide information which would allow the representative to consider displaying specific attributes based on the type of business represented by the buyer.

5.5.2 Cluster 1 – The Mature All Rounder

Preference for all-round balanced representatives with attribute preferences that are moderate in most cases. These buyers are older and have more senior (management) positions.

Figure 5.19: Preference of Attributes for Cluster 1

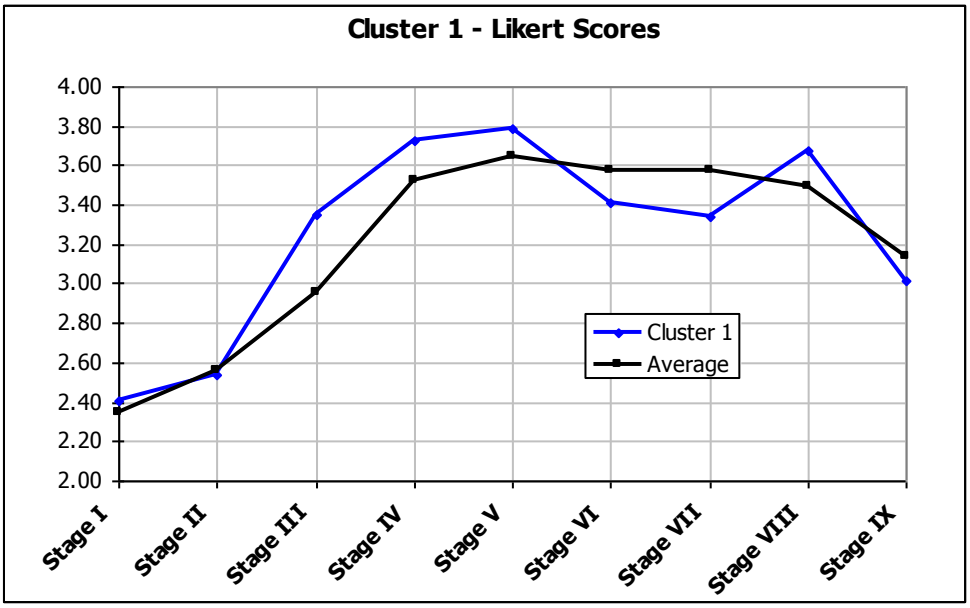


The "Mature All-Rounder" cluster is characterised by the high scores on the "Problem Solving" and "Efficient and Follows Through" attributes, with lower than average scores for most of the other attributes, with the exception of "Provides Information and Samples".

This cluster has attribute preference scores which are close to average in most cases. There are no particularly strong preferences for any of the attributes. Calculating the square of the distance from the mean for the

preference for each attribute, and then summing these scores for each cluster (appendix I) reveals the lowest deviation from the mean for cluster 1.

Figure 5.20: Likert Scores for Cluster 1



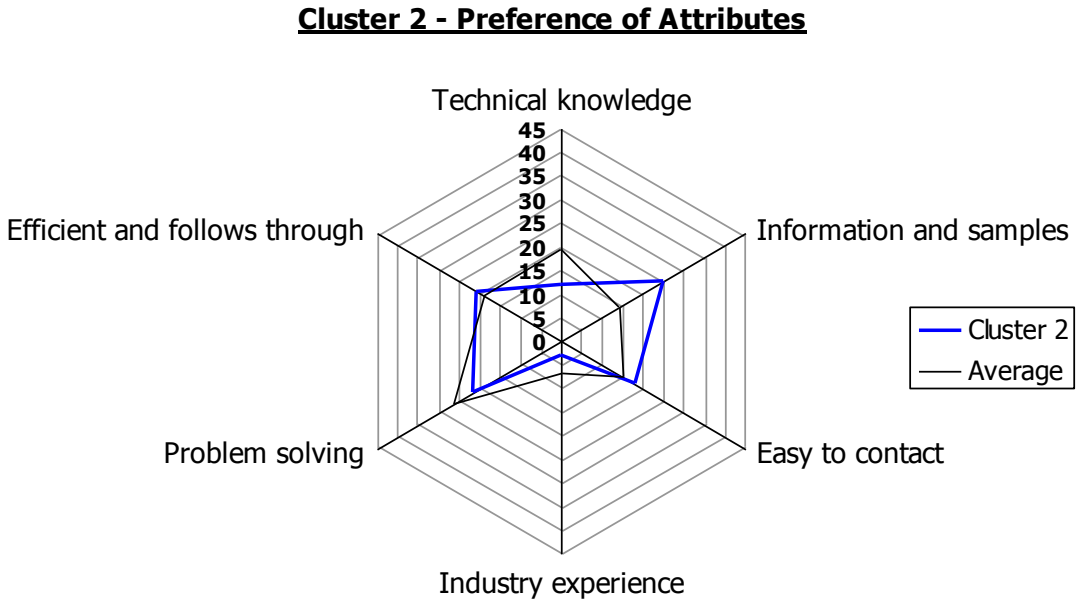
The Likert scores show that Cluster 1 respondents scored below average for stages II, VI, VII and IX, and above average for the other stages. The highest score was for stage V.

The Demographic analysis shows that cluster 1 consists of more males (70%) than females, and more respondents with the word “Manager” in their job title (80%). Also, the age of respondents is higher than for other clusters. There are also more respondents (50%) from the Industrial Detergents/Disinfectant industry.

5.5.3 Cluster 2 – The Information Gatherer

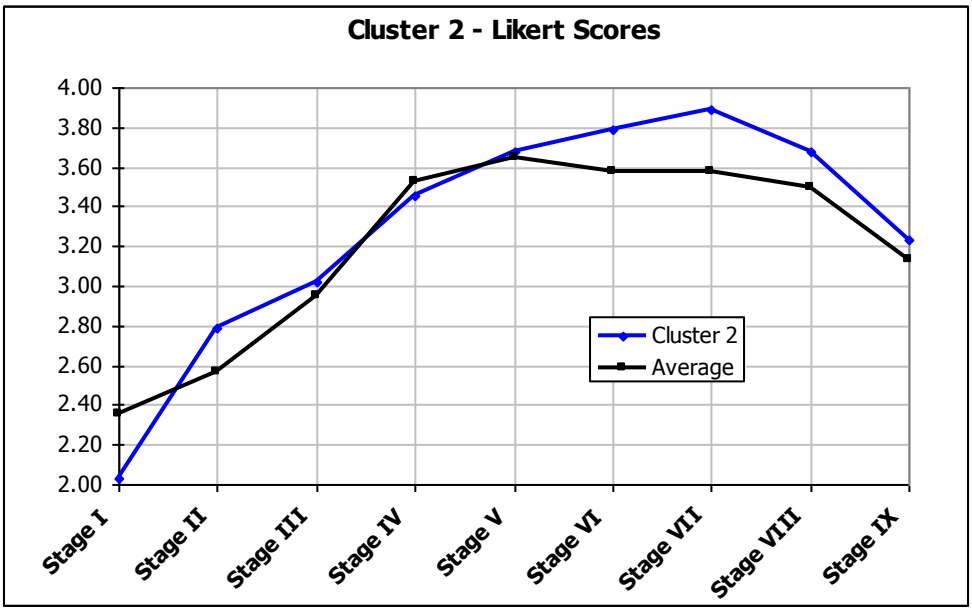
Preference for representatives that provide good service by providing information and samples, being easy to contact and being efficient and following through. These buyers do not occupy managerial roles.

Figure 5.21: Preference of Attributes for Cluster 2



The “Information Gatherer” cluster is characterised by the highest score for the “Information and Samples” attribute and higher than average scores on the “Easy to Contact” and “Efficient and Follows Through” attributes, with the lowest score for the “Industry Experience” attribute.

Figure 5.22: Likert Scores for Cluster 2



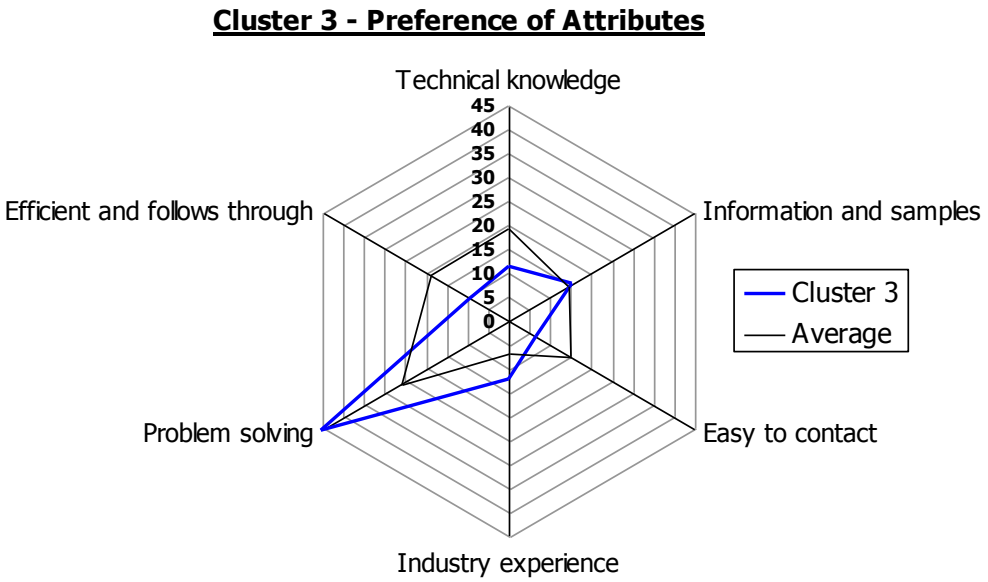
The Likert scores for Cluster 2 show a low perception of Influence at Stage I and the highest perceived Influence at Stage VII. The scores were above average for 7 out of 9 stages, being below for stage I and marginally below for stage IV. These buyers perceive their influence in the buying process to be above the average view in most cases. They perceive their influence at Stage I to be particularly low.

The demographic analysis of cluster 2 shows that the cluster has more female (80%) than male respondents, and all respondents have the job title of "buyer".

5.5.4 Cluster 3 – The Experienced Problem Solver

Preference for representatives who solve problems and have industry experience.

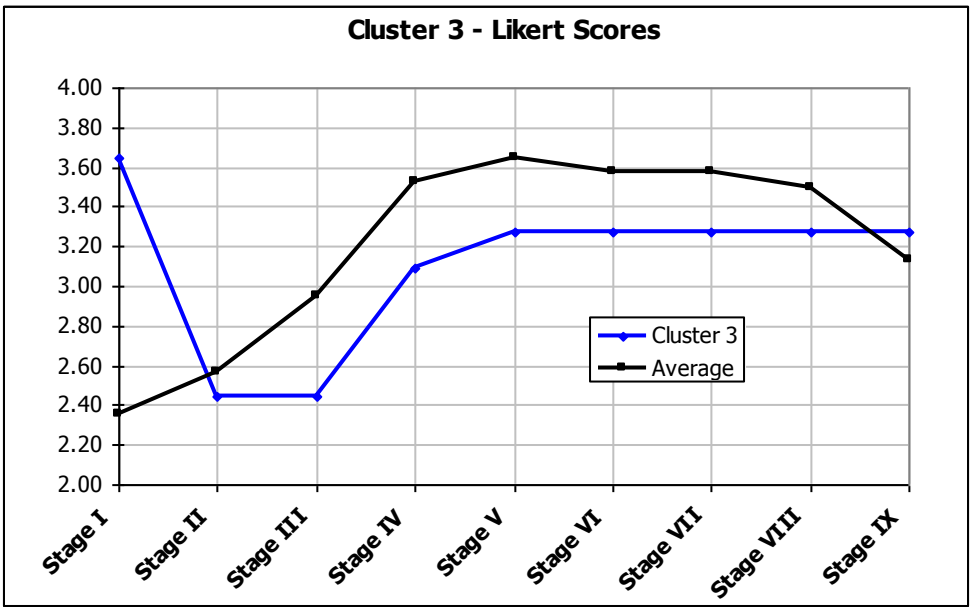
Figure 5.23: Preference of Attributes for Cluster 3



The "Experienced Problem Solver" cluster is characterised by the highest score for the "Problem Solving" and "Industry Experience" attributes. The cluster has the lowest score of the clusters for three attributes, which are "Easy to Contact", "Technical Knowledge" and "Efficient and Follows Through"

Calculating the square of the distance from the mean for the preference for each attribute, and then summing these scores for each cluster (appendix I) reveals the highest deviation from the mean in cluster 3.

Figure 5.24: Likert Scores for Cluster 3



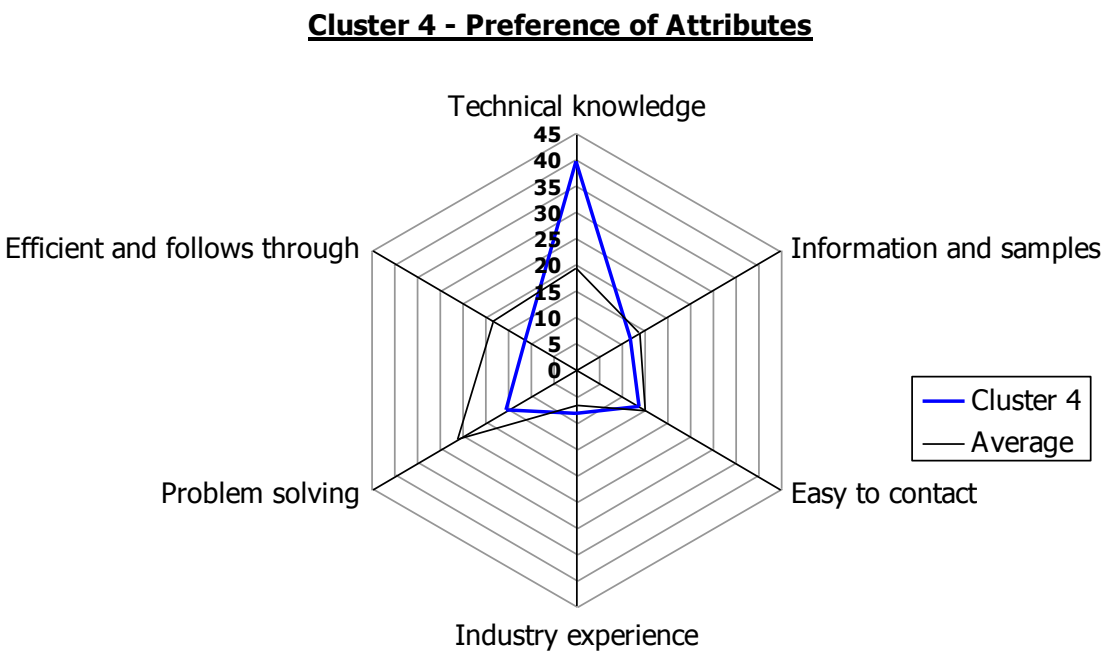
The Likert scores for show a very high perception of influence at Stage 1, a slightly higher than average score for Stage 9, and well below average scores for all other stages.

Cluster 3 contains only 3 sets of data, and there are no clear demographic trends.

5.5.5 Cluster 4 – The Technical Expert

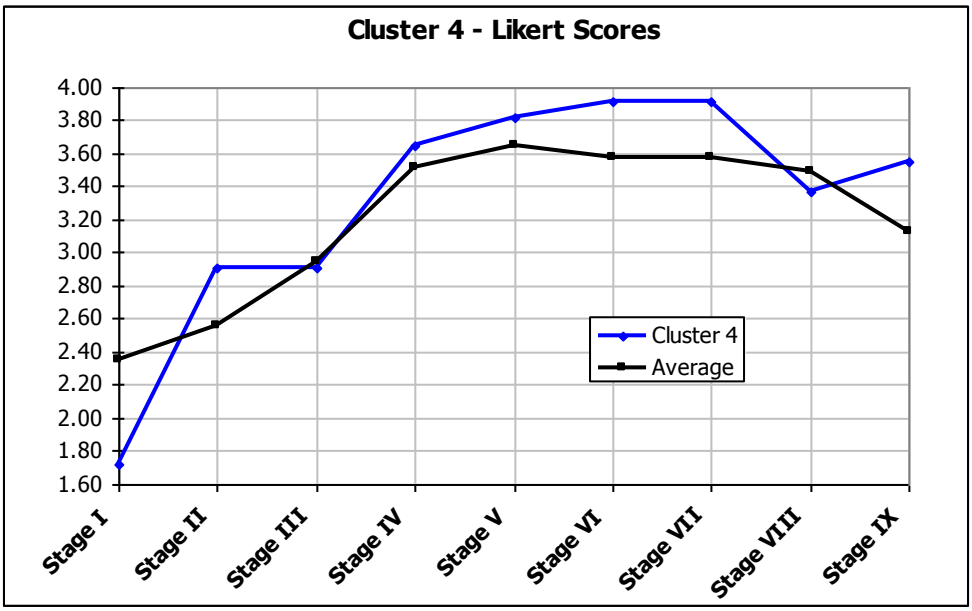
Preference for representatives who have technical knowledge. These buyers are predominantly from the consumer product industry.

Figure 5.25: Preference of Attributes for Cluster 4



The "Technical Expert" cluster is characterised by the highest score for the "Technical Knowledge" attribute and a higher than average score on the "Industry Experience" attribute. Cluster 4 has below average scores for the "Efficient and Follows Through" and "Easy to Contact" attributes, with the lowest score for the "Problem Solving" attribute.

Figure 5.26: Likert Scores for Cluster 4



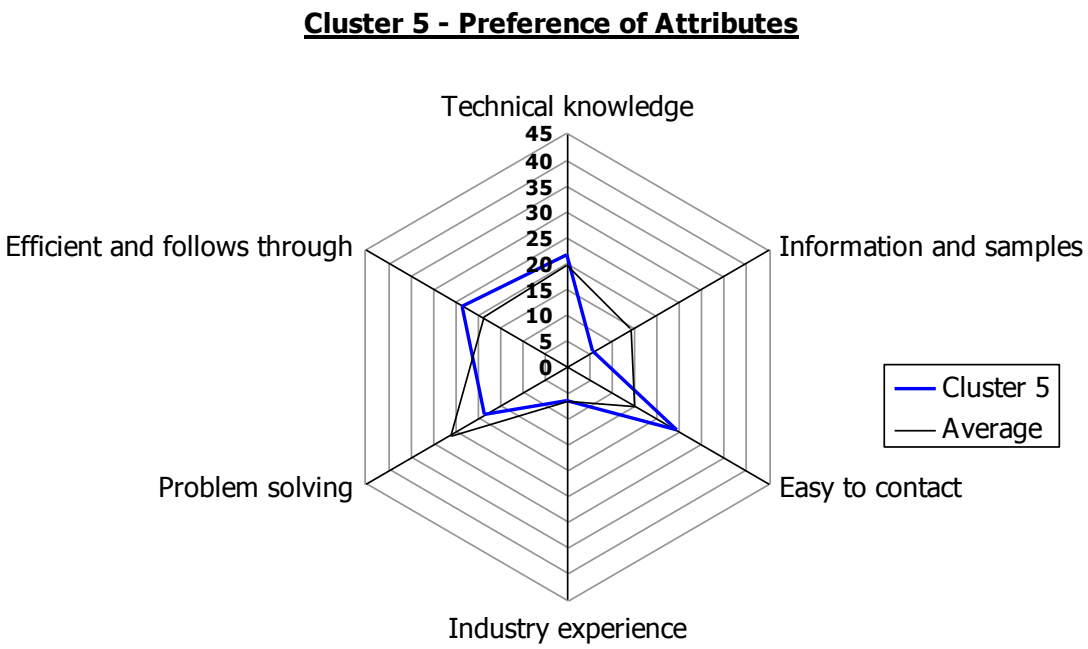
Cluster 4 Shows a very low score for stage I, slightly below average scores for Stages III and VIII, and above average scores for all other Stages. The highest score was for stage VII.

The Demographic analysis of Cluster 4 shows that the cluster has more males (67%) than females, and that most of the respondents (67%) are from the Consumer Product industry.

5.5.6 Cluster 5 – The Communicator

Preference for representatives who are efficient and follow through, as well as being easy to contact. These buyers are predominantly young females.

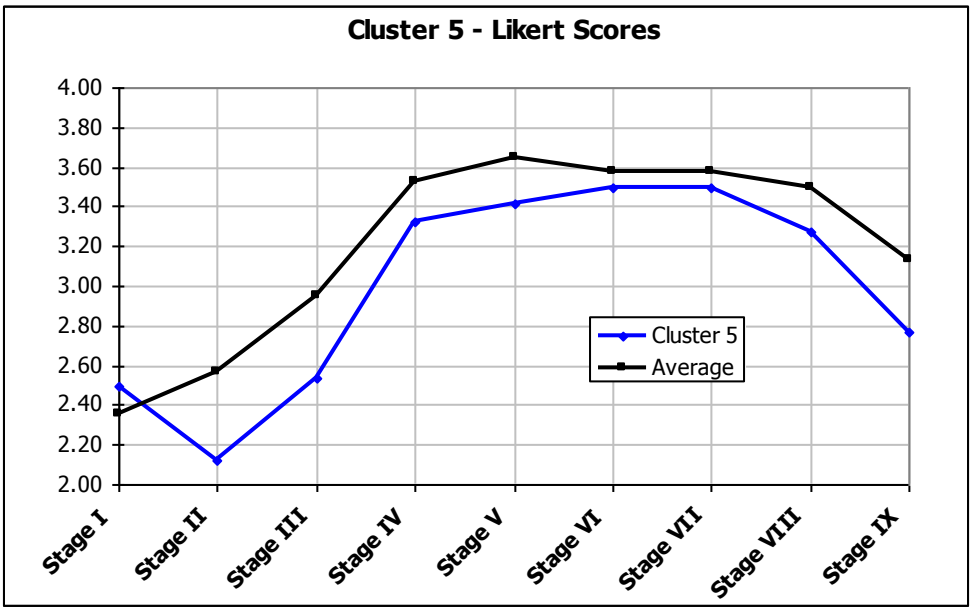
Figure 5.27: Preference of Attributes for Cluster 5



The "Communicator" cluster is characterised by the highest score for the "Efficient and Follows Through" attribute and for the "Easy to Contact" attribute and a higher than average score on the "Technical Knowledge" attribute.

Cluster 5 has below average scores for the "Problem Solving" and "Industry Experience" attributes, and has the lowest score for the "Information and Samples" attribute.

Figure 5.28: Likert Scores for Cluster 5



Cluster 5 has below average scores for all stages except stage I where the score is a little higher than average. The highest score is equal for stage VI and Stage VII.

The demographic analysis of cluster 5 shows that there are more respondents (67%) with the job title of “buyer”, and more females (83%) than males. This is the cluster with the youngest age profile.

5.5.7 Summary of Cluster Analysis

The following table shows a list of preferred sales representative attributes for each cluster:

Table 5.6: Preferred Attributes by Cluster

Attribute: / Cluster:	Technical knowledge	Information and samples	Easy to contact	Industry experience	Problem solving	Efficient and follows through
Mature All Rounder	12.1	15.0	10.7	5.9	33.7	22.7
Information Gatherer	11.7	24.8	18.0	3.1	21.6	20.8
Experienced Problem Solver	11.5	15.3	6.5	12.1	45.2	9.5
Technical Expert	39.6	12.1	13.6	8.5	15.2	11.0
Communicator	21.6	5.5	24.5	6.5	18.7	23.2
Average	19.3	14.5	14.7	7.2	26.9	17.4
Standard Deviation	12.1	6.9	6.9	3.3	12.4	6.7

Red Text – Below Average Utility for the Attribute in the Relevant Cluster
Blue Text – Above Average Utility for the Attribute in the Relevant Cluster

The following table shows a summary of the clusters.

Table 5.7: Summary of Clusters

NUMBER	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5
NAME:	**Mature All Rounder**	**Information Gatherer**	**Experienced Problem Solver**	**Technical Expert**	**Communicator**
Description	Preference for all-round balanced representatives with attribute preferences that are moderate in most cases. These buyers are older and have more senior (management) positions.	Preference for representatives that provide good service by providing information and samples, being easy to contact and being efficient and following through. These buyers do not occupy managerial roles.	Preference for representatives who solve problems and have industry experience.	Preference for representatives who have technical knowledge. These buyers are predominantly from the consumer product industry.	Preference for representatives who are efficient and follow through, as well as being easy to contact. These buyers are predominantly young females.
Attribute Ranked Highest	-	"Information and Samples"	"Problem Solving" / "Industry Experience"	"Technical Knowledge"	"Efficient and Follows Through" / "Easy to Contact"
Attributes Ranked Lowest	-	"Industry Experience"	"Easy to Contact" / "Technical Knowledge" / "Efficient and Follows Through"	"Problem Solving"	"Information and Samples"
Highest Ranked Stage in the Buying Process	Stage V	Stage VII	Stage I	Stage VII / Stage VIII	Stage VII / Stage VIII
Lowest Ranked Stage in the Buying Process	Stage I	Stage I	Stage II / Stage III	Stage I	Stage II

CHAPTER 6: DISCUSSION AND CONCLUSION

6.1 Introduction

This chapter reviews the results and discusses the research questions. It concludes with recommendations for future research.

The study originated from the following problem:

Salespersons and sales managers in the industrial chemical industry may not know the types of attributes which are most valued by the buyers they call on, and whether they can benefit by knowing what these attributes are, by adjusting their behaviour to display these attributes.

6.2 The Research Questions

Research Question 1: Which attributes of sales representatives in the industrial chemical industry are most valued by buyers?

The attributes of sales representatives that are preferred by buyers in the Industrial Chemical Industry have been determined by the conjoint analysis, and are shown in Table 4.1. The attributes were found to be the ability to solve problems, technical knowledge, being efficient and following through, being easy to contact, having information and samples readily available and having industry experience.

Research Question 2: What is the relative importance of these attributes?

The relative importance of these attributes was determined by the conjoint study, in which the buyers were asked to repeatedly compare two sales representatives with different levels of these attributes, and indicate their level of preference on a scale from 1 to 9.

A summary of the relative importance is shown in table 5.2 and figure 5.7.

The conjoint study has shown that problem solving (26.1%) is the most important attribute for sales representatives, from the perspective of buyers. The second most important attribute is technical knowledge (19.4%), and the third is being efficient and following through (18.8%). The forth most important attribute is being easy to contact (14.8%), followed by having information and samples readily available (14.2%). Industry experience (6.7%) was ranked as the least important attribute of sales representatives.

Research Question 3: Are there different segments of buyers with different preferences for the salesperson attributes?

The Cluster Analysis was conducted on the attribute preference output from the conjoint analysis. This produced 5 clusters, with clearly different preferences for the attributes of sales representatives.

Research Question 4: How much authority do buyers have to decide between suppliers?

The authority of buyers to decide between suppliers has been measured by asking the buyers in which stage of the buying process they have the most influence. Stage 7 of the buying process is the "Evaluation of information and proposals, and selection of supplier" stage, and was ranked by this study as the area in which the buyer has the 3rd highest amount of influence. The mean response for stage 7 in the survey was very close to the highest ranked stage. Since supplier selection is part of this stage, it supports the view that the buyer has the authority to choose between suppliers.

It has, however, been suggested by some studies (Weigand, 1968) that the contrary is true, and that the buyer is does not have very much authority to choose between suppliers. While it is generally agreed that the authority of the buyer varies with Buyclass stage, (Cooley *et al,* 1997; Weigand, 1966) the results of this study supports the evidence of research (Berkowitz, 1986; Cooley *et al,* 1997) that supports the view that the buyer or purchasing department is dominant in having the final authority for selecting a supplier.

6.3 Conclusion

This study has achieved its objectives by showing that buyers and members of the professional buying group have the authority to choose suppliers, and it has listed and ranked the attributes of salespeople that are preferred by buyers.

The literature review has shown that buyers who adopt the attributes that sales people prefer will be more successful.

It can be concluded that sales representatives who adopt the attributes which have been analysed in this study, via training or other means, will be more successful.

6.4 Future Research

There are many potential research options in the field of buyer behaviour and sales effectiveness. The following are suggested:

(a) The difference between buyers' perceptions of their Influence on the purchasing decision, and other members of the organisations perceptions of the same.
(b) A conjoint study of the top three ranked attributes, with more levels for each attribute.

(c) A study of what attributes the sales representatives believe are most important to the buyer from the sales perspective, for comparison with this study.

(d) A study investigating whether the results of this research conducted in the Industrial Chemical Industry are applicable in other technical industries (where technical knowledge is a desired sales attribute).

(e) A study to determine how much influence the salesperson has on the buying decision.

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Appendix A: Cover Letter

Wits Business School
MBA Research
Covering Letter

28/02/2005

Dear Sir/Madam,

Thank you for taking part in this research. The survey will be used for data collection for my MBA dissertation at Wits Business School.

In return for completing the questionnaire, you will receive a summary report of the findings of the research, which hopes to make a meaningful contribution to the understanding of buyer behaviour and sales performance.

The questionnaire consists of 3 parts:

Part 1: Demographic information about you and your company.

Part 2: A question regarding your influence in purchasing decisions. For the 9 different stages in the buying process, select which of the 4 options (from *"no influence"* to "*Strong influence*") you feel is most applicable in each case.

Part 3: The Conjoint study, which consist of 20 card comparisons, requiring you to choose between 2 salesmen with different attributes on each occasion. There are 9 boxes ranging from *"strongly prefer left"* to *"strongly prefer right"*.

Please read the attributes, and indicate which salesperson you prefer, and to what extent by ticking the appropriate box.

Many Thanks.

Patrick Young

Appendix B: Research Survey

Wits Business School
MBA Research
Survey

PLEASE ANSWER THE FOLLOWING QUESTIONS AS HONESTLY AS POSSIBLE. ALL INFORMATION GIVEN IS USED FOR THE PURPOSE OF THIS RESEARCH ONLY, AND IS STRICTLY CONFIDENTIAL.

Name: _____ **Email:** _____

Company: _____ **Location:** _____

Job Title: _____

QUESTION 1: YOUR PROFILE:

Gender: Male Female

Age: 18 – 27 28 – 37
38 – 47 48 – 57
58 – 67

Business Type: Liquid Fuels/Lubricants

Cosmetics/Fragrances/Toiletries

Consumer Products

Contract Manufacturing

Industrial Detergents/Disinfectants

Raw Materials for Manufacturing

Other

If Other, please specify: _____

QUESTION 2: YOUR BUYING BEHAVIOUR

(I.) PLEASE INDICATE YOUR LEVEL OF INFLUENCE ON THE PURCHASING DECISION, FOR EACH STAGE IN THE BUYING PROCESS.

No.	Stage in the Buying Process	No Influence	Very little Influence	Moderate Influence	Strong Influence
I.	Anticipation or recognition of a problem (need) and a general solution.				
II.	Determination of general characteristics and quantity of needed item.				
III.	Specific description of characteristics and quantity of needed item.				
IV.	Search for and qualification of potential sources.				
V.	Gathering of relative purchase information & acquisition of proposals.				
VI.	Analysis of Information and proposals.				
VII.	Evaluation of information and proposals, and selection of supplier.				
VIII.	Selection of an order routine.				
IX.	Performance feedback and evaluation.				

QUESTION 3: CONJOINT ANALYSIS

Question 1

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows what the product is used for
who has information and samples within 5 days		who has information and samples within 3 days
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 2

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 5 days		who has information and samples within 1 day
who can be contacted 100% of the time	**OR**	who can be contacted 100% of the time
who has 1 year experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 3

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 5 days		who has information and samples within 3 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 4

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 5 days		who has information and samples within 3 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 5

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who knows what the product is used for
who has information and samples within 5 days		who has information and samples within 1 day
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 6

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows what the product is used for
who has information and samples within 3 days		who has information and samples within 5 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 7

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 1 day		who has information and samples within 5 days
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left	Somewhat prefer left	Indifferent	Somewhat prefer right	Strongly prefer right

Question 8

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 1 day		who has information and samples within 5 days
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left	Somewhat prefer left	Indifferent	Somewhat prefer right	Strongly prefer right

Question 9

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 3 days		who has information and samples within 5 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 10

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 3 days		who has information and samples within 1 day
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 11

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 1 day		who has information and samples within 3 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 12

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 5 days		who has information and samples within 1 day
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 13

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows what the product is used for
who has information and samples within 1 day		who has information and samples within 5 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 14

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows what the product is used for		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 1 day		who has information and samples within 5 days
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 50% of the time		who is able to help me solve my problems 100% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 15

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows what the product is used for		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 5 days		who has information and samples within 3 days
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 16

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who knows what the product is used for
who has information and samples within 5 days		who has information and samples within 1 day
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 17

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows what the product is used for		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 3 days		who has information and samples within 1 day
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 18

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who knows what the product is used for
who has information and samples within 1 day		who has information and samples within 3 days
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 19

Which of the following Salespersons would you prefer to service your account?

A salesperson who knows formulation chemistry and what the product is used for		A salesperson who does not have any technical knowledge
who has information and samples within 3 days		who has information and samples within 1 day
who can be contacted 50% of the time	**OR**	who can be contacted 100% of the time
who has 1 year experience in the industry		who has 5 years experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 50% of the time.		and who is efficient and follows through 100% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Question 20

Which of the following Salespersons would you prefer to service your account?

A salesperson who does not have any technical knowledge		A salesperson who knows formulation chemistry and what the product is used for
who has information and samples within 1 day		who has information and samples within 3 days
who can be contacted 100% of the time	**OR**	who can be contacted 50% of the time
who has 5 years experience in the industry		who has 1 year experience in the industry
who is able to help me solve my problems 100% of the time		who is able to help me solve my problems 50% of the time
and who is efficient and follows through 100% of the time.		and who is efficient and follows through 50% of the time.

Strongly prefer left		Somewhat prefer left		Indifferent		Somewhat prefer right		Strongly prefer right

Appendix C: Pilot Study 1



Wits Business School
MBA Research
Pilot Study



PLEASE INDICATE, IN DECREASING ORDER OF PREFERENCE, THE ATTRIBUTES OF SALESPEOPLE WHICH ARE MOST IMPORTANT TO YOU WHEN MAKING THE PURCHASING DECISION:

1 _____

_____

2 _____

_____

3 _____

_____

4 _____

_____

5 _____

_____

6 _____

_____

7 _____

_____

8 _____

_____

Many Thanks,

Patrick Young

Appendix D: Pilot Study 2

Wits Business School
MBA Research
Pilot Study

PLEASE INDICATE, IN DECREASING ORDER OF PREFERENCE, THE ATTRIBUTES OF SALESPEOPLE WHICH ARE MOST IMPORTANT TO YOU WHEN MAKING THE PURCHASING DECISION:

	ATTRIBUTE	RANK
	Well prepared and organised	
	Easy to get hold of	
	Has information and samples available	
	Experience in the Industry	
	Easy to g*et al*ong with	
	Good technical knowledge	
	Responds quickly	
	Punctual and professional	
	Carries out promises	
	Helps solve my problems	

Many Thanks,

Patrick Young

Appendix E: Correspondence Analysis Report

Raw Data Section

	No_Influence	Very_Little_Influence	Moderate_Influence	Strong_Influence	Total
Row 1	9	12	5	4	30
Row 2	3	19	5	3	30
Row 3	1	13	13	3	30
Row 4	1	3	12	14	30
Row 5	1	1	11	17	30
Row 6	1	2	12	15	30
Row 7	1	4	6	19	30
Row 8	0	5	13	12	30
Row 9	1	11	9	9	30
Total	18	70	86	96	270

Row Profiles Section

	No_Influence	Very_Little_Influence	Moderate_Influence	Strong_Influence	Total
Row 1	30.00	40.00	16.67	13.33	100.00
Row 2	10.00	63.33	16.67	10.00	100.00
Row 3	3.33	43.33	43.33	10.00	100.00
Row 4	3.33	10.00	40.00	46.67	100.00
Row 5	3.33	3.33	36.67	56.67	100.00
Row 6	3.33	6.67	40.00	50.00	100.00
Row 7	3.33	13.33	20.00	63.33	100.00
Row 8	0.00	16.67	43.33	40.00	100.00
Row 9	3.33	36.67	30.00	30.00	100.00
Total	6.67	25.93	31.85	35.56	100.00

Column Profiles Section

	No_Influence	Very_Little_Influence	Moderate_Influence	Strong_Influence	Total
Row 1	50.00	17.14	5.81	4.17	11.11
Row 2	16.67	27.14	5.81	3.13	11.11
Row 3	5.56	18.57	15.12	3.13	11.11
Row 4	5.56	4.29	13.95	14.58	11.11
Row 5	5.56	1.43	12.79	17.71	11.11
Row 6	5.56	2.86	13.95	15.63	11.11
Row 7	5.56	5.71	6.98	19.79	11.11
Row 8	0.00	7.14	15.12	12.50	11.11
Row 9	5.56	15.71	10.47	9.38	11.11
Total	100.00	100.00	100.00	100.00	100.00

Eigenvalue Section

Factor No.	Eigenvalue	Individual Percent	Cumulative Percent	Bar Chart
1	**0.288785**	**72.45**	**72.45**	**|||

Correspondence Analysis Report

Plot Detail Section for Rows

				--------	Axis1	--------	--------	Axis2	--------
Name	**Quality**	**Mass**	**Inertia**	**Factor**	**COR**	**CTR**	**Factor**	**COR**	**CTR**
1 Row 1	982	111	308	844	646	274	-609	336	505
2 Row 2	936	111	226	846	880	275	214	56	62
3 Row 3	897	111	100	374	390	54	426	507	247
4 Row 4	946	111	47	-401	943	62	-22	3	1
5 Row 5	999	111	96	-571	942	126	-140	57	27
6 Row 6	964	111	67	-476	947	87	-63	17	5
7 Row 7	688	111	94	-443	579	75	-193	110	51
8 Row 8	922	111	41	-318	689	39	185	233	47
9 Row 9	872	111	20	144	294	8	202	578	56

Note: table entries Mass to CTR are multiplied by 1000.

Plot Detail Section for Columns

				--------	Axis1	--------	--------	Axis2	--------
Name	**Quality**	**Mass**	**Inertia**	**Factor**	**COR**	**CTR**	**Factor**	**COR**	**CTR**
1 **No_Influence**	979	67	279	906	493	190	-901	487	662
2 **Very_Little_Influence**	972	259	365	706	888	448	217	84	149
3 **Moderate_Influence**	581	319	90	-194	336	42	166	245	107
4 **Strong_Influence**	936	356	267	-511	873	321	-138	63	82

Note: table entries Mass to CTR are multiplied by 1000.

Appendix F: Summary of Re-Scaling of 4-point Likert Scale using Correspondence Analysis

RANK	LABEL	AXIS 1 CO-ORDINATE	AXIS 2 CO-ORDINATE	EUCLIDIAN DISTANCE	PROPORTIONATE SPREAD OF DISTANCES TO FIT 3 INTEVALS	RESCALED RATINGS	ORIGINAL RATINGS
I	No Influence	906	-901			1	1
II	Very Little Influence	706	217	2.286997	1.343982	2.343982	2
III	Moderate Influence	-194	166	1.909870	1.122358	3.466340	3
IV	Strong Influence	-511	-138	0.908107	0.533660	4	4
				TOTAL	**TOTAL**		
				5.104974	3.000000		

Appendix G: Conjoint Analysis

Conjoint Preferences:

Respondent Number	Technical knowledge	Information and samples	Easy to contact	Industry experience	Problem solving	Efficient and follows through
1	11.21	16.02	10.29	6.97	34.13	21.39
2	14.07	34.32	21.46	0.57	16.86	12.72
3	17.44	13.59	11.68	7.24	31.6	18.45
4	3.1	14.99	18.05	1.78	54.8	7.29
5	15.2	20.94	22.13	1.53	13.96	26.24
6	14.16	15.98	7.11	4.56	35.25	22.94
7	8.35	26.46	8.68	0.88	31.34	24.29
8	39.05	18	17.65	5.81	11.88	7.61
9	42.65	10.93	16.48	5.87	15.38	8.69
10	35.27	6.3	14.47	7.02	23.63	13.31
11	41.02	10.61	13.85	7.19	13.49	13.85
12	31.31	13.22	11.54	11.49	17.77	14.67
13	13.67	4.46	31.23	0.77	18.65	31.23
14	16.33	8.99	33.7	5.57	9.01	26.4
15	28.55	7.83	20.55	10.19	13.83	19.05
16	21.69	3.64	31.11	3.13	11.76	28.67
17	15.69	15.38	0.77	17.21	40.4	10.55
18	29.12	0.6	9.92	9.97	32.85	17.55
19	15.69	15.38	0.77	17.21	40.4	10.55
20	10.49	19.12	19.21	3.31	28.67	19.21
21	48.45	13.49	7.76	13.44	9.1	7.76
22	9.97	23.66	13.71	4.65	28.96	19.05
23	4.75	12.11	4.78	3.09	34.58	40.69
24	8.89	25.76	13.58	5.54	19.5	26.73
25	8.36	10.08	11.04	12.04	38.18	20.3
26	6.99	20.87	14.1	2.37	33.12	22.54
27	17.46	12.27	6.13	14.81	32.76	16.57
28	20.24	8.24	13.98	3.05	33.14	21.35
29	11.75	14.25	18.93	3.62	32.51	18.93
30	20.22	7.46	20.69	9.49	26.03	16.11

Conjoint Utilities:

Respondent Number	A salesperson who knows formulation chemistry and what the product is used for	A salesperson who knows what the product is used for	A salesperson who does not have any technical knowledge	who has information and samples within 1 day	who has information and samples within 3 days	who has information and samples within 5 days	who can be contacted 100% of the time	who can be contacted 50% of the time	who has 5 years experience in the industry	who has 1 year experience in the industry	who is able to help me solve my problems 100% of the time	who is able to help me solve my problems 50% of the time	and who carries out promises 100% of the time.	and who carries out promises 50% of the time.
1	37.81724	-8.38023	-29.43701	56.56584	-39.55195	-17.01389	30.86185	-30.86185	-20.89786	20.89786	102.3816	-102.3816	64.17271	-64.17271
2	34.92351	14.57162	-49.49513	132.7024	-59.49135	-73.21102	64.3807	-64.3807	-1.72123	1.72123	50.58027	-50.58027	38.15179	-38.15179
3	59.46805	-45.15172	-14.31633	46.35379	-11.15837	-35.19542	35.03858	-35.03858	-21.72851	21.72851	94.79156	-94.79156	55.35686	-55.35686
4	-7.26276	-4.05826	11.32103	0.13148	44.89302	-45.0245	54.14205	-54.14205	-5.3362	5.3362	164.3917	-164.3917	21.87938	-21.87938
5	41.28231	8.61304	-49.89535	-61.35131	-2.94064	64.29195	66.37668	-66.37668	4.60135	-4.60135	41.88465	-41.88465	78.72686	-78.72686
6	33.16612	18.64415	-51.81027	52.60411	-43.27738	-9.32674	21.32915	-21.32915	13.68	-13.68	105.755	-105.755	68.80689	-68.80689
7	18.3396	13.43662	-31.77622	100.7681	-57.97193	-42.79613	26.05258	-26.05258	2.63514	-2.63514	94.01433	-94.01433	72.87005	-72.87005
8	62.33972	85.97496	-148.3147	57.06076	-6.10681	-50.95395	52.9464	-52.9464	17.42779	-17.42779	35.6451	-35.6451	22.82853	-22.82853
9	6.99944	124.4475	-131.4469	-1.2846	33.42959	-32.14499	49.42849	-49.42849	17.60916	-17.60916	46.14976	-46.14976	26.07808	-26.07808
10	5.74026	102.933	-108.6732	18.8754	-18.9099	0.0345	43.41562	-43.41562	-21.06046	21.06046	70.89949	-70.89949	39.9287	-39.9287
11	21.42661	112.3601	-133.7867	35.27313	-6.91315	-28.35998	41.53961	-41.53961	21.56354	-21.56354	40.46726	-40.46726	41.53961	-41.53961
12	83.51627	20.84458	-104.3609	52.34746	-25.34573	-27.00173	34.62031	-34.62031	34.46853	-34.46853	53.29763	-53.29763	44.00037	-44.00037
13	-41.37564	40.62718	0.74846	10.04169	6.67354	-16.71522	93.68165	-93.68165	-2.3091	2.3091	55.94774	-55.94774	93.68165	-93.68165
14	-34.93512	63.07323	-28.13811	0.61558	26.65113	-27.26671	101.0903	-101.0903	16.71154	-16.71154	27.03501	-27.03501	79.20009	-79.20009
15	66.23787	38.82283	-105.0607	28.36873	-9.73206	-18.63668	61.65859	-61.65859	30.55661	-30.55661	41.4868	-41.4868	57.14601	-57.14601
16	-50.54836	79.58602	-29.03765	1.32361	10.25271	-11.57632	93.33859	-93.33859	9.39726	-9.39726	35.26799	-35.26799	86.01445	-86.01445
17	19.09943	-56.613	37.51356	8.95617	-50.62873	41.67256	-2.30753	2.30753	-51.62342	51.62342	121.1948	-121.1948	31.66027	-31.66027
18	-8.45399	91.57745	-83.12346	-2.13984	1.44668	0.69316	29.75989	-29.75989	29.90154	-29.90154	98.53502	-98.53502	-52.65982	52.65982
19	19.09943	-56.613	37.51356	8.95617	-50.62873	41.67256	-2.30753	2.30753	-51.62342	51.62342	121.1948	-121.1948	31.66027	-31.66027
20	34.7598	-6.58674	-28.17307	65.86459	-17.03487	-48.82971	57.62011	-57.62011	-9.93641	9.93641	86.00978	-86.00978	57.62011	-57.62011
21	134.77603	21.17014	-155.9462	17.06456	-49.00748	31.94291	23.26548	-23.26548	40.31974	-40.31974	27.313	-27.313	23.26548	-23.26548
22	24.23288	-35.56251	11.32962	79.47936	-17.02285	-62.45651	41.14367	-41.14367	-13.96252	13.96252	86.88138	-86.88138	57.1468	-57.1468
23	2.33246	-15.41479	13.08233	31.05185	-41.61915	10.56729	14.33975	-14.33975	-9.26554	9.26554	103.7311	-103.7311	122.0795	-122.0795
24	32.32551	-11.29063	-21.03488	68.71324	17.13015	-85.84339	40.73433	-40.73433	-16.61231	16.61231	58.50329	-58.50329	80.19156	-80.19156
25	33.43257	-16.7476	-16.68497	39.88156	-20.60474	-19.27682	33.10868	-33.10868	-36.133	36.133	114.5317	-114.5317	60.89338	-60.89338
26	13.7953	14.07166	-27.86696	10.49499	57.35995	-67.85494	42.30437	-42.30437	-7.11937	7.11937	99.36612	-99.36612	67.63337	-67.63337
27	40.87452	-63.90262	23.0281	47.47311	-21.34909	-26.12403	18.3784	-18.3784	-44.44003	44.44003	98.27254	-98.27254	49.72189	-49.72189
28	52.68729	-68.74317	16.05588	18.30795	-31.13061	12.82266	41.9281	-41.9281	-9.15362	9.15362	99.43285	-99.43285	64.05093	-64.05093
29	27.57977	15.33018	-42.90995	52.63803	-19.74719	-32.89083	56.80333	-56.80333	-10.84643	10.84643	97.53763	-97.53763	56.80333	-56.80333
30	45.36687	30.57617	-75.94304	-12.7512	-16.01619	28.76738	62.07973	-62.07973	28.4749	-28.4749	78.07818	-78.07818	48.32045	-48.32045

Appendix H: Cluster Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.147	35.780	35.780	2.147	35.780	35.780
2	1.946	32.426	68.206	1.946	32.426	68.206
3	1.053	17.557	85.763	1.053	17.557	85.763
4	.546	9.094	94.857			
5	.309	5.143	100.000			
6	.000	.000	100.000			

Extraction Method: Principal Component Analysis.

Initial Cluster Centers

	Cluster				
	1	2	3	4	5
Technical Knowledge	4.75	14.07	48.45	3.10	13.67
Information and samples	12.11	34.32	13.49	14.99	4.46
Easy to contact	4.78	21.46	7.76	18.05	31.23
Industry experience	3.09	.57	13.44	1.78	.77
Problem solving	34.58	16.86	9.10	54.80	18.65
Efficient and Follows though	40.69	12.72	7.76	7.29	31.23

Iteration History[a]

Iteration	Change in Cluster Centers				
	1	2	3	4	5
1	19.639	14.239	13.661	20.148	15.484
2	2.190	.000	.000	.000	4.669
3	.000	.000	.000	.000	.000

a. Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is .000. The current iteration is 3. The minimum distance between initial centers is 34.443.

Cluster Membership

Case Number	Cluster	Distance
1	1	2.288
2	2	14.239
3	1	7.509
4	4	20.148
5	2	11.577
6	1	4.722
7	1	13.493
8	3	8.998
9	3	5.540
10	3	11.475
11	3	4.124
12	3	10.200
13	5	14.381
14	5	15.132
15	5	11.122
16	5	11.682
17	4	10.074
18	5	23.198
19	4	10.074
20	2	9.349
21	3	13.661
22	2	9.085
23	1	20.668
24	2	8.616
25	1	10.126
26	1	9.204
27	1	13.268
28	1	11.547
29	1	9.474
30	5	11.535

Final Cluster Centers

	Cluster				
	1	2	3	4	5
Technical Knowledge	12.07	11.72	39.63	11.49	21.60
Information and samples	14.99	24.76	12.09	15.25	5.50
Easy to contact	10.67	18.02	13.63	6.53	24.53
Industry experience	5.86	3.12	8.47	12.07	6.52
Problem solving	33.66	21.59	15.21	45.20	18.69
Efficient and Follows though	22.74	20.79	10.98	9.46	23.17

Distances between Final Cluster Centers

Cluster	1	2	3	4	5
1		17.511	35.525	19.121	24.449
2	17.511		33.523	31.436	23.165
3	35.525	33.523		42.029	25.533
4	19.121	31.436	42.029		37.984
5	24.449	23.165	25.533	37.984	

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
Technical Knowledge	875.631	4	29.903	25	29.283	.000
Information and samples	262.048	4	20.855	25	12.565	.000
Easy to contact	251.002	4	36.474	25	6.882	.001
Industry experience	44.117	4	19.509	25	2.261	.091
Problem solving	702.294	4	36.503	25	19.239	.000
Efficient and Follows though	229.547	4	32.256	25	7.116	.001

The F tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this a thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

Appendix I: Cluster Data

Demographic:

	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5
Number of Members	10	5	3	6	6
Male	7	1	0	4	1
Female	3	4	3	2	5
“Buyer” job title	2	5	1	4	4
Other job title	8	0	2	2	2
Gauteng	9	4	3	2	6
KZN	0	0	0	4	0
OFS	1	1	0	0	0
18-27	0	0	0	0	2
28-37	3	4	1	2	1
38-47	5	0	3	3	3
48-57	1	1	0	1	0
58-67	1	0	0	0	0
Fuels/lub	0	0	0	0	0
Cosmetic..	0	0	0	1	1
Consumer..	2	0	0	4	3
Contract..	1	1	2	0	2
Ind. Det/dis	5	1	0	0	0
Raw Mat..	0	0	1	0	0
Other	8	0	2	2	1