

FACTORS INHIBITING THE IMPLEMENTATION OF EFFICIENT CONSUMER RESPONSE

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A Research Report submitted to the Faculty of Commerce, Law and Management,
University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for
the degree of Master of Business Administration

Johannesburg
May, 2005

ABSTRACT

The purpose of this research was to identify the barriers to the implementation of Efficient Consumer Response (ECR) between manufacturers and retailers in South Africa and to determine whether there were differences in their perceptions relating to ECR.

The survey included both qualitative and quantitative phases. The quantitative survey formed the bulk of the analysis with factor analysis and significance testing employed to interpret the survey data.

The main finding was that six barriers inhibit the implementation of ECR. These barriers are:

- power and trust;
- risk;
- commitment;
- acceptance of change;
- objectives and goals and
- systems and structure.

It was found that there were significant differences between retailer and manufacturer perceptions regarding ECR in relation to the power and trust factor. There were no significant differences between retailer and manufacturer perceptions regarding the remaining five factors identified as being barriers to ECR implementation.

DECLARATION

I, Craig Dean Manning declare that this research report is my own, unaided work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Craig Dean Manning

28 May, 2005

DEDICATION

This research report is dedicated to the memory
of my mother with much love,
respect and admiration.

ACKNOWLEDGEMENTS

I would like to thank the following people without whom this research would not have been possible:

- my supervisor, Dr. Anthony Stacey, for all his time, patience, technical expertise and insight;
- Russell Cagnacci, from ECR SA, for his help in facilitating the fieldwork component of the research; and
- finally, to the expert panel and respondents for their help and cooperation.

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CHAPTER 1

INTRODUCTION

The researcher aimed to develop an understanding of what factors are inhibiting the implementation of Efficient Consumer Response in South Africa.

1.1 Efficient Consumer Response defined

The term Efficient Consumer Response (ECR) was first introduced at the United States Food Marketing Institute Conference in January 1993 (Robins, 1994). The first existing definition of importance concerning ECR was established by Kurt Salmon Associates (Svensson, 2002). Kurt Salmon Associates (1993:1) define ECR as:

“The ultimate goal of ECR is a responsive, consumer - driven system in which distributors and suppliers work together as business allies to maximize consumer satisfaction and minimize costs. Accurate information and high-quality products flow through a paperless system between manufacturing line and checkout counter with minimum degradation or interruption within and between trading partners.”

ECR began in the United States in the early 1990's, at a time when the grocery industry was being threatened by new retail formats, which had started to gain a substantial share of the traditional retailer share of the market. The trading environment was uncomfortable as retailers were accusing manufacturers of offering preferential treatment, such as better margins and pricing, to the new retail formats. There was open hostility between retailers and manufacturers, with both parties accusing each other of antagonistic behaviour (Collins, 1997).

In light of the intense competition being experienced in the grocery industry, there was an overall realisation that there had to be a total focus on the complete value chain to the end consumer so as to eliminate costs and maximise effectiveness (Zairi, 1998).

ECR was originally divided into four principal pillars (Kurt Salmon Associates, 1993):

1) *efficient store assortments* - the goal of which was to optimise the productivity of inventories and store space at the consumer interface;

2) *efficient replenishment* - the objective of which was to optimise time and cost in the replenishment system;

3) *efficient promotion* - the rationale of which was to maximise activities that optimised the total system efficiency in trade and consumer promotions;

4) *efficient product introduction* - the objective of which was to maximise the effectiveness of new product development and launch activities.

Over time, various adaptations to ECR have been formulated. ECR Europe (1995:1), a European ECR industry body, defines ECR concisely as: “*Working together to fulfil consumer wishes, better, faster and at less cost.*”

ECR is primarily divided into two main parts (ECR Europe, 1997) namely, a supply side and a demand side. The supply side incorporates efficient replenishment, whereas the demand side incorporates efficient store assortments, efficient promotions and efficient product introduction. These are illustrated in Table 1.

Table 1: The two principal parts and four main strategies of ECR

Supply side of ECR	Demand side of ECR
Efficient Replenishment	Efficient store assortments
	Efficient promotion
	Efficient product introduction

Source: Adapted from Kurt Salmon Associates (1993) and ECR Europe (1997).

The frameworks on which ECR is based, originated from the quick response and just-in-time concepts (Fiorito, May & Straughn, 1995). The end benefit of ECR is to satisfy the expectations of consumers faster by improved efficiency, cost reduction and the adjustment of integrative marketing and logistics processes between channel partners (Borchert, 2002).

A key integrating component of ECR processes is category management, a process of managing product categories as strategic business units with the aim of producing enhanced business results by focussing on delivering consumer value (Borders & Johnston, 2000). A product category is a distinct, manageable group of products or services that consumers perceive to be interrelated or substitutable in meeting their needs (Hogarth-Scott & Dapiran, 1997).

Category management aims to establish inter-organisational infrastructure, to optimise the assortment in store and to optimise promotions. It is based on operational management improvements such as store ordering, continuous replenishment and the integration of suppliers (Hogarth-Scott & Dapiran, 1997).

1.2 Context of the study

The changing of traditional grocery channels has led retailers and manufacturers to review many of their business practises in search of cost reduction and profit enhancement opportunities (King & Phumpiu, 1996).

Whilst cost reduction has been a key focus of suppliers since the beginning of the twentieth century, it was not until the early 1990's that industry leaders in the USA formed the Efficient Consumer Response (ECR) working group. It was estimated that at least \$30 billion could be eliminated from the United States grocery distribution system through increased coordination between retailers and suppliers (Mclaughlin, Perosio & Park, 1998).

The aims of ECR are to promote demand-driven pull strategies relying on the end consumer. The rapid and smooth flow of information is emphasised. Traditionally, retail industry participants have focussed on their individual business interests and have not worked towards a common goal. However, the implementation of ECR requires cooperation, collaboration and partnering in the marketing channel (Svensson, 2002).

ECR has been perceived by a number of companies in many regions as a catalyst for supply chain reform (Szymankiewicz, 1997). Although ECR has originated in the USA, it has attracted attention and interest in many countries (Harris, Swatman & Kurnia, 1999). However, the adoption of ECR has been slow in many regions, despite many potential benefits to supply chain participants (Kurnia & Johnston, 2001).

The ECR movement began in South Africa in 1995 with the goals of building industry collaboration and applying ECR best practise from across the globe. The key premise was

for ECR SA (South African ECR industry body) to provide an environment conducive to industry collaboration, without compromising on individual company competitive advantage (ECR SA, 2004).

However, the lack of collaboration has been identified by Illingworth (2003) in an ECR newsletter as a barrier for South African companies. A survey conducted by ECR SA on ECR adoption in South Africa, reveals that there was little industry progress between 1999 and 2004. Where progress had been made, it was limited to the confines of individual organisations. The lagging organisations were missing out on operating and inventory savings already estimated at 7.1 billion ZAR in 1999 (ECR SA, 2004).

The researcher could not find any formal published research that has been conducted in South Africa on the barriers inhibiting ECR implementation.

1.3 Purpose of the Study

The researcher's aims were to determine what the obstacles to the implementation of ECR are and to determine whether there are differences in the perceptions of manufacturers and retailers in South Africa regarding ECR. The differentiation between retailers and manufacturers was important in order to determine whether the identified factors were similar across both groups.

1.4 Problem Statement

The purpose of this research is to determine which factors are inhibiting the implementation of Efficient Consumer Response between manufacturers and retailers in the South African fast moving consumer goods industry.

1.4.1 The sub-problems

- The first sub-problem: To establish whether there are meaningful factors to explain the slow adoption of ECR in South Africa.
- The second sub-problem: To establish whether there are different perceptions between manufacturers and retailers regarding ECR.

1.5 Delimitations

The study was limited to delegates who attended the 6th annual ECR conference in Sandton, South Africa, October 2004. Hence the sample was comprised of those respondents who completed and returned a survey at the conference.

The researcher aimed to identify which factors were barriers to the implementation of ECR and to determine whether there were different perceptions between manufacturers and retailers regarding ECR.

The study was limited to manufacturers and retailers in the fast moving consumer goods sector in South Africa.

.6 Significance of the Study

Studies in other countries have shown that there are identifiable barriers to the implementation of ECR. Identification of the factors that inhibit ECR implementation will help both the ECR movement in South Africa and individual organisations to identify existence of these barriers.

Proactive interventions against these barriers could enhance the chances of successful implementation of ECR in South Africa. This could be achieved by employing practices that have been identified by other researchers to counter any identified barriers. ECR SA and industry participants who are supportive of ECR development would therefore be interested in the outcome of this research.

The significance of this study was highlighted by the fact that ECR SA was supportive of the research. An identification of possible barriers could stimulate further research into both ECR in South Africa and other areas hindering collaboration in the South African fast moving consumer goods environment.

.7 Assumptions

The first key assumption was that respondents who completed the survey at the ECR SA conference had been exposed to ECR concepts. If this was not the case, it would impact on the validity of the study.

The second key assumption was that the sample was representative of the total retailer and manufacturer universe. If the sample was not representative, it would impact on the validity of the study.

1.8 Subsequent chapters of the research proposal

The subsequent chapters of this research report are structured in the following manner:

Chapter 2 provides an overview of the eleven identified barriers to the implementation of ECR as identified in published peer-reviewed journals. The propositions based on the literature review are provided at the end of the chapter.

Chapter 3 describes the qualitative and quantitative methodologies employed in the research. This includes the sampling procedures, the methods of data collection and the techniques used in the analysis of the data.

Chapter 4 presents the summary of the qualitative study. The survey instrument is defined, relating the sub-concepts of the identified barriers to the statement numbers in the survey outline.

Chapter 5 presents the results of the factor analysis study. The results of the significance tests performed on manufacturer and retailer respondents are presented.

Chapter 6 presents the interpretation of the quantitative results, which are evaluated in the context of the literature review and the research propositions.

Chapter 7 presents the main findings of the research, management implications and suggestions for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The literature review highlights the barriers to ECR implementation as presented in published peer-reviewed journals. Additional information is provided by the application of theory relevant to constructs identified as being barriers to implementation. These barriers are discussed under the relevant headings in the following section.

2.2 Identified Barriers to Implementation

2.2.1 Understanding

Brockman & Morgan (1999), highlight that ECR is one of the most complex managerial innovations to be introduced into the US. Kurnia & Johnston (2003) and Svensson (2002) cite a lack of understanding of ECR as one of the barriers to implementation. Both manufacturers and retailers have experienced a shortage of skilled personnel to implement ECR. The lack of competencies is highlighted by Borchert (2002) in his survey of obstacles to ECR implementation in Germany. Hoban (1998) found that the perceived complexity and the scope of ECR, when taken in its entirety, were barriers to implementation.

According to Collins (1997), half of the people in the industry do not have the skills to implement ECR processes and need mass retraining to adjust to ECR, as it is a completely new approach to business. Companies need to be prepared to invest in the

training needed to promote the role changes required for the transition from a buyer to a category manager or from a sales representative to a category expert or analyst.

2.2.2 Objectives and goals

High levels of ideological agreement, goal compatibility, satisfaction and the restrained use of power will ultimately contribute to high levels of cooperation. As long as parties see their goals being met by joint action, they will be motivated to maintain a relationship. There should be agreement that their goals, whilst not necessarily similar, are at least compatible so that each party can achieve their objectives, as well as the objectives on which the relationship has been built (Dwyer, Schurr & Oh, 1997).

Pearce (1997) indicates that the starting point for ECR processes is the alignment of corporate goals and corporate vision. ECR implementation projects should start at the top-to-top level. The board-to-board support should include both retailers and manufacturers. Both parties need to agree joint missions, goals, strategies and the measurement of performance. It is important for both parties to agree at the outset that they are prepared to share information. Category management, as a key component of ECR, requires strong collaborative retailer-supplier partnerships with joint objectives and win-win goals (Hogarth-Scott & Dapiran, 1997).

Scorecarding is central to ECR processes. The key elements of scorecarding relate to both the customer and the retailer developing a joint business process in a standardised format. This allows for both parties to measure each other on criteria such as people, systems and processes (Collins, 1997).

Christopher (2000) highlights the need for a high level of connectivity between firms and their alliance partners in supply chains. This requires multiple collaborative working relationships across organisations in the context of joint strategy formulation. The firm's external integration requires a strong linkage of logistics activities between manufacturers and their customers (Stock, Greis & Kasarda, 1998). Van Hoek (1998) highlights that aligning metrics across the supply chain can help organisations achieve corporate goals and business strategies by directing the areas that need management attention.

In Australia, it has been found that ECR initiatives were being led by retailers. The key driving force for retailers was the need to improve their internal operations. However, manufacturers were involved in ECR projects mostly to meet the requirements of their larger retail trading partners (Kurnia & Johnston, 2003).

In contrast to the survey by Kurnia & Johnston (2003), Hoban (1998) in a USA survey found that manufacturers expressed the most enthusiasm for the implementation of ECR. Manufacturers did however raise some concerns regarding implementation, such as the loss of competitive advantage and the lack of processes and standardisation by retailers.

Australian manufacturers and retailers were found to have different interests and perceptions. A lack of common objectives and goals has created barriers to ECR implementation. Manufacturers were less able to identify with the vision of ECR versus retailers who had clearer objectives (Kurnia & Johnston, 2003). Frankel, Goldsby & Whipple (2002) in their case study of successful collaboration, cite the understanding of the partners' business with common goals and objectives as a key criterion for ECR implementation.

Power is a feature of relationships and is important in the effective management of marketing channels and the realisation of marketing benefits from those channels. Successful marketing relationships are built on cooperative partnerships and not power-conscious adversarial relationships (Morgan & Hunt, 1994).

Morgan & Hunt (1994) believe that mutual cooperation as opposed to competition and conflict, lead to higher value creation. It is argued that the interdependencies created by relationship marketing reduce transactional costs and generate higher relationship quality, whilst keeping governance costs lower than traditional exchange marketing (Heide & John, 1992). The outcomes of relationship engagement relate largely to the value created through cooperative and collaborative effort (Heide & Anne, 1992). A major driving force for the formation of relationships is the reduction of environmental risk and uncertainty. (Morgan & Hunt, 1994).

Consumer demand activities require the synchronisation of business processes through the sharing and leveraging of existing information across the supply chain (Sherman, 1998). Collaborative processes cannot be developed without the sharing of information. However, when companies are faced with the necessity to share information, issues of trust and power arise. Some parties are reluctant to share information, which they feel, if leaked, will be used against them and compromise the business situation. Other parties feel that having access to certain information gives them power in the supply chain. Sharing of this information, it is felt would result in a lessening of their power base (Bowersox, Closs & Stank, 2000). The control of information as a source of power is

supported by Macdonald (1999) who cites that this control has the potential to result in the dependency on partners for strategically important knowledge.

Category management has been proposed as a mechanism for achieving closer working relations between suppliers and retailers. The key premise has been that category management would result in the reduced reliance on power as an element of a relationship and increased levels of cooperation (Dapiran & Hogarth-Scott, 2003).

Power and dependency are central to organisations and to inter-organisational relationships. Power imbalance is related to the degree of one partner's dependence on the other party. Those in power can make demands on the weaker party (Gassenheimer, Calantone, Schmitz & Robicheaux, 1994).

Retailers provide the access point to the customer market for most grocery products and as fewer operators dominate the sector, their importance to manufacturers grows (Collins & Burt, 2003). Dependence and uncertainty have been identified as key variables in motivating inter-firm relationships (Heide, 1994). The firm with the greater level of dependence has the greater interest in sustaining the relationship (Anderson & Narus, 1990).

Hoffman & Mehra (2000) state that larger businesses by virtue of their size might have market clout over their trading partners. They have concluded that organisational power plays based on the size of a business should be avoided.

It has been identified that Australian retailers were able to exert power over manufacturers. Retailers pressurised manufacturers to be involved in ECR programs despite low manufacturer perceptions of ECR (Kurnia & Johnston, 2003). This is supported by

Borchert (2002) who found that power plays between partners derailed ECR implementation programs in Germany.

2.2.4 Commitment

Commitment is defined as the extent to which a firm is dedicated to a close and sustainable relationship with another firm, thus enabling them to work better together. Commitment increases with increasing input into a relationship, is orientated towards the future and usually includes the intention to maintain a stable relationship (Morgan & Hunt, 1994).

Commitment is one of the key factors that determine the success of a relationship and is often coupled with trust. Trust and commitment are important as they encourage the cooperation required to preserve a relationship (Hogarth- Scott & Dapiran, 1997).

ECR is a customer-focussed strategy that encourages strong relationships between manufacturers and retailers. Strategic alliances can only be achieved by the full cooperation of trading partners working towards common goals of reduced cost and greater efficiency. Joint problem solving requires close interaction between channel partners in an environment of trust that fosters innovative solutions and better ways of working (Sparks & Wagner, 2003).

A relationship between two parties is defined by what they provide for each other, the resources they distribute and the exchanges that take place. This reflects varying measures of dependence and interdependence (Hogarth- Scott & Dapiran, 1997). One of the goals of marketing is to focus on managing strategic partnerships and positioning the

firm in the value chain with the ultimate goal of providing superior value to the consumer (Grönroos, 1996). Relationships are thought of as being a key corporate resource and a source of competitive advantage. Value must be created out of the combined skills brought to alliances. These alliances are made up of a web of interpersonal relationships and structures (Kanter, 1994).

The term “channel partnerships” has been used to describe the various relationships between suppliers and retailers, in which the parties agree on common goals and objectives for ordering and physical distribution. However, partnerships need to be built and managed (Hogarth- Scott & Dapiran, 1997).

The implementation of effective partnering agreements is highly complicated for retailers due to the need to work with multiple manufacturers across single merchandising categories (Hogarth- Scott & Dapiran, 1997).

Research has linked commitment to the joint outcomes and success of the relationship such as cooperation, adaptation and continuance (Anderson & Narus, 1990). However, the changing of traditional behaviours and mindsets required of ECR implementation could have a negative impact on commitment. The training process required of ECR, is substantial when consideration is made of the reorganisation required of traditional business structures, the overcoming of short-term financial pressures, the development of relationships and new performance measurement systems. One of the issues with ECR is that it requires long-term commitment (Frankel et al, 2002).

According to Anderson & Narus (1990), trust is defined as a firm's belief that another firm will perform activities that will result in positive outcomes for the firm and not engage in surprise behaviours with negative outcomes. Morgan & Hunt (1994) define inter-organisational trust as when one party has confidence in the other party's reliability and integrity. Das & Teng (1998) argue that trust acts to promote relationship success through reduced uncertainty and the reduced likelihood of opportunistic behaviour.

Hausman (2001) states that trust is an iterative process whereby parties trust each other to perform certain tasks and act in the best interests of the relationship. Trust increases over time as relational partners perform in acceptable ways. Firms are more likely to invest time and resources into a relationship, if they trust their partners.

Kumar (1996) suggests that trust is the opposite of power and that it is trust in a manufacturer-retailer relationship that leads to cooperation. The notion that trust is a feature of a relationship, rather than an outcome, is inherent in the statement that "trust supports cooperation". Trust impacts on the two major threats to cooperation, namely fear and greed (Hwang & Burgers, 1997).

Welganbach (2001) argues that trust can be seen as a substitute for control and is a medium for the governing of transactions. It has been found that trust is a strong factor in channel players' propensity to cooperate and exert controls (Andaleeb, 1995).

Trust is earned by partners adapting to the needs of the partnership. Organisational cultural norms, as well as the flexibility and willingness to adapt, are key elements of trust

(Heide & John, 1992). Trust is a fundamental building block of relationships. It can reduce transactional costs, can focus investments into the future and enhance relationships, organisational learning and transfers of knowledge. Communication is an important element in the creation of trust. High inter-organisational trust makes high interpersonal trust less important (Zaheer, McEvily & Peronne, 1998).

Collaboration can be a strong driver of business success. Through partnership, information sharing and increased coordination of supply chain activities, it is possible to lower costs and improve customer service. The benefits of inter-firm collaboration are achieved via decreased inventory levels, increased predictability in cycle times and increased sales (Stank, Keller & Daugherty, 2001).

In the new model of supply chains, a greater reliance between suppliers and alliance partners is a pre-requisite. The extended enterprise model requires the formation of new relationship styles prevailing in an environment of trust and commitment (Christopher, 2000).

The pre-ECR environment in the US was characterised by information paranoia. There was an unwillingness to share information as parties felt that they would lose their competitive advantage (Collins, 1997). Christopher (2000) emphasises the need for shared information to create the visibility of processes required for efficient supply chains.

Partnership, trust, cooperation, coordination and information sharing are important criteria for the adoption and implementation of ECR (Hoffman & Mehra, 2000). However, Brockman & Morgan (1999), argue that ECR is more complex than prior innovations in distribution because of the high levels of trust that it requires to be successful. The building

of trust between channel partners is a formidable task in the grocery industry that has become accustomed to direct competition.

Lack of trust has been cited as one of the key barriers to successful alliances (Morgan & Hunt, 1994). A lack of trust and cooperation was cited by Kurnia & Johnston (2003) and Svensson (2002), as a barrier to ECR implementation.

Building trust and cooperation amongst historically antagonistic manufacturers and retailers has become an issue. The lack of trust has been identified as one of the organisational barriers to change. There were concerns that information shared with ECR partners could be shared with competitors (Hoban, 1998).

A key manufacturer concern was the reluctance of retailers to share information, whilst retailers did not encounter this problem. This was further linked to the power that retailers were able to exert over manufacturers (Kurnia & Johnston, 2003).

Svensson (2002) found that there was an unwillingness to share information with others in the marketing channel. This is supported by Brockman & Morgan (1999), who argue that the divulging of sensitive product information required of ECR processes results in low perceived efficiency, low relative social advantage, compatibility and high complexity.

ECR processes require a paradigm shift in the manner in which information is shared between partners. It is required that information is not withheld so that business processes can be enhanced, resulting in the effective servicing of the end consumer (Collins, 1997).

Category management requires the highest degree of mutual understanding and cooperation between manufacturers and trade partners. Parties in the relationship need to exhibit openness and trust. Joint usage of information about customer needs, shopper

data, market data, competitor data and marketing strategies should result in multiple returns of efficiencies (Kracklauer, Passenheim & Seifert, 2001).

Svensson (2002) found that co-operative problems and relationship complexity were key barriers to ECR implementation. Borchert (2002), in his survey of the German industry, found what he defined as a “network deficit factor” to be a barrier to ECR adoption. This was characterised by insufficient cooperation, control and authority at all stages of the process.

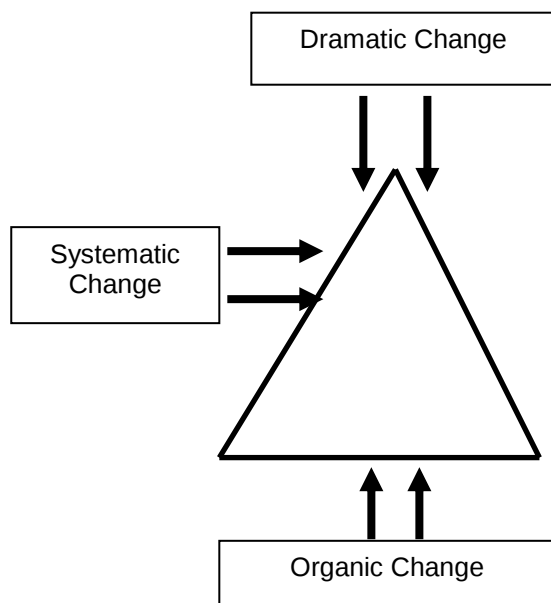
2.2.6 Acceptance of change

Huy & Mintzberg (2003) believe that change does not occur in a vacuum, but that it occurs in the context of an internal and external environment. By understanding these forces of change one can develop the case for change. Change has no meaning unless it is mapped against continuity. They argue that many things remain stable, and that change has to be managed within this context. The authors state that change occurs as a constant along 3 dimensions:

- dramatic change which descends from the top and incites revolution
- systematic change which is generated laterally and orchestrates reform and
- organic change that emerges from grass roots, nurtures rejuvenation and builds initiative.

This thinking is illustrated in the following figure.

Figure 1: Change Model



Source: Adapted from Huy & Mintzberg (2003)

These three methods of change must occur in an integrated manner, sequenced over time, to create a rhythm of change. Their belief is that lasting and effective change occurs from a combination of the two methods combined with dramatic change where necessary (Huy & Mintzberg, 2003).

Wagner, Macbeth & Boddy (2002), have conducted empirical case study research on supply chains. They have concluded that change was difficult to manage in supply chain contexts as it operated across functional, organisational and inter-organisational boundaries. This is supported by Sherman (1998), who cites increasing complexity in managing supply chains. Businesses are faced with managing supply chain activities not

only across channel boundaries, but also across functional, cultural and personnel boundaries (Sherman, 1998).

Arguably, the most widely studied characteristic of innovation is complexity (Wolfe, 1994). Complexity can be conceptualised as multifaceted, combining a set of related characteristics such as disruptiveness, uncertainty and ambiguity. In general, complexity tends to slow the diffusion of an innovation.

ECR can be characterised as an innovation, as it requires a change in the manner of doing business. In order for the innovation to succeed, it requires inter-organisational and extra-organisational support and cooperation in the industry network (Hoban, 1998).

The willingness to innovate and change is an important criterion for collaboration (Frankel et al, 2002). According to Macadam (1996), unless management is able to listen to new ideas and introduce some of these ideas, workplace productivity and stalemate will continue.

Van de Ven (1986) highlights that success has been linked to how well an organisation is able to co-operate with partners so as to build an advantage through innovation. Kanter, Stein & Jick (1992) have found that even though the benefits of innovation are clear, there is often resistance to change. This is related to groups or individuals who feel that they will bear a disproportionate burden of the change, including the loss of position or power. Collins (1997) highlights that ECR adoption requires organisational change, the introduction of new business processes and the breaking down of functional silos. One of the issues with ECR implementation has been that many businesses have had organisational structures and business processes that were out of date.

Organisational barriers, both cultural and functional, are obstacles to the implementation of ECR (Hoban, 1998). The typical hierarchical structure of organisations is a barrier because ECR requires collaboration across functional boundaries. This is supported by Svensson (2002), who cites organisational inflexibility, and cultural differences as being barriers to implementation.

Many people are resistant to change because they may have been in the same position for many years and do not want the challenge of learning new skills, or would feel stressed when forced to move out of current comfort zones (Wagner, Macbeth & Boddy, 2002).

Frankel et al (2002) believe that there are many options available to choose from regarding ECR implementation and it is often difficult to determine where to begin implementation. They argue that the change process required of ECR is one of the reasons for the failure in implementation. Lambert, Cooper & Pagh (1998), have highlighted that the scope of the work required for ECR implementation created complexity that posed difficulties for firms in relation to ECR adoption.

2.2.7 Top management support

According to Zairi (1998), ECR must be driven by committed business leaders who are determined to replace the old paradigms of win-lose relationships to mutually profitable business alliances.

Borchert (2002) and Hoban (1998) have found that the lack of top management support was a barrier to ECR processes. Borchert (2002) identified that an “enterprise deficit factor” inhibited ECR implementation. This deficit was characterised by a lack of top

management commitment, and process organisation. In addition, it was found that this lack of support manifested in other barriers that inhibit ECR implementation such as poor communication, restricted access to resources and limited flexibility.

However, Hoffman & Mehra (2000) believe that both top down and bottom up approaches are essential to adopt and implement ECR. Strategic direction with a strong focus on innovation should be provided by top management whereas technology assessment and training should be provided by lower level operations managers. It is important that managers from all trading parties were involved in both management approaches.

2.2.8 Unrealistic expectations

Mathews (1997) asserts that the benefits of ECR have failed to trickle through the industry. This has resulted in ECR being a matter of promise rather than performance. Frankel et al (2002) have concluded that the expectations regarding ECR were set unrealistically high. This is supported by Borchert (2002), who found that there was a lack of viability of ECR process and outcomes. In a preliminary financial study conducted by Brown & Bukonvinsky (2001), it was shown that ECR failed to show significant performance improvements for ECR adopters versus non-ECR adopters.

2.2.9 Industry standardisation and coordination

In the grocery industry context, channel partnerships can be defined as the value added to the consumer via lower prices and a wider variety of goods. Channels could benefit from lower costs and growing profits (Walter, Ritter & Gemuenden, 2001). The purpose of

channel management is to bring order and coordination to elements influencing channel relationships (Gassenheimer, Calantone & Scully, 1995).

Management of a single company rarely control, nor understand, the full supply chain, therefore it is difficult to see areas of improvement across the total supply chain (van Hoek, 1998). The measures available to assess supply chains are largely single firm measures such as fill rate, lead time and on time performance and are not the multi-firm measures required to measure total supply chain performance (Gilmour, 1999). In addition, conflicting objectives prevent managers from effectively managing trade-offs across functions and across companies (Lee & Billington, 1992).

Furthermore, there are politics associated with the implementation of ECR. It is difficult to make progress between manufacturers, retailers and their trade associations. This barrier prevents ECR from being taken forward and understanding which processes capture value for both manufacturers and retailers (Collins, 1997).

The difference between industry and firm-level initiatives was found to be a barrier to ECR implementation (Frankel et al, 2002). Industry initiatives can be prescribed and supported by trade associations, conferences and publications. Despite the attempts by industry, it is still up to individual firms to implement the initiatives. This is partially supported by Borchert (2002), who defined this as the ECR “interaction deficit factor”. This was characterised by the conceptual deficit in ECR partnerships exhibiting a failure to show leadership, the lack of communication and integration in ECR processes.

Costing issues in supply chains are largely focussed on internal company measures. Firms have strong visibility and ownership over their internal costs, but have less control over total supply chain costs. Individual companies have little feedback on how their performance or re-engineering efforts impact on other areas of the supply chain. Inadvertently firms may continue to pursue efforts that lower their costs whilst unknowingly increasing overall supply chain costs. In addition, the lack of information sharing is a significant barrier to measuring and determining supply chain costs (La Londe & Pholen, 1996).

Kurnia & Johnston (2003) have found that retailers experienced more of the financial benefits of ECR than manufacturers did. It has emerged that the costs associated with the implementation of ECR were greater for manufacturers than for retailers.

The costs and benefits of implementing change do not occur evenly across the supply chain. Investments by upstream partners in bar-coding or electronic data interchange will increase the costs for these firms, but the majority of benefits will be experienced by downstream channel partners via improved forms of information, streamlined handling or lower inventory costs. Whilst total supply chain costs may drop, there is often no clear incentive for firms to adopt changes in information technology (La Londe & Pohen, 1996).

Svensson (2002) and Hoban (1998) have found that cost and economic restrictions placed severe barriers upon ECR implementation. According to Collins (1997), one of the biggest hurdles to the implementation of ECR has been the issue of cost transference. Continuous replenishment (automatic, seamless product supply) is cited as an example where the

retailer simply pushes the cost of procurement on to the manufacturer. However, if costs are moved from one part of the supply chain to another, ECR processes are likely to fail, as the battles over cost transference continue (Collins, 1997).

ECR processes, particularly category management, require analysis. This analysis involves the cost of people and the investment in information technology. These cost issues lead to confrontation between manufacturers and retailers as to which party handles the costs (Collins, 1997).

2.2.11 Technology

The recent advances in technology have enabled companies to track information across supply chains. In addition, companies are realising that beyond technology itself, there is a need for forging partnerships based on knowledge transfer and information integration across the supply chain (Kulp, Lee & Ofek, 2004).

ECR has resulted in the use of information technology to capture data on demand direct from the point-of-sale. This increased level of responsiveness, has transformed the manner in which companies operate in supply chains. The use of information technology to share data between suppliers and buyers creates a virtual supply chain that is information based rather than inventory based. This changes the focus from being a forecast based business to being demand driven (Christopher, 2000).

Electronic data interchange (EDI) is a crucial enabling technology for the efficient replenishment portion of ECR. EDI decision-making has been found to be intertwined with implementation (Bamfield, 1994). Information sharing, facilitated via technology, can help

manufacturers derive more accurate forecasts of future retailer orders. The manufacturer maintains lower inventories and incurs lower inventory and holding costs (Kulp, Lee & Ofek, 2004).

A lack of compatible technology was found to be an issue in ECR implementation (Hoban, 1998). Hoffman & Mehra (2000) found that ECR strategy was heavily technology dependent. This did not indicate that ECR deployment could be achieved independently of management direction. However, information technology (IT) competence and the lack of access to standardised IT processes have been cited as major obstacles to the widespread adoption of ECR in Sweden (Svensson, 2002). In the absence of common application technology, companies have to place substantial demands on personnel to manage collaborative exchanges (Sherman, 1998).

According to Collins (1997), ECR processes require substantial investments in technology. ECR requires the investment in electronic data interchange, technology platforms and decision support systems. Unless companies make the investment in technology, ECR processes are likely to fail.

2.3 Research propositions

Based on the literature review, eleven factors have been identified as barriers to ECR implementation. It has been identified that there are different perceptions of ECR between manufacturers and retailers.

Based on the literature review the following propositions are posited.

Proposition 1: The barriers to the implementation of ECR between manufacturers and retailers in South Africa are:

- understanding of ECR;
- objectives and goals;
- power and dependency;
- commitment ;
- trust ;
- acceptance of change;
- top management support;
- unrealistic expectations;
- industry standardisation and coordination;
- cost and
- technology.

Proposition 2: Manufacturers and retailers have different perceptions regarding ECR implementation.

CHAPTER 3

METHODOLOGY

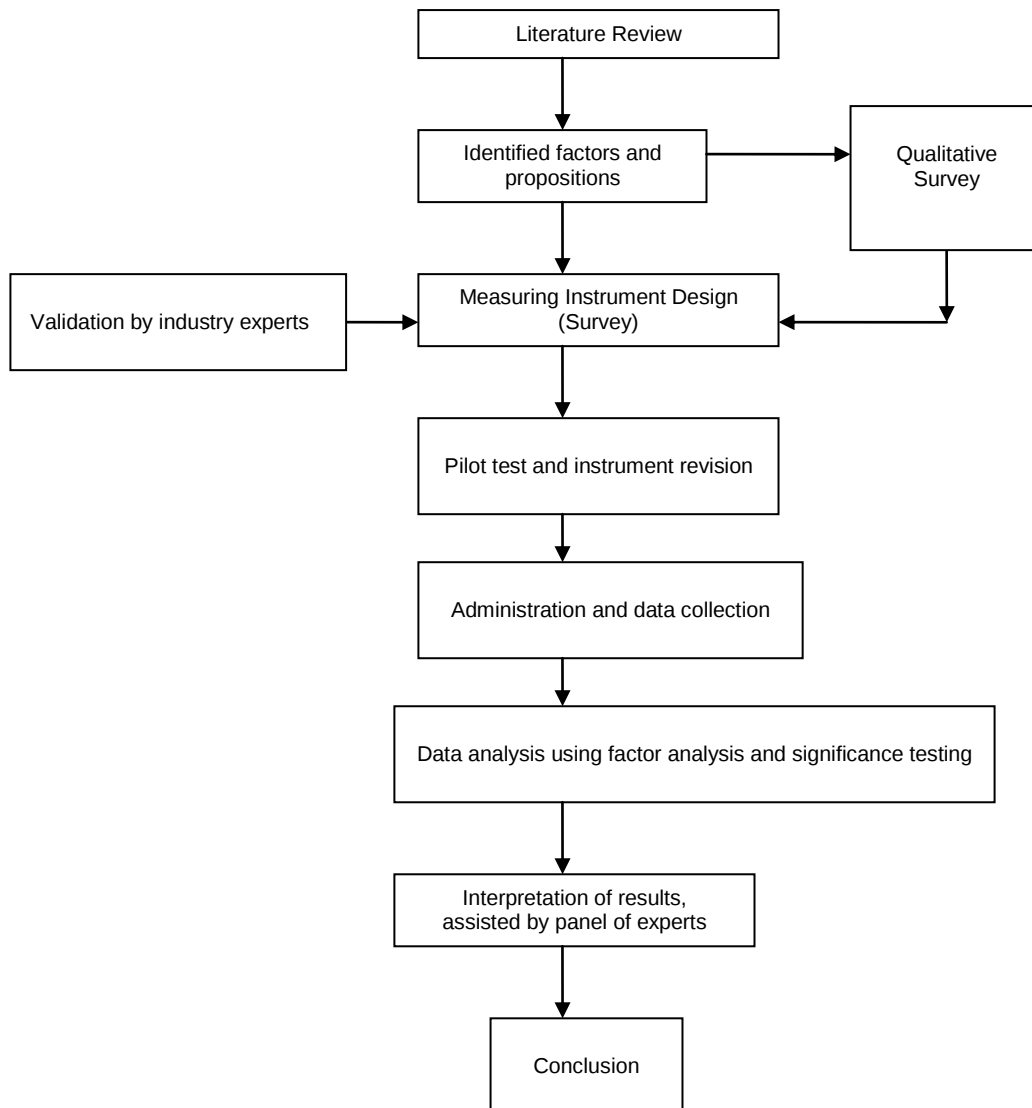
3.1 Introduction

Both a qualitative and a quantitative methodology were employed in the study. The primary research method was a factor analysis of data collected through a survey. A measuring instrument based on the literature review and the results from a qualitative analysis of select in-depth individual interviews was developed for this purpose.

The main data (Likert scale ratings) collected from this survey was analysed using factor analysis. These factors, identified from responses to the survey, were used to confirm or reject the theoretical propositions posited through the literature review. Significance testing was used to determine whether there are different perceptions regarding ECR between retailers and manufacturers.

Figure 2 is a graphic representation of the methodological approach.

Figure 2: Methodology roadmap



3.2 The qualitative study

The purpose of the qualitative study was to determine whether the inhibiting factors identified in the literature review were relevant to South Africa and whether any additional factors would emerge. In addition, the purpose of this phase was to ensure internal validity for the development of the measuring instrument for the quantitative study.

3.2.1 The research population

The population comprises all manufacturer and retailer representatives in South Africa.

3.2.2. Sample size

A sample size of 12 people, consisting of 6 retailer and 6 manufacturer representatives from the Gauteng area, was used for this phase of the study.

3.2.3 Sampling methodology

The people interviewed were selected in order to get a cross section of opinions from both manufacturers and retailers. Each grouping contained equal representation between junior, middle and senior management. The sample was convenient in nature as the persons chosen were selected on an access/availability basis. However, a concerted effort was made to ensure that qualified individuals provided input to this phase of the research.

3.2.4 Data collection

Overview

The prospective interviewees were contacted telephonically. During the initial conversation, the purpose of the study and a brief overview of the methodology were discussed. Appointments were set up to conduct the interview. To aid preparation, a copy of the discussion guide was sent to individuals in advance of the interviews.

The individual in-depth interviews were carried out using a semi-structured interview schedule. All information volunteered by participants was used for analysis.

The objectives of this interview process were to:

- develop a practical understanding of what barriers to ECR implementation existed;
- identify whether any new barriers relevant to South Africa would emerge;
- develop an understanding of any relevant industry terms and jargon that could be used to make the quantitative measuring instrument more meaningful to respondents.

The semi-structured in-depth interview

According to Leedy & Omrod (2001), the semi-structured interview usually revolves around a few central questions. These questions were aligned with the objectives of the interview in order to extract any relevant factors inhibiting ECR implementation in South Africa. See Appendix A for a copy of the discussion outline.

Administration

The in-depth individual interviews were conducted in the following manner:

- all interviews were conducted in person;
- notes were taken throughout the interview; and
- the interviews were transcribed.

3.2.5 Reliability and validity

Leedy & Omrod (2001) define the validity of an instrument as how well it measures what it is supposed to be measuring, while reliability refers to the accuracy and consistency with which the instrument produces results.

External validity

The sample used for the qualitative study was convenient in nature. Due to the small sample size, it would not be possible to generalise the opinions and views of these subjects across all persons in the population. The purpose of the qualitative study was to validate the factors inhibiting the implementation of ECR identified through the literature review. This was particularly relevant as there has been no formal research conducted in South Africa regarding the barriers to ECR implementation.

Internal validity

As discussed previously, the main purpose of the qualitative study was to provide evidence of whether the barriers identified through the literature review, adequately

covered those experienced in South Africa. This approach was therefore an internal validity check for the quantitative study.

In qualitative research, the researcher's biases and values will always influence the interpretation of the data (Leedy & Omrod, 2001). In order to prevent researcher bias, the researcher gained perspectives from retailers and manufacturers to aid the development of the quantitative study. Perspectives were sought in order to challenge or confirm the inhibiting factors identified through the literature review.

Reliability

In order to ensure equivalence, the researcher personally conducted all the interviews. The qualitative study was used by the researcher to explicitly extract any terminology and jargon used by the industry when referring to ECR. The aim was to enhance the reliability of the instrument used in the quantitative study, in that the correct terminology was to be used when surveying the respondents.

3.2.6 Data analysis

The transcripts from the in-depth interviews were content analysed. The statements extracted from the interviews were coded according to the identified barriers identified in the literature review. The data was then grouped by these codes, analysed and compared with the barriers to which it related.

3.3 The quantitative study

3.3.1 The research population

The population comprised all manufacturers and retailers who were operational in the South African fast moving consumer goods market.

3.3.2 Sample size and selection

The sample was comprised of delegates who completed a survey at the 6th Annual ECR conference in Sandton, South Africa, held on the 12th and 13th of October 2004. A total of 136 responses were received from the survey, of which 14 were spoilt and had to be discarded.

3.3.3 Sampling methodology

The sample chosen was based on delegates who attended the 6th annual ECR conference and who completed the survey instrument. The sample was therefore convenient in nature.

3.3.4 Data collection

Overview

During the opening session of the conference, the purpose and intent of the study was outlined to delegates. Throughout the course of the conference, various announcements were made to delegates regarding the survey, so as to ensure high levels of participation. Two ECR staff members assisted with the collection of the survey instrument.

Measuring instrument

The measuring instrument was in the form of a self-administered survey. The main part of the survey contained 55 statements representing the constructs identified as being barriers to ECR implementation. These constructs were developed based on the literature review and feedback from the qualitative survey.

The survey instrument was developed in English and was comprised of two parts:

- the first part contained questions pertaining to basic demographic and organisational details
- the second part used a five point Likert scale, which ranged from strongly disagree (1) to strongly agree (5), against which respondents were asked to rate the extent of their agreement with each statement.

See Appendix B for the survey outline.

Administration

The data was collected by administering the survey in the following manner:

- the researcher was given a room in one of the breakaway halls at the ECR conference for respondents to complete the survey;
- the data from the survey was compiled electronically and filtered automatically into a spreadsheet. This data was captured twice and validated for any inconsistencies. This was to ensure control and the minimising of capturing error.

3.3.5 Reliability and validity

Reliability

The qualitative instrument was used by the researcher to develop an understanding of the industry terms and jargon adopted when referring to ECR. The qualitative study was used in conjunction with the literature review to develop the survey instrument. The survey instrument was subjected to a pilot test. This is relevant as Leedy & Ormrod (2001), recommend the use of a brief pilot study to test the validity and reliability of a measurement instrument that has been developed for a specific research purpose and not previously tested or used in practise.

The pilot was tested on a sample of six retailer and six manufacturer representatives from a variety of organisations and functional levels. Pilot respondents were asked to check for clarity of instructions, ambiguity and relevance to the fast moving consumer goods audience. A check was made as to whether the questionnaire was the desired length to be completed within twenty minutes. The necessary modifications were made before the survey instrument was ready for the survey at the ECR conference.

External validity

External validity is concerned with the ability of the research to be generalised across different persons or groups. External validity would require the use of a random and representative sample. The sample used for this quantitative study was convenient in nature.

Internal validity

The content validity of the quantitative study was essential. This is to ensure that the topic being researched is adequately covered through the use of the measuring instrument. However, as the survey instrument had not been utilised before, the qualitative survey formed a basis from which to ensure adequate coverage of the measuring instrument. Construct validity was sought through the use of a pilot test.

3.3.6 Data analysis

Justification for factor analysis

Factor analysis is a procedure used to “examine the correlations among a number of variables and identify clusters of highly interrelated variables that reflect underlying themes, or factors, within the data” (Leedy & Ormrod, 2001:278).

According to Crawford & Lomas (1980), factor analysis is a useful tool to understand behavioural processes. Factor analysis can be used to identify and give descriptive definitions to underlying factors. The major advantage of factor analysis is that it allows for a reduction of descriptive variables into a smaller but more representative subset.

Factor analysis of the survey was deemed appropriate, as there had already been exploratory research published in the literature. Therefore, existing constructs extracted from the literature review could be tested as part of the analysis.

Factor analysis

Correspondence analysis was used to rescale the ordinal level data obtained from the survey to interval level data (Bendixen & Sandler, 1995). This was necessary so that factor analysis could be performed on the data.

Factor analysis was performed on the interval level data in order to extract the facets that inhibit the implementation of ECR. Factor analysis is recommended when the primary concern is to identify the underlying dimensions and when the common variance is of interest (Malhorta, 1996). These dimensions were then compared to the factors that were identified through the literature review and the qualitative survey and posited as propositions. The number of factors to be extracted was based on eigenvalue scores as well as a determination based on the output of a scree plot.

Cronbach's coefficient alpha was used to establish the internal validity of the factors extracted based on the criteria suggested by Peterson (1994). Coefficient alpha has become the measure of choice when measuring a multi-item scale and is the most commonly used reliability coefficient (Peterson, 1994).

Significance testing

The second part of the analysis comprised significance testing between the retailer and manufacturer factor scores. One of the most common tasks in research is to compare two populations. Comparisons can be made regarding the averages, the medians, the standard deviations, the distributional shapes (histograms), or maximum values. The comparison parameter is based on a particular problem (Hintze, 1995).

The simplest comparison that can be made is between the means of the two populations. If we can show that the mean of population A is different from that of population B, we can conclude that the populations are different (Hintze, 1995).

If the populations are normally distributed and their variances are equal, then the two-sample t-test can be used to compare the means of random samples drawn from these two populations. If these assumptions are violated, the nonparametric Mann-Whitney U test or the Kolmogorov-Smirnov test may be used instead (Hintze, 1995).

All statistical analysis was carried out using NCSS (Hintze, 1995).

3.4 Content analysis

Post the analysis of the quantitative survey; five people from the original panel interviewed in the initial qualitative phase were approached to provide comment on the interpretation of the results. This content analysis served to provide validity to the results of the survey.

CHAPTER 4

PRESENTATION AND INTERPRETATION OF THE QUALITATIVE RESULTS

4.1 Introduction

This chapter presents the results of the qualitative survey and an interpretation of the findings. The chapter begins with a discussion on the confirmation of the perceived barriers to the implementation of ECR and whether there were additional barriers to be considered. This is then followed by a discussion on the process of the questionnaire design and the list of the sub-concepts used in the survey instrument.

4.2 Confirmation of barriers relating to ECR

Each interviewee was asked to indicate whether they agreed with the presented list of barriers to ECR implementation identified in the literature review.

The following table presents the number of confirmations received based on the sample of 12 respondents.

Table 2: Number of confirmations for perceived ECR barriers

Identified Barrier	Number of confirmations
Understanding of the concepts	8
Objectives and goals between manufacturers and retailers	7
Power imbalance between manufacturers and retailers	11
Trust between manufacturers and retailers	12
Commitment between manufacturers and retailers	8
Acceptance of change	7
Top management support	7
Unrealistic expectations regarding ECR	8
Industry coordination	10
Cost	9
Technology	8

The results served to indicate that each of the barriers identified through the literature review could possibly have been a barrier to ECR implementation.

The next section of the qualitative phase revealed that all interviewees felt that the list of identified barriers was complete for the purpose of the study.

Sixty percent of respondents felt that manufacturers and retailers had different perceptions regarding ECR. This supported the need to investigate proposition two as part of the survey.

4.3 Questionnaire design

Hair, Anderson, Tatham, & Black (1995) recommend that five or more variables should be used to represent each proposed factor. Five statements were developed for each of the eleven identified barriers to ECR implementation. These statements were developed based on the literature review and the recommendations from the expert panel in the pilot phase of the research.

The following table highlights the sub-concepts related to each of the eleven factors and the related statement numbers in the survey outline.

Table 3: Sub-concepts relating to identified barriers

Identified barrier	Sub-concepts	Statement numbers
Understanding and complexity	complexity, skills, partner skills, simplicity, concepts	1-5
Objectives and goals	openness, scorecarding, joint business planning, goals, interests	6-10
Power	dependency, resistance, imbalance, resistance, coercion	11-15
Cost	expensive, burden, greater partner benefit, resources, justification	16-20
Commitment	relationships, short term focus, collaboration, trading focussed, role changing	21-25
Trust	partner trust, lack of partner trust, competition, information fears, transparency	26-30
Acceptance of change	new ideas, work behaviours, inflexibility, job security, old habits	31-35
Top management support	top management support, leadership, outcomes, resources, measures	36-40
Technology	compatibility, standards, relevant technology, partner technology, paper based	40-45
Unrealistic expectations	unattainable, desired benefits, unrealistic expectations, quantification, consumer benefits	46-50
Industry standardisation and coordination	industry coordination, industry actions, standardised measures, interaction, workshops.	51-55

See Appendix B for a copy of the final questionnaire.

4.4 Conclusion

The qualitative survey served to confirm that the 11 identified barriers developed through the literature review could be considered to adequately cover the barriers to the implementation of ECR in South Africa. Based on the findings of the qualitative phase, there was no need to refine the initial propositions posited.

CHAPTER 5

PRESENTATION OF THE QUANTITATIVE RESULTS

5.1 Introduction

This chapter presents the results of the statistical analyses carried out on the responses to the survey received. The chapter begins with a brief discussion of the pilot test. The demographics of the sample are then presented. This provides an overview of the diversity of the sample. The results of the rescaling procedure are presented, followed by the results of the factor analysis and significance testing performed.

5.2 Pilot test

Upon completing the questionnaire, pilot respondents had comments regarding the interpretation of the opening statement in relation to the survey statements. Based on their feedback, changes were made to the opening statement by utilising a simpler example statement. In addition, a statement was added making reference to their past behaviour in order to assess the list of statements relating to ECR implementation.

The pilot test revealed that respondents felt comfortable that the survey could be completed in 15 to 20 minutes.

5.3 Demographics of the sample

The demographics of the sample are presented in the following figures. A total of 132 responses were received. This represents a response rate of 17.6% based on delegate attendance at the conference.

The following figure highlights the number of responses received according to the job classification of the respondent. The majority of the sample (61%) was comprised of manufacturer representatives.

Figure 3: Representation of the sample based on employer profile

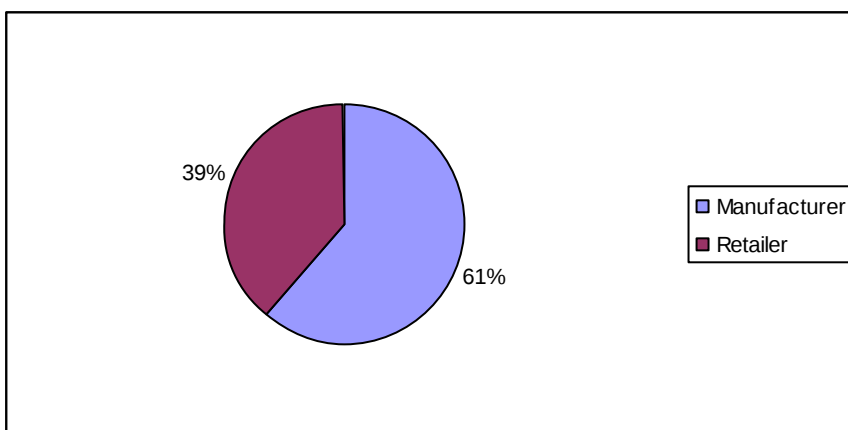
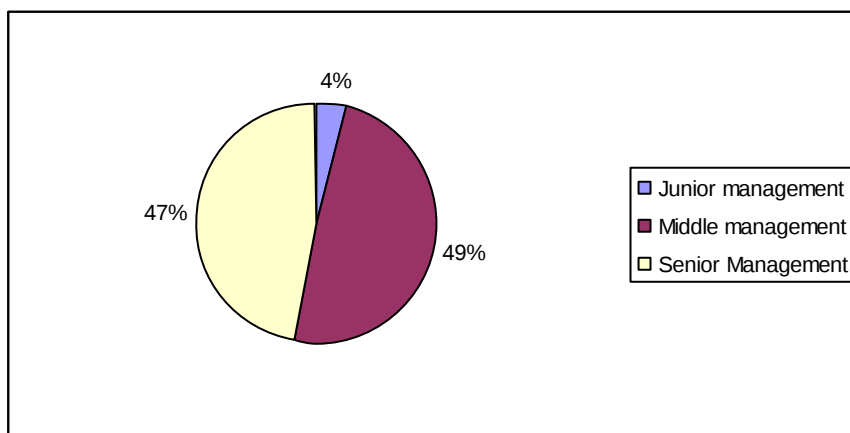


Figure 4 categorises the respondents according to seniority of management level. The bulk of respondents (96%) deemed that they were either middle or senior management.

Figure 4: Representation of the sample based on level in the organisation



The following figure highlights the time respondents had spent working in the industry. The bulk of respondents (54%) had industry experience of between 10 to 20 years.

Figure 5: Representation of the sample based on time spent in the industry

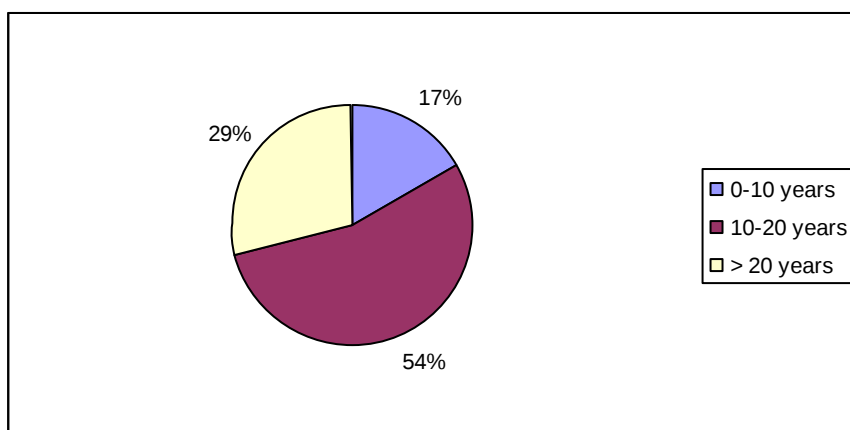


Figure 6 indicates that the majority of respondents (71%) were employed by mid to large size organisations based on the categories presented.

Figure 6: Representation of the sample based on turnover of organisation

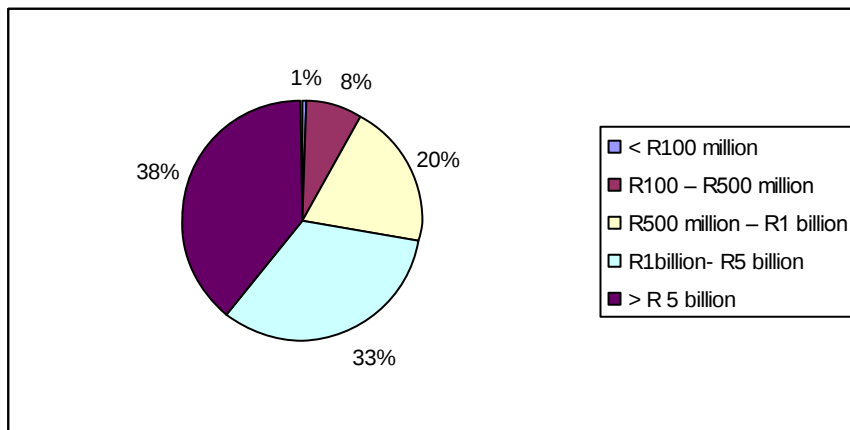
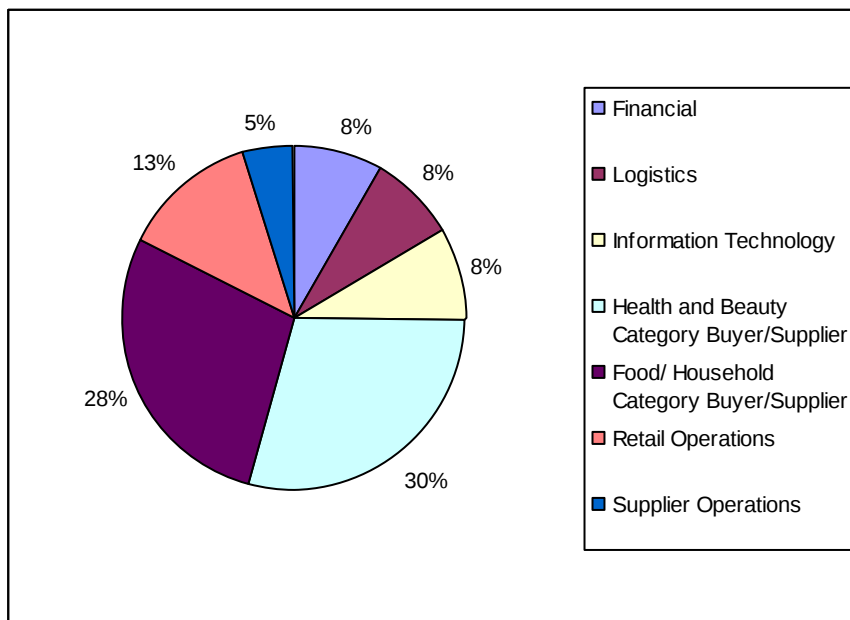


Figure 7 highlights that the majority of respondents (58%) were either health and beauty or food/household category buyers or sellers.

Figure 7: Representation of sample based on functional details



5.4 Data rescaling

Correspondence analysis was used to rescale the nominal values of the five point Likert scale. The output from the correspondence analysis can be seen in Appendix C. The rescaling from ordinal to interval level data using correspondence analysis required the joining of response categories 4 and 5. The rescaled values of the Likert scale are shown in Table 4.

Table 4: Rescaled values of the Likert scale

Scale Point	Nominal Value	Rescaled value
Strongly disagree	1	1
Disagree	2	2.462
Neutral	3	3.671
Agree	4	5
Strongly agree	5	5

The rescaled values did not correspond with the nominal values of the Likert scale, confirming the necessity for rescaling.

5.5 Factor analysis

The initial analysis revealed that there were too many statements for NCSS to give a workable solution. Using the iterative approach, it was revealed that the concepts of power and trust collapsed into one factor. This is shown at the end of Appendix D. This

eliminated 10 statements, providing 45 statements for analysis. A factor analysis with 45 statements provided a workable solution resulting in a number of identifiable factors.

In determining how many factors to extract, three approaches were considered, the latent root approach, the reduction in eigenvalues scores and determination based on the output of a scree plot. Applying the latent root criterion (Hair et al, 1995), a principal components analysis produced 10 factors having eigenvalues greater than one and therefore considered significant. This is exhibited in Appendix E.

A ten factor solution was close to the 11 factors posited in the literature review. However, this solution proved impractical and difficult to determine. It has been noted by Hair et al (1995), that it is not uncommon when using the latent root approach for too many factors to emerge when more than 50 variables are involved.

The second option on evaluating the number of factors to extract, in the unrotated Varimax solution, yielded a five factor solution (excluding the “power and trust” factor identified earlier). This is based on determining where there is a substantial drop in eigenvalue scores between factor numbers (Malhorta, 1996). This is shown in Appendix E, where there is a substantial drop in the eigenvalue scores between factors 5 and 6. This indicated that there were five factors to extract in addition to the “power and trust” factor previously identified.

A factor analysis with Varimax rotated factor loadings was carried out, producing a five factor solution. This is shown in Appendix F. With the inclusion of the “power and trust” factor, the six factor solution proved to be the most interpretable.

The scree test revealed a cut off point of 6 factors with an optimum solution of between 3 and 6 factors (Hair et al, 1995). The scree plot is exhibited in Appendix G. These approaches helped to confirm that a six factor solution was viable.

The Varimax rotated factor loadings for each of the six factors and their relevant statements are presented in tables 5 to 10. According to Hair et al (1995) only those factors with loadings greater than 0.3, should be considered to meet the minimum level of significance. Loadings above 0.4 are considered important, whilst those greater than 0.5 are considered practically significant. Loadings above 0.7 are considered to be very high.

The internal reliability of each factor was determined using Cronbach's coefficient alpha. According to Peterson (1994), a coefficient of 0.7 or greater is considered to be acceptable. The Cronbach's alpha output for each factor is exhibited in Appendix H.

Each factor is preliminarily named in the following section. Justification and interpretation is provided in the following chapter.

5.5.1 Power and trust

The Cronbach's coefficient alpha for factor 1 is 0.751, which is above the accepted minimum of 0.7. The statements loading onto this factor with practical significance concern trust ("partner trust", "transparency", "less competitive", "information sharing") and power ("resistance", "imbalance"). Other statements which load onto this factor and considered important relate to power ("dependency", "coercion") and trust ("reference to trusting partners"). All ten statements relating to power and trust in the survey collapsed into this factor. This factor is named "power and trust".

Table 5: Factor 1- Power and trust

Statement Number	Loading	Statement	Concept	Sub-concept
27	-0.703	My trading partners do not trust me.	Trust	Partner Trust
30	-0.637	There is a lack of transparency in the industry.	Trust	Transparency
28	-0.604	ECR processes will make me less competitive.	Trust	Less competitive
29	-0.600	The information shared with my trading partners will be shared with my competitors.	Trust	Information Sharing
14	-0.582	I do not like to be told what to do.	Power	Resistance
13	-0.564	There is a general power imbalance between retailers and manufacturers.	Power	Imbalance
12	-0.553	My trading partners exert power over me and I do not like to operate under those conditions.	Power	Resistance
11	-0.447	My organisation is able to exert power over my trading partners and therefore we do not need to implement ECR.	Power	Dependency
15	-0.439	My organisation is forced into ECR processes against our will.	Power	Coercion
26	0.423	I trust my trading partners.	Trust	Partner Trust

5.5.2 Risk

The Cronbach's coefficient alpha for factor 2 is 0.692. This is marginally below the minimum cut off of 0.7. The statements with practical significance, loading onto this factor, include commitment ("trading focussed"), expectations ("benefit quantification"), top management support ("measures") and costs ("expensive"). Other statements considered important in terms of loading include ("desired benefits") and top management support ("leadership"). This factor is termed "risk".

Table 6: Factor 2- Risk

Statement Number	Loading	Statement	Concept	Sub-concept
24	-0.551	My relationships are largely trading focussed.	Commitment	Trading Focussed
49	-0.527	I can easily quantify the financial benefits and savings.	Expectations	Benefit Quantification
40	-0.508	My management measures do not conflict with the requirements of ECR processes.	Top Management	Measures
16	-0.501	ECR processes are expensive.	Costs	Expensive
47	-0.497	I feel that there are unrealistic expectations regarding ECR.	Expectations	Desired Benefits
37	-0.484	There is a lack of leadership relating to ECR in my organisation.	Top Management	Leadership

5.5.3 Commitment

The Cronbach's coefficient alpha for factor 3 is 0.433. This is well below the accepted minimum cut off point of 0.7. The statement with a high factor loading (0.7789) refers to understanding ("complexity"). Other statements with factor loadings considered practically significant concern costs ("burden risk", "partner benefits"), expectations ("unrealistic expectations"), coordination ("workshops") and commitment ("collaboration"). Other statements that prove important in loading include commitment ("role changing"), coordination ("industry actions"), change ("old habits") and understanding ("simplicity"). This factor is named "commitment".

Table 7: Factor 3 – Commitment

Statement Number	Loading	Statement	Concept	Sub-concept
1	-0.778	I believe that ECR processes are very complex.	Understanding	Complexity
17	-0.672	My organisation will bear the burden of ECR implementation costs.	Costs	Burden
48	-0.542	I feel that there are unrealistic expectations regarding ECR.	Expectations	Unrealistic expectations
55	0.5391	There are sufficient ECR workshops during the course of the year.	Coordination	Workshops
18	-0.513	My partners will see more of the benefits.	Costs	Partner Benefits
23	0.509	I believe that retailers and manufacturers should not collaborate.	Commitment	Collaboration
25	0.488	I do not have the opportunity to form relationships with trading partners as people are constantly changing roles	Commitment	Role Changing
51	-0.466	I believe that there is a lack of coordination in the industry.	Coordination	Industry
35	-0.416	I feel that the old habits of the South African trading environment are difficult to change.	Change	Old Habits
4	-0.414	The processes required for ECR are not intimidating.	Understanding	Simplicity

5.5.4 Acceptance of change

The Cronbach's coefficient alpha for factor 4 is 0.758. This is above the accepted minimum of 0.7. Statements with high loadings relate to change ("new ideas" and "work behaviours"). Other statements with loadings considered practically significant include objectives ("openness") and change ("inflexibility"). Statements considered important in

terms of loading include commitment (“relationships”) and understanding (“complexity”).

This factor is named “acceptance of change”.

Table 8: Factor 4- Acceptance of change

Statement Number	Loading	Statement	Concept	Sub-concept
31	-0.728	My company does not like to implement new ideas.	Change	New Ideas
32	-0.700	I do not like to change my work behaviours.	Change	Work Behaviours
6	-0.677	My organisation does not share objectives and goals with our trading partners.	Objectives	Openness
33	-0.548	My organisation is inflexible	Change	Inflexibility
21	-0.491	I am not committed to relationships with my trading partners.	Commitment	Relationships
5	-0.465	I do not understand the elements relating to ECR.	Understanding	Concepts

5.5.5 Objectives and goals

The Cronbach’s coefficient alpha for factor 5 is 0.388. This is well below the accepted minimum of 0.7. The statement with a loading considered practically significant relates to objectives (“scorecarding”). Statements considered important in terms of loading include information technology (“relevant technology”), objectives (“goals”), understanding (“concepts”), change (“job security”) and commitment (“collaboration”). This factor is named “objectives and goals”.

Table 9: Factor 5 – Objectives and goals

Statement Number	Loading	Statement	Concept	Sub-concept
7	0.504	I believe in the scorecarding processes required of ECR.	Objectives	Scorecarding
43	0.460	My organisation has the relevant technology.	IT	Relevant Technology
9	0.439	My organisation sets common goals with our trading partners.	Objectives	Goals
5	0.435	I do not understand the elements relating to ECR.	Understanding	Concepts
34	-0.416	I believe that involvement in ECR processes will affect my job security.	Change	Job security
23	0.400	I believe that retailers and manufacturers should not collaborate.	Commitment	Collaboration

5.5.6 Systems and structure

The Cronbach's coefficient alpha for factor 6 is 0.702. This is above the accepted minimum of 0.7. The statements with loadings considered very high are related to information technology ("standards" and "systems compatibility"). Statements with practically significant loadings include information technology ("partner technology"), top management ("support", "leadership") and coordination ("industry control", "interaction" and "industry actions"). This factor is named "systems and structure".

Table 10: Factor 6 – Systems and structure

Statement Number	Loading	Statement	Concept	Sub-concept
42	0.831	There is a lack of technology standards in the industry.	IT	Standards
41	0.769	The IT systems in my company do not match with other IT systems.	IT	Systems Compatibility
44	0.632	My trading partners do not have the relevant technology.	IT	Partner Technology
36	-0.491	Top management in my organisation is supportive of the process.	Top Management	Support
52	0.461	The ECR industry body is unable to control the actions of the industry.	Coordination	Industry Control
37	0.414	There is a lack of leadership relating to ECR in my organisation.	Top Management	Leadership
54	0.410	There is a lack of interaction across partners in the industry.	Coordination	Interaction
51	0.401	I believe that there is a lack of coordination in the industry.	Coordination	Industry Actions

5.6 Perceptions of retailers and manufacturers regarding ECR

Significance testing was performed on the factor scores to ascertain whether there were differences in perceptions between manufacturers and retailers regarding ECR. The results of these tests pertaining to each factor are presented in the following section. The total output of the significance testing is exhibited in Appendix I.

5.6.1 Power and trust

This test involved comparing the factor scores between manufacturers and retailers with regard to factor 1.

For this test, the hypothesis was:

H_0 : All means are equal.

H_A : Not all means are equal.

As equal variances could not be rejected, the relevant test to use was the equal variance t-test.

Table 11: Equal variance test results for factor 1

Alternative Hypothesis	T-Value	Prob Level	Decision -5%	Power (Alpha=.05)	Power (Alpha=.01)
Difference $\neq$ 0	-3.0744	0.002732	Reject H_0	0.86086	0.672371
Difference $<$ 0	-3.0744	0.001366	Reject H_0	0.920469	0.759751
Difference $>$ 0	-3.0744	0.998634	Accept H_0	0.000001	0
Difference: (Mnf_Retailr=1)- (Mnf_Retailr=2)					

The null hypothesis relating to factor 1 (power and trust) is rejected.

This test involved comparing the factor scores between manufacturers and retailers with regard to factor 2.

For this test, the hypothesis was:

H_0 : All means are equal.

H_A : Not all means are equal.

As equal variances could not be rejected, the relevant test to use was the equal variance t-test.

Table 12: Equal variance test results for factor 2

Alternative Hypothesis	T-Value	Prob Level	Decision -5%	Power (Alpha=.05)	Power (Alpha=.01)
Difference $\neq$ 0	-1.6883	0.094536	Accept Ho	0.386729	0.179846
Difference < 0	-1.6883	0.047268	Reject Ho	0.512669	0.254206
Difference > 0	-1.6883	0.952732	Accept Ho	0.000448	0.000033
Difference: (Mnf_Retailr=1)- (Mnf_Retailr=2)					

The null hypothesis relating to factor 2 (risk) is accepted.

This test involved comparing the factor scores between manufacturers and retailers with regard to factor 3.

For this test, the hypothesis was:

H_0 : All means are equal.

H_A : Not all means are equal.

As equal variances could not be rejected, the relevant test to use was the equal variance t-test.

Table 13: Equal variance test results for factor 3

Alternative Hypothesis	T-Value	Prob Level	Decision -5%	Power (Alpha=.05)	Power (Alpha=.01)
Difference $\neq$ 0	-0.2487	0.804126	Accept Ho	0.056975	0.012267
Difference < 0	-0.2487	0.402063	Accept Ho	0.081074	0.018714
Difference > 0	-0.2487	0.597937	Accept Ho	0.029257	0.005061
Difference: (Mnf_Retailr=1)- (Mnf_Retailr=2)					

The null hypothesis relating to factor 3(commitment) is accepted.

5.6.4

Acceptance of change

This test involved comparing the factor scores between manufacturers and retailers with regard to factor 4.

For this test, the hypothesis was:

H_0 : All means are equal.

H_A : Not all means are equal.

As equal variances could not be rejected, the relevant test to use was the equal variance t-test.

Table 14: Equal variance test results for factor 4

Alternative Hypothesis	T-Value	Prob Level	Decision -5%	Power (Alpha=.05)	Power (Alpha=.01)
Difference $\neq$ 0	-0.1833	0.854956	Accept Ho	0.053782	0.011221
Difference < 0	-0.1833	0.427478	Accept Ho	0.071756	0.015953
Difference > 0	-0.1833	0.572522	Accept Ho	0.033859	0.006086
Difference: (Mnf_Retailr=1)- (Mnf_Retailr=2)					

The null hypothesis relating to factor 4(acceptance of change) is accepted.

This test involved comparing the factor scores between manufacturers and retailers with regard to factor 5.

For this test, the hypothesis was:

H_0 : All means are equal.

H_A : Not all means are equal.

As equal variances could not be rejected, the relevant test to use was the equal variance t-test.

Table 15: Equal variance test results for factor 5

Alternative Hypothesis	T-Value	Prob Level	Decision -5%	Power (Alpha=.05)	Power (Alpha=.01)
Difference $\neq$ 0	1.5139	0.133268	Accept H_0	0.322712	0.138451
Difference $<$ 0	1.5139	0.933366	Accept H_0	0.000821	0.000067
Difference $>$ 0	1.5139	0.066634	Accept H_0	0.443775	0.202344
Difference: (Mnf_Retailr=1)- (Mnf_Retailr=2)					

The null hypothesis relating to factor 5(objectives and goals) is accepted.

5.6.6 Systems and structure

This test involved comparing the factor scores between manufacturers and retailers with regard to factor 6.

For this test, the hypothesis was:

H_0 : All means are equal.

H_A : Not all means are equal

As equal variances could not be rejected, the relevant test to use was the equal variance t-test.

Table 16: Equal variance test results for factor 6

Alternative Hypothesis	T-Value	Prob Level	Decision -5%	Power (Alpha=.05)	Power (Alpha=.01)
Difference $\neq$ 0	0.076	0.939599	Accept H_0	0.050649	0.010208
Difference $<$ 0	0.076	0.530201	Accept H_0	0.042689	0.008169
Difference $>$ 0	0.076	0.469799	Accept H_0	0.058277	0.01218
Difference: (Mnf_Retailr=1)- (Mnf_Retailr=2)					

The null hypothesis relating to factor 6(systems and structure) is accepted.

5.7 Conclusion

Six barriers to ECR implementation were identified through the factor analysis. These six factors are “power and trust”, “risk”, “commitment”, “acceptance of change”, “objectives and goals” and “systems and structure”. Significance testing revealed that manufacturers

and retailers had different perceptions regarding ECR in relation to factor 1 (power and trust). There were no differences in retailer and manufacturer perceptions regarding the remaining five factors.

The following chapter provides greater detail of these results.

CHAPTER 6

INTERPRETATION OF THE QUANTITATIVE RESULTS

6.1 Introduction

The first section of this chapter presents an interpretation of the six identified barriers to ECR implementation and how these compare with those identified in the literature review. In order to assist with the interpretation of these results, a panel of five industry experts was consulted. The results of the significance testing on the manufacturer and retailer factor scores are discussed.

6.2 Identified factors

6.2.1 Power and trust

This factor is a combination of trust and power. Whilst these factors were identified separately in the literature review, the relationship between trust and power has been clearly documented.

For any potential exchange, trust will be crucial if risk and incomplete information are present (Hawes, Mast & Swan, 1989). In the absence of complete information, trust has been contextualised as the willingness of exchange partners to make themselves vulnerable to the actions of another party, in the expectation that the other party will perform a particular action (Mayer, Davis & Schoorman, 1995).

The four statements with the highest factor loadings relate to trust. This indicates that there is an issue of trust between manufacturers and retailers in the fast moving goods industry in South Africa.

The statements relating to power in factor 1 support Kurnia & Johnston (2003) and Borchert (2002) who indicated that issues relating to power derailed ECR programs. When trust exists, both partners in an exchange believe that they can make long-term investments with limited risk because the opposite party will refrain from using power or changing circumstances to obtain advantage in their favour (Doney & Cannon, 1997).

Viewing trust and control as opposites is misleading, as the reality is that they are interdependent (Knights, Noble, Vurdbakia, & Willmott, 2001). Reed (2001) argues that trust and control are actually two sides of the same analytical coin and explains them as the opposing ends of a continuum. At the one end, discretionary content is excluded from the relationship, whereas at the other, trust, discretionary content and negotiated relationships are maximised.

As there is a lack of trust in the industry relating to ECR, power is likely to feature in these relationships. Issues relating to trust and power combine to inhibit the implementation of ECR programs.

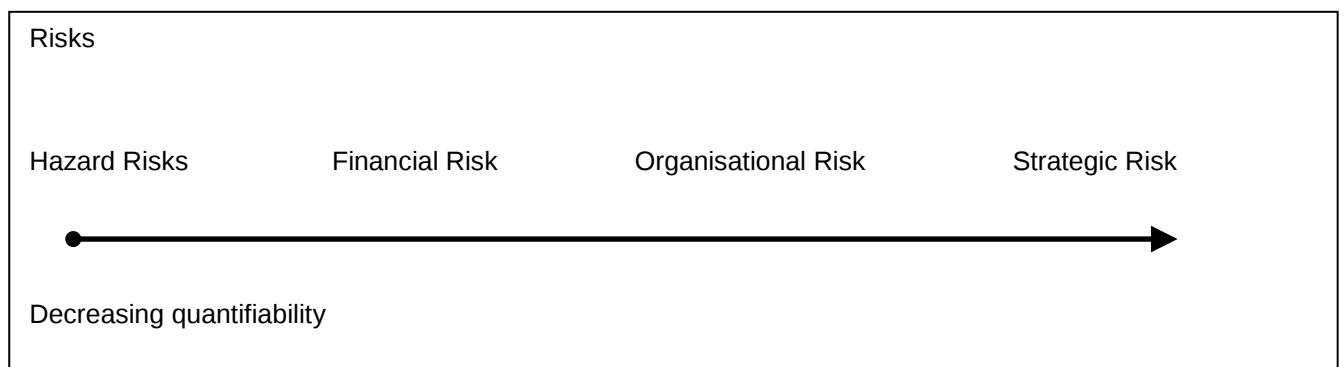
6.2.2 Risk

Whilst not singularly identified as part of the literature review, factor 2 is identified as the risk inherent in the process. According to Smallman (1996), risk is an abstract phenomenon and relates to the probability that an adverse event occurs during a stated

period of time or results from a particular challenge. Risk depends on a complex interplay of social variables that are ultimately combined by human judgement.

Slywotzky (2004) argues for risk being contextualised as hazard risk, financial risk, organisational risk and strategic risk, with decreasing quantifiability from hazard risk through to strategic risk. This model is illustrated in the following figure.

Figure 8: Risk Spectrum



Source: Adapted from Slywotzky (2004).

Hazard risk relates to risk in arenas such as politics and the environment. Strategic risk relates to risks such as market obsolescence or stagnation. Included in financial risk are issues relating to financial exposure. Organisational risk includes elements relating to personnel and organisational structure (Slywotzky, 2004).

The statements; “I can easily quantify the financial benefits and savings”, “ECR processes are expensive” and “unrealistic expectations” can be articulated as financial risk. The financial risk element has a linkage to the cost issues that were identified in the literature

review as being a barrier to ECR implementation. The statement on unrealistic expectations links strongly to the barrier, “unrealistic expectations” as identified as part of the original eleven factors in the literature review.

The statements shown in the following table can be articulated as organisational risk.

Table 17: Statements relating to organisational risk

Statement Number	Loading	Statement	Concept	Sub-concept
24	-0.55199	My relationships are largely trading focussed.	Commitment	Trading Focussed
40	-0.50895	My management measures do not conflict with the requirements of ECR processes.	Top Management	Measures
37	-0.484262	There is a lack of leadership relating to ECR in my organisation.	Top Management	Leadership

The statement relating to “trading focussed” reveals the structure of trading relationships, which implies the traditional focus rather than the relational focus required of ECR.

The statements relating to “management measures” and “lack of leadership” link the relationship between management and subordinates and is categorised as part of organisational risk. The organisational risk elements have associations to the lack of top management support being a barrier to ECR implementation, as identified in the literature review.

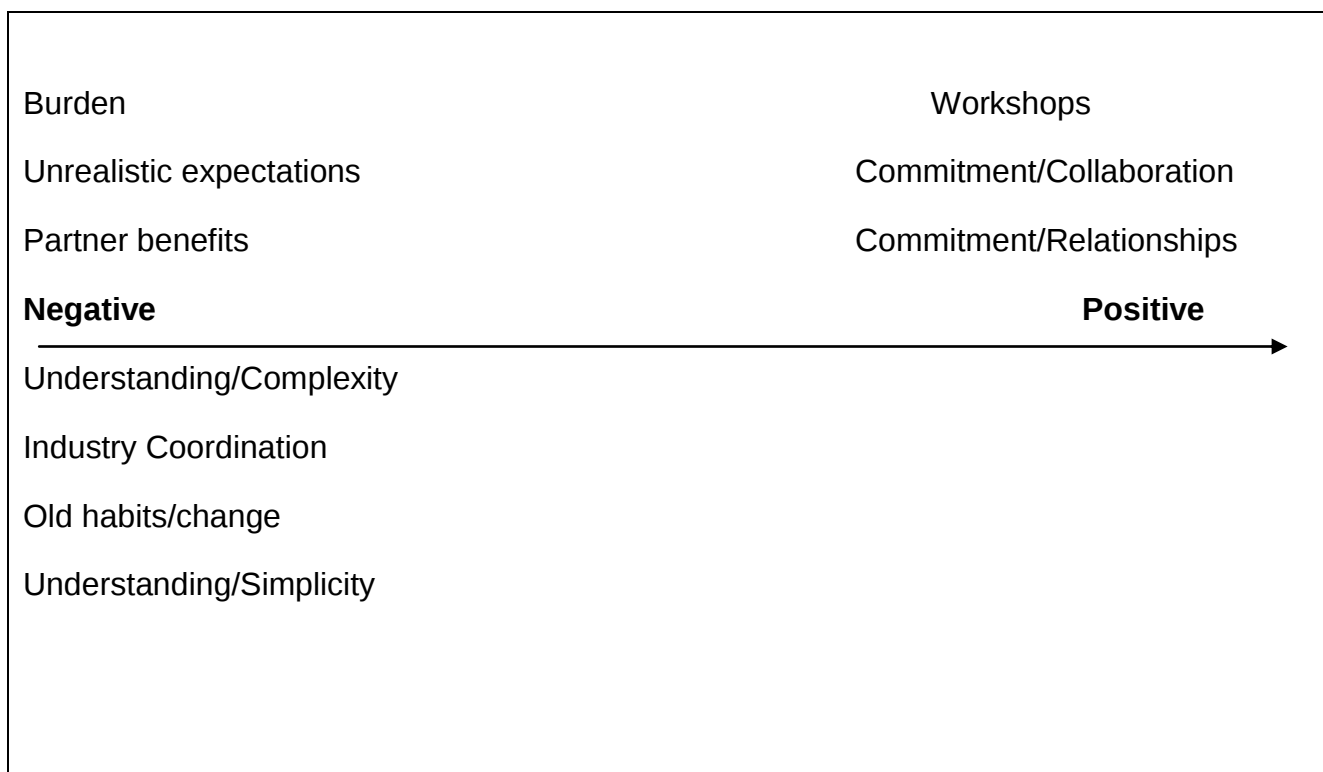
Financial risk (cost issues) and organisational risk (largely top management support) combine to form the factor “risk” which acts as an impediment to ECR practises.

6.2.3 Commitment

Factor 3 has a Cronbach's coefficient alpha below the accepted minimum of 0.7, indicating a factor with low reliability. This explains the difficulty in interpreting the factor.

In order to aid interpretation, the statements identified as being part of the factor were plotted according to their positive or negative coordinates and are represented in the following figure.

Figure 9: Illustration of coordinate plots for factor 3



This factor is contextualised as the influences which impact negatively on the commitment required for the implementation of ECR processes. The positive and negative coordinate plots reveal levels of varying commitment to the process.

Relationship commitment is generally interpreted as an attitude (Morgan & Hunt, 1994). Ivens (2004) believes that committed customers believe a relationship is of high value. The statement relating to “burden”, identified as part of this factor, would indicate that there is a lack of perceived value in ECR relationships.

Zineldin (1998) argues that a successful relationship is partly built on mutual positive expectations so that mutual benefits and satisfaction may be achieved. The statements such as “partner benefits” and “unrealistic expectations” indicate that respondents felt that there was a lack of mutual benefits and expectations, which has the effect of impacting negatively on commitment.

Whilst trust is a necessary condition for commitment, commitment also has a more distinct priority dimension. In most situations, it is not only enough to know that the relationship is trustworthy, but that the other party will support the commitment. Adaptation is an important element that generates quality commitment. It is the willingness of partners to adapt, that demonstrates the commitment to the development of a relationship (Zineldin & Jonnson, 2003).

The statement relating to “understanding” and “complexity” indicate a lack of adaptation required for the understanding of ECR. The statement relating to “old habits” indicates a lack of the change behaviour required for the adoption of ECR processes. This is supported by Frankel et al (2002) who identified that the changing required of traditional behaviours could have an impact on commitment.

Whilst this factor is contextualised as commitment, there are influences such as change, understanding of the process and unrealistic expectations that combine as negative influences which result in low levels of commitment to the ECR process.

6.2.4 Acceptance of change

Macadam (1996) postulates that workplace skills represent a challenge when the focus is on flexibility and how people would need to adapt to changing work processes. Hoffman & Mehra (2000) found that businesses that accepted innovation as a strategy would foresee minimal implementation problems. However, given that grocery businesses have many trading partners, speedier diffusion of new knowledge was difficult throughout the entire supply chain.

This factor is closely associated with the barrier, acceptance of change, as identified in the literature review. This is largely characterised by the statements “new ideas”, “work behaviours”, “openness” and “inflexibility”. The element on “relationships” relates to the lack of commitment to form new relationships, which is linked to old work behaviours.

The statement referring to “complexity” relates to innovation and there will be resistance to change if there is a perceived complexity in a process (Wolfe, 1994). The low level of acceptance of change impacts negatively on the implementation of ECR.

6.2.5 Objectives and goals

This factor has a Cronbach’s coefficient alpha well below the minimum cut off point of 0.7. This explains the difficulty in interpreting this factor.

This factor has similarities with the barrier, objectives and goals, as identified as part of the literature review. The statements relating to “scorecarding”, “goals” and “collaboration” identified as part of this factor, relate strongly to the characteristics associated with joint business planning cited by Collins (1997).

The statements referring to “understanding of ECR” and “relevant technology” could be associated with objectives and goals. In a framework where there is joint business planning, issues relating to technology and understanding are worked on in a collaborative framework. This lessens the negative attitude associated with technology and understanding, so as to build common goals. A lack of common objectives and goals in the industry acts as an inhibitor to ECR implementation.

The statement relating to job security was eliminated from the analysis, as it did not aid interpretation of this factor.

6.2.6 Systems and structure

Whilst this factor is closely associated with information technology, the associations relate to standards, systems compatibility and partner technology.

Information is crucial in supply systems and information technology has allowed companies to transform their dealings with suppliers and customers. The development of retail technology exchanges is stimulating the change in supply chains and buyer-seller relationships in the retailing industry (Sparks & Wagner, 2003). According to key commentators, a lack of common product languages has reduced the effectiveness of technology exchanges, which has resulted in companies sticking to traditional buying methods (Sparks & Wagner, 2003).

The statements relating to technology indicate that there is a lack of standardisation and structure relating to information technology components in the industry, which impacts negatively on ECR adoption.

Inter-organisational coordination in distribution systems is a fundamental survival requirement. Typically, channel members eliminate redundant roles and jointly allocate responsibility for key channel functions and establish communication and control systems. Such coordination requires firms to understand and manage dependence on channel partners (Dwyer & Oh, 1988).

The statements relating to “industry control”, “interaction” and “industry action” relate to coordination or the structure elements in the industry. The lack of “leadership” contributes to the structural or control issues which act to inhibit ECR adoption.

The inadequate systems and structure in the industry act as a barrier to the implementation of ECR in South Africa.

6.3 Perceptions of retailers and manufacturers regarding ECR

Significance testing on the manufacturer and retailer factor scores revealed that there were significant differences regarding the power and trust factor. Significance testing on the remaining five factors revealed that there were no significant differences between the manufacturer and retailer factor scores.

This indicates that there are differences in how manufacturers and retailers perceive the dynamics of power and trust in relation to ECR adoption. The remaining factors; risk, commitment, acceptance of change, objectives and goals and systems and structure, have a widespread similarity in perception across manufacturers and retailers.

6.4 Conclusion

Although the eleven factors identified in the literature review have similarities with the six factors extracted through the factor analysis, the reliability of three of these factors is questioned as their Cronbach's coefficient alphas are below the minimum cut off point of 0.7. Nevertheless, the six factor solution is considered as being the most adequate representation of the barriers inhibiting the implementation of ECR in South Africa.

It was found that manufacturers and retailers had different perceptions regarding power and trust in relation to ECR implementation. No significant differences were found for the remaining five factors.

CHAPTER 7

CONCLUSIONS

7.1 Introduction

The main findings of the study are discussed in relation to the propositions presented. Management implications for each factor are discussed. The chapter concludes with suggestions for further research.

7.2 Main Findings

The results from this research indicate that there are six factors that are barriers to the implementation of ECR in South Africa. These are “power and trust”, “risk”, “commitment”, “acceptance of change”, “objectives and goals” and “systems and structure”.

The six factors identified as barriers to ECR implementation combine elements of the eleven factors identified through the literature review. These eleven factors are a subset of the six factors identified as per the survey. Proposition 1 is therefore accepted.

It was found that there were significant differences in manufacturer and retailer perceptions in relation to the “power and trust” factor. Proposition 2 is therefore accepted.

7.3 Limitations

The research was limited in that the samples for both the qualitative and quantitative surveys were small and convenient in nature. The qualitative sample was limited to respondents who were chosen on the basis of accessibility. The quantitative survey was based on participants who completed a survey at the 6th annual ECR conference.

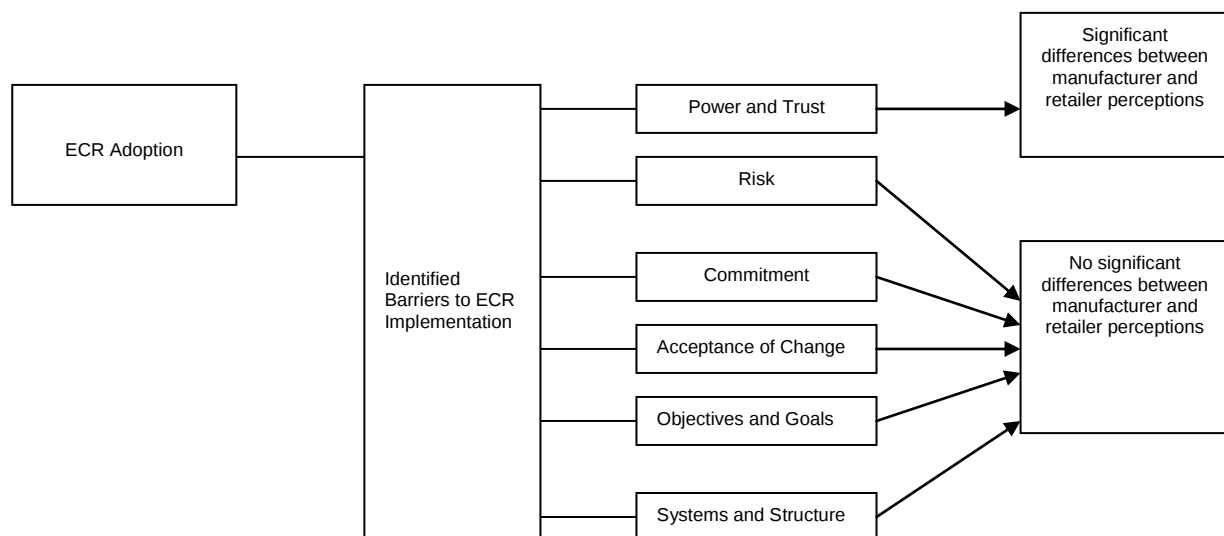
Therefore, the samples were not representative of all retailers and manufacturers operational in the South African fast moving goods sector.

A larger sample would have contributed to easier interpretation of the factor analysis. It was fortuitous that “power and trust” collapsed into a single factor, allowing for the interpretation of the remaining five factors. The small quantitative sample contributed to the low reliability of three of the six identified factors.

7.4 Management Implications

The model in the following figure represents a consolidated view of the barriers to ECR implementation identified through the study and an illustration of the different perceptions between manufacturers and retailers in relation to these factors.

Figure 10: ECR barrier model



Through identification of these barriers, proponents of ECR can gain a greater understanding of the potential obstacles to ECR implementation in South Africa. The acceleration of ECR implementation requires a holistic approach across the industry. However, in order to overcome the barriers to implementation, the identified barriers need to be worked on individually and in tandem with the other factors to achieve the desired results. The implications regarding the individual barriers are discussed separately in the next section.

7.4.1 Power and trust

Trust and control are interrelated concepts and are significant contributors in creating partner co-operation. Control impacts on trust and trust moderates the need for control. Trust and control are employed simultaneously and the aggregate level of control will determine the level of confidence that partners have in each other (Das & Teng, 1998).

This is supported by Nahapiet & Ghoshal (1998) who argue that there is a two-way relationship between trust and cooperation.

Trust is required for parties to cooperate and cooperation creates trust. When trust levels in relationships are high, people are more willing to exchange and participate in co-operative behaviour (Nahapiet & Ghoshal, 1998).

By implication, when trust levels in relationships are high, there is less need for power plays to be a feature of relationships. According to Hawes, Mast & Swan (1989), trust is the binding force of most productive relationships. They define trust as a concept of perception. If there is a difference in perception between buyers and sellers, then sellers would be well advised to modify their trust earning perceptions and modify their behaviour to efforts that buyers believe lead to a trusting relationship.

Whilst trust earning perceptions can be worked on, it is stressed that these behaviours are more likely to work in the short term. In the long term, nothing will earn trust more than being trustworthy (Hawes, Mast & Swan, 1989).

Reliability, credibility, dependability and product knowledge are important elements in building partner trust between buyers and sellers (Hawes, Mast & Swan, 1989). Whilst these appear as logical elements to help build trust in the ECR environment, it is difficult to recommend these behaviours across the industry. However, by implication, ECR protagonists need to be aware of how their behaviour impacts on potential ECR partnerships.

With reference to product knowledge, an association can be made with the understanding of the concepts relating to ECR processes. It has been identified by Brockman & Morgan (1999) that ECR is a complex process. Wolfe (1994) has identified that complexity tends to slow the diffusion of an innovation.

Value could be achieved by simplifying the elements relating to ECR strategy. Using the association with product knowledge, trust is likely to be earned if ECR proponents are able to sell the concepts in a simple manner across the industry.

If trust earning behaviour is not achieved by partners, power plays are likely to inhibit collaboration between retailers and manufacturers. It has been highlighted that information sharing is unlikely if there is a lack of trust in relationships. As a result, ECR programs are likely to fail.

As there are different perceptions regarding trust and power between manufacturers and retailers, a greater understanding of the causes is likely to create an understanding of the behaviours required to inhibit this barrier. In addition, this factor will require greater intervention, as there are different perceptions between manufacturers and retailers. The other five factors will require a standardised approach across the industry.

7.4.2 Risk

The risk elements identified as being barriers to ECR implementation relate to financial and organisational risk. The financial risk elements were strongly associated with cost, greater benefits by partners and unrealistic expectations regarding ECR. Whilst there are

potential risk elements relating to the costs of ECR, these can be reframed by considering the positive impact of the potential savings and benefits relating to ECR adoption.

In order for the benefits of the process to be quantified, pilot projects could be worked to reveal the potential savings to the industry. Greater clarity should be given to show how these savings were determined. Whilst ECR SA (2004) has revealed that there were savings estimated at 7.1 billion ZAR in 1999, these potential savings should be apportioned across industry segments so that individual firms can estimate their potential share of these savings. This is likely to make the financial expectation more meaningful for individual industry participants.

The elements relating to organisational risk were largely centred on top management support. According to Collins (1997), ECR processes require a foundation built on strong leadership, support and strategy. ECR processes need to be supported by the chairmen of the board, who need to understand what ECR means for their business and the strategies required for its implementation. Therefore, top management should understand their role in the ECR implementation process and provide the relevant leadership to their organisations.

7.4.3 Commitment

Adaptation has been identified by Anderson & Narus (1990), as a key characteristic in order to preserve the continuance of a relationship. By implication, in order to overcome this barrier, ECR participants need to be flexible and adaptable in their mind set approach to ECR. It has been identified that the long-term orientation of ECR can be a barrier to ECR implementation (Frankel et al, 2002).

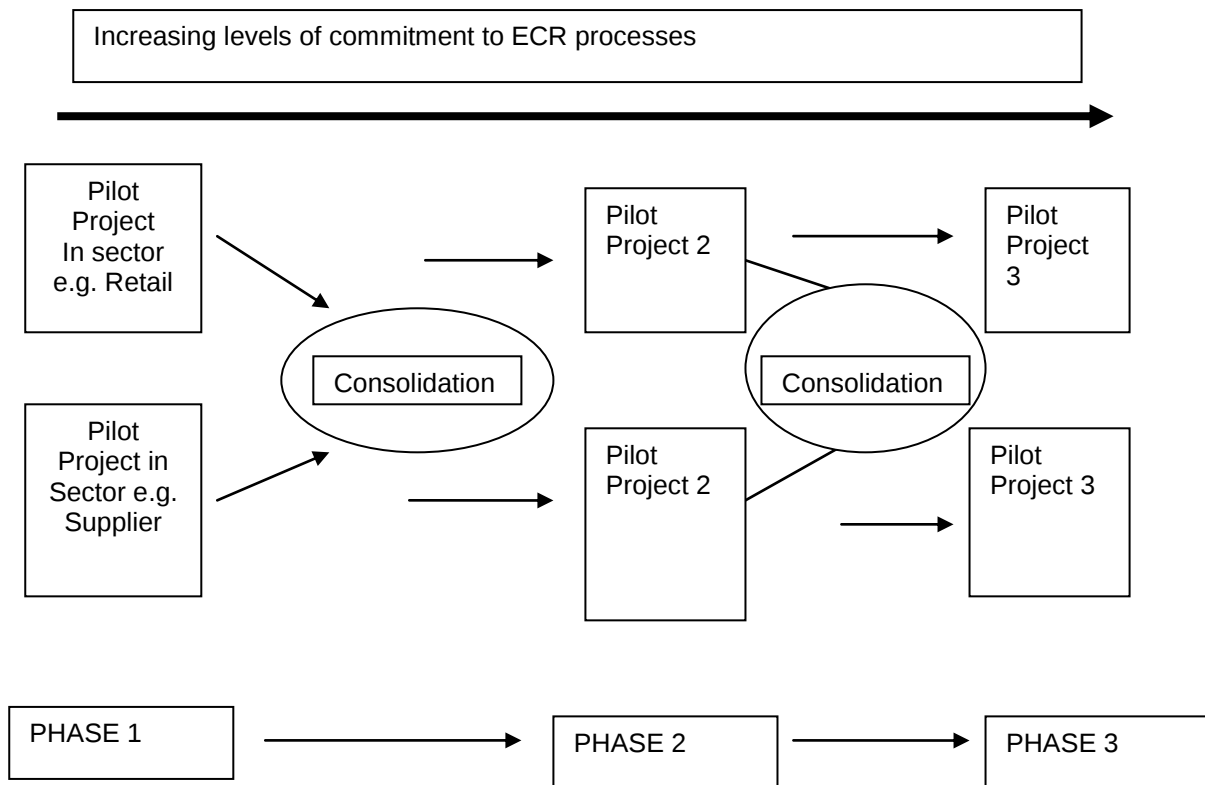
In order to overcome the negative long-term impact, the concept of trialability could be adopted across the industry to gain greater commitment to ECR processes. Trialability is the extent to which experimentation can be taken with innovation on a trial basis before the final adoption process is made. Included in this characteristic is the ability for an organisation to adopt an innovation in parts rather than the entire unit (Morgan & Brockman, 1999).

By adopting ECR programs in parts and gaining understanding of the process, there is more likely to be an acceptance, which could build long-term commitment.

However, Frankel et al (2002) have identified that there are many options available to choose from regarding ECR implementation. This choice could provide complexity for firms and if different firms work on different projects there could be a failure in ECR implementation across the industry due to a lack of coordination.

In order to assist the industry, ECR SA should identify the “easy win” projects across the industry so as to add control and coordination to the process. This approach suggests working ECR implementation in phases across the industry. This thinking is contextualised in the following figure.

Figure 11: ECR trialability model



7.4.4 Acceptance of change

Adapting the thinking of Huy & Minzberg (2003), as identified in the literature review, implies that change must occur at all levels of the organisation in order to affect the change behaviour required for ECR implementation. This is supported by Hoffman & Mehra (2000), who state that both top down and bottom up approaches are required for ECR implementation.

Top management support should set the direction and provide the energy for change efforts to occur across the organisation. This leadership is required to accelerate the change process required for ECR implementation. However, in order to effect meaningful change both middle and junior management should be involved so as to build commitment to the process. By applying change behaviour across all levels of the organisation, there is

a greater likelihood that acceptance of change could be enhanced to support adoption processes.

The process discussed will work to break down internal change resistance in individual organisations. In order for the process to work across the industry, the change management process should occur simultaneously in individual organisations across the industry. This requires thought leadership facilitated by ECR SA and industry leaders who are committed to the process.

7.4.5 Objectives and goals

Hogarth-Scott (1999) asserts that manufacturers and retailers bring different corporate objectives, cultures, history, mindsets and relationship priorities to retailer-supplier relationships. These differences make it difficult to build common objectives and goals in the industry.

A key starting point for the industry is the adoption of common measurement systems. Van Hock (2001) has stated that measurement systems contribute substantially to the formation and expansion of alliances in supply chains. Attempts to improve efficiency and productivity in supply chains require a movement away from internal benchmarks to inter-organisational measures. However, for this approach to work requires innovation in measurement and control systems and the forging of stronger relationships across the industry.

The usage of common measurement systems sets the platform for the alignment of objectives and goals. Once industry partners work off the same measures, they are more likely to work together to influence positive outcomes.

7.4.6 Systems and structure

The issues relating to systems and structure relate largely to the technology standards and coordination of the industry.

Shared information between supply chain partners can only be fully realised through process integration that relies heavily on common information systems (Christopher, 2000). The volume of data and competing technology platforms has inhibited the achievement of critical mass in information sharing. As a result, the sharing of information between suppliers and retailers has not occurred at the desired rate (Sherman, 1998).

Whilst it would be impractical for the industry to share a common information system application in the short term, greater cognisance needs to be taken regarding technology standards across the industry. It is the role of ECR SA and industry leaders to debate this issue and work towards a solution in a cost effective manner.

The structure issues in the industry relate largely to coordination and control. This indicates a lack of leadership in terms of management of the coordination and control elements. It is the role of industry leaders, ECR SA and other trade industry bodies to provide the framework for collaboration and control in the fast moving consumer goods environment.

7.5 Suggestions for further research

There are a number of areas in which further research would augment or refine the findings of this study.

Due to the fact that the survey was conducted on a small convenience sample, the barriers to the implementation of ECR should be explored and statistically tested using a larger sample size. The study could be extended to include other parties in the industry such as logistics or other third party support organisations. This will give a greater perspective across the industry.

Based on the low levels of reliability achieved on three of the six identified factors, the usage of a larger sample is recommended to provide greater clarity in the interpretation of the identified factors.

In order to gain further insight into some of the barriers identified, the following sub-problems are recommended for further research. These are discussed under the relevant headings.

7.5.1 Power and trust

It has been suggested that trust earning behaviour should be encouraged across the industry in order to promote ECR adoption. However, no clarity exists as to what these behaviours are.

The following sub-problems in relation to trust should be investigated in the industry:

- What are the trust earning behaviours that promote collaboration in the South African fast moving goods industry?
- Are there different trust earning behaviours required for different situational contexts?

In addition, it would be relevant to understand the differences between manufacturer and retailer perceptions relating to ECR. A relevant sub-problem would be:

- What are the factors that cause the difference between retailer and manufacturer perceptions in relation to power and trust?

7.5.2 Risk

As there are elements relating to financial risk being a barrier to ECR implementation, a greater understanding of the potential financial benefit generated by ECR is required for the industry. Whilst an estimate was made for the industry in 1999, a more quantifiable number is required for 2005 and beyond.

A relevant sub-problem in relation to the financial impact of ECR is:

- What are the potential savings generated by ECR across individual industry segments in the South African fast moving goods industry?

In relation to the concept of organisational risk being contextualised largely as top management support, a greater understanding is required of the levels of support that top management need to offer to their organisations?

A relevant sub-problem in relation to top management support would be:

- What are the behaviours that top management need to exhibit in order to support ECR implementation in South Africa?

REFERENCES

- Andaleeb, S. (1995): Dependence relations and the moderating role of trust: implications for behavioural intentions in marketing channels, *International Journal of Research in Marketing*, 12(2), 157-172.
- Anderson, J. & Narus, J. (1990): A model of distributor firm and manufacturer working partnerships, *Journal of Marketing*, 54(1), 42-58.
- Bamfield, J. (1994): Technological management learning, *International Journal of Retail & Distribution Management*, 22(11), 3-11.
- Bendixen, M. & Sandler, M. (1995): Converting Verbal Scales to Interval Scales Using Correspondence Analysis, *Management Dynamics: Contemporary Research*, 4(1), 32-50.
- Borchert, S. (2002): Implementation hurdles of ECR partnerships- the German food sector as an ECR case study, *International Journal of Retail & Distribution Management*, 30(7), 354-360.
- Borders, A. & Johnston, W. (2000): Electronically wiring the network: Efficient Consumer Response (ECR) Electronic data interchange and interdependence, *Advances in Competitiveness Research*, 8(1), 100-109.
- Bowersox, D., Closs, D., & Stank, T. (2000): Ten mega trends which will revolutionize supply chain logistics, *Journal of Business Logistics*, 21(2), 1-16.
- Brockman, K. & Morgan, R. (1999): The evolution of managerial innovations in distribution: what prospects for ECR, *International Journal of Retail & Distribution Management*, 27(10), 397-408.
- Brown, T. & Bukovinsky, D. (2001): ECR and Grocery Retailing: An Exploratory Financial Statement Analysis, *Journal of Business Logistics*, 22(2), 1-25.

- Christopher, M. (2000): The Agile Supply Chain. Competing in Volatile Markets, *Industrial Marketing Management*, 29(1), 37-44.
- Collins, R. (1997) Insights from industry ECR – breaking china in the US supermarket industry, *Supply Chain Management*, 2(3), 92-98.
- Collins, A. & Burt, S. (2003): Market sanctions, monitoring and vertical coordination within retailer-manufacturer relationships, *European Journal of Marketing*, 37(5), 668-689.
- Crawford, I. & Lomas, R. (1980): Factor Analysis - a tool for data reduction, *European Journal of Marketing*, 14(7), 414-421.
- Dapiran, G. & Hogarth-Scott, S. (2003): Are cooperation and trust being confused with power? An analysis of food retailing in Australia and the UK, *International Journal of Retail & Distribution Management*, 31(5), 256-267.
- Das, T. & Teng, B. (1998): Between trust and control: developing confidence in partner cooperation in alliances, *Academy of Management Review*, 23(3), 491-512.
- Doney, P. & Cannon, J. (1997): An examination of the nature of trust in buyer-seller relationships, *Journal of Marketing*, 61(2), 35-52.
- Dwyer, F., Schurr, P. & Oh, S. (1987): Developing buyer-seller relationships, *Journal of Marketing*, 51(2), 11-27.
- Dwyer, F. & Oh, S. (1988): A transaction cost perspective on vertical contractual structure and interchannel competitive strategies, *Journal of Marketing*, 52(2), 21-34.
- ECR Europe (1995): Executive Board Vision Statement, ECR Europe.
- ECR Europe (1997): The demand side: an executive interview, 2nd Official ECR Europe Conference, Amsterdam.
- ECR SA (2004): South African Grocery Industry Tracking Study, ECR SA.
- Fiorito, S., May, E. & Straughn, K. (1995): Quick response in retailing: components and implementation, *International Journal of Retail & Distribution Management*, 23(5), 12-21.

- Frankel, R., Goldsby, T. & Whipple, J. (2002): Grocery Industry Collaboration in the Wake of ECR, *International Journal of Logistics Management*, 13(1), 57-72.
- Gassenheimer, J., Calantone, R., Schmitz, J. & Robicheaux, R. (1994): Models of channel maintenance, what is the weaker party to do, *Journal of Business Research*, 30(3), 225-236.
- Gassenheimer, J., Calantone, R. & Scully, J. (1995): Supplier involvement and dealer satisfaction: implications for enhancing channel relationships, *Journal of Business & Industrial Marketing*, 10(2), 7-19.
- Gilmour, P. (1999): A Strategic Audit Framework to Improve Supply Chain Performance, *Journal of Business and Industrial Marketing*, 14(5), 355-363.
- Grönroos, C. (1996): Relationship marketing logic, *Asia-Australia Marketing Journal*, 4(1), 7-18.
- Hair, J., Anderson, R., Tatham, R. & Black, W. (1995): *Multivariate Data Analysis*, fourth edition, Englewood Cliffs, NJ: Prentice Hall.
- Harris, J., Swatman, P. & Kurnia, S. (1999): Efficient consumer response (ECR): a survey of the Australian Grocery Industry, *Supply Chain Management*, 4(1), 35-42.
- Hausman, A. (2001): Variations in relationship strength and its impact on performance and satisfaction in business relationships, *Journal of Business & Industrial Marketing*, 16(7), 600-616.
- Hawes, J., Mast, K. & Swan, J. (1989): Trust earning perceptions of sellers and buyers, *Journal of Personal Selling and Sales Management*, 9(1), 1-8.
- Heide, J. & Anne, S. (1992): The shadow of the future: effects of anticipated interaction and frequency of contact on buyer-seller cooperation, *Academy of Management Journal*, 35(2). 265-291.
- Heide, J. & John, G. (1992): Do Norms Matter In Marketing Relationships, *Journal of Marketing*, 56(2), 32-44.

Heide, J. (1994): Interorganizational Governance in Marketing Channels, *Journal of Marketing*, 58(1), 71-85.

Hintze, J. (1995): *NCSS 6.0.1 Statistical System for Windows User's Manual*, Kaysville: Number Cruncher Statistical Systems.

Hoban, T. (1998): Food Industry Innovation: Efficient Consumer Response, *Agribusiness*, 14(3), 235-245.

Hoffman, J. & Mehra, S. (2000): Efficient Consumer response as a supply chain strategy for grocery businesses, *International Journal of Service Industry Management*, 2(4), 365-373.

Hogarth- Scott, S. & Dapiran, G. (1997): Shifting category management relationships in the food distribution channels in the UK and Australia, *Management Decision*, 35(4), 310-318.

Hogarth-Scott, S. (1999): Retailer-supplier partnerships: hostages to fortune or the way forward for the new millennium, *British Food Journal*, 101(9), 668-682.

Huy, Q. & Mintzberg, H. (2003): What Creates Energy in Organisations, *Sloan Management Review*, 44(6), 79-84.

Hwang, P. & Burgers, W. (1997): Properties and trust: an analytical view, *Organisational Behaviour & Human Decision Processes*, 69(1), 67-73.

Illingworth, V. (2003): Collaboration: no guts, no glory, *Initiative: News from the Interface*, 001-008.

Ivens, B. (2004): How relevant are different forms of relational behaviour? An empirical test based on Macneil's exchange framework, *Journal of Business & Industrial Marketing*, 19(5), 300-309.

Kanter, R., Stein, B. & Jick, T. (1992): *The Challenge of Organisational Change*, Free Press, New York, N.Y.

- Kanter, R. (1994): Collaborative advantage: the art of alliances, *Harvard Business Review*, 72(4), 96-108.
- King, R. & Phumpiu, P. (1996): Reengineering the food supply chain: the ECR initiative in the grocery industry, *American Journal of Agricultural Economy*, 78(5), 1181-1186.
- Knights, D., Nobel, F., Vurdbakia, T., & Willmott, H. (2001): Chasing shadows: control, virtuality and the production of trust, *Organization Studies*, 22(2), 311-336.
- Kracklauer, A., Passenheim, O. & Seifert, D. (2001): Mutual customer approach: how industry and trade are executing collaborative customer relationship management, *International Journal of Retail & Distribution Management*, 29(12), 515-519.
- Kulp, S., Lee, H. & Ofek, E. (2004): Manufacturer benefits from Information Integration with Retail Customers, *Management Science*, 50(4), 431-444.
- Kumar, N. (1996): The power of trust in manufacturer retailer relationships, *Harvard Business Review*, 74(6), 92-106.
- Kurnia, S. & Johnston, R. (2001): Adoption of efficient consumer response: the issue of mutuality, *Supply Chain Management: An International Journal*, 6(5), 230-241.
- Kurnia, S. & Johnston, R. (2003): Adoption of efficient consumer response: key issues and challenges in Australia, *Supply Chain Management: An International Journal*, 8(3), 251-262.
- Kurt Salmon Associates (1993): Efficient Consumer Response: Enhancing Consumer Value in the Grocery Industry, Food Marketing Institute, Washington DC.
- La Londe, B. & Pohlen, T. (1996): Issues in Supply Chain Costing, *International Journal of Logistics Management*, 7(1), 1-12.
- Lambert, D., Cooper M. & Pagh, J. (1998): Supply Chain Management: Implementation Issues and Research Opportunities, *The International Journal of Logistics Management*, 9(2), 1-19.

- Lee, H. & Billington, C. (1992): Managing Supply Chain Inventory: Pitfalls and Opportunities, *Sloan Management Review*, 33(3), 65-73.
- Leedy, P. & Ormrod, J. (2001): *Practical Research: Planning and Design*, seventh edition, Upper Saddle River: Merrill Prentice Hall.
- Macadam, C. (1996): Addressing the barriers of managing change, *Management Development Review*, 9(3), 38-40.
- Malhorta, N. (1996): *Factor Analysis, Marketing research: An Applied Orientation*, 2nd Edition, Upper Saddle River: Prentice Hall, 643-669.
- Mathews, R. (1997): ECR: more promise than performance, *Progressive Grocer Annual Report*, 18-24.
- Mayer, R., Davis, H. & Schoorman, F. (1995): An integrative model of organisational trust, *Academy of Management Review*, 20(3), 709-734.
- McDonald, F. (1999): The importance of power in partnership relationships, *Journal of General Management*, 25(1), 43-59.
- Mclaughlin, E., Perosio, D. & Park, J. (1998): Retail logistics and merchandising in the USA: current status and requirements in the year 2000, *International Journal of Retail and Distribution Management*, 26(2), 97-105.
- Morgan, R. & Hunt, S. (1994): The Commitment-Trust Theory of Relationship Marketing, *Journal of Marketing*, 58(3), 20-38.
- Nahapiet, J. & Ghoshal, S. (1998): Social capital, intellectual capital, and the organisational advantage, *Academy of Management Review*, 23(2), 242-266.
- Pearce, T. (1997): Lessons learned from the Birds Eye Wall's ECR initiative, *Supply Chain Management*, 2(3), 99-106.
- Peterson, R. (1994): A Meta- Analysis of Cronbach's Coefficient Alpha, *Journal of Consumer Research*, 21(2), 381-391.

- Reed, M. (2001): Organization, trust and control: a realist analysis, *Organization Studies*, 22(2), 201-228.
- Robins, G. (1994): Sailing into ECR's uncharted waters, *Stores*, 76(10), 43-44.
- Sherman, R. (1998): Collaborative planning, forecasting and replenishment (CPFR): Realizing the promise of Efficient Consumer Response through collaborative technology, *Journal of Marketing Theory and Practise*, 6(4), 6-9.
- Slywotzky, A. (2004): Exploring the strategic risk frontier, *Strategy & Leadership*, 32(6), 11-19.
- Smallman, C. (1996): Risk and organizational behaviour: a research model, *Disaster Prevention and Management*, 5(2), 12-26.
- Sparks, L. & Wagner, B. (2003): Retail exchanges: a research agenda, *Supply Chain Management: An International Journal*, 8(3), 201-208.
- Stank, T., Keller, S. & Daugherty, P. (2001): Supply chain collaboration and logistical service performance, *Journal of Business Logistics*, 22(1), 29-48.
- Stock, G., Greis, N. & Kasarda, J. (1998): Logistics, strategy and structure: A conceptual framework, *International Journal of Operations & Production Management*, 18(1), 37-52.
- Svensson, G. (2002): A firm's driving force to implement and incorporate a business philosophy into its current business activities: the case of ECR, *European Business Review*, 14(1), 20-29.
- Szymankiewicz, J. (1997): Efficient consumer response, supply chain management for the new millennium, *Logistics Focus*, 5(9), 16-22.
- Van de Ven, A. (1986): Central Problems in the Management of Innovation, *Management Science*, 32(5), 590-608.

Van Hock, R. (2001): The contribution of performance measurement to the expansion of third-party logistics in the supply chain, *International Journal of Operations & Production Management*, 21(1), 15-21.

Van Hoek, R. (1998): Measuring the Unmeasurable- Measuring and Improving Performance in the Supply Chain, *Supply Chain Management*, 3(4), 187-192.

Wagner, B., Macbeth, D. & Boddy, D. (2002): Improving Supply Chain Relations, *Supply Chain Management: An International Journal*, 7(4), 253-264.

Walter, R., Ritter, T. & Gemeuenden, H. (2001): Value creation in buyer-seller relationships: theoretical considerations and empirical results from a supplier's perspective, *Industrial Marketing Management*, 30(4), 365-377.

Welgenbach, P. (2001): The production of distrust by means of producing trust, *Organisation Studies*, 22(4), 693-714.

Wolfe, R. (1994): Organizational innovations: review, critique and suggested research directions, *Journal of Management Studies*, 31(3), 405-431.

Zaheer, A., McEvily, B. & Peronne, V. (1998): Does trust matter? Exploring the effects of inter-organisational and interpersonal trust on performance, *Organisation Science*, 9(2), 141-159.

Zairi, M. (1998): Best Practise in supply chain management: the experience of the retail sector, *European Journal of Innovation Management*, 1(2), 59-66.

Zineldin, M. (1998): Towards an ecological collaborative relationship management, *European Journal of Marketing*, 32(11), 1138-1164.

Zineldin, M. & Jonnson, P. (2003): Achieving high satisfaction in supplier-dealer working relationships, *Supply Chain Management: An International Journal*, 8(3), 224-240.

APPENDIX A: Discussion outline

Name	
Position	
Company	
Date	

Part 1

The table below highlights identified barriers to Efficient Consumer Response implementation in certain countries. Please confirm whether or not you feel that the following identified barriers are relevant to ECR implementation in South Africa.

Identified Barrier	Confirmation(Yes/ No)
Understanding of the concepts	
Objectives and goals between manufacturers and retailers	
Power imbalance between manufacturers and retailers	
Trust between manufacturers and retailers	
Commitment between manufacturers and retailers	
Acceptance of change	
Top management support	
Unrealistic expectations regarding ECR	
Industry coordination	
Cost	
Technology	

Part 2

Do you feel that there are additional barriers which could be considered?

Additional factors to be considered	Elaborate

Part 3

Do you think that manufacturers and retailers have different perceptions to ECR? Yes/ No

Part 4

Is there any industry language or jargon which could help to articulate these terms?

Barrier 1: Understanding of the concepts

Statements

Barrier 2: Objectives and goals between manufacturers and retailers

Statements

Barrier 3: Power imbalance between manufacturers and retailers

Statements

Barrier 4: Commitment between manufacturers and retailers

Statements

Barrier 5: Trust between manufacturers and retailers

Statements

Barrier 6: Acceptance of change

Statements

Barrier 7: Top management support

Statements

Barrier 8: Unrealistic expectations regarding ECR

Statements

Barrier 9: Industry coordination and standardisation

Statements

Barrier 10: Cost

Statements

Barrier 11: Technology

Statements

Part 5

Please indicate relevant statements as per Part 2 above.

Unidentified factor	Statements

APPENDIX B: Survey outline

The Wits Business School

2 St David's Place, Parktown, Johannesburg, 2193, South Africa
PO Box 98, WITS, 2050
Telephone: +27 11 717 3600, Facsimile: + 27 11 643 2336
Website: <http://wbs.mgmt.wits.ac.za>



October 2004



University of the
Witwatersrand

Dear Respondent

I am a MBA student at the University of the Witwatersrand Business School. The following questionnaire forms part of the research I am conducting on the factors that are likely to support or inhibit the implementation of Efficient Consumer Response in South Africa.

The questionnaire takes a maximum of only 15 minutes to complete. Your input on this would be highly appreciated. All responses will be completely anonymous and confidential.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Craig Manning'.

Craig Manning
MBA Student
Wits Business School

I confirm that Craig Manning is a bona fide MBA student at the Wits Business School and is conducting this research under my supervision.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Dr Anthony Stacey'.

Dr Anthony Stacey
Senior Lecturer- Analytical Methods
Faculty of Commerce, Law and Management
Graduate School of Business Administration
University of the Witwatersrand

Please complete ALL sections of the questionnaire following the instructions carefully

Section A- Professional Details

Please complete the section and use an X to mark the appropriate box.

	Supplier	Retailer	Other- Please specify in box below
I work for :			

	Junior Management	Middle Management	Senior Management
Level in your organisation			

	0-10 years	10-20 years	> 20 years
Years in Industry			

	< R100 million	R100-R500 Million	R500million – R1 billion	R1 – R 5 Billion	> R5 Billion
Turnover of Company in South Africa					

	Financial	Logistics	Information Technology	Health and Beauty Category Buyer/Seller	Food / Household Category Buyer or seller	Retail Operations	Supplier Operations
Principal Area of work							

Section 2 - Statements

Please complete this section after reading the following instructions:

- 1) Please indicate to what extent you agree or disagree with the following statements, as possible reasons for you to have supported or not supported the implementation of ECR.
- 2) In order to indicate to what extent you agree or disagree with each statement, please mark the appropriate box as shown in the example below.

Example Statement:

	Very unlikely to support ECR processes	Not likely to support ECR processes	Neither agree nor disagree	Likely to support ECR processes	Very likely to support ECR processes
I am likely to support ECR processes as It makes me feel important				X	

Thus in the above example, the respondent **agrees** that he /she is likely to support ECR processes based on the fact that it makes him/her feel important.

Statements:

Please indicate to what extent you agree or disagree with the following statements, as possible reasons for you to have supported or not supported the implementation of ECR.

	Very unlikely to support ECR processes	Not likely to support ECR processes	Neither agree nor disagree	Likely to support ECR processes	Very likely to support ECR processes
1.I believe that ECR processes are very complex.					
2.I feel that I have the relevant skills base.					
3.My trading partners do not have the relevant skills.					
4.The processes required for ECR are not intimidating.					
5.I do not understand the elements relating to ECR.					
6.My organisation does not share objectives and goals with our trading partners.					
7.I believe in the scorecarding processes required of ECR.					
8.I do not believe in joint business planning.					
9.My organisation sets common goals with our trading partners.					
10.My interests differ vastly from my trading partners.					
11.My organisation is able to exert power over my trading partners and therefore we do not need to implement ECR.					
12.My trading partners exert power over me and I do not like to operate under those conditions.					
13.There is a general power imbalance between retailers and manufacturers.					
14.I do not like to be told what to do.					
15.My organisation is forced into ECR processes against our will.					

	Very unlikely to support ECR processes	Not likely to support ECR processes	Neither agree nor disagree	Likely to support ECR processes	Very likely to support ECR processes
16.ECR processes are expensive.					
17.My organisation will bear the burden of ECR implementation costs.					
18.My partners will see more of the benefits.					
19.I have the funding resources required for ECR.					
20.The costs justify the benefits of ECR.					
21.I am not committed to relationships with my trading partners.					
22.My relationships are short term focussed.					
23.I believe that retailers and manufacturers should not collaborate.					
24.My relationships are largely trading focussed.					
25.I do not have the opportunity to form relationships with trading partners as people are constantly changing roles					
26.I trust my trading partners.					
27.My trading partners do not trust me.					
28.ECR processes will make me less competitive.					
29.The information shared with my trading partners will be shared with my competitors.					
30.There is a lack of transparency in the industry.					
31.My company does not like to implement new ideas.					
32.I do not like to change my work behaviours.					
33. My organisation is inflexible.					

	Very unlikely to support ECR processes	Not likely to support ECR processes	Neither agree nor disagree	Likely to support ECR processes	Very likely to support ECR processes
34.I believe that involvement in ECR processes will affect my job security.					
35.I feel that the old habits of the South African trading environment are difficult to change.					
36.Top management in my organisation is supportive of the process.					
37.There is a lack of leadership relating to ECR in my organisation.					
38.My management shares the outcomes of ECR conferences.					
39.Top management does not supply me with the resources required for ECR implementation.					
40.My management measures do not conflict with the requirements of ECR processes.					
41.The IT systems in my company do not match with other IT systems.					
42.There is a lack of technology standards in the industry.					
43.My organisation has the relevant technology.					
44.My trading partners do not have the relevant technology.					
45.The processes in my organisation are largely paper based.					
46.The goals of ECR are unattainable.					
47.I believe that ECR will achieve the desired benefits.					
48.I feel that there are unrealistic expectations regarding ECR.					
49.I can easily quantify the financial benefits and savings.					
50.ECR processes will not deliver the benefits to consumers.					
51.I believe that there is a lack of coordination in the industry.					

	Very unlikely to support ECR processes	Not likely to support ECR processes	Neither agree nor disagree	Likely to support ECR processes	Very likely to support ECR processes
52.The ECR industry body is unable to control the actions of the industry.					
53.I believe that there are standardised measures to report performance.					
54.There is a lack of interaction across partners in the industry.					
55. There are sufficient ECR workshops during the course of the year.					

Thank you very much for your assistance.

APPENDIX C: Rescaling of the Likert scale

Correspondence analysis was used to rescale the rating data of the 55 statements from ordinal data to interval level data.

The rescaling procedure as per Bendixen & Sandler (1995) consisted of the following:

- calculation of the Euclidean distance between the scale points;
- rescaling these distances across the intended length of the five point scale;
- recalculating the numerical values of the scale points.

The distances between the scale points were examined in standard co-ordinate format.

This entailed converting the principal co-ordinates into standard co-ordinates. This transformation was achieved by dividing the each principal co-ordinate by the square root of the eigenvalue associated with the relevant axis.

The Euclidean distance between the two points was calculated using the following formula:

$$d_{12} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

where: d_{12} = the distance between points 1 and 2.

x_1, x_2 = the x-axis co-ordinates of points 1 and 2.

y_1, y_2 = the y-axis co-ordinates of points 1 and 2.

The output from the calculations is shown in the following section.

Eigenvalue Section

Factor No.	Eigenvalue	Individual Percent	Cumulative Percent	Bar Chart
1	0.365114	60.76	60.76	
2	0.155401	25.86	86.62	
3	0.080399	13.38	100	
Total	0.600915			

Plot Detail Section for Columns

Name	Quality	Mass	Inertia	Factor	Axis1 COR	CTR	Factor	Axis2 COR	CTR
1 I	0.919	0.114	0.314	0.998	0.601	0.31	-0.726	0.318	0.386
2 II	0.76	0.313	0.209	0.51	0.65	0.223	0.21	0.11	0.089
3 III	0.733	0.397	0.152	-0.301	0.394	0.099	0.28	0.34	0.2
4 IVandV	0.946	0.176	0.325	-0.874	0.687	0.368	-0.536	0.259	0.325
		Δx	Δy	$\Delta x^2/\epsilon_1$	$\Delta y^2/\epsilon_2$		Rescaled		
I	1						1		
II	2	0.488	-0.936	0.652	5.638	2.507966	2.462677		
III	3	0.811	-0.07	4.232	0.061	2.072042	3.671118		
IV	4	0.573	0.816	4.084	1.108	2.278555	5		
V	5						5		
						6.858563			

APPENDIX D: Factor report including “power and trust”

Factor Analysis Report

Page/Date/Time

1 2005-01-28 10:10:01

Database

C:\Documents and Settings\St ... anning\Rescaled Responses.S0

Eigenvalues after Varimax Rotation		Individual	Cumulative	
No.	Eigenvalue	Percent	Percent	Scree Plot
1	4.952873	26.13	26.13	
2	3.198868	16.87	43	
3	2.723592	14.37	57.37	
4	2.946672	15.54	72.91	
5	3.487192	18.4	91.31	
6	1.636281	8.63	99.94	
7	1.548447	8.17	108.11	
8	1.165767	6.15	114.26	
9	1.028438	5.43	119.68	
10	0.882718	4.66	124.34	
11	0.793347	4.18	128.52	
12	0.593742	3.13	131.66	
13	0.540698	2.85	134.51	
14	0.444128	2.34	136.85	
15	0.400475	2.11	138.96	
16	0.319418	1.68	140.65	
17	0.297807	1.57	142.22	
18	0.17858	0.94	143.16	
19	0.086619	0.46	143.62	
20	0.015113	0.08	143.7	
21	0.000742	0	143.7	
22	-0.051478	-0.27	143.43	
23	-0.0721	-0.38	143.05	
24	-0.095508	-0.5	142.55	
25	-0.103691	-0.55	142	
26	-0.151236	-0.8	141.2	
27	-0.189246	-1	140.2	
28	-0.258645	-1.36	138.84	
29	-0.265036	-1.4	137.44	
30	-0.28372	-1.5	135.94	
31	-0.314811	-1.66	134.28	
32	-0.341172	-1.8	132.48	
33	-0.353285	-1.86	130.62	
34	-0.369652	-1.95	128.67	
35	-0.381019	-2.01	126.66	
36	-0.38624	-2.04	124.62	
37	-0.423085	-2.23	122.39	
38	-0.429074	-2.26	120.13	
39	-0.454474	-2.4	117.73	
40	-0.493178	-2.6	115.13	
41	-0.516455	-2.72	112.4	
42	-0.529258	-2.79	109.61	
43	-0.565063	-2.98	106.63	
44	-0.603198	-3.18	103.45	
45	-0.653925	-3.45	100	

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Factor Loadings after Varimax Rotation
Factors

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex	-0.31068	-0.518439	-0.445297	0.004742	-0.131373
Undstd_Skills	0.049758	-0.23805	-0.316231	-0.061109	-0.019465
Undstd_Ptr_Skills	-0.09133	-0.333645	0.046182	0.099198	0.102515
Undstd_Simple	-0.000294	-0.599851	0.052738	-0.006611	0.007595
Undstd_Concepts	-0.220379	0.239358	-0.364548	0.237354	0.316308
Obj_Openess	-0.100969	0.305752	-0.109677	0.117388	0.718665
Obj_Scorecarding	-0.095954	0.309269	-0.382599	0.108596	-0.18304
Obj_JB_Planning	0.021329	0.382865	-0.173619	0.10058	0.463635
Obj_Goals	0.013215	0.279402	-0.346083	-0.341857	-0.085158
Obj_Interests	0.024913	-0.148343	0.046922	0.044903	0.475254
Pwr_Dependency	-0.447751	0.404015	0.098198	-0.035015	0.286736
Pwr_Resistance1	-0.553034	0.032956	-0.015361	-0.040176	0.153893
Pwr_Imbalance	-0.564986	-0.410736	-0.068574	0.058006	0.026
Pwr_Resistance_2	-0.582605	0.098061	0.311674	-0.039928	0.29421
Pwr_Coercion	-0.439616	0.163759	0.301621	-0.101127	0.342484
Costs_Expensive	-0.399485	0.039807	-0.012943	0.059678	0.047561
Costs_Burden	-0.280003	-0.469175	-0.325131	-0.099637	-0.128603
Costs_Gr_Ptr_ben	-0.520361	-0.270217	-0.218963	-0.126915	-0.155502
Costs_resources	0.164439	-0.128159	-0.472579	-0.008017	-0.009818
Costs_Justific	0.03591	-0.090392	-0.473514	-0.110487	-0.2845
Comtnt_relain	-0.255526	0.352266	-0.12838	-0.027871	0.542726
Comtnt_Short_trm	-0.114913	0.049558	-0.384117	0.060159	-0.000446
Comtnt_collab	-0.156793	0.659091	-0.05015	0.105324	0.207918
Comtnt_Trading	-0.34238	0.029151	0.101187	0.065184	0.055581
Comtnt_role_chang	-0.173985	0.442413	0.210836	-0.093463	0.359114
Trust_Partners	0.423575	-0.128861	-0.016047	-0.382422	0.31824
Trust_Lack_ptr	-0.703257	-0.057013	0.016371	0.223822	-0.010765
Trust_Competition	-0.604577	0.10466	-0.269508	0.179614	0.095082
Trust_Info	-0.60027	0.04392	0.02282	0.111747	-0.126524
Trust_Transpar	-0.637252	-0.190646	-0.110271	0.190657	-0.209947
Change_New_Ideas	0.001026	-0.016022	0.250705	0.214151	0.531481
Change_Work_Behav	0.012072	0.057782	0.074857	0.013582	0.590401
Change_Inflex	-0.111142	-0.330897	0.033681	-0.003742	0.54788
Change_Job_secur	-0.451415	0.010922	0.514561	-0.187131	0.209179
Change_Old_Habits	-0.446479	-0.308279	-0.305617	0.231683	0.258066
Top_Mgmt_Support	0.026352	-0.181849	-0.04233	-0.575587	0.117114
Top_Mgmt_Leader	-0.171092	-0.264773	0.057164	0.332914	0.124897
Top_Mgmt_Outcome	-0.030261	0.103456	-0.220181	-0.210659	0.234248
Top_Mgmt_Resource	-0.443325	-0.129414	0.087285	0.176632	0.135567
Top_Mgmt_Measures	-0.252293	0.038087	0.180343	-0.27212	-0.044543
IT_Ccompatibility	-0.161949	0.12386	-0.112499	0.755019	0.179173
IT_Standards	-0.263494	-0.126814	-0.205023	0.842909	-0.010752
IT_Relevant_tech	0.04863	0.13866	-0.506006	0.025183	0.193041
IT_Partner_tech	-0.0876	-0.016696	0.001827	0.497448	0.083635

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Factor Loadings after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
IT_Paper_Based	-0.110079	-0.050677	0.183408	0.318065	0.251944
Communalities after Varimax Rotation					

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex	0.096522	0.268779	0.198289	0.000022	0.017259
Undstd_Skills	0.002476	0.056668	0.100002	0.003734	0.000379
Undstd_Ptr_Skills	0.008341	0.111319	0.002133	0.00984	0.010509
Undstd_Simple	0	0.359821	0.002781	0.000044	0.000058
Undstd_Concepts	0.048567	0.057292	0.132895	0.056337	0.100051
Obj_Openess	0.010195	0.093484	0.012029	0.01378	0.51648
Obj_Scorecarding	0.009207	0.095647	0.146382	0.011793	0.033503
Obj_JB_Planning	0.000455	0.146586	0.030144	0.010116	0.214957
Obj_Goals	0.000175	0.078066	0.119774	0.116866	0.007252
Obj_Interests	0.000621	0.022006	0.002202	0.002016	0.225866
Pwr_Dependency	0.200481	0.163228	0.009643	0.001226	0.082218
Pwr_Resistance1	0.305847	0.001086	0.000236	0.001614	0.023683
Pwr_Imbalance	0.319209	0.168704	0.004702	0.003365	0.000676
Pwr_Resistance_2	0.339429	0.009616	0.097141	0.001594	0.086559
Pwr_Coercion	0.193262	0.026817	0.090975	0.010227	0.117295
Costs_Expensive	0.159588	0.001585	0.000168	0.003561	0.002262
Costs_Burden	0.078402	0.220125	0.10571	0.009928	0.016539
Costs_Gr_Ptr_ben	0.270775	0.073017	0.047945	0.016107	0.024181
Costs_resources	0.02704	0.016425	0.223331	0.000064	0.000096
Costs_Justific	0.00129	0.008171	0.224215	0.012207	0.08094
Comtnt_relain	0.065294	0.124091	0.016481	0.000777	0.294551
Comtnt_Short_trm	0.013205	0.002456	0.147546	0.003619	0
Comtnt_collab	0.024584	0.434401	0.002515	0.011093	0.04323
Comtnt_Trading	0.117224	0.00085	0.010239	0.004249	0.003089
Comtnt_role_chang	0.030271	0.195729	0.044452	0.008735	0.128963
Trust_Partners	0.179416	0.016605	0.000258	0.146246	0.101277
Trust_Lack_ptr	0.49457	0.00325	0.000268	0.050096	0.000116
Trust_Competition	0.365513	0.010954	0.072635	0.032261	0.009041
Trust_Info	0.360324	0.001929	0.000521	0.012487	0.016008
Trust_Transpar	0.406091	0.036346	0.01216	0.03635	0.044078
Change_New_Ideas	0.000001	0.000257	0.062853	0.045861	0.282472
Change_Work_Behav	0.000146	0.003339	0.005604	0.000184	0.348573
Change_Inflex	0.012353	0.109493	0.001134	0.000014	0.300172
Change_Job_secur	0.203775	0.000119	0.264773	0.035018	0.043756
Change_Old_Habits	0.199344	0.095036	0.093401	0.053677	0.066598
Top_Mgmt_Support	0.000694	0.033069	0.001792	0.3313	0.013716
Top_Mgmt_Leader	0.029272	0.070105	0.003268	0.110832	0.015599
Top_Mgmt_Outcome	0.000916	0.010703	0.04848	0.044377	0.054872
Top_Mgmt_Resource	0.196537	0.016748	0.007619	0.031199	0.018378
Top_Mgmt_Measures	0.063652	0.001451	0.032524	0.074049	0.001984
IT_Ccompatibility	0.026228	0.015341	0.012656	0.570053	0.032103
IT_Standards	0.069429	0.016082	0.042034	0.710496	0.000116
IT_Relevant_tech	0.002365	0.019227	0.256042	0.000634	0.037265
IT_Partner_tech	0.007674	0.000279	0.000003	0.247454	0.006995

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**Communalities after Varimax Rotation
Factors**

Variables	Communality
Undstd_Complex	0.580872
Undstd_Skills	0.163259
Undstd_Ptr_Skills	0.142143
Undstd_Simple	0.362704
Undstd_Concepts	0.395143
Obj_Openess	0.645968
Obj_Scorecarding	0.296533
Obj_JB_Planning	0.402258
Obj_Goals	0.322132
Obj_Interests	0.25271
Pwr_Dependency	0.456795
Pwr_Resistance1	0.332466
Pwr_Imbalance	0.496657
Pwr_Resistance_2	0.534339
Pwr_Coercion	0.438577
Costs_Expensive	0.167164
Costs_Burden	0.430703
Costs_Gr_Ptr_ben	0.432026
Costs_resources	0.266957
Costs_Justific	0.326823
Comtnt_reltn	0.501194
Comtnt_Short_trm	0.166826
Comtnt_collab	0.515823
Comtnt_Trading	0.135651
Comtnt_role_chang	0.40815
Trust_Partners	0.443802
Trust_Lack_ptr	0.548301
Trust_Competition	0.490403
Trust_Info	0.39127
Trust_Transpar	0.535024
Change_New_Ideas	0.391444
Change_Work_Behav	0.357846
Change_Inflex	0.423166
Change_Job_secur	0.547441
Change_Old_Habits	0.508056
Top_Mgmt_Support	0.380571
Top_Mgmt_Leader	0.229076
Top_Mgmt_Outcome	0.159348
Top_Mgmt_Resource	0.270481
Top_Mgmt_Measures	0.173659
IT_Ccompatibility	0.656381
IT_Standards	0.838157
IT_Relevant_tech	0.315532
IT_Partner_tech	0.262405

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Communalities after Varimax Rotation

Variables

Factor1

Factor2

Factor3

Factor4

Factor5

IT_Paper_Based

0.012117

0.002568

0.033638

0.101165

0.063476

Communalities after Varimax Rotation

Variables

Communality

IT_Paper_Based

0.212965

Bar Chart of Communalities after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex					
Undstd_Skills					
Undstd_Ptr_Skills					
Undstd_Simple					
Undstd_Concepts					
Obj_Openess					
Obj_Scorecarding					
Obj_JB_Planning					
Obj_Goals					
Obj_Interests					
Pwr_Dependency					
Pwr_Resistance1					
Pwr_Imbalance					
Pwr_Resistance_2					
Pwr_Coercion					
Costs_Expensive					
Costs_Burden					
Costs_Gr_Ptr_ben					
Costs_resources					
Costs_Justific					
Comtnt_relain					
Comtnt_Short_trm					
Comtnt_collab					
Comtnt_Trading					
Comtnt_role_chang					
Trust_Partners					
Trust_Lack_ptr					
Trust_Competition					
Trust_Info					
Trust_Transpar					
Change_New_Ideas					
Change_Work_Behav					
Change_Inflex					
Change_Job_secur					
Change_Old_Habits					
Top_Mgmt_Support					
Top_Mgmt_Leader					
Top_Mgmt_Outcome					
Top_Mgmt_Resource					
Top_Mgmt_Measures					
IT_Ccompatibility					
IT_Standards					
IT_Relevant_tech					
IT_Partner_tech					

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**Bar Chart of Communalities after Varimax Rotation
Factors**

Variables	Communality
Undstd_Complex	
Undstd_Skills	
Undstd_Ptr_Skills	
Undstd_Simple	
Undstd_Concepts	
Obj_Openess	
Obj_Scorecarding	
Obj_JB_Planning	
Obj_Goals	
Obj_Interests	
Pwr_Dependency	
Pwr_Resistance1	
Pwr_Imbalance	
Pwr_Resistance_2	
Pwr_Coercion	
Costs_Expensive	
Costs_Burden	
Costs_Gr_Ptr_ben	
Costs_resources	
Costs_Justific	
Comtnt_reltn	
Comtnt_Short_trm	
Comtnt_collab	
Comtnt_Trading	
Comtnt_role_chang	
Trust_Partners	
Trust_Lack_ptr	
Trust_Competition	
Trust_Info	
Trust_Transpar	
Change_New_Ideas	
Change_Work_Behav	
Change_Inflex	
Change_Job_secur	
Change_Old_Habits	
Top_Mgmt_Support	
Top_Mgmt_Leader	
Top_Mgmt_Outcome	
Top_Mgmt_Resource	
Top_Mgmt_Measures	
IT_Ccompatibility	
IT_Standards	
IT_Relevant_tech	
IT_Partner_tech	

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Bar Chart of Communalities after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
IT_Paper_Based					

Bar Chart of Communalities after Varimax Rotation

Variables	Communality
IT_Paper_Based	

Factor Structure Summary after Varimax Rotation

Factor1	Factor2	Factor3	Factor4	Factor5
Trust_Lack_ptr	Comtnt_collab	Change_Job_secur	IT_Standards	Obj_Openess
Trust_Transpar	Undstd_Simple	IT_Relevant_tech	IT_Ccompatibility	Change_Work_Behav
Trust_Competition	Undstd_Complex	Costs_Justific	Top_Mgmt_Support	Change_Inflex
Trust_Info	Costs_Burden	Costs_resources	IT_Partner_tech	Comtnt_relaln
Pwr_Resistance_2	Comtnt_role_chang	Undstd_Complex		Change_New_Ideas
Pwr_Imbalance	Pwr_Imbalance			Obj_Interests
Pwr_Resistance1	Pwr_Dependency			Obj_JB_Planning
Costs_Gr_Ptr_ben				
Change_Job_secur				
Pwr_Dependency				
Change_Old_Habits				
Top_Mgmt_Resource				
Pwr_Coercion				
Trust_Partners				

APPENDIX E: Unrotated factor scores

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Eigenvalues

No.	Eigenvalue	Individual Percent	Cumulative Percent	Scree Plot
1	4.670625	25.58	25.58	
2	4.544339	24.89	50.47	
3	2.643022	14.47	64.94	
4	2.511555	13.75	78.69	
5	2.174856	11.91	90.6	
6	1.368917	7.5	98.1	
7	1.361737	7.46	105.56	
8	1.145827	6.28	111.83	
9	1.119007	6.13	117.96	
10	1.058721	5.8	123.76	
11	0.852949	4.67	128.43	
12	0.735067	4.03	132.46	
13	0.584725	3.2	135.66	
14	0.549425	3.01	138.67	
15	0.45928	2.52	141.18	
16	0.331638	1.82	143	
17	0.254666	1.39	144.39	
18	0.176237	0.97	145.36	
19	0.146983	0.8	146.16	
20	0.07804	0.43	146.59	
21	0.037141	0.2	146.8	
22	-0.002016	-0.01	146.78	
23	-0.040022	-0.22	146.57	
24	-0.087321	-0.48	146.09	
25	-0.123402	-0.68	145.41	
26	-0.131126	-0.72	144.69	
27	-0.16087	-0.88	143.81	
28	-0.235337	-1.29	142.52	
29	-0.251828	-1.38	141.14	
30	-0.297581	-1.63	139.51	
31	-0.313818	-1.72	137.8	
32	-0.355238	-1.95	135.85	
33	-0.408961	-2.24	133.61	
34	-0.427456	-2.34	131.27	
35	-0.443216	-2.43	128.84	
36	-0.454638	-2.49	126.35	
37	-0.457351	-2.5	123.85	
38	-0.468242	-2.56	121.28	
39	-0.486841	-2.67	118.62	
40	-0.523432	-2.87	115.75	
41	-0.528597	-2.89	112.86	
42	-0.565759	-3.1	109.76	
43	-0.574719	-3.15	106.61	
44	-0.586475	-3.21	103.4	
45	-0.620557	-3.4	100	

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Factor Loadings

Factors

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex	0.147254	-0.725134	-0.19406	0.177516	-0.132469
Undstd_Skills	0.0455	-0.269339	0.104247	0.130209	-0.184723
Undstd_Ptr_Skills	-0.13448	-0.290751	-0.004436	-0.235307	-0.16064
Undstd_Simple	0.172586	-0.400072	-0.193101	-0.271702	0.151135
Undstd_Concepts	-0.478599	-0.084192	-0.164274	0.391497	-0.155622
Obj_Openess	-0.588855	0.243401	-0.363685	0.314403	0.002495
Obj_Scorecarding	-0.054315	-0.039426	0.175695	0.475793	-0.042996
Obj_JB_Planning	-0.479323	0.256578	0.04565	0.256304	-0.059913
Obj_Goals	0.19348	0.152157	0.015914	0.447222	-0.224789
Obj_Interests	-0.267084	-0.004394	-0.306059	-0.067206	0.023688
Costs_Expensive	-0.273873	-0.117055	0.214257	-0.103755	-0.343563
Costs_Burden	0.13806	-0.611363	-0.070153	0.050029	-0.302586
Costs_Gr_Ptr_ben	0.128681	-0.430185	-0.183589	0.095019	-0.1836
Costs_resources	0.122519	-0.30838	0.038219	0.396061	0.019858
Costs_Justific	0.265215	-0.281462	0.18575	0.366408	-0.139336
Comtnt_relain	-0.532322	0.27562	-0.096369	0.172448	-0.346361
Comtnt_Short_trm	-0.110275	-0.099988	0.228758	0.267301	-0.114838
Comtnt_collab	-0.441474	0.439813	0.205612	0.266309	-0.236099
Comtnt_Trading	-0.302061	-0.081864	0.252782	-0.230491	-0.318312
Comtnt_role_chang	-0.394465	0.44248	0.109931	-0.028057	-0.224936
Change_New_Ideas	-0.444542	0.152403	-0.621943	-0.158968	0.152307
Change_Work_Behav	-0.382387	0.175774	-0.57734	0.030941	-0.068879
Change_Inflex	-0.343914	-0.150068	-0.426491	-0.161716	-0.166215
Change_Job_secur	-0.129968	0.173553	-0.285431	-0.427843	-0.170211
Change_Old_Habits	-0.43086	-0.508808	-0.130773	0.049983	-0.191585
Top_Mgmt_Support	0.272639	0.065078	-0.210357	-0.036562	-0.383523
Top_Mgmt_Leader	-0.432263	-0.375458	0.205438	-0.297189	-0.091424
Top_Mgmt_Outcome	0.001566	0.057968	-0.203253	0.274812	-0.005081
Top_Mgmt_Resource	-0.354488	-0.185292	-0.047415	-0.228866	-0.125007
Top_Mgmt_Measures	-0.021643	0.020348	0.191559	-0.268587	-0.468263
IT_Ccompatibility	-0.649817	-0.197731	0.204578	0.154533	0.408498
IT_Standards	-0.502314	-0.480213	0.202241	0.124298	0.45225
IT_Relevant_tech	-0.122556	-0.026369	-0.038057	0.487197	0.043144
IT_Partner_tech	-0.413181	-0.206777	0.27617	-0.048182	0.352279
IT_Paper_Based	-0.281333	-0.012119	-0.062382	-0.14354	0.363547
Expctns_Unatain	-0.244539	-0.241228	-0.164187	-0.002231	-0.022707
Expctns_Desird_Ben	-0.415721	0.073047	0.459026	-0.118025	-0.109166
Expctns_Unrealist	0.022048	-0.452235	-0.315826	0.212147	-0.180231
Expctns_Quantific	-0.118544	0.127039	0.386137	-0.099682	-0.401944
Expctns_Consumer_benefits	-0.405647	0.269058	0.073705	-0.011705	-0.033547
Coord_industry	-0.331762	-0.622645	0.081351	-0.143056	-0.114169
Coord_Ind_actions	-0.372672	-0.503341	0.026014	-0.193747	0.043344
Coord_Std_Meas	0.043136	-0.062983	-0.262017	0.259633	-0.035015
Coord_Interaction	-0.125927	-0.497155	0.239656	0.151	0.100202

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Factor Loadings

Variables	Factors				
	Factor1	Factor2	Factor3	Factor4	Factor5
Coord_Workshops	-0.280473	0.452497	0.116977	0.035692	0.122199

Communalities

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex	0.021684	0.52582	0.037659	0.031512	0.017548
Undstd_Skills	0.00207	0.072543	0.010867	0.016954	0.034122
Undstd_Ptr_Skills	0.018085	0.084536	0.00002	0.055369	0.025805
Undstd_Simple	0.029786	0.160058	0.037288	0.073822	0.022842
Undstd_Concepts	0.229057	0.007088	0.026986	0.15327	0.024218
Obj_Openess	0.34675	0.059244	0.132267	0.098849	0.000006
Obj_Scorecarding	0.00295	0.001554	0.030869	0.226379	0.001849
Obj_JB_Planning	0.229751	0.065832	0.002084	0.065692	0.00359
Obj_Goals	0.037435	0.023152	0.000253	0.200007	0.05053
Obj_Interests	0.071334	0.000019	0.093672	0.004517	0.000561
Costs_Expensive	0.075007	0.013702	0.045906	0.010765	0.118035
Costs_Burden	0.019061	0.373765	0.004921	0.002503	0.091558
Costs_Gr_Ptr_ben	0.016559	0.185059	0.033705	0.009029	0.033709
Costs_resources	0.015011	0.095098	0.001461	0.156865	0.000394
Costs_Justific	0.070339	0.079221	0.034503	0.134255	0.019414
Comtnt_relain	0.283367	0.075967	0.009287	0.029738	0.119966
Comtnt_Short_trm	0.012161	0.009998	0.05233	0.07145	0.013188
Comtnt_collab	0.1949	0.193435	0.042276	0.070921	0.055743
Comtnt_Trading	0.091241	0.006702	0.063899	0.053126	0.101323
Comtnt_role_chang	0.155603	0.195789	0.012085	0.000787	0.050596
Change_New_Ideas	0.197617	0.023227	0.386813	0.025271	0.023197
Change_Work_Behav	0.14622	0.030896	0.333322	0.000957	0.004744
Change_Inflex	0.118277	0.02252	0.181895	0.026152	0.027628
Change_Job_secur	0.016892	0.030121	0.081471	0.183049	0.028972
Change_Old_Habits	0.185641	0.258885	0.017102	0.002498	0.036705
Top_Mgmt_Support	0.074332	0.004235	0.04425	0.001337	0.14709
Top_Mgmt_Leader	0.186852	0.140968	0.042205	0.088322	0.008358
Top_Mgmt_Outcome	0.000002	0.00336	0.041312	0.075522	0.000026
Top_Mgmt_Resource	0.125661	0.034333	0.002248	0.05238	0.015627
Top_Mgmt_Measures	0.000468	0.000414	0.036695	0.072139	0.21927
IT_Ccompatibility	0.422263	0.039098	0.041852	0.023881	0.16687
IT_Standards	0.25232	0.230605	0.040901	0.01545	0.20453
IT_Relevant_tech	0.01502	0.000695	0.001448	0.237361	0.001861
IT_Partner_tech	0.170718	0.042757	0.07627	0.002322	0.124101
IT_Paper_Based	0.079148	0.000147	0.003891	0.020604	0.132166
Expctns_Unatain	0.059799	0.058191	0.026957	0.000005	0.000516
Expctns_Desird_Ben	0.172824	0.005336	0.210705	0.01393	0.011917
Expctns_Unrealist	0.000486	0.204516	0.099746	0.045006	0.032483
Expctns_Quantific	0.014053	0.016139	0.149102	0.009937	0.161559
Expctns_Consumer_benefits	0.16455	0.072392	0.005432	0.000137	0.001125
Coord_industry	0.110066	0.387687	0.006618	0.020465	0.013035
Coord_Ind_actions	0.138884	0.253352	0.000677	0.037538	0.001879
Coord_Std_Meas	0.001861	0.003967	0.068653	0.067409	0.001226
Coord_Interaction	0.015858	0.247163	0.057435	0.022801	0.01004

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Communalities

	Factors
Variables	Communality
Undstd_Complex	0.634223
Undstd_Skills	0.136558
Undstd_Ptr_Skills	0.183815
Undstd_Simple	0.323795
Undstd_Concepts	0.44062
Obj_Openess	0.637117
Obj_Scorecarding	0.263601
Obj_JB_Planning	0.366948
Obj_Goals	0.311377
Obj_Interests	0.170103
Costs_Expensive	0.263415
Costs_Burden	0.491808
Costs_Gr_Ptr_ben	0.27806
Costs_resources	0.268829
Costs_Justific	0.337732
Comtnt_reltn	0.518325
Comtnt_Short_trm	0.159126
Comtnt_collab	0.557275
Comtnt_Trading	0.31629
Comtnt_role_chang	0.41486
Change_New_Ideas	0.656125
Change_Work_Behav	0.51614
Change_Inflex	0.376471
Change_Job_secur	0.340504
Change_Old_Habits	0.50083
Top_Mgmt_Support	0.271244
Top_Mgmt_Leader	0.466705
Top_Mgmt_Outcome	0.120222
Top_Mgmt_Resource	0.230249
Top_Mgmt_Measures	0.328986
IT_Ccompatibility	0.693963
IT_Standards	0.743806
IT_Relevant_tech	0.256386
IT_Partner_tech	0.416167
IT_Paper_Based	0.235956
Expctns_Unatain	0.145468
Expctns_Desird_Ben	0.414712
Expctns_Unrealist	0.382237
Expctns_Quantific	0.350789
Expctns_Consumer_benefits	0.243636
Coord_industry	0.537871
Coord_Ind_actions	0.43233
Coord_Std_Meas	0.143116
Coord_Interaction	0.353297

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Communalities

Variables

Coord_Workshops

Factor1
0.078665

Factor2
0.204753

Factor3
0.013684

Factor4
0.001274

Factor5
0.014933

Communalities

Variables

Coord_Workshops

Communality
0.313309

Bar Chart of Communalities

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex					
Undstd_Skills					
Undstd_Ptr_Skills					
Undstd_Simple					
Undstd_Concepts					
Obj_Openess					
Obj_Scorecarding					
Obj_JB_Planning					
Obj_Goals					
Obj_Interests					
Costs_Expensive					
Costs_Burden					
Costs_Gr_Ptr_ben					
Costs_resources					
Costs_Justific					
Comtnt_relain					
Comtnt_Short_trm					
Comtnt_collab					
Comtnt_Trading					
Comtnt_role_chang					
Change_New_Ideas					
Change_Work_Behav					
Change_Inflex					
Change_Job_secur					
Change_Old_Habits					
Top_Mgmt_Support					
Top_Mgmt_Leader					
Top_Mgmt_Outcome					
Top_Mgmt_Resource					
Top_Mgmt_Measures					
IT_Ccompatibility					
IT_Standards					
IT_Relevant_tech					
IT_Partner_tech					
IT_Paper_Based					
Expctns_Unatain					
Expctns_Desird_Ben					
Expctns_Unrealist					
Expctns_Quantific					
Expctns_Consumer_benefits					
Coord_industry					
Coord_Ind_actions					
Coord_Std_Meas					
Coord_Interaction					

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Bar Chart of Communalities

Factors

Variables	Communality
Undstd_Complex	
Undstd_Skills	
Undstd_Ptr_Skills	
Undstd_Simple	
Undstd_Concepts	
Obj_Openess	
Obj_Scorecarding	
Obj_JB_Planning	
Obj_Goals	
Obj_Interests	
Costs_Expensive	
Costs_Burden	
Costs_Gr_Ptr_ben	
Costs_resources	
Costs_Justific	
Comtnt_reltn	
Comtnt_Short_trm	
Comtnt_collab	
Comtnt_Trading	
Comtnt_role_chang	
Change_New_Ideas	
Change_Work_Behav	
Change_Inflex	
Change_Job_secur	
Change_Old_Habits	
Top_Mgmt_Support	
Top_Mgmt_Leader	
Top_Mgmt_Outcome	
Top_Mgmt_Resource	
Top_Mgmt_Measures	
IT_Ccompatibility	
IT_Standards	
IT_Relevant_tech	
IT_Partner_tech	
IT_Paper_Based	
Expctns_Unatain	
Expctns_Desird_Ben	
Expctns_Unrealist	
Expctns_Quantific	
Expctns_Consumer_benefits	
Coord_industry	
Coord_Ind_actions	
Coord_Std_Meas	
Coord_Interaction	

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Bar Chart of Communalities

Factors

Variables

Coord_Workshops

Factor1

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Factor2

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Factor3

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Factor4

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Factor5

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Bar Chart of Communalities

Factors

Variables

Coord_Workshops

Communality

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Factor Structure Summary

Factor1	Factor2	Factor3	Factor4	Factor5
IT_Ccompatibility	Undstd_Complex	Change_New_Ideas	IT_Relevant_tech	Top_Mgmt_Measures
Obj_Openess	Coord_industry	Change_Work_Behav	Obj_Scorecarding	IT_Standards
Comtnt_relaln	Costs_Burden	Expctns_Desird_Ben	Obj_Goals	IT_Ccompatibility
IT_Standards	Change_Old_Habits	Change_Inflex	Change_Job_secur	Expctns_Quantific
Obj_JB_Planning	Coord_Ind_actions			
Undstd_Concepts	Coord_Interaction			
Change_New_Ideas	IT_Standards			
Comtnt_collab	Coord_Workshops			
Top_Mgmt_Leader	Expctns_Unrealist			
Change_Old_Habits	Comtnt_role_chang			
Expctns_Desird_Ben	Comtnt_collab			
IT_Partner_tech	Costs_Gr_Ptr_ben			
Expctns_Consumer_benefits	Undstd_Simple			

APPENDIX F: Rotated factor scores excluding “power and trust”

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Eigenvalues after Varimax Rotation

No.	Eigenvalue	Individual Percent	Cumulative Percent	Scree Plot
1	2.791515	15.29	15.29	
2	4.3142	23.63	38.91	
3	3.463311	18.97	57.88	
4	2.551515	13.97	71.85	
5	3.423856	18.75	90.6	
6	1.368917	7.5	98.1	
7	1.361737	7.46	105.56	
8	1.145827	6.28	111.83	
9	1.119007	6.13	117.96	
10	1.058721	5.8	123.76	
11	0.852949	4.67	128.43	
12	0.735067	4.03	132.46	
13	0.584725	3.2	135.66	
14	0.549425	3.01	138.67	
15	0.45928	2.52	141.18	
16	0.331638	1.82	143	
17	0.254666	1.39	144.39	
18	0.176237	0.97	145.36	
19	0.146983	0.8	146.16	
20	0.07804	0.43	146.59	
21	0.037141	0.2	146.8	
22	-0.002016	-0.01	146.78	
23	-0.040022	-0.22	146.57	
24	-0.087321	-0.48	146.09	
25	-0.123402	-0.68	145.41	
26	-0.131126	-0.72	144.69	
27	-0.16087	-0.88	143.81	
28	-0.235337	-1.29	142.52	
29	-0.251828	-1.38	141.14	
30	-0.297581	-1.63	139.51	
31	-0.313818	-1.72	137.8	
32	-0.355238	-1.95	135.85	
33	-0.408961	-2.24	133.61	
34	-0.427456	-2.34	131.27	
35	-0.443216	-2.43	128.84	
36	-0.454638	-2.49	126.35	
37	-0.457351	-2.5	123.85	
38	-0.468242	-2.56	121.28	
39	-0.486841	-2.67	118.62	
40	-0.523432	-2.87	115.75	
41	-0.528597	-2.89	112.86	
42	-0.565759	-3.1	109.76	
43	-0.574719	-3.15	106.61	
44	-0.586475	-3.21	103.4	
45	-0.620557	-3.4	100	

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Factor Loadings after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex	0.034917	-0.778972	-0.035262	0.143165	0.066837
Undstd_Skills	-0.146855	-0.272033	0.089023	0.18178	-0.00453
Undstd_Ptr_Skills	-0.277061	-0.250347	-0.085463	-0.164856	0.099486
Undstd_Simple	0.132009	-0.414803	0.026433	-0.347165	0.11439
Undstd_Concepts	-0.112754	-0.036252	-0.465539	0.435504	0.142134
Obj_Openess	0.0578	0.273299	-0.677486	0.296307	0.110898
Obj_Scorecarding	0.01578	-0.003102	0.071111	0.504824	0.058638
Obj_JB_Planning	-0.15039	0.351259	-0.308622	0.329104	0.131874
Obj_Goals	0.083409	0.022171	0.070035	0.439019	-0.326015
Obj_Interests	0.02615	-0.002919	-0.392811	-0.097062	0.075424
Costs_Expensive	-0.501898	-0.042707	-0.055992	0.061904	0.05217
Costs_Burden	-0.173492	-0.67252	0.023742	0.084229	-0.042036
Costs_Gr_Ptr_ben	-0.005406	-0.51319	-0.061968	0.075152	-0.071963
Costs_resources	0.140767	-0.313049	0.111123	0.365611	0.07067
Costs_Justific	0.014529	-0.321931	0.287398	0.3813	-0.076776
Comtnt_relain	-0.328639	0.288545	-0.491379	0.283781	-0.071266
Comtnt_Short_trm	-0.158094	-0.035104	0.077214	0.344132	0.092255
Comtnt_collab	-0.306914	0.509856	-0.204147	0.400723	-0.029495
Comtnt_Trading	-0.55199	0.017275	-0.037516	-0.050559	0.085646
Comtnt_role_chang	-0.330423	0.48868	-0.230901	0.092873	-0.070225
Change_New_Ideas	0.178152	0.135275	-0.728271	-0.256919	0.098495
Change_Work_Behav	0.095519	0.09633	-0.700115	-0.032904	-0.080578
Change_Inflex	-0.128617	-0.180789	-0.548603	-0.160461	0.023061
Change_Job_secur	-0.157142	0.098575	-0.315066	-0.416553	-0.182513
Change_Old_Habits	-0.295588	-0.416423	-0.373502	0.12969	0.289356
Top_Mgmt_Support	-0.054891	-0.151015	-0.046639	-0.045015	-0.491145
Top_Mgmt_Leader	-0.484262	-0.172794	-0.098965	-0.145069	0.414123
Top_Mgmt_Outcome	0.190362	-0.013663	-0.168406	0.213281	-0.099743
Top_Mgmt_Resource	-0.310177	-0.099015	-0.259289	-0.145339	0.189424
Top_Mgmt_Measures	-0.50895	-0.013928	0.067163	-0.11287	-0.229155
IT_Ccompatibility	-0.060897	0.134141	-0.191414	0.207695	0.76973
IT_Standards	-0.010755	-0.150656	-0.073174	0.153657	0.831882
IT_Relevant_tech	0.152976	-0.010726	-0.120504	0.460266	0.080643
IT_Partner_tech	-0.101561	0.076111	0.014171	0.009509	0.632272
IT_Paper_Based	0.113639	0.132847	-0.161692	-0.181152	0.382666
Expctns_Unatain	-0.070193	-0.197608	-0.267496	0.006415	0.172908
Expctns_Desird_Ben	-0.497762	0.281521	0.062776	0.072751	0.280102
Expctns_Unrealist	0.050427	-0.542392	-0.23259	0.171409	-0.045017
Expctns_Quantific	-0.527978	0.166724	0.147354	0.088364	-0.121282
Expctns_Consumer_benefits	-0.200909	0.366093	-0.224991	0.066488	0.119189
Coord_industry	-0.377559	-0.466349	-0.1231	-0.032888	0.401999
Coord_Ind_actions	-0.262338	-0.326802	-0.171048	-0.12113	0.46128
Coord_Std_Meas	0.195724	-0.155001	-0.182426	0.188172	-0.109975
Coord_Interaction	-0.106391	-0.335081	0.139375	0.203466	0.410944

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Factor Loadings after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Coord_Workshops	-0.023870	0.539189	-0.101823	0.067393	0.084289

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex					
Undstd_Skills					
Undstd_Ptr_Skills					
Undstd_Simple					
Undstd_Concepts					
Obj_Openess					
Obj_Scorecarding					
Obj_JB_Planning					
Obj_Goals					
Obj_Interests					
Costs_Expensive					
Costs_Burden					
Costs_Gr_Ptr_ben					
Costs_resources					
Costs_Justific					
Comtnt_reltn					
Comtnt_Short_trm					
Comtnt_collab					
Comtnt_Trading					
Comtnt_role_chang					
Change_New_Ideas					
Change_Work_Behav					
Change_Inflex					
Change_Job_secur					
Change_Old_Habits					
Top_Mgmt_Support					
Top_Mgmt_Leader					
Top_Mgmt_Outcome					
Top_Mgmt_Resource					
Top_Mgmt_Measures					
IT_Ccompatibility					
IT_Standards					
IT_Relevant_tech					
IT_Partner_tech					
IT_Paper_Based					
Expctns_Unatain					
Expctns_Desird_Ben					
Expctns_Unrealist					
Expctns_Quantific					
Expctns_Consumer_benefits					
Coord_industry					
Coord_Ind_actions					
Coord_Std_Meas					
Coord_Interaction					

Bar Chart of Absolute Factor Loadings after Varimax Rotation

Factors

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Bar Chart of Absolute Factor Loadings after Varimax Rotation

Variables

Factor1

Factor2

Factor3

Factor4

Factor5

Coord_Workshops

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Communalities after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex	0.001219	0.606797	0.001243	0.020496	0.004467
Undstd_Skills	0.021566	0.074002	0.007925	0.033044	0.000021
Undstd_Ptr_Skills	0.076763	0.062673	0.007304	0.027178	0.009897
Undstd_Simple	0.017426	0.172062	0.000699	0.120524	0.013085
Undstd_Concepts	0.012714	0.001314	0.216726	0.189664	0.020202
Obj_Openess	0.003341	0.074692	0.458987	0.087798	0.012298
Obj_Scorecarding	0.000249	0.00001	0.005057	0.254847	0.003438
Obj_JB_Planning	0.022617	0.123383	0.095248	0.10831	0.017391
Obj_Goals	0.006957	0.000492	0.004905	0.192738	0.106286
Obj_Interests	0.000684	0.000009	0.154301	0.009421	0.005689
Costs_Expensive	0.251902	0.001824	0.003135	0.003832	0.002722
Costs_Burden	0.030099	0.452283	0.000564	0.007095	0.001767
Costs_Gr_Ptr_ben	0.000029	0.263364	0.00384	0.005648	0.005179
Costs_resources	0.019815	0.097999	0.012348	0.133672	0.004994
Costs_Justific	0.000211	0.10364	0.082597	0.145389	0.005895
Comtnt_relain	0.108003	0.083258	0.241453	0.080532	0.005079
Comtnt_Short_trm	0.024994	0.001232	0.005962	0.118427	0.008511
Comtnt_collab	0.094196	0.259953	0.041676	0.160579	0.00087
Comtnt_Trading	0.304693	0.000298	0.001407	0.002556	0.007335
Comtnt_role_chang	0.109179	0.238808	0.053315	0.008625	0.004932
Change_New_Ideas	0.031738	0.018299	0.530379	0.066007	0.009701
Change_Work_Behav	0.009124	0.009279	0.490161	0.001083	0.006493
Change_Inflex	0.016542	0.032685	0.300965	0.025748	0.000532
Change_Job_secur	0.024694	0.009717	0.099267	0.173516	0.033311
Change_Old_Habits	0.087372	0.173408	0.139504	0.016819	0.083727
Top_Mgmt_Support	0.003013	0.022806	0.002175	0.002026	0.241224
Top_Mgmt_Leader	0.23451	0.029858	0.009794	0.021045	0.171498
Top_Mgmt_Outcome	0.036238	0.000187	0.028361	0.045489	0.009949
Top_Mgmt_Resource	0.096209	0.009804	0.067231	0.021124	0.035881
Top_Mgmt_Measures	0.25903	0.000194	0.004511	0.01274	0.052512
IT_Ccompatibility	0.003708	0.017994	0.036639	0.043137	0.592484
IT_Standards	0.000116	0.022697	0.005354	0.02361	0.692028
IT_Relevant_tech	0.023402	0.000115	0.014521	0.211844	0.006503
IT_Partner_tech	0.010315	0.005793	0.000201	0.00009	0.399768
IT_Paper_Based	0.012914	0.017648	0.026144	0.032816	0.146434
Expctns_Unatain	0.004927	0.039049	0.071554	0.000041	0.029897
Expctns_Desird_Ben	0.247767	0.079254	0.003941	0.005293	0.078457
Expctns_Unrealist	0.002543	0.294189	0.054098	0.029381	0.002027
Expctns_Quantific	0.278761	0.027797	0.021713	0.007808	0.014709
Expctns_Consumer_benefits	0.040365	0.134024	0.050621	0.004421	0.014206
Coord_industry	0.142551	0.217481	0.015154	0.001082	0.161603
Coord_Ind_actions	0.068821	0.106799	0.029258	0.014673	0.212779
Coord_Std_Meas	0.038308	0.024025	0.033279	0.035409	0.012095
Coord_Interaction	0.011319	0.112279	0.019425	0.041398	0.168875

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Communalities after Varimax Rotation

Variables	Communality
Undstd_Complex	0.634223
Undstd_Skills	0.136558
Undstd_Ptr_Skills	0.183815
Undstd_Simple	0.323795
Undstd_Concepts	0.44062
Obj_Openess	0.637117
Obj_Scorecarding	0.263601
Obj_JB_Planning	0.366948
Obj_Goals	0.311377
Obj_Interests	0.170103
Costs_Expensive	0.263415
Costs_Burden	0.491808
Costs_Gr_Ptr_ben	0.27806
Costs_resources	0.268829
Costs_Justific	0.337732
Comtnt_relain	0.518325
Comtnt_Short_trm	0.159126
Comtnt_collab	0.557275
Comtnt_Trading	0.31629
Comtnt_role_chang	0.41486
Change_New_Ideas	0.656125
Change_Work_Behav	0.51614
Change_Inflex	0.376471
Change_Job_secur	0.340504
Change_Old_Habits	0.50083
Top_Mgmt_Support	0.271244
Top_Mgmt_Leader	0.466705
Top_Mgmt_Outcome	0.120222
Top_Mgmt_Resource	0.230249
Top_Mgmt_Measures	0.328986
IT_Ccompatibility	0.693963
IT_Standards	0.743806
IT_Relevant_tech	0.256386
IT_Partner_tech	0.416167
IT_Paper_Based	0.235956
Expctns_Unatain	0.145468
Expctns_Desird_Ben	0.414712
Expctns_Unrealist	0.382237
Expctns_Quantific	0.350789
Expctns_Consumer_benefits	0.243636
Coord_industry	0.537871
Coord_Ind_actions	0.43233
Coord_Std_Meas	0.143116
Coord_Interaction	0.353297

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Communalities after Varimax Rotation

Variables

Factor1

Factor2

Factor3

Factor4

Factor5

Coord_Workshops

0.000570

0.290725

0.010368

0.004542

0.007105

Communalities after Varimax Rotation

Variables

Communality

Coord_Workshops

0.313309

Bar Chart of Communalities after Varimax Rotation

Variables	Factor1	Factor2	Factor3	Factor4	Factor5
Undstd_Complex					
Undstd_Skills					
Undstd_Ptr_Skills					
Undstd_Simple					
Undstd_Concepts					
Obj_Openess					
Obj_Scorecarding					
Obj_JB_Planning					
Obj_Goals					
Obj_Interests					
Costs_Expensive					
Costs_Burden					
Costs_Gr_Ptr_ben					
Costs_resources					
Costs_Justific					
Comtnt_reltn					
Comtnt_Short_trm					
Comtnt_collab					
Comtnt_Trading					
Comtnt_role_chang					
Change_New_Ideas					
Change_Work_Behav					
Change_Inflex					
Change_Job_secur					
Change_Old_Habits					
Top_Mgmt_Support					
Top_Mgmt_Leader					
Top_Mgmt_Outcome					
Top_Mgmt_Resource					
Top_Mgmt_Measures					
IT_Ccompatibility					
IT_Standards					
IT_Relevant_tech					
IT_Partner_tech					
IT_Paper_Based					
Expctns_Unatain					
Expctns_Desird_Ben					
Expctns_Unrealist					
Expctns_Quantific					
Expctns_Consumer_benefits					
Coord_industry					
Coord_Ind_actions					
Coord_Std_Meas					
Coord_Interaction					

Factor Analysis Report

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Bar Chart of Communalities after Varimax Rotation

Variables	Communality
Undstd_Complex	
Undstd_Skills	
Undstd_Ptr_Skills	
Undstd_Simple	
Undstd_Concepts	
Obj_Openess	
Obj_Scorecarding	
Obj_JB_Planning	
Obj_Goals	
Obj_Interests	
Costs_Expensive	
Costs_Burden	
Costs_Gr_Ptr_ben	
Costs_resources	
Costs_Justific	
Comtnt_reltn	
Comtnt_Short_trm	
Comtnt_collab	
Comtnt_Trading	
Comtnt_role_chang	
Change_New_Ideas	
Change_Work_Behav	
Change_Inflex	
Change_Job_secur	
Change_Old_Habits	
Top_Mgmt_Support	
Top_Mgmt_Leader	
Top_Mgmt_Outcome	
Top_Mgmt_Resource	
Top_Mgmt_Measures	
IT_Ccompatibility	
IT_Standards	
IT_Relevant_tech	
IT_Partner_tech	
IT_Paper_Based	
Expctns_Unatain	
Expctns_Desird_Ben	
Expctns_Unrealist	
Expctns_Quantific	
Expctns_Consumer_benefits	
Coord_industry	
Coord_Ind_actions	
Coord_Std_Meas	
Coord_Interaction	

Factor Analysis Report

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Bar Chart of Communalities after Varimax Rotation

Variables	Factors				
	Factor1	Factor2	Factor3	Factor4	Factor5
Coord_Workshops					

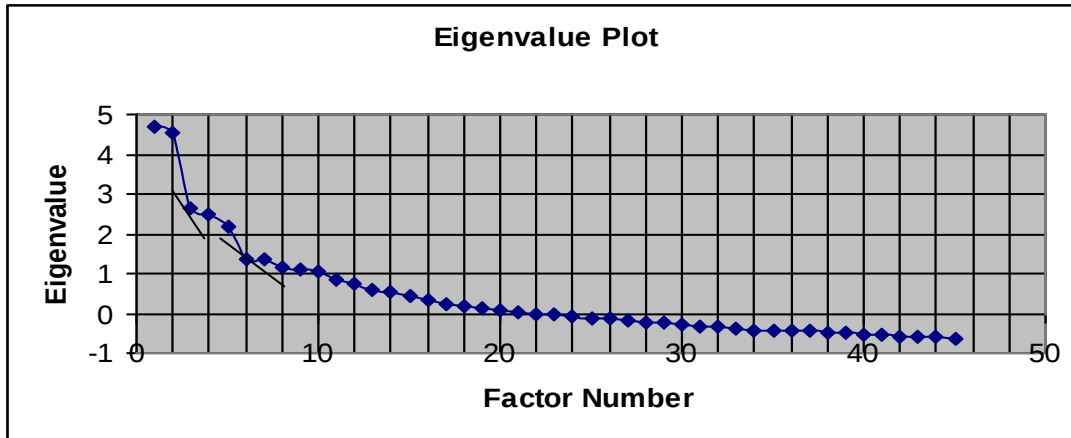
Bar Chart of Communalities after Varimax Rotation

Variables	Factors	
	Communality	
Coord_Workshops		

Factor Structure Summary after Varimax Rotation				
	Factors			
Factor1	Factor2	Factor3	Factor4	Factor5
Comtnt_Trading	Undstd_Complex	Change_New_Ideas	Obj_Scorecarding	IT_Standards
Expctns_Quantific	Costs_Burden	Change_Work_Behav	IT_Relevant_tech	IT_Ccompatibility
Top_Mgmt_Measures	Expctns_Unrealist	Obj_Openess	Obj_Goals	IT_Partner_tech
Costs_Expensive	Coord_Workshops	Change_Inflex	Undstd_Concepts	Top_Mgmt_Support
Expctns_Desird_Ben	Costs_Gr_Ptr_ben	Comtnt_relaln	Change_Job_secur	Coord_Ind_actions
Top_Mgmt_Leader	Comtnt_collab	Undstd_Concepts	Comtnt_collab	Top_Mgmt_Leader
	Comtnt_role_chang			Coord_Interaction
	Coord_industry			Coord_industry
	Change_Old_Habits			
	Undstd_Simple			

APPENDIX G: Scree Plot

The following figure is a representation of the eigenvalues plotted against the number of factors in their order of extraction. The change in slope on the figure was used as an indication of the number of factors to extract.



The plot was generated using the following data points from the unrotated factor solution.

No.	Eigenvalue	No	Eigenvalue
1	4.670625	24	-0.087321
2	4.544339	25	-0.123402
3	2.643022	26	-0.131126
4	2.511555	27	-0.16087
5	2.174856	28	-0.235337
6	1.368917	29	-0.251828
7	1.361737	30	-0.297581
8	1.145827	31	-0.313818
9	1.119007	32	-0.355238
10	1.058721	33	-0.408961
11	0.852949	34	-0.427456
12	0.735067	35	-0.443216
13	0.584725	36	-0.454638
14	0.549425	37	-0.457351
15	0.45928	38	-0.468242
16	0.331638	39	-0.486841
17	0.254666	40	-0.523432
18	0.176237	41	-0.528597
19	0.146983	42	-0.565759
20	0.07804	43	-0.574719
21	0.037141	44	-0.586475
22	-0.002016	45	-0.620557
23	-0.040022		

APPENDIX H: Cronbach's Alpha Representation

Cronbach's Alpha Representation: Factor 1

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Pearson Correlations Section (Row-Wise Deletion)

	Pwr_Dependency	Pwr_Resistance1	Pwr_Imbalance	Pwr_Resistance_2	Pwr_Coercion	Trust_Partners
Pwr_Dependency	1	0.360214	0.008869	0.45607	0.445374	-0.152633
Pwr_Resistance1	0.360214	1	0.457975	0.473698	0.357471	-0.109
Pwr_Imbalance	0.008869	0.457975	1	0.388031	0.110824	-0.237034
Pwr_Resistance_2	0.45607	0.473698	0.388031	1	0.606254	-0.016362
Pwr_Coercion	0.445374	0.357471	0.110824	0.606254	1	0.001782
Trust_Partners	-0.152633	-0.109	-0.237034	-0.016362	0.001782	1
Trust_Lack_ptr	0.246488	0.398485	0.409077	0.246387	0.191297	-0.444525
Trust_Competition	0.35637	0.406169	0.324686	0.253431	0.249872	-0.309158
Trust_Info	0.319949	0.356352	0.342738	0.204039	0.322232	-0.356931
Trust_Transpar	0.022735	0.329162	0.503664	0.14199	0.08057	-0.398143
Cronbachs Alpha = 0.751149						
Standardised Cronbach's Alpha= 0.748832						

Pearson Correlations Section (Row-Wise Deletion)

	Trust_Lack_ptr	Trust_Competition	Trust_Info	Trust_Transpar
Pwr_Dependency	0.246488	0.35637	0.319949	0.022735
Pwr_Resistance1	0.398485	0.406169	0.356352	0.329162
Pwr_Imbalance	0.409077	0.324686	0.342738	0.503664
Pwr_Resistance_2	0.246387	0.253431	0.204039	0.14199
Pwr_Coercion	0.191297	0.249872	0.322232	0.08057
Trust_Partners	-0.444525	-0.309158	-0.356931	-0.398143
Trust_Lack_ptr	1	0.635724	0.452684	0.550681
Trust_Competition	0.635724	1	0.435571	0.309988
Trust_Info	0.452684	0.435571	1	0.601898
Trust_Transpar	0.550681	0.309988	0.601898	1
Cronbachs Alpha = 0.751149 Standardized Cronbachs Alpha = 0.748832				

Cronbach's Alpha Representation: Factor 2

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Pearson Correlations Section (Row-Wise Deletion)

	Costs_ Expensive	Comtnt_ Trading	Top_Mgmt_ Leader	Top_Mgmt_ Measures	Expctns_ Desird_Ben	Expctns_ Quantific
Costs_Expensive	1	0.380282	0.234045	0.239782	0.407316	0.268671
Comtnt_Trading	0.380282	1	0.189298	0.213968	0.379903	0.328696
Top_Mgmt_Leader	0.234045	0.189298	1	0.361707	0.350019	0.134347
Top_Mgmt_Measures	0.239782	0.213968	0.361707	1	0.17208	0.202644
Expctns_Desird_Ben	0.407316	0.379903	0.350019	0.17208	1	0.328223
Expctns_Quantific	0.268671	0.328696	0.134347	0.202644	0.328223	1
Cronbachs Alpha = 0.692821 Standardized Cronbachs Alpha = 0.699373						

Cronbach's Alpha Representation: Factor 3

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Pearson Correlations Section (Row-Wise Deletion)

	Undstd_ Complex	Undstd_ Simple	Costs_ Burden	Costs_ Gr_Ptr_ben	Comtnt_ collab	Comtnt_role_ chang
Undstd_Complex	1	0.271335	0.538622	0.57056	-0.345812	-0.441382
Undstd_Simple	0.271335	1	0.301435	0.281223	-0.410691	-0.225398
Costs_Burden	0.538622	0.301435	1	0.362533	-0.312908	-0.35652
Costs_Gr_Ptr_ben	0.57056	0.281223	0.362533	1	-0.182548	-0.174534
Comtnt_collab	-0.345812	-0.410691	-0.312908	-0.182548	1	0.447476
Comtnt_role_chang	-0.441382	-0.225398	-0.35652	-0.174534	0.447476	1
Change_Old_Habits	0.33536	0.265186	0.367558	0.328947	0.010049	0.037922
Expctns_Unrealist	0.473194	0.122696	0.399047	0.334868	-0.210966	-0.204916
Coord_industry	0.309561	0.172302	0.294965	0.167375	-0.162644	-0.07561
Coord_Workshops	-0.438243	-0.201595	-0.50296	-0.375773	0.269147	0.267035
Cronbachs Alpha = 0.433638 Standardized Cronbachs Alpha = 0.416194						

Pearson Correlations Section (Row-Wise Deletion)

	Change_Old_Habits	Expctns_Unrealist	Coord_industry	Coord_Workshops
Undstd_Complex	0.33536	0.473194	0.309561	-0.438243
Undstd_Simple	0.265186	0.122696	0.172302	-0.201595
Costs_Burden	0.367558	0.399047	0.294965	-0.50296
Costs_Gr_Ptr_ben	0.328947	0.334868	0.167375	-0.375773
Comtnt_collab	0.010049	-0.210966	-0.162644	0.269147
Comtnt_role_chang	0.037922	-0.204916	-0.07561	0.267035
Change_Old_Habits	1	0.371293	0.492675	-0.066525
Expctns_Unrealist	0.371293	1	0.189811	-0.240755
Coord_industry	0.492675	0.189811	1	-0.057837
Coord_Workshops	-0.066525	-0.240755	-0.057837	1
Cronbachs Alpha = 0.433638 Standardized Cronbachs Alpha = 0.416194				

Cronbach's Alpha representation: Factor 4

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Pearson Correlations Section (Row-Wise Deletion)

Undstd_Concepts	Obj_Openess	Comtnt_reltn	Change_New_Ideas	Change_Work_Behav	Change_Inflex	
Undstd_Concepts	1	0.35642	0.271953	0.296329	0.332884	0.13173
Obj_Openess	0.35642	1	0.509326	0.407559	0.417621	0.33272
Comtnt_reltn	0.271953	0.509326	1	0.248232	0.358772	0.2779
Change_New_Ideas	0.296329	0.407559	0.248232	1	0.700003	0.38535
Change_Work_Behav	0.332884	0.417621	0.358772	0.700003	1	0.20552
Change_Inflex	0.131733	0.332724	0.277902	0.385348	0.205518	1
Cronbachs Alpha = 0.758970 Standardized Cronbachs Alpha = 0.76269						

Cronbach's Alpha Representation: Factor 5

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Pearson Correlations Section (Row-Wise Deletion)

	Undstd_Concepts	Obj_Scorecarding	Obj_Goals	Comtnt_collab	Change_Job_secur	IT_Relevant_tech
Undstd_Concepts	1	0.291444	0.055488	0.354376	-0.0354	0.2319
Obj_Scorecarding	0.291444	1	0.193464	0.248844	-0.09068	0.095598
Obj_Goals	0.055488	0.193464	1	0.033468	-0.109724	0.357283
Comtnt_collab	0.354376	0.248844	0.033468	1	0.059022	0.113043
Change_Job_secur	-0.0354	-0.09068	-0.109724	0.059022	1	0.236938
IT_Relevant_tech	0.2319	0.095598	0.357283	0.113043	-0.236938	1
Cronbachs Alpha = 0.388564 Standardized Cronbachs Alpha = 0.410732						

Cronbach's Alpha Representation: Factor 6

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Pearson Correlations Section (Row-Wise Deletion)

	Top_Mgmt_Support	Top_Mgmt_Leader	IT_Ccompatibility	IT_Standards	IT_Partner_tech	Coord_Industry
Top_Mgmt_Support	1	-0.116146	-0.352467	-0.46774	-0.268094	0.004828
Top_Mgmt_Leader	-0.116146	1	0.33113	0.233	0.338692	0.491501
IT_Ccompatibility	-0.352467	0.33113	1	0.732145	0.515904	0.308105
IT_Standards	-0.46774	0.233	0.732145	1	0.535288	0.343298
IT_Partner_tech	-0.268094	0.338692	0.515904	0.535288	1	0.289483
Coord_industry	-0.004828	0.491501	0.308105	0.343298	0.289483	1
Coord_Ind_actions	-0.131275	0.468684	0.30779	0.255566	0.220591	0.709803
Coord_Interaction	-0.111594	0.339213	0.307106	0.336908	0.277389	0.431656
Cronbachs Alpha = 0.702455 Standardized Cronbachs Alpha = 0.719106						

Pearson Correlations Section (Row-Wise Deletion)

	Coord_Ind_actions	Coord_Interaction
Top_Mgmt_Support	-0.131275	-0.111594
Top_Mgmt_Leader	0.468684	0.339213
IT_Ccompatibility	0.30779	0.307106
IT_Standards	0.255566	0.336908
IT_Partner_tech	0.220591	0.277389
Coord_industry	0.709803	0.431656
Coord_Ind_actions	1	0.466894
Coord_Interaction	0.466894	1
Cronbachs Alpha = 0.702455 Standardized Cronbachs Alpha = 0.719106		

APPENDIX I: Representation of the significance testing results

Two Sample Test Report Factor 1 (Power and Trust)

Two-Sample Test Report

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 Variable Pwr_Trust_Factor_Score

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-0.4316068	1.159934	0.1523068	-0.7365958	-0.1266178
Mnf_Retailr=2	42	0.2584937	1.031124	0.1591059	-6.282715E-02	0.5798146

Note: T-alpha (Mnf_Retailr=1) = 2.0025, T-alpha (Mnf_Retailr=2) = 2.0195

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	98	-0.6901005	1.107868	0.2244653	-1.135545	-0.2446564
Unequal	93.87	-0.6901005	1.551987	0.2202545	-1.127429	-0.2527723

Note: T-alpha (Equal) = 1.9845, T-alpha (Unequal) = 1.9856

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-3.0744	0.002732	Reject Ho	0.860860	0.672371
Difference < 0	-3.0744	0.001366	Reject Ho	0.920469	0.759751
Difference > 0	-3.0744	0.998634	Accept Ho	0.000001	0.000000

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-3.1332	0.002307	Reject Ho	0.873070	0.692130
Difference < 0	-3.1332	0.001154	Reject Ho	0.928626	0.776832
Difference > 0	-3.1332	0.998846	Accept Ho	0.000001	0.000000

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Mnf_Retailr=1)	-1.1506	0.249882	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=1)	0.0104	0.991698	Cannot reject normality
Omnibus Normality (Mnf_Retailr=1)	1.3241	0.515801	Cannot reject normality
Skewness Normality (Mnf_Retailr=2)	-3.4557	0.000549	Reject normality
Kurtosis Normality (Mnf_Retailr=2)	2.7466	0.006022	Reject normality
Omnibus Normality (Mnf_Retailr=2)	19.4858	0.000059	Reject normality
Variance-Ratio Equal-Variance Test	1.2654	0.419260	Cannot reject equal variances
Modified-Levene Equal-Variance Test	2.3949	0.124955	Cannot reject equal variances

Two-Sample Test Report

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 Variable Pwr_Trust_Factor_Score

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Mnf_Retail=1	58	-0.3863433	-0.9039105	-3.858322E-02
Mnf_Retail=2	42	0.4895432	0.2624611	0.6357718

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Mnf_Retail=1	762	2473	2929	143.1685
Mnf_Retail=2	1674	2577	2121	143.1685

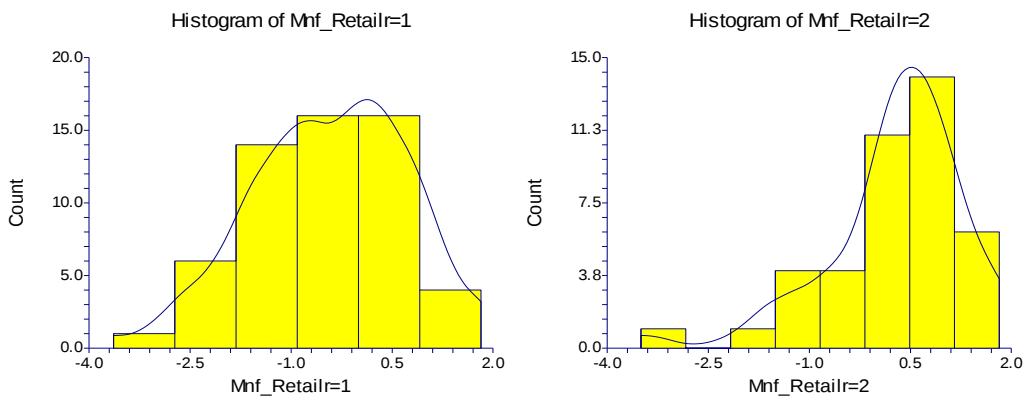
Number Sets of Ties = 20, Multiplicity Factor = 282

Alternative Hypothesis	Exact Probability Prob Decision Level (5%)	Approximation Without Correction Z-Value Level (5%)	Approximation With Correction Z-Value Level (5%)
Diff<>0 Ho		3.1851 0.001447 Reject Ho	3.1816 0.001465 Reject
Diff<0 Ho		3.1851 0.000724 Reject Ho	3.1816 0.000732 Reject
Diff>0 Ho		3.1851 0.999276 Accept Ho	3.1886 0.999285 Accept

Kolmogorov-Smirnov Test For Different Distributions

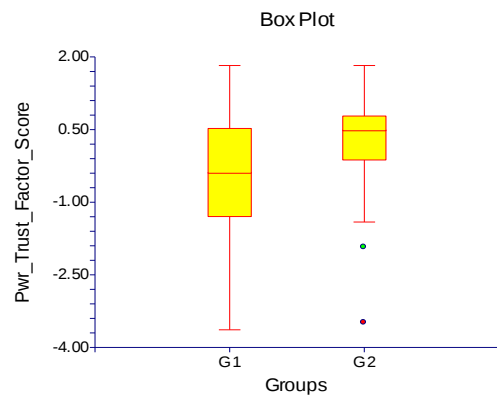
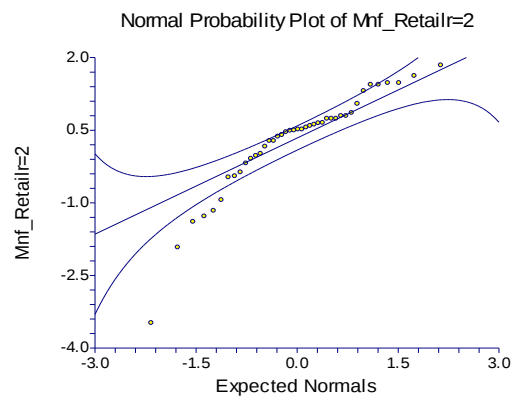
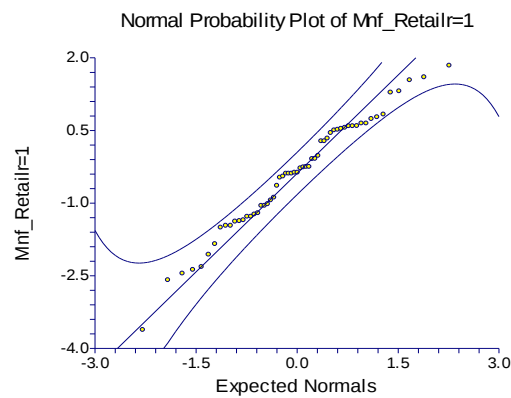
Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.371921	0.2755	.050	Reject Ho	0.0016
D(1)<D(2)	0.371921	0.2755	.025	Reject Ho	
D(1)>D(2)	0.006568	0.2755	.025	Accept Ho	

Plots Section



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Variable Pwr_Trust_Factor_Score



Two Sample Test Report Factor 2 (Risk)

Two-Sample Test Report

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 Variable Factor2

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-0.1963941	1.03982	0.1365351	-0.4698009	7.701268E-02
Mnf_Retailr=2	42	0.1953289	1.277285	0.1970894	-0.2027011	0.5933589

Note: T-alpha (Mnf_Retailr=1) = 2.0025, T-alpha (Mnf_Retailr=2) = 2.0195

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	98	-0.391723	1.145175	0.2320241	-0.8521672	0.0687212
Unequal	77.03	-0.391723	1.647022	0.2397625	-0.8691478	8.570171E-02

Note: T-alpha (Equal) = 1.9845, T-alpha (Unequal) = 1.9912

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-1.6883	0.094536	Accept Ho	0.386729	0.179846
Difference < 0	-1.6883	0.047268	Reject Ho	0.512669	0.254206
Difference > 0	-1.6883	0.952732	Accept Ho	0.000448	0.000033

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-1.6338	0.106382	Accept Ho	0.364649	0.164298
Difference < 0	-1.6338	0.053191	Accept Ho	0.489857	0.235409
Difference > 0	-1.6338	0.946809	Accept Ho	0.000548	0.000042

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Mnf_Retailr=1)	3.2649	0.001095	Reject normality
Kurtosis Normality (Mnf_Retailr=1)	2.9134	0.003575	Reject normality
Omnibus Normality (Mnf_Retailr=1)	19.1477	0.000070	Reject normality
Skewness Normality (Mnf_Retailr=2)	3.5694	0.000358	Reject normality
Kurtosis Normality (Mnf_Retailr=2)	3.3735	0.000742	Reject normality
Omnibus Normality (Mnf_Retailr=2)	24.1209	0.000006	Reject normality
Variance-Ratio Equal-Variance Test	1.5089	0.159165	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.4252	0.515892	Cannot reject equal variances

Two-Sample Test Report

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Variable

Factor2

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-0.2394758	-0.5326535	-5.411768E-02
Mnf_Retailr=2	42	1.706637E-02	-0.2978905	0.3634211

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Mnf_Retailr=1	934	2645	2929	143.1853
Mnf_Retailr=2	1502	2405	2121	143.1853

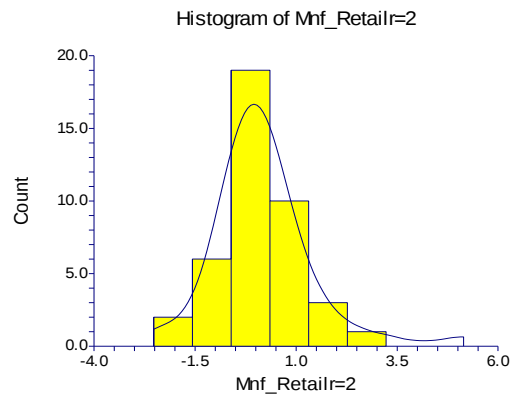
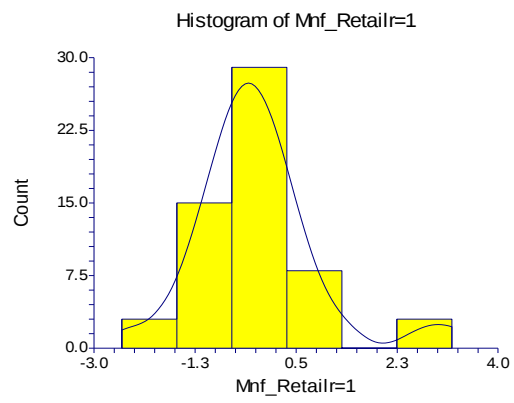
Number Sets of Ties = 8, Multiplicity Factor = 48

Alternative	Exact Probability Prob Decision	Decision	Approximation Without Correction			Approximation With Correction		
Hypothesis	Level	(5%)	Z-Value	Level	(5%)	Z-Value	Level	(5%)
Diff<>0			1.9834	0.047318	Reject Ho	1.9800	0.047709	Reject
Ho								
Diff<0			1.9834	0.023659	Reject Ho	1.9800	0.023854	Reject
Ho								
Diff>0			1.9834	0.976341	Accept Ho	1.9869	0.976535	Accept
Ho								

Kolmogorov-Smirnov Test For Different Distributions

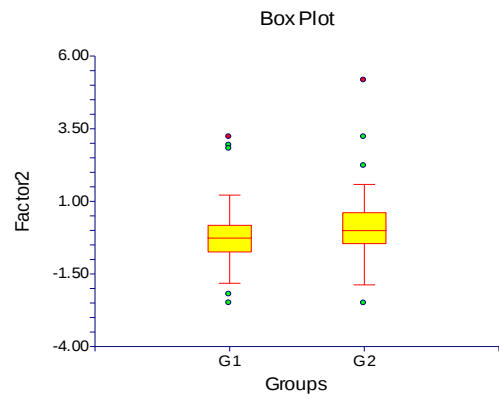
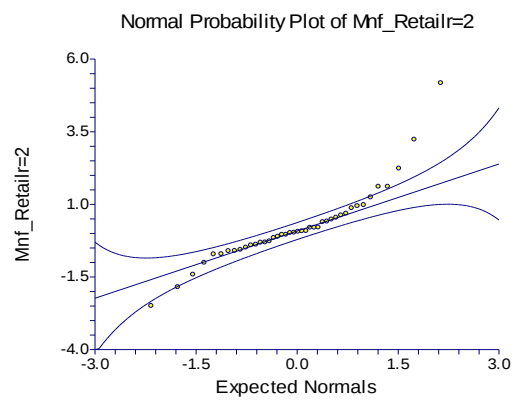
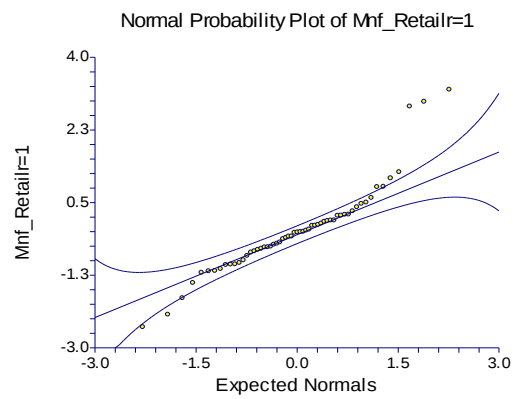
Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.211823	0.2755	.050	Accept Ho	0.1889
D(1)<D(2)	0.211823	0.2755	.025	Accept Ho	
D(1)>D(2)	0.023810	0.2755	.025	Accept Ho	

Plots Section



Two-Sample Test Report

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Variable Factor2



Two-Sample Test Report Factor 3 (Commitment)

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Variable Factor3

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-8.094824E-02	1.127595	0.1480605	-0.3774342	0.2155377
Mnf_Retailr=2	42	-2.360428E-02	1.152538	0.1778404	-0.3827603	0.3355517

Note: T-alpha (Mnf_Retailr=1) = 2.0025, T-alpha (Mnf_Retailr=2) = 2.0195

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	98	-5.734396E-02	1.138097	0.23059	-0.5149423	0.4002544
Unequal	87.35	-5.734396E-02	1.612394	0.2314068	-0.5172641	0.4025762

Note: T-alpha (Equal) = 1.9845, T-alpha (Unequal) = 1.9875

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-0.2487	0.804126	Accept Ho	0.056975	0.012267
Difference < 0	-0.2487	0.402063	Accept Ho	0.081074	0.018714
Difference > 0	-0.2487	0.597937	Accept Ho	0.029257	0.005061

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-0.2478	0.804866	Accept Ho	0.056909	0.012241
Difference < 0	-0.2478	0.402433	Accept Ho	0.080912	0.018655
Difference > 0	-0.2478	0.597567	Accept Ho	0.029329	0.005080

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Mnf_Retailr=1)	1.0194	0.308021	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=1)	1.8588	0.063049	Cannot reject normality
Omnibus Normality (Mnf_Retailr=1)	4.4944	0.105693	Cannot reject normality
Skewness Normality (Mnf_Retailr=2)	-1.3169	0.187871	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=2)	2.3520	0.018673	Reject normality
Omnibus Normality (Mnf_Retailr=2)	7.2661	0.026435	Reject normality
Variance-Ratio Equal-Variance Test	1.0447	0.880530	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.0701	0.791678	Cannot reject equal variances

Two-Sample Test Report

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Variable

Factor3

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-5.510166E-02	-0.3538731	0.1819139
Mnf_Retailr=2	42	8.169369E-02	-0.1703422	0.2944114

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Mnf_Retailr=1	1122	2833	2929	143.1853
Mnf_Retailr=2	1314	2217	2121	143.1853

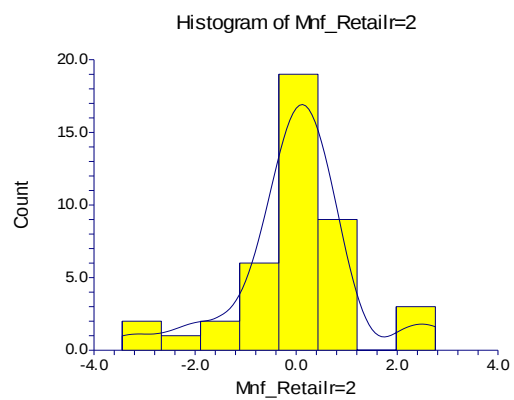
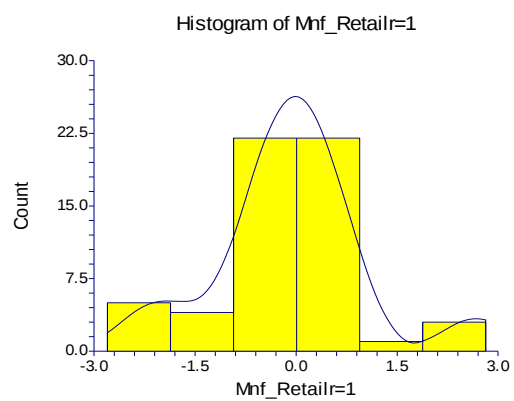
Number Sets of Ties = 8, Multiplicity Factor = 48

Alternative	Exact Probability Prob Decision	Decision	Approximation Without Correction			Approximation With Correction		
Hypothesis	Level	(5%)	Z-Value	Level	(5%)	Z-Value	Level	(5%)
Diff<>0			0.6705	0.502565	Accept Ho	0.6670	0.504792	Accept
Ho								
Diff<0			0.6705	0.251282	Accept Ho	0.6670	0.252396	Accept
Ho								
Diff>0			0.6705	0.748718	Accept Ho	0.6740	0.749829	Accept
Ho								

Kolmogorov-Smirnov Test For Different Distributions

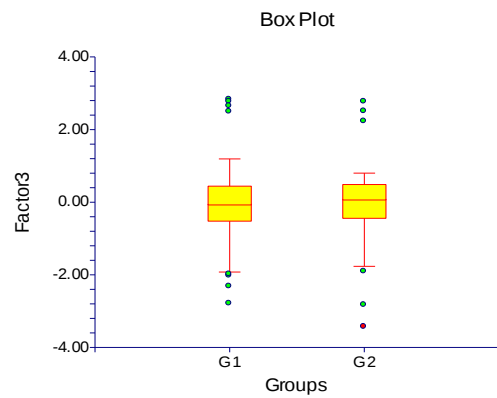
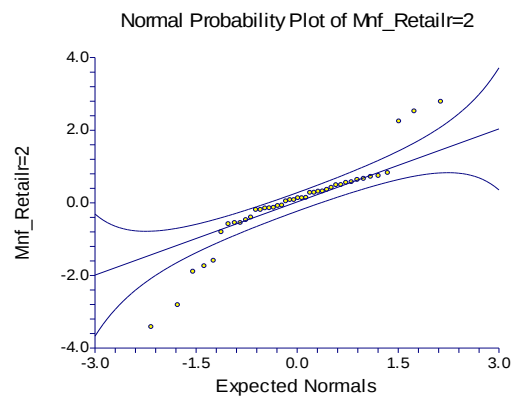
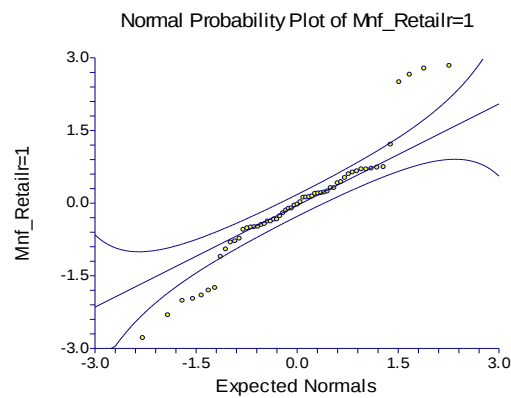
Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.169130	0.2755	.050	Accept Ho	0.4308
D(1)<D(2)	0.169130	0.2755	.025	Accept Ho	
D(1)>D(2)	0.047619	0.2755	.025	Accept Ho	

Plots Section



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Variable Factor3



Two Sample Test Report Factor 4 (Acceptance of change)

Two-Sample Test Report

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 Variable Factor4

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-5.583642E-02	1.150931	0.1511247	-0.3584584	0.2467855
Mnf_Retailr=2	42	-1.338919E-02	1.132038	0.1746772	-0.366157	0.3393786

Note: T-alpha (Mnf_Retailr=1) = 2.0025, T-alpha (Mnf_Retailr=2) = 2.0195

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	98	-4.244723E-02	1.143065	0.2315966	-0.5020432	0.4171487
Unequal	89.34	-4.244723E-02	1.614358	0.2309779	-0.5013711	0.4164766

Note: T-alpha (Equal) = 1.9845, T-alpha (Unequal) = 1.9869

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-0.1833	0.854956	Accept Ho	0.053782	0.011221
Difference < 0	-0.1833	0.427478	Accept Ho	0.071756	0.015953
Difference > 0	-0.1833	0.572522	Accept Ho	0.033859	0.006086

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-0.1838	0.854609	Accept Ho	0.053795	0.011224
Difference < 0	-0.1838	0.427304	Accept Ho	0.071806	0.015963
Difference > 0	-0.1838	0.572696	Accept Ho	0.033832	0.006082

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Mnf_Retailr=1)	2.1447	0.031978	Reject normality
Kurtosis Normality (Mnf_Retailr=1)	1.7854	0.074201	Cannot reject normality
Omnibus Normality (Mnf_Retailr=1)	7.7872	0.020371	Reject normality
Skewness Normality (Mnf_Retailr=2)	-0.1289	0.897417	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=2)	2.7960	0.005173	Reject normality
Omnibus Normality (Mnf_Retailr=2)	7.8345	0.019896	Reject normality
Variance-Ratio Equal-Variance Test	1.0337	0.909472	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.2910	0.590780	Cannot reject equal variances

Two-Sample Test Report

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 Variable Factor4

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	-9.587224E-02	-0.5633123	0.3140589
Mnf_Retailr=2	42	8.641524E-02	-0.2991188	0.3645182

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Mnf_Retail=1	1154	2865	2929	143.1853
Mnf_Retail=2	1282	2185	2121	143.1853

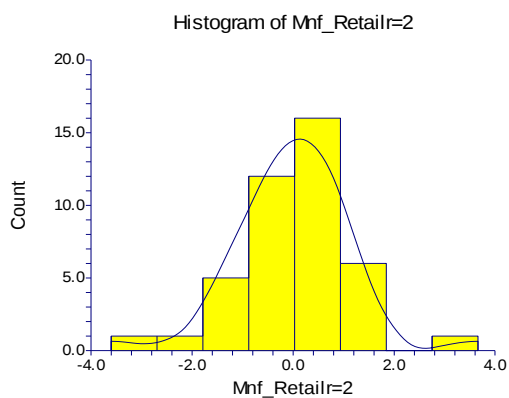
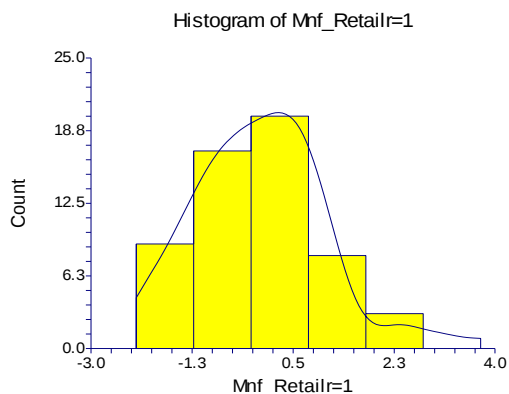
Number Sets of Ties = 8, Multiplicity Factor = 48

Alternative	Exact Probability Prob Decision Level	Decision (5%)	Approximation Without Correction Z-Value Level	Prob	Decision (5%)	Approximation With Correction Z-Value Level	Prob	Decision (5%)
Hypothesis								
Diff<>0			0.4470	0.654894	Accept Ho	0.4435	0.657418	Accept
Ho								
Diff<0			0.4470	0.327447	Accept Ho	0.4435	0.328709	Accept
Ho								
Diff>0			0.4470	0.672553	Accept Ho	0.4505	0.673813	Accept
Ho								

Kolmogorov-Smirnov Test For Different Distributions

Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.104269	0.2755	.050	Accept Ho	0.9206
D(1)<D(2)	0.104269	0.2755	.025	Accept Ho	
D(1)>D(2)	0.076355	0.2755	.025	Accept Ho	

Plots Section



Two-Sample Test Report

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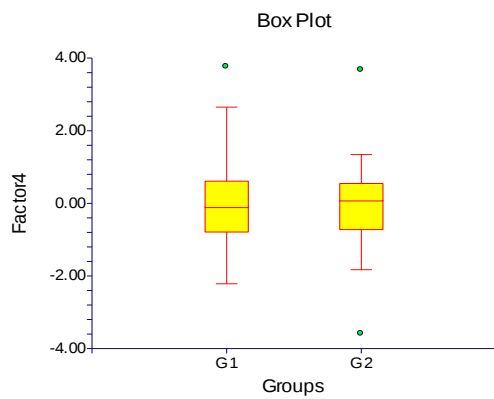
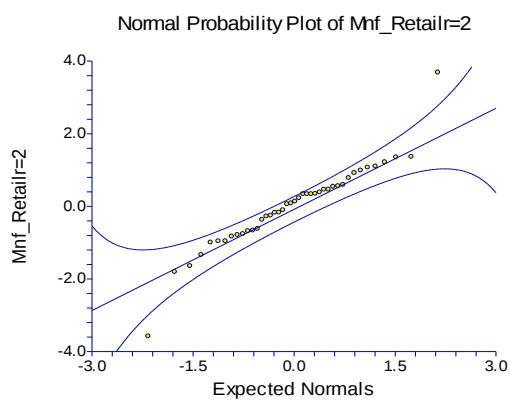
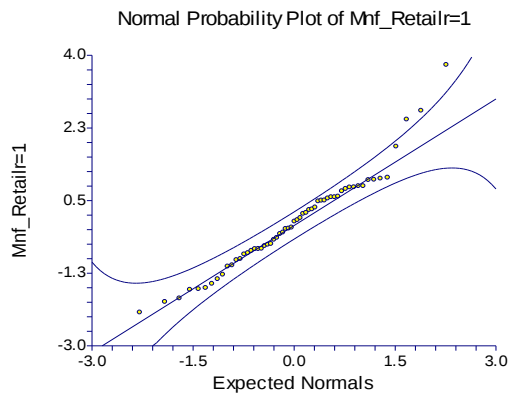
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Variable

Factor4



Two Sample Test Report Factor 5(Objectives and goals)

Two-Sample Test Report

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 Variable Factor5

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	0.1245804	1.092241	0.1434183	-0.1626098	0.4117706
Mnf_Retailr=2	42	-0.216939	1.142184	0.1762429	-0.5728687	0.1389908

Note: T-alpha (Mnf_Retailr=1) = 2.0025, T-alpha (Mnf_Retailr=2) = 2.0195

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	98	0.3415193	1.113408	0.2255879	-0.1061526	0.7891912
Unequal	86.12	0.3415193	1.580372	0.2272232	-0.1101767	0.7932153

Note: T-alpha (Equal) = 1.9845, T-alpha (Unequal) = 1.9879

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	1.5139	0.133268	Accept Ho	0.322712	0.138451
Difference < 0	1.5139	0.933366	Accept Ho	0.000821	0.000067
Difference > 0	1.5139	0.066634	Accept Ho	0.443775	0.202344

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	1.5030	0.136494	Accept Ho	0.318141	0.135344
Difference < 0	1.5030	0.931753	Accept Ho	0.000856	0.000071
Difference > 0	1.5030	0.068247	Accept Ho	0.438939	0.198535

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Mnf_Retailr=1)	-0.1955	0.845028	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=1)	-0.5552	0.578730	Cannot reject normality
Omnibus Normality (Mnf_Retailr=1)	0.3465	0.840927	Cannot reject normality
Skewness Normality (Mnf_Retailr=2)	0.0912	0.927336	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=2)	0.5957	0.551343	Cannot reject normality
Omnibus Normality (Mnf_Retailr=2)	0.3632	0.833921	Cannot reject normality
Variance-Ratio Equal-Variance Test	1.0935	0.758770	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.1480	0.701276	Cannot reject equal variances

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Database

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Variable

Factor5

Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Mnf_Retail=1	58	0.2993608	-0.2390379	0.5389213
Mnf_Retail=2	42	-0.1456097	-0.9665962	0.4293781

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Mnf_Retail=1	1432	3143	2929	143.1853
Mnf_Retail=2	1004	1907	2121	143.1853

Number Sets of Ties = 8, Multiplicity Factor = 48

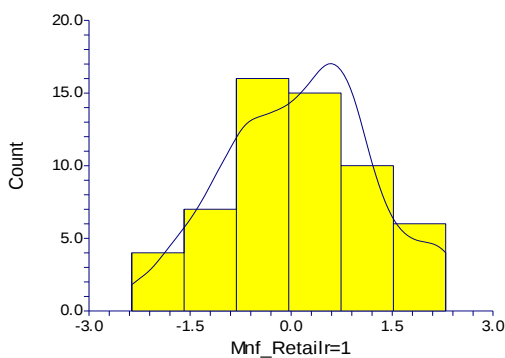
Alternative	Exact Probability		Approximation Without Correction			Approximation With Correction		
	Prob	Decision		Prob	Decision		Prob	
Hypothesis	Level	(5%)	Z-Value	Level	(5%)	Z-Value	Level	(5%)
Diff<>0			-1.4946	0.135027	Accept Ho	-1.4911	0.135942	Accept
Ho								
Diff<0			-1.4946	0.932486	Accept Ho	-1.4981	0.932941	Accept
Ho								
Diff>0			-1.4946	0.067514	Accept Ho	-1.4911	0.067971	Accept
Ho								

Kolmogorov-Smirnov Test For Different Distributions

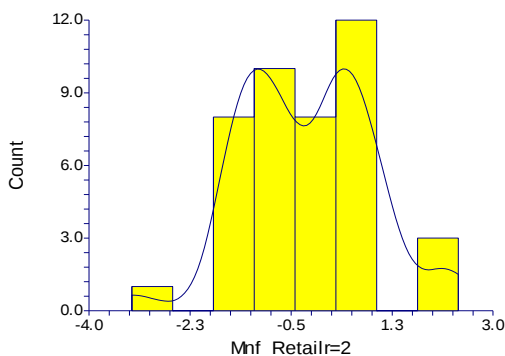
Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.232348	0.2755	.050	Accept Ho	0.1191
D(1)<D(2)	0.023810	0.2755	.025	Accept Ho	
D(1)>D(2)	0.232348	0.2755	.025	Accept Ho	

Plots Section

Histogram of Mnf_Retail=1



Histogram of Mnf_Retail=2



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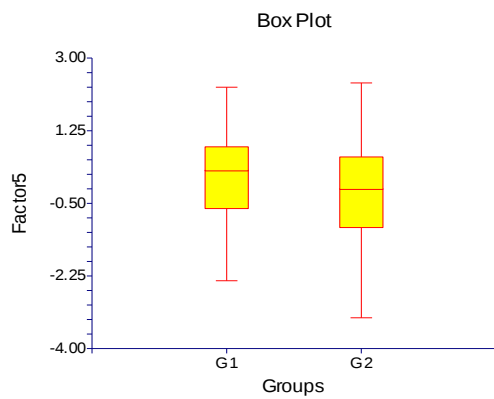
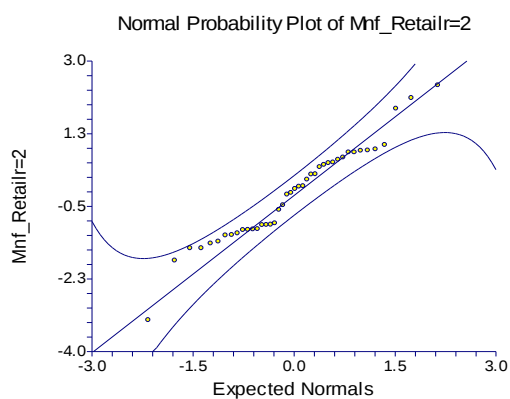
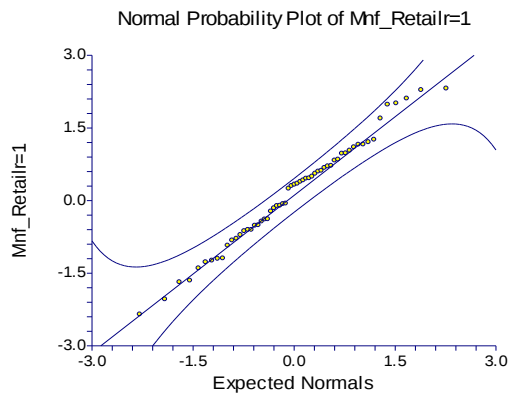
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Variable

Factor5



Two Sample Test Report Factor 6 (Systems and structure)

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 Variable Factor6

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	0.1106893	1.092568	0.1434612	-0.1765867	0.3979653
Mnf_Retailr=2	42	9.427549E-02	1.028873	0.1587586	-0.2263439	0.4148949

Note: T-alpha (Mnf_Retailr=1) = 2.0025, T-alpha (Mnf_Retailr=2) = 2.0195

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	98	1.641384E-02	1.066383	0.2160601	-0.4123504	0.445178
Unequal	91.44	1.641384E-02	1.500761	0.2139752	-0.408594	0.4414217

Note: T-alpha (Equal) = 1.9845, T-alpha (Unequal) = 1.9862

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	0.0760	0.939599	Accept Ho	0.050649	0.010208
Difference < 0	0.0760	0.530201	Accept Ho	0.042689	0.008169
Difference > 0	0.0760	0.469799	Accept Ho	0.058277	0.012180

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	0.0767	0.939023	Accept Ho	0.050660	0.010212
Difference < 0	0.0767	0.530489	Accept Ho	0.042626	0.008154
Difference > 0	0.0767	0.469511	Accept Ho	0.058358	0.012200

Difference: (Mnf_Retailr=1)-(Mnf_Retailr=2)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (Mnf_Retailr=1)	-2.2103	0.027087	Reject normality
Kurtosis Normality (Mnf_Retailr=1)	2.0013	0.045355	Reject normality
Omnibus Normality (Mnf_Retailr=1)	8.8906	0.011733	Reject normality
Skewness Normality (Mnf_Retailr=2)	-0.4237	0.671773	Cannot reject normality
Kurtosis Normality (Mnf_Retailr=2)	0.0231	0.981588	Cannot reject normality
Omnibus Normality (Mnf_Retailr=2)	0.1801	0.913900	Cannot reject normality
Variance-Ratio Equal-Variance Test	1.1276	0.679965	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.0038	0.951200	Cannot reject equal variances

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Variable

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Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
Mnf_Retailr=1	58	0.2822217	0.150111	0.4860186
Mnf_Retailr=2	42	6.816437E-02	-0.0801454	0.3953259

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
Mnf_Retailr=1	1313	3024	2929	143.1853
Mnf_Retailr=2	1123	2026	2121	143.1853

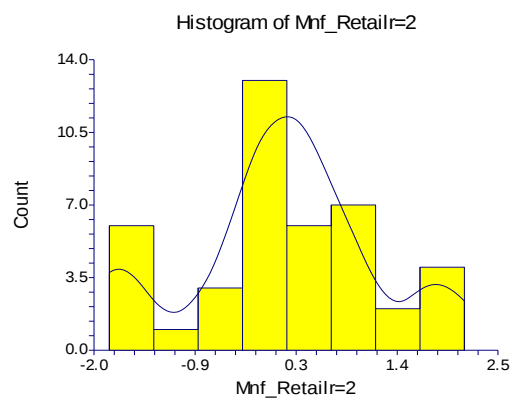
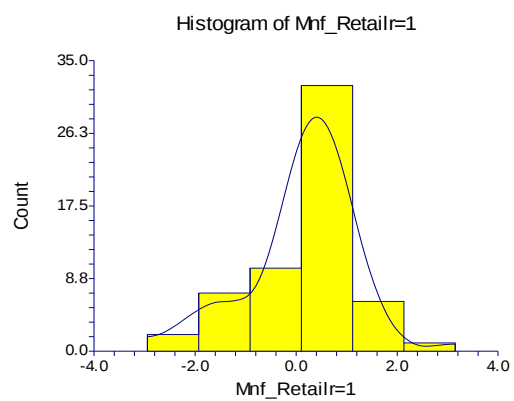
Number Sets of Ties = 8, Multiplicity Factor = 48

Alternative	Exact Probability Prob Decision	Decision	Approximation Without Correction			Approximation With Correction		
Hypothesis	Level	(5%)	Z-Value	Level	(5%)	Z-Value	Level	(5%)
Diff<>0			-0.6635	0.507026	Accept Ho	-0.6600	0.509264	Accept
Ho								
Diff<0			-0.6635	0.746487	Accept Ho	-0.6670	0.747604	Accept
Ho								
Diff>0			-0.6635	0.253513	Accept Ho	-0.6600	0.254632	Accept
Ho								

Kolmogorov-Smirnov Test For Different Distributions

Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.213465	0.2755	.050	Accept Ho	0.1820
D(1)<D(2)	0.084565	0.2755	.025	Accept Ho	
D(1)>D(2)	0.213465	0.2755	.025	Accept Ho	

Plots Section



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VariableFactor6

