

**THE UNIVERSITY OF HULL  
BUSINESS SCHOOL**

**TRUST IN SUPPLY CHAIN RELATIONSHIPS AND  
ITS IMPACT ON  
ORGANISATION AND SUPPLY CHAIN PERFORMANCE**

**being a Thesis submitted for the Degree of Doctor of Philosophy  
in the University of Hull**

**by**

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**May 2010**

## **Declaration**

I declare that I have read the University Code of Practice concerning Plagiarism in the Post-Graduate Handbook, that I understand plagiarism is the unacknowledged copying of the work of others, and that the work I am submitting for assessment is entirely my own.

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## **ABSTRACT**

This thesis identifies the role of trust in the supply chain relationship on supply chain performance and organisation performance. An extensive review of literature identified a lack of empirical research to fill a gap in supply chain and operations management knowledge and this gap is mainly related to identification of the role that trust has on performance. This thesis considers this gap with other relevant issues identified through the literature. It presents a research framework formulated to tackle the research problem and reports an attempt to fill the existing gap through empirical research. The thesis contains analyses of three case studies related to three different territories, namely; Oman, United Arab Emirates (UAE) and State of Qatar. The case studies encompass large and medium size organisations from three different industrial settings. In Oman, the case study is related to oilfield services and the oil production industry while in UAE the case study is related to real estate and the property development industry, and the case study in Qatar is related to the chemical industry. In addition to identifying the influence of trust in supply chain relationships on organisation performance and supply chain performance, the research considers the influence of the duration of the supply chain relationship on trust development in the relationship. Additionally, it explores the impact of trust on the avoidance of the bullwhip effect in the supply chain and shows through empirical evidence the role of trust in minimising supply chain risk. Consideration is given to the impact of different territory and different industrial settings on the trust/performance relationship. Triangulation of research approaches and methods is utilised in this research to enrich the research findings by exploiting the advantages of each approach and method advantages while reducing the disadvantages through complementarities between them. The results of this thesis indicate that the supply chain parties should adopt trust in their relationship whenever considering supply chain performance improvement, organisation performance improvement, and overcoming risk.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 INTRODUCTION**

This chapter presents an overview of the research subject. It delineates the research problem and provides the conceptual and theoretical foci. Furthermore, it provides background to the study and outlines study of trust in business relationships and particularly supply chain relationships. It defines a gap in the knowledge of the supply chain and clarifies the need for this research and the contribution to be made to fill the defined gap and enrich supply chain knowledge. Then it proceeds to set out the research aims and objectives and finally identifies the research limitations.

### **1.2 BACKGROUND OF THE STUDY**

Globalisation has increased over the last two decades and threats related to globalisation have become increasingly influential on business performance. Therefore, efforts to withstand business threats through strengthening business relationships have received considerable attention. However, research on relational exchange has focused primarily on long-term relational exchange. The interest in this matter initially focused on building long-term relationships through the recognition that it is possible to improve business performance through relational exchange (governed by norms of long-term co-operation, mutual trust, and open communication). The interest in long-term relationship then broadened to focus on short-term relational exchange (close, collaborative, fast-developing, and short-lived). The interest in the short-term relational exchange is based on the available discrete exchange between parties which is described as arms-length exchange and characterised as short-term and centred on self-interest. This indicates that the

interest in strengthening business relationships involves a search for a dominant factor in the relationship that leads to strong business relationships.

Another area that leads to business prosperity and has become considerably important and gained considerable attention for business success and survival is supply chain management. Supply chain costs look set to rise for the first time in nearly 20 years (Arminas, 2004). However, before the 1990s the significance of supply chain management was still not perceived as a factor that adds competitive advantages to business success.

The early 1990s witnessed suggestions to focus on the supply chain performance domain. During the mid 1990s, quests for business prosperity through focus on supply chain management based on the recognition of the possible significant role that supply chain management can contribute to business success started to emerge. This recognition was based on the notion that supply chain organisations or parties that build a core competence in strategic sourcing and supplier management are likely to be highly successful (Sheridan, 1997). Recent research conducted by a team of Accenture, INSEAD, and Stanford University researchers has drawn a statistical correlation between companies' financial success and the depth and sophistication of their supply chains (D'Avanzo *et al.*, 2003). In other words, the supply chain is a significant system of current organisations and it is likely to influence organisation financial performance. However, so far, efforts to build core competence in supply chain management have basically concerned the physical elements of the chain.

Nowadays, organisations attempt to improve their supply chain to maximize business results but lack confidence about how to improve it and where to direct their supply chain investments to achieve improvement (D'Avanzo *et al.*, 2003).

Some writers on supply chain management have asserted the need to address both physical and human elements of the organisation rather than considering the physical elements as the only ones responsible for supply chain performance (Drejere *et al.*, 1998 cited by Voss *et al.*, 2002). Supply chain management and processes involve interactions between parties in form of organisations and individuals. The missing ingredient in contemporary thinking about supply chain strategy is the understanding of human behaviour and its implications for supply chain design and management (Gattorna, 1998). According to Boughton *et al.* (2001), whenever interactions between organisations or individuals occur, then there are bound to be some relationship patterns.

The nature of relationship issues between buying and supplying organisations became a fertile source of research (Macpherson, 2001). This tendency of interest in supply chain relationships led to identification of supply chain relationship patterns and a primary focus on the effect of relationships on supply chain performance (Handfield, 2002).

Intensity of competition in today's markets drives organisations towards collaboration through building tight relationships (Wilder *et al.*, 2001). Based on the recognition of the importance of supply chain relationships in facing fierce market competition, a great deal of emphasis is placed by the procurement profession on the development and management of supply chain relationships with

the supply base (Proud, 1997). Developing stronger relationships with suppliers is believed to result in better supply chain performance (Wong, 1999).

Supply chain performance improvement and the study of relationships between suppliers and customers have therefore been the subject of many articles over the past several years ( Ellram, 1991; Webster, 1992; Heide and John, 1992; Cannon and Perreault, 1999; Rinehart *et al.*, 2004). The main work of these articles is concentrated on developing closer relationships between suppliers and customers. Ellram (1991) and Webster (1992) both introduced basic frameworks ranging between transactions and vertical integration. Heide and John (1992) distinguished between transactional and relational relationships. Seven years later, Cannon and Perreault (1999) identified eight relationships between suppliers and customers. Recently, Rinehart *et al.* (2004) provided an assessment of supplier-customer relationships.

During the early 1990s, writers on relationships in supply chain management suggested a need for empirical investigations to focus on trust in supply chain relationships, since personal trust has been acknowledged as an important factor in these relationships (Heide and Miner, 1992; Sako, 1992; Ganesan, 1994; Handy, 1995). This suggestion resulted in growing interest in building trust between organisations. Nevertheless, organisations hesitate to take up this interest due to unexplored ambiguity in regard to its consequences for supply chain performance. Sako (1992) asserts that the reason behind growing interest in building trust between organisations rests in the belief that trust enhances business performance. To this context, Handfield (2002) argues that relationships can take different forms and the type of relationship has an impact on supply chain performance. As

mentioned before, trust has been acknowledged as the important factor in determining the type of relationship. However, this belief in the impact of trust in supply chain relationships on supply chain performance and organisation performance requires empirical research to assess its validity. Therefore, investigating the extent of the truth of this belief could be an important focus of research aimed at encouraging development in organisation performance.

The literature shows that the theory of the impact of trust on supply chain performance rose initially in developed countries where organisations are continuously conducting research and rapidly developing. In these countries, trust is increasingly being viewed as a precondition for superior performance and competitive success in the new business environment (Lane, 1998). However, the validity of this view still demands investigation. The view of trust as a precondition for superior performance involves an optimistic expectation about the role of trust in the business relationships. Moreover, the expected contribution of trust to the business success as argued by Lane (1998) depends on a view of trust as a dominator in the business relationship that can be used to face threats and realise business survival. From this point of view Zaccone (2004) argues that the continuous growth in business competition imposes the need for real trust and deeper, more effective collaboration supply chain relationships, and points to significance of trust in supply chain relationships to reduce the effect of the growing business competition.

However, the effect of trust in relationships between supply chain parties has been rarely and inadequately studied. Empirical research is needed to test the effect of trust in supply chain relationships (Tomkins, 2001). In this context, Fynes *et al.*

(2005) indicate that in the area of supply chain relationships, the previous empirical researches have primarily sought to explain the nature of relationship processes rather than their effect on business performance.

Sako (1998), in the context of automotive organisations, investigated the effect of trust between suppliers on reducing transaction costs and investment, and thereby increasing future returns and facilitating continuous improvement and learning. She found positive relationships between trust and the other variables studied. Since her study was only concerned with suppliers in the automotive industry, she recommended that similar studies be conducted on different business industries to investigate whether or not her findings were applicable for other business contexts. Later on, Dyer and Chu (2003) conducted similar research to the one conducted by Sako and studied the effect of trust between suppliers on reducing transaction cost in automotive organisations in United States, Japan and Korea and found that trustworthiness lowers transaction costs in exchange relationships. Similarly to Sako recommendation, Dyer and Chu (2003) recommended research to investigate whether the same is true in other industry settings. Since these two researches were conducted in the same industry setting and investigated a similar phenomenon, which is the effect of trust between suppliers on reducing transaction cost, then the second research that was conducted by Dyer and Chu can be viewed as validating Sako's research findings.

The previous researches looked at the effect of trust in relationships in specific areas and mostly in specific industry settings. The recommendations for further empirical studies in this area provide an impetus for research to fill existing gaps in knowledge.

As a contribution in this area, this research will look at how parties in supply chain business relationships view the importance of trust to their business relationships. It aims to provide knowledge about the economic benefits of trust between parties in supply chains through empirical study.

### **1.3 RESEARCH AIMS AND OBJECTIVES**

As indicated by a wealth of literature, organisations and parties in the supply chain need to understand how trust in supply chain relationships will affect their organisations' performance in the most substantive way, and what it means to be a supply chain leader. They need to understand the advantages associated with trust in supply chain relationship, and know what supply chain leaders are able to do to ensure or extend their competitive advantages (D'Avanzo *et al.*, 2003). This will help organisations to direct attention to areas that need development in their chains.

A competitive environment is increasingly facing organisations of all sizes (Vesset, 2003). In regard to organisation size, the literature indicates that major interest in the study of supply chain relationships has focused on Small-to-Medium Sized Organisations (SMO) and in particular on Small Sized Organisations (SO), because of the huge number of these organisations in the market and the growing number of new small size organisations being established. However, the literature identified that Medium Organisations (MO) and Large sized Organisations (LO) are more likely to be highly affected by risk occurrence, bullwhip effect occurrence and cost in the supply chain than Small Sized Organisations. This is because of the size of operations of these organisations, which often involve deployment of huge amounts of resources and more complex supply chains in comparison to SO operations.

It is the major objective of this research, therefore, to gain understanding of trust in supply chain relationships and impact on organisation performance and supply chain performance within MO and LO. The sub-objectives of this research are strongly related to the main objective and they are as follows:

1. Investigating the role of the length of the supply chain relationship on the trust development between supply chain parties.
2. Identifying the type of trust that has the most prominent impact on supply chain performance and organisation performance.
3. Investigating the impact of trust in supply chain relationships on risk occurrence.
4. Investigating the impact of level of trust between supply chain parties on occurrence of bullwhip effect in the supply chain.
5. Identifying the influence of territory and type of industry in relation to trust in supply chain relationships and its impact on organisation performance and supply chain performance.
6. Providing implications for supply chain management theory based on the empirical results of the thesis.

#### **.4 LIMITATIONS OF THIS RESEARCH**

Although considerable effort has been made to ensure the robustness of the study, there are a number of remaining limitations that must be highlighted. These limitations are largely related to geographical location of organisations for research and the type of organisations. The limitations are as follows:

1. The research is mainly concerned with medium and large size organisations; small business organisations are not considered in this study.
2. Each core organisation and its supply chain parties selected for study were located in the same country. Although this research studied organisations and their upstream and downstream supply chain parties in three countries namely; Oman, United Arab Emirates (UAE) and Qatar, the study of organisations and their supply chain parties across different countries would require time and budget beyond the scope of this study.
3. The research is concerned with investigating trust in relationships and impact on organisation performance and supply chain performance. Issues related to cultural difference and its effect on the trust-building process (see Heffernan, 2004) are not tackled by this research, because culture and its effect on the trust-building process has been investigated by other researchers like Dyer and Chu (2003) and Sako (1998).
4. The research uses case studies as the research methodology. Since the organisations selected for research possess international reputation and operate across borders, their territory of origin will not hinder the generalisation of the research findings. Rather it facilitates the achievement of this research objective to find any possible effect that the difference of territory can cause through comparison of the research findings between the studied organisations in the different territories.

Having identified the research background, aims and objectives and the research limitations, the next section will consider the structure of the thesis.

## **1.5 STRUCTURE OF THE THESIS**

This thesis contains eight chapters. Each of the chapters contains sections and subsections related to the topic of interest of the chapter.

- Chapter 1:** Contains introduction to the chapter, presents the research background, highlights the research aims and objectives, and finally provides the research limitations and structure of the thesis.
- Chapter 2:** The objective of this chapter is devoted to the review of the relevant literature to the thesis aims and objectives. It provides literature review on supply chain concept and management, highlights supply chain development, identifies and classifies supply relationships, clarifies trust in supply chain relationships. Moreover, it identifies beliefs of economic values of trust and reflects on the relationship between trust and culture. Additionally, the chapter provides literature on Arab Gulf supply chain.
- Chapter 3:** This chapter represents the second part of the literature review and it provides literature review on organisation performance, supply chain performance and identifies their measures. It identifies performance measures selected for indicating each performance and demonstrates models developed to view trust in supply chain relationships. Additionally, it provides the research questions and eventually it shows the research framework.
- Chapter 4:** This chapter defines the research approaches and methodologies and indicates the used data collection methods and presents the analysis methods used for analysing the research data.

- Chapter 5:** This chapter provides quantitative and qualitative analyses of the first case study and presents findings related to the research questions on basis of the conducted analyses.
- Chapter 6:** This chapter concerns the second case study selected for the research and provides quantitative and qualitative analyses of the research data maintained through this case study and discusses the research questions in the light of the analyses of this case study.
- Chapter 7:** This chapter considers the third case study selected for the research and provides quantitative and qualitative analyses of the research data maintained through this case study and provides answers to the research questions on basis of findings generated from the conducted analyses of the case study.
- Chapter 8:** This chapter aims to discuss the research findings in relation to the research propositions. Moreover, it provides conclusion drawn based on the research findings and through the research findings it proceeds to provide theoretical contributions to the field of supply chain and operations management knowledge. Additionally, it highlights managerial implicates based on the research findings.

**CHAPTER 2**

**LITERATURE REVIEW: PART 1**

**SUPPLY CHAIN RELATIONSHIPS, TRUST AND**

**ARAB GULF SUPPLY CHAIN**

**2.1 INTRODUCTION**

This chapter reports findings of a literature review on trust between supply chain parties. The review commences with a discussion of the concept of supply chain. Then, the discussion focuses on the types of supply chain that have emerged over time as a means of coping with the volatility of the market environment, which is characterized by uncertainty and product complexity. Moreover, it defines supply chain parties and types of relationship between them.

The review then proceeds with a discussion of theoretical background of trust in relationships. Trust is defined and types of trust are identified. Trustworthiness-attributes are defined and three major trustworthiness attributes and their dimensions are identified. Then, the chapter considers literature review on beliefs of economic values of trust. After that, the chapter highlights national and organisation cultures and demonstrates the relationship between trust in supply chain relationships and culture. The review then proceeds to provide literature on Gulf logistics and supply chain research. Finally, the chapter ends with a summary of the reviewed literature.

## 2.2 SUPPLY CHAIN

This part of the thesis reviews the literature on supply chains. It defines supply chain concept and clarifies the supply chain development. Moreover, it identifies supply chain parties and their relationships in the supply chain process. It clarifies different relationships between the parties and shows the importance of the supply chain parties for supply chain performance.

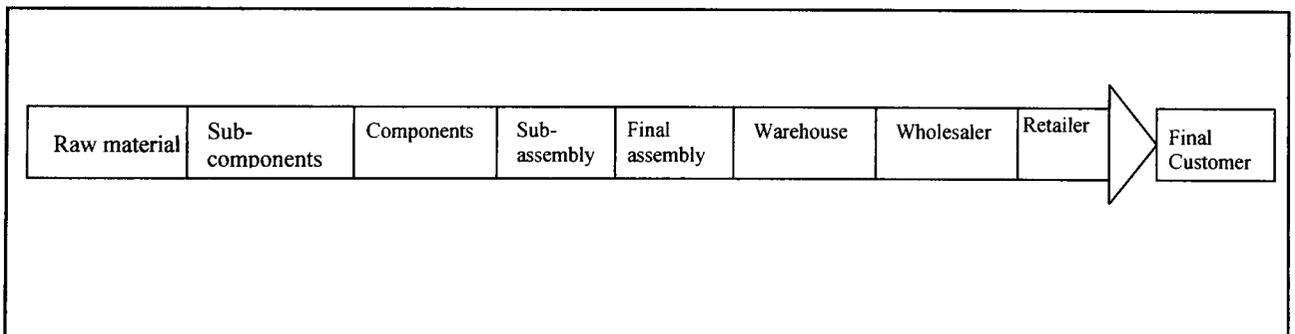
### 2.2.1 Supply Chain Concept

Understanding the supply chain starts with understanding the supply chain concept. This section discusses the supply chain concept in order to reach an understanding of the supply chain. Such an understanding is required by the research to clarify supply chain process, its activities and its importance to organisation business. This clarification will aid the research in understanding the nature of relationships between parties in the supply chain.

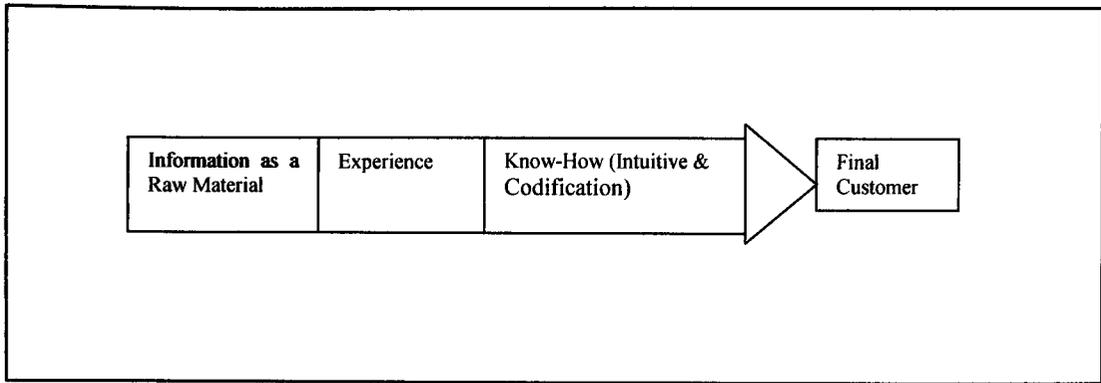
The supply chain is defined by the Supply Chain Council (1997) as every effort in producing and delivering a final product. In regard to the start and end of the supply chain process Lummus and Vokurka (1999) clarified this by stating that it starts from the supplier's supplier and ends with the customer's customer. The functions of the supply chain process are clarified by Chopra and Meindl (2001: 3) by stating that "*supply chain includes all functions involved in filling a customer request.*" Supporting this view of the supply chain, Hadley (2004) and Hausman (2005) argue that a supply chain is a network of partners that produces raw materials, subassemblies, and finished products then distributes them via various sales channels to customers. In Hadley and Hausman's argument, the partners in the supply chain are visualised as the ones that shape the supply chain.

Therefore, based on this literature review, the supply chain in this research can be defined as a process that involves a network of partners that work in a form of a chain to fulfil a customer request and this process starts from the supplier's supplier and ends with the customer's customer.

After defining the supply chain concept, it is important to highlight a typical supply chain process. According to Vorst and Beulens (2002), a supply chain involves organisation in the form of supplier, firm (manufacturer of a product or a provider of a service), and customer. Based on the concept of the supply chain as defined in this section, the typical supply chain process starts with a customer placing an order and ends when the supplier fulfils the customer's order. Typical supply chains in manufacturing and services sectors respectively are illustrated in Figure 2.1 and Figure 2.2.



**Figure 2.1: A Typical Manufacturing (Product) Supply Chain (Cox *et al.*, 2001)**



**Figure 2.2: A Typical “Pure Service” Supply Chain (Cox *et al.*, 2001)**

The typical supply chain is very complex and involves suppliers, manufacturers, and customers (Kuei *et al.*, 2001). As shown in Figure 2.1, the supply chain process in manufacturing industry is considerably longer than the supply chain in pure service industry. The typical supply chain, as shown in the figures, moves from the supplier of raw material towards the final customer in a long process that requires a considerable amount of time.

Having defined the supply chain concept and highlighted the typical supply chain processes, the next section reviews literature on supply chain management.

### **2.2.2 Supply Chain Management**

Interest in the concept of supply chain management has steadily increased since the 1980s. According to Giannakis and Croom (2004) the term supply chain management was first used in a popular sense by Oliver and Weber (1982) and then by Houlihan (1984, 1985, and 1988) in order to describe the management of materials flows across organisational borders.

The literature indicates that the concept of supply chain management and the concept of logistics management are interrelated and overlapping. According to Lamming (1996), supply chain management is a theory grounded in the field of logistics. The literature indicates that logistics and purchasing are traditional approaches to Supply Chain management research and practice. In this context, Larson *et al.*, (2007) argue that the concept of supply chain management reflects wide roles than are embedded in the concept of logistics. This argument is supported through the change of the name of the Council of Logistics Management (CLM) to the Council of Supply Chain Management Professionals (CSCMP) which came into effect on 1<sup>st</sup> of January, 2005 (Larson *et al.*, 2007). Therefore, supply chain management is a broader term for logistics management and involves more sophisticated and developed roles than logistics management. In other words, supply chain management reflects development of the logistics management concept and upgraded roles practised and applied in the field of logistics.

Supply chain management is developed to improve customer service, achieve a balance between costs and services, and to give the business competitive advantage (Steven, 1990). The concept of supply chain management is directly related to managing the supply chain processes. Monczka and Morgan (1997: 70) state that “*Integrated supply chain management is about going from the external customer and then managing all the processes that are needed to provide the customer with value in a horizontal way.*” This concept was developed with business process reengineering (BPR), whose appealing benefits were the improvement in response time to customers, reduced inventory, lower operating cost and reduction in working capital flow (Moore, 1998).

According to Giannakis and Croom (2004) organisations depend upon the capabilities and resources embedded in their suppliers, customers and collaborators. Based on Ginnakis and Croom's argument, supply chain management aims to develop linkage between the supply chain capabilities and resources to create value to organisations or partners in the supply chain. In this context, the supply chain management aims to provide competitive advantages to the organisation through the improvement of the supply chain process and to enhance the organisation's capabilities to satisfy customers with lower cost products and services and faster order fulfilment.

The term supply chain management has become a standard part of the business lexicon (Harrison *et al.*, 2003) and it refers to an integrated philosophy to manage the total flow of materials from suppliers to ultimate customer (Folinas *et al.*, 2004). It occupies an important position in today's business functions.

In any size of manufacturing organisation, the core value proposition of supply chain management is to improve corporate profitability and return on capital (Cohen, 2004). In this context, an organisation that wants to sell its products at a higher profit and a lower cost needs to be equipped with efficient supply chain practices (Anderson *et al.*, 1999). Therefore, for an organisation to improve supply chain efficiency, appropriate supply chain practices need to be identified. The right supply chain practices have always been a topic that has sparked off considerable debate.

A significant function in the daily activities of supply chain management is to review supply chain practices in accordance with the organisation's business goals (Sahay and Mohan, 2003). Recently, Kees (2005) asserted that the right practices of supply chain management are maximizing organisation leverage with its supply base, exploring supply sources, matching suppliers, and customers' payment terms, improving supply chain processes and maintaining efficient and controlled processes. The purpose of review of supply chain practices with the business goals is to improve supply chain performance and to achieve supply chain development as a competitive advantage. Therefore, since the supply chain is defined in the previous section as a network of partners working to fulfil customer requests, therefore supply chain management, based on the literature review in this section, is generally about managing the relationship between the supply chain partners to improve supply chain performance.

Having differentiated between supply chain management and logistics management and defined the concept of supply chain management, we turn in the next section to the literature on supply chain development.

### **2.2.3 Supply Chain Development**

The discussion in the previous section reveals that supply chain management is regarded as a competitive advantage to the organisation. This advantage accounts for supply chain improvement to cope with market environment and the nature of competition. Based on supply chain management and supply chain practices discussed in the foregoing section, different organisations may have different patterns of supply chain and each pattern has its unique features that identify it. Therefore, knowing supply chain patterns and their features is crucial to

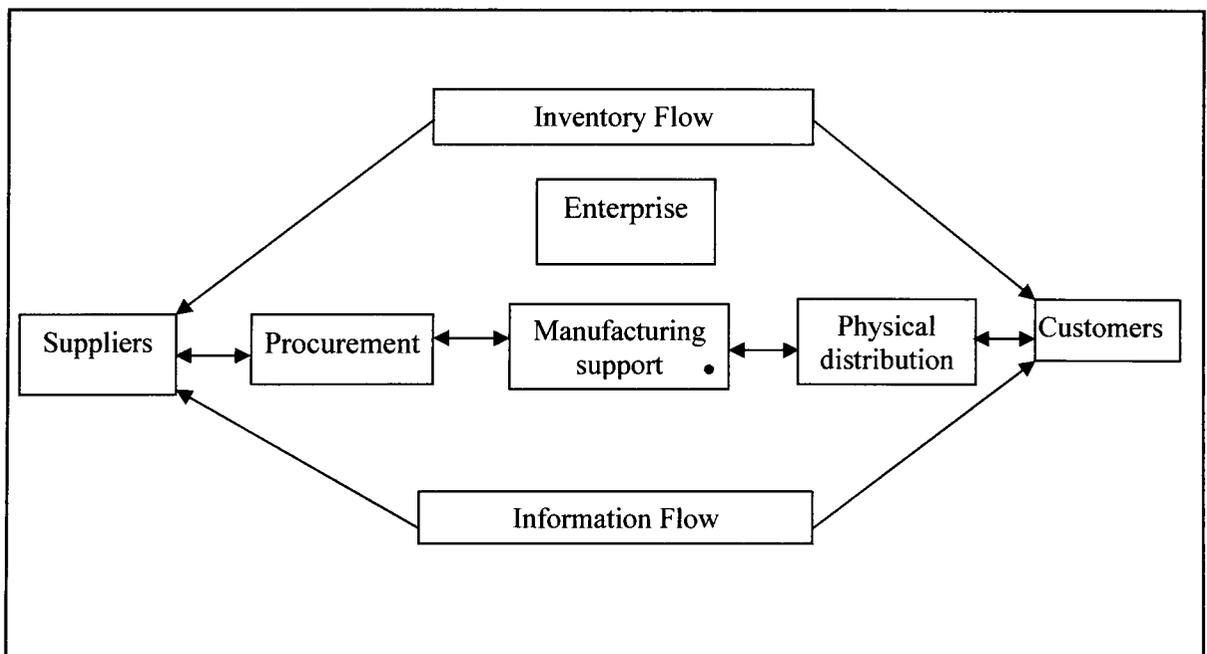
understand the supply chains of the organisations that will participate in the research. This section of the thesis reviews the literature on supply chain patterns to shed light on supply chain development.

The supply chain started as supply channels in the form of a loosely linked group of independent businesses, referred to as the traditional supply chain. The traditional supply chain is predominantly for protection. It was established as a push-based supply chain strategy in which production and distribution are based on long-term forecast (Simchi-Levi *et al.*, 2003). It is based on establishing long-term relationships with vendors, distributors and retailers with high inventory, long lead time and fixed margins. The long-term forecast of production and distribution require market stability, characterised by high market certainty.

Nowadays and due to continuous technology development and market research and innovations, change has occurred in the market and the market has become volatile, characterised by unprecedented increase in market instability and high market uncertainty. Consequently, it becomes difficult to rely on long-term forecasts. Because this strategy is embedded in the traditional supply chain, it becomes apparent that this type of supply chain lacks the mechanism to cope with the fast market environment. Therefore, its competitiveness in the market is regarded as low. In investigation of other reasons that degraded this type of supply chain in the face of the volatile market environment, the literature indicates that the isolation of suppliers and other entities in the traditional supply chain is regarded as constraining business growth and competitiveness. Shenton (2003) contends that this pattern of supply chain is no longer enough to continue to compete in the volatile market. Therefore, the traditional supply chain has

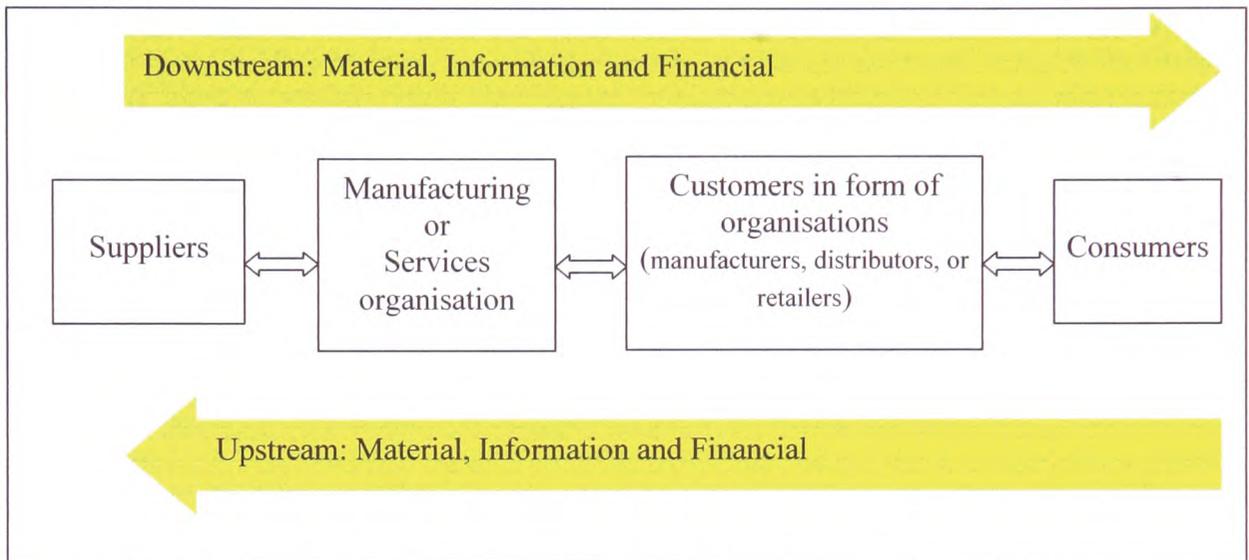
become an ineffective business strategy, resulting in a search for a more competitive supply chain pattern to cope with the volatile market environment.

As mentioned before, the loosely linked group of independent businesses in the traditional supply chain was recognised as the reason for low supply chain competitiveness. To improve competitiveness, organisations began to realize that more collaborative relationships between supplier and the other supply chain entities are important. This led organisations to realise the importance of supply chain management integration, and integration of supply chain management came to be recognized as a core competitive strategy (Ee, 2001). This form of supply chain implies that the organisations in the supply chain, in order to improve supply chain performance, initiate cooperation with other organisations in their supply chain, as shown in Figure 2.3.



**Figure 2.3: The Supply Chain Integration (Bowersox and Closs, 1996: 101)**

Supply chain integration led to development of another pattern of supply chain, named the lean supply chain. This pattern is underpinned by upstream and downstream integration with suppliers and customers, as shown in Figure 2.4.



**Figure 2.4: Interactions and Flows in Lean Supply Chain**

Unlike the traditional supply chain, the lean supply chain involves efforts by buyers to improve the performance of their suppliers (Emiliani, 2000). The latter part of the twentieth century saw the lean production paradigm positively impact many market sectors, ranging from automotive through to construction.

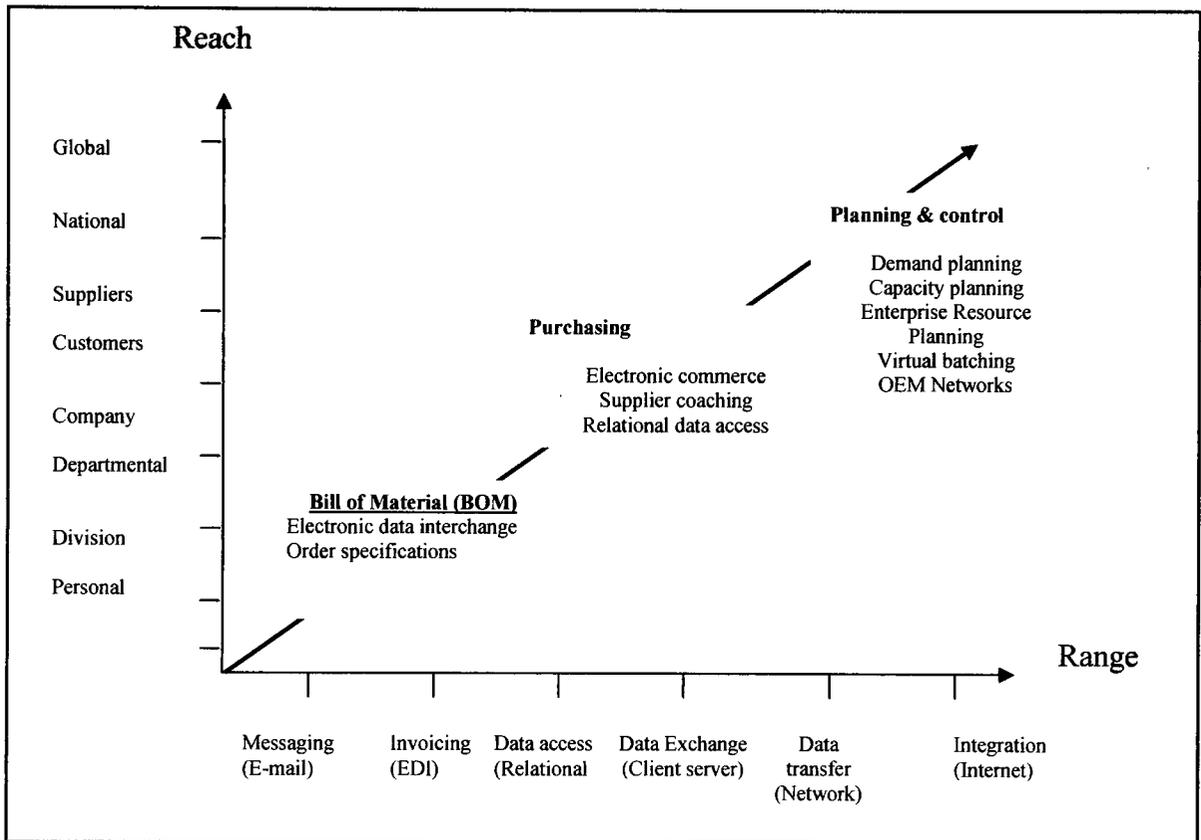
Lean production requires close co-ordination between suppliers and customers, Just in Time (JIT) deliveries, and rapid flows of materials and information (Kippenberger, 1997). Therefore, leanness in this pattern of supply chain may be achieved by eliminating non-value added time. The close co-ordination between suppliers and customers, JIT deliveries and the rapid flows of materials are

features that highly contribute in minimising inventory cost and response time to customer.

The literature shows that to minimise supply chain physical cost and maximise business profit, the lean supply chain pattern requires smooth demand leading to a level schedule to eliminate all muda (waste) in the supply chain processes (Mason-Jones *et al.*, 2000). Though it is more competitive than the traditional supply chain, the lean supply chain has been criticised for the lack of human integration or its limited applicability outside a high-volume repetitive manufacturing environment (Hines *et al.*, 2004). In the context of a volatile business environment and more extensive competition, organisations began to realize the significance of human integration in the supply chain processes for additional improvement. This resulted in development of another supply chain pattern named the agile supply chain.

Agility is increasingly mentioned as one of the coming challenges to the international business world, where the market is volatile and increasingly requires dynamic performance (Van Hoek *et al.*, 2001). In this context, an agile market is global and the supply chain needs to respond more quickly to changing customer requirements. Christopher and Towill (2000) define agility as a business-wide capability that involves organisational structures, information systems, logistic processes, and mindsets. Agile supply chain is the pattern of supply chain that should extend to the highest levels in both dimensions of reach and range shown in Figure 2.5 (Yusuf *et al.*, 2004), and it is flexible and capable to cope with globalization in the internet era (Yusuf *et al.*, 2001; Christopher, 2000). Agile supply chain has the advantage of technological advancement to

reduce the response time required to fulfil customer orders (Mason-Jones *et al.*, 2000), and eliminates sources of variability- induced waste, particularly inventory (McCullen and Towill, 2001).



**Figure 2.5: Reach and Range Analysis of Supply Chains (Browne *et al.*, 1995; Kehoe and Boughton, 2001) cited by Yusuf *et al.* (2004)**

Both agility and leanness demand high levels of product quality and require minimum total lead-times (time taken from a customer placing a request for a product or service until its delivery to the customer). However, they differ in terms of the total value provided to the customer (Christopher and Towill, 2001). Therefore, the lean and agile are not mutually exclusive paradigms and may be merged to create integrated cost-effective supply chains. To distinguish between

the agile and the lean paradigms it is useful to draw a comparison between them based on their attributes. Table 2.1 shows this comparison.

**Table 2.1: Comparison of lean supply with agile supply: the distinguishing attributes (Mason-Jones *et al.*, 2000).**

<b>Distinguishing attributes</b>	<b>Lean supply</b>	<b>Agile supply</b>
Typical products	Commodities	Fashion goods
Market place demand	Predictable	Volatile
Product variety	Low	High
Product life cycle	Long	Short
Customer drives	Cost	Availability
Profit margin	Low	High
Dominant costs	Physical costs	Marketability costs
Stockout penalties	Long term contractual	Immediate and volatile
Purchasing policy	Buy goods	Assign capacity
Information enrichment	Highly desirable	Obligatory
Forecasting mechanism	Algorithmic	Consultative

As shown in Table 2.1, physical costs, including all production, distribution and storage costs, dominate the lean supply chain, whereas marketability costs including all obsolescence and stock-out costs, dominate the agile supply chain. Moreover, the lean supply chain is applicable for the commodities market where there is less change than in the fashion market, where the market environment is swift and highly uncertain. Therefore, an organisation with a commodities supply

chain is expected to use the lean supply chain. However, market uncertainty, rapid product development and technological advancement may lead to the use of the agile supply chain in the commodities market. This is clearly illustrated in Figure 2.5, where globalization and the Internet become dominant in the market.

The foregoing discussion indicates that the supply chain development through integration is a matter of coordination and co-operation between different business's units in the supply chain, which is directly related to supply chain management discussed in the previous section. The literature shows that the supply chain initially started with the traditional supply chain, then developed to a lean supply chain and now an agile supply chain pattern is continually arising as a better pattern to cope with the agile market environment. This section indicated that improvement of the supply chain starts with integration between the different supply chain business units through managing the supply chain relationship between the business units to achieve higher supply chain performance. These business units are referred to as supply chain parties. The next section clarifies the meaning of the supply chain parties and highlights the supply chain relationships.

## **2.3 RELATIONSHIPS IN SUPPLY CHAIN**

### **2.3.1 Supply Chain Parties**

Supply chain parties are the important elements to define and explain in order to understand their relations with the supply chain process and how these relations affect the supply chain performance and eventually the organisation performance. This section defines the supply chain parties and classifies the parties on the basis of their position in the supply chain process. Additionally, it reviews the

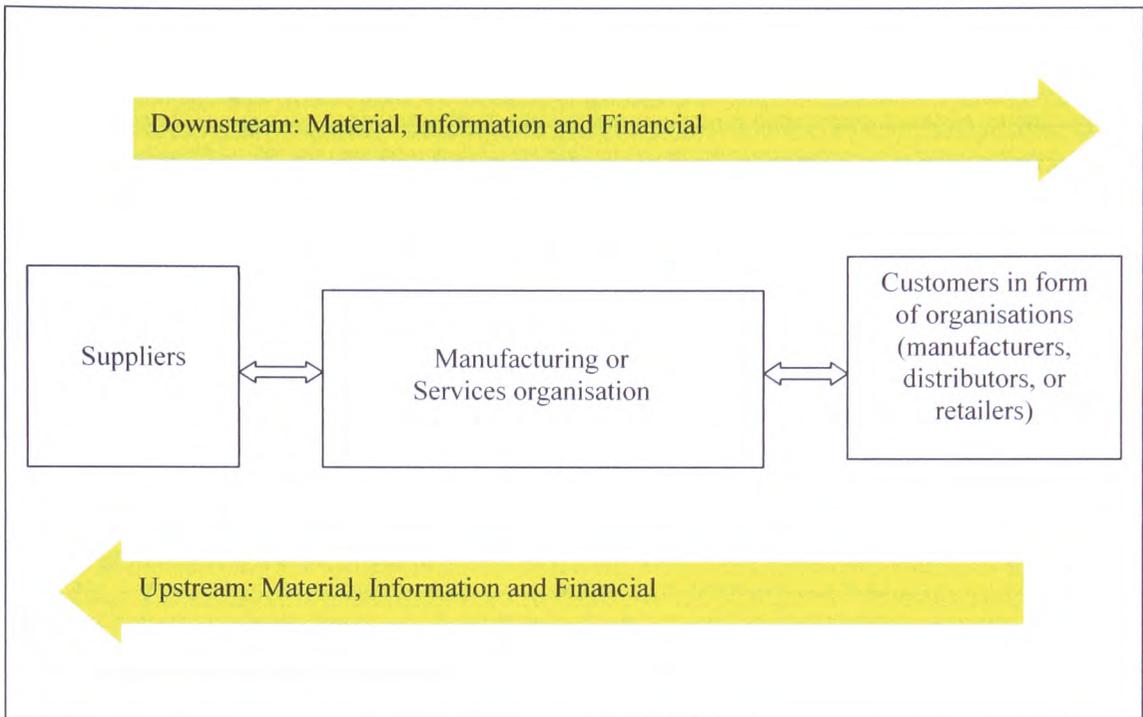
importance of these parties in the supply chain process and identifies their relationships in the supply chain.

Supply chain parties are people or organisations involved in supply chain operations and management. A party is defined in the Longman Dictionary of English Language and Culture (1993: 968) as “*a person or group of people concerned or taking part in an agreement, argument or other activity, esp. a legal matter.*” Therefore, parties in a supply chain can be defined as individuals or organisations that have an interest in the supply chain process and could affect its daily management activities.

### **2.3.2 Relationships Between Supply Chain Parties**

This section reviews the literature on supply chain parties and shows their relations with the organisation of the supply chain. It considers the importance of selecting appropriate parties to an organisation in supply chain relationships. Additionally, it discusses types of business relationships and clarifies relationships in the supply chain.

As shown in Figure 2.6, in supply chain interaction, material, information and financial flows between supply chain parties in the supply chain network take place upstream right up to the supplier and downstream down to the customer. The supplier in the upstream flows and the customer in the downstream flows are parties in the supply chain associated with a certain business relationship. These parties refer to the interaction between an organisation and its upstream or downstream organisations.



**Figure 2.6: Supply Chain Parties**

Mitchell (2002), a partner of Mitchell Enterprises, asserts that selecting suppliers who are willing to build mutually beneficial relationships with their customers is important. She points to the effect of selecting the right supplier to meet the customer's needs at the right price. Accordingly, since the relationship between the parties in the supply chain is a business relationship, the supply chain parties to an organisation can boost the beneficial relationship to provide more beneficial advantages to the organisation, or hinder such a beneficial relationship. Therefore, the right supply chain relationship starts from the point of selecting supply chain partners or parties.

In supply chain relationships, the customer to one organisation could be a supplier to another organisation. Rudzki (2004: 51), in discussing and classifying

the types of relationships between customers and suppliers, argues that “*not all buying relationship is considered a partnership*”. Referring to the traditional supply chain discussed in this thesis, a buying relationship without partnership is likely to exist in this type of supply chain. Once co-operation is included between supply chain parties, a kind of partnership is likely to occur in the supply chain. Values perceived by supply chain parties are the drivers for strengthening the buying relationship. Burnett (2004) emphasizes the importance of improving the relationship between supplier and buyer. In this context, improvement of the relationship between supply chain parties is likely to improve supply chain cost and responsiveness to customers.

Most manufacturers do not know their retailers in ways that create significant supply chain efficiencies and vice versa (Neuman and Christopher, 1996). Relationships between supply chain parties should extend beyond the exchange of materials or services for a price to include design, distribution, marketing, and knowledge exchange (Dainty *et al.* 2001). Pyke and Johnson (2003) classified the characteristics of different types of relationship between suppliers and their customers, as shown in Table 2.2. These types are classified as buy-the-market relationship, ongoing relationship, partnership, strategic alliance and backward integration. These types of relationships could be found upstream or downstream of the organisation supply chain processes.

**Table 2.2: Characteristics of different types of supplier relationships (Pyke and Johnson, 2003: 82).**

Buy the Market	Ongoing Relationship	Partnership	Strategic Alliance	Backward Integration
Arm's length	Medium-term contracts	Longer-term contracts	Long-term relationship	Ownership of the supplier
Clear parts specifications	Some sharing of information	Extensive sharing of information	Full sharing of information and plans	full sharing of information and plans
Computerized interaction	Some business with competitors	Increased trust	Limited or no business with competitors	One culture
Significant business with competitors	Good management relationship	Limited business with competitors	Extensive trust and merging of cultures	

Adapted from M.A. Cohen and N.Agrawal, *An Empirical Investigation of Supplier Management Practices*, Operations and Information Management department, University of Pennsylvania, 1996, and M. T Flaherty, *Global Operations Management*, McGraw-Hill, 1996.

The buy-the-market relationship implies no commitment to buy from a specific or particular organisation or supplier. The relationship in this type is market driven, based on price and customer perception. In the ongoing relationship, the organisations respond to a need for deeper and broader interaction with the supplier in order to improve cost, quality, and delivery. Partnership, strategic alliance and backward integration, as shown in Table 2.2 are longer-term relationships and the relationship becomes closer, moving from partnership to backward integration.

Relationships between supply chain parties can be in the form of one or more of the five relationships shown in Table 2.2. Organisations may have ongoing relationships with suppliers and partnership with customers. As mentioned

before, the perceived value of the relationship to the parties is the major determinant of the type of relationship between the parties. The perceived values involve consideration of business environment and supply chain competitiveness. The previous discussion of the supply chain patterns reveals that better supply chain performance requires more co-operation and coordination between the parties in supply chain. Therefore, the type of relationship between parties is likely to influence the form of supply chain pattern and thereby the supply chain performance.

## **2.4 THEORETICAL BACKGROUND OF TRUST**

This part of the thesis reviews literature on trust in relationships. It defines trust and identifies trustworthiness-attributes. Moreover, it shows classification of trustworthiness-attributes and conceptualises trust in supply chain relationships. Additionally, it clarifies types of trust and explains the stages of trust development. Furthermore, it reviews risk involvement in trust relationships. Then, it discusses trust between supply chain parties.

### **2.4.1 Defining Trust**

Trust is the cornerstone of strategic relationships (Spekman, 1988). Trust in supply chain relationships was defined by Sako (1992) as a state of mind regarding an expectation held by one trading partner (trustor) about another (trustee) that the latter will behave in a particular and mutually acceptable manner. Sako in this definition points to the initiation of the trust relationship between the parties and she clarifies this initiation in form of expectations held by one party about another. Hence, the trust exists in the relationship between the parties based on forecasted and expected behaviour and the planned outcome

from the relationship. To this extent Sabel (1993) points out that trust is the shared confidence that no party to an exchange will take advantage of another's susceptibility. Therefore, trust ensures the security of each party based on ethical principles and through expectation that the other party will adhere to such principles. This is clearly emphasised by McLain and Hackman (1999: 153) who defined trust as "*the belief that a specific other will be able and willing, in a discretionary situation, to act in the trustor's best interest*". This view of trust is supported by Huotari and Iivonen (2004: 8), who argue that, "*Trust is based on expectations of other people's willingness and ability to fulfil our needs and wishes.*" Hence, trust in supply chain relationships is a matter of understanding of each party's capability and willingness to achieve and expecting benefit or outcome based on that understanding which is related to, in Sako definition, as a state of mind. Therefore, the trustee has to be competent and keen and trustworthy to meet the trustor's expectations.

Trust in relationships is conceptualised as a renewable asset that includes power, flexibility and simplicity (O'Brien, 2001). This indicates the regain-ability characteristic of trust and identifies that exchanging trust in relationship is a personal value. Trust can be offered by one party and rejected by the other depending on the nature of the relationship and one or both parties' expectations (Tomkins, 2001). Hence, not all relationships between parties are trust relationships. For parties to construct a trust relationship, then, both parties need to perceive trust of each other.

Referring to Sako's definition, in supply chain relationships trust could be affected by achievements realised by the trustee in regard to expectations drawn

by the trustor. In this context Kwon and Suh (2004: 13) contend that “*Trust is an ever-changing phenomenon, constantly affecting and being affected by most activities in economic transactions.*” Therefore, if trust in supply chain relationships is to exist and remain stable, then the parties need to achieve satisfying economic transactions that retain or enhance trust in the relationship. The intervention of economic transaction activities to affect trust in supply chain relationships indicates possible variation of trust intensity between parties in the trust relationship, and this variation is almost based on each party’s achievements in comparison to each party’s expectations.

The foregoing discussion defines the concept of trust in relationships. The trust building process in relation to trust development in the supply chain relationship is highlighted in section 2.4.5. Before highlighting the trust building process in the relationship it is important to highlight the attributes that lead to trust development, trust dimensions and types of trust. The following section highlights the trustworthiness attributes.

#### **2.4.2 Trustworthiness Attributes**

Trustworthiness attributes represent ways of defining trust occurrence. As the research aims to explore trust between parties in supply chain relationships, then identifying attributes of trust is important to understand the relationship and to assess the existence of trust. This section of the thesis reviews literature on trustworthiness attributes; it defines them and clarifies their occurrence.

Psychologically, trust is characterised in terms of the expectations and willingness of the trusting party engaging in a transaction (Rousseau *et al.*, 1998). The attributes of trust depend on the trust context (Sloman, 2004).

Several authors have defined attributes that lead to the construction and perception of trustworthiness in supply chain or business relationship. These trustworthiness-attributes are benevolence (Larzelere and Huston, 1980; Hansen, 2003; Solomon and Flores, 2003; Wintoro and Mulya, 2005), honesty (Scarnati, 1997; Walter *et al.*, 2000; Asacker, 2004), competence (O'Brien, 2001; McKnight and Chervany, 2002; Solomon and Flores, 2003), commitment (Ganesan, 1994; Walter *et al.*, 2000; Iivonen, 2003), credibility (Ganesan, 1994; Doney and Cannon, 1997; Walter *et al.*, 2000), expertise (Ganesan, 1994), reliability (Ganesan, 1994; Morgan and Hunt, 1994), intentionality (Sako, 1992; Smith and Ven, 1994), integrity (Mayer *et al.*, 1995; Jarvenpaa *et al.*, 1998), confidence (Morgan and Hunt, 1994), ability (Mayer *et al.*, 1995; Jarvenpaa and Tractinsky, 1999; Lee and Turban, 2001), consistency (Brenkert, 1998; O'Brien, 2001), predictability (Sako, 1992; Huemer, 2004), and fairness (Bies and Moag, 1986; O'Brien, 2001). The following discussion defines and clarifies each of these attributes.

#### **a) Benevolence**

Larzelere and Huston (1980) defined trust as dyadic because they believed trust occurs based on a person perception of another person benevolence and honesty. Benevolence consists of the sentiments of friendship and the sense of diffuse personal obligation which occurs between parties engaged in a business relationship (Perry *et al.*, 2002). Therefore, benevolence suggests that the trustee

has some specific attachment to the trustor. In relationships, benevolence has a positive effect on disclosing intimacy (Hansen, 2003). Solomon and Flores (2003) used the term benevolence to focus on a positive and specific relationship with a trustor. Therefore, it is regarded as the perception of a positive orientation of the trustee toward the trustor. It is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive and it can be expressed in number of ways such as supportiveness and loyalty (Wintoro and Mulya, 2005). Therefore, in supply chain relationship it refers to perception of an exchange party's goodwill toward the other party in the relationship.

#### **b) Honesty**

Honesty is telling the truth, conforming words to reality (Scarnati, 1997). Hence, when a trustee gives a promise it implies promise keeping without changing or cheating. It means that the trusting party in a relationship relies on the relationship partner being credible (Walter *et al.*, 2000). Asacker (2004) defined honesty as a personality dimension that means finding a caring way to express what people think or feel. Therefore, in supply chain relationship honesty refers to fulfilling a promise or acting in accordance with one's words and fearing the consequences of not doing so. In this context, the trusting party's willingness to trust will be based on the perceived honesty of the trustee, which makes the trusting party feels confident that the other party will fulfil the specified task or role in the supply chain transaction. Honesty is defined as the first step in building trust relationship and without perceiving honesty in the trustee, the willingness to trust remains limited (Ganesan, 1994; Doney and Cannon, 1997; Liljander and Roos, 2002). Therefore, it is fundamental for trust occurrence and it

carries expectations drawn by a trustor party based on previous experience about another party.

### c) Competence

Competence is another attribute of trust. Jaques (1976) views competence as the capacity and willingness to look far ahead as a long-term time orientation. Jaques's view of competence involves personal skill and experience to predict the future. Hamel and Parhalad (1994) define competence as a combination of skills and technologies. Morden (1997) supports this view in defining competence. O'Brien (2001) refers to competence as earned reputation on the basis of knowledge, experience and ability. Solomon and Flores (2003) contend that it is a condition of trust, while Handfield and Bechtel (2004: 08) define competence as "*one's perception of the ability of a party to meet commitments.*" These views about competence indicate that there is no specific definition of competence in relationships. However, skills and technologies in Hamel and Parhalad's and Morden's definition are closely related to O'Brien's definition, which defines competence as a reputation for knowledge, as is Jaques's view of competence as involving personal skills and experience. Moreover, the ability of a party to meet commitments, as defined by Handfield and Bechtel, is apparently related to the skills, knowledge, experience and technologies that are likely to be deployed by the party to meet the commitments. Therefore, competence can be defined as a bundle of skills and experience, technologies and reputation for knowledge. Hence, competence can be defined as the ability to perform as expected to meet commitments through deploying possessed skills, knowledge, experience and technologies appropriate to an assigned role or task.

#### **d) Commitment**

Relationship commitment is defined as an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum efforts to maintaining it; that is, the committed party believes the relationship is worth working on to ensure that it endures indefinitely (Morgan and Hunt, 1994). Commitment implies greater dependence of channel members on their partners (Ganesan, 1994). It is a trust principle and it means that people take their work seriously without hesitation (Iivonen, 2003).

#### **e) Credibility**

Ganesan (1994) argues that credibility is based on the extent to which a trusting party believes that the other party in the relationship has the required expertise to perform the task effectively and reliably. Credibility is the believability of the current intention based on the reputation of an individual or organisation (Herbig and Milewicz, 1995). Herbig and Milewicz (1997) define credibility as the believability of an individual's intentions at a particular moment in time. They go further to say that credibility is time sensitive and it can differ from perceived credibility on a previous or future date. They contend that credibility exists when one can confidently use past actions to predict future behaviour. It is highly related to perceptions of the individual's actions. The literature reveals that honesty is strongly associated with credibility, as shown before in the definition of honesty given by Walter *et al.* (2000). Polities (2005) asserts that in an organisation the management dimension of credibility has positive and significant impact on knowledge acquisition attributes of control and negotiation.

## **f) Expertise**

Expertise refers to proficiency, skill, specialist knowledge and information. Braunsberger and Munch (1998) define expertise as having a high degree of skill in/knowledge of a certain subject area, which is obtained through some type of formal training. Bender and Fish (2000) define expertise as specialized, deep knowledge and understanding in a certain field, which is far above average. According to Sveiby (2001) describing knowledge is difficult by using words, because an “auto pilot” guides the actions. Expertise is defined as tacit knowledge; tacit knowledge is knowledge of practices that people have learned to do, but which they cannot explicitly describe (Karhu, 2002). Van de Heijden (2001) asserts that professional expertise comprises the different types of knowledge that are inherent to a certain professional field. In another article, Van de Heijden (2003: 83) contends that

***“Occupational expertise can only achieve its potential in a situation where an employee is able to exploit or sell the knowledge and skills with which he or she is equipped and where the degree of intensity, amount of time available, degree of difficulty of the task and the amount of personal responsibility are sufficiently challenging.”***

Therefore, expertise is termed as occupational or professional expertise and it is related to the ability to apply possessed knowledge and skills to accomplish or perform a specific task in certain circumstances. Expertise, as a trustworthiness-attribute, implies that a trusting party tends to exchange trust with another party who has professional or occupational expertise through perception of expertise and expected outcome that may be generated through trusting this party’s possessed expertise.

### **g) Reliability**

Reliability can be defined as an expectancy held by an individual that the partner's word or written statement can be relied on (Ganesan, 1994). A trusting party, to perceive reliability of a trustee in a relationship, needs to evaluate a base or experience of the trustee's reliability. According to Handfield and Bechtel (2004), reliability is a level of confidence and consistency perceived through repeated interaction and time. To this extent, Delgado-Ballester and Munuera-Aleman (2005) contend that reliability has a technical or competence-based nature, involving the ability and willingness to keep promises and satisfy consumers' needs. Therefore, reliability as a trust attribute in relationship exists in the form of confidence about future satisfaction occurrence and this confidence is perceived through repeated interaction and time with an exchange party and assessed on the basis of the past behaviour and performance of the party.

### **h) Intentionality or Goodwill**

The literature indicates that intentionality is viewed in trust relationships through two facets. The first view of intentionality is defined as a tendency to participate in a trust relationship. In this aspect Ganesan (1994) asserts that intentionality is not enough for relationship occurrence and therefore motives to exchange trust are required. Moreover, Papadopoulou *et al.* (2001) describe intentionality as the first step in the process of trust occurrence. They refer to it as the intent of a party to engage in a relationship. They refer to intentionality as willingness to participate in a relationship and without participation in a relationship the intentionality represents existence of willingness. Therefore, in this view, intentionality is understood as a plan or a pre-stage to an exchange relationship and the motives to participate on this trust relationship are based on the trusting

party's expectancy. This meaning of intentionality is related to perception of an exchange party's reliability, a trustworthiness-attribute that implies perception of confidence resulting in a tendency to participate in a trust relationship. Hence, this view of intentionality is not in itself a trustworthiness-attribute but a tendency to build trust based on a perceived trustworthiness-attribute.

The second facet of intentionality is related to the intentions of an exchange party towards another in a relationship. As indicated by the literature review, intentionality in its appropriate sense as a trustworthiness-attribute is known as goodwill. According to Smith and Ven (1994), when uncertainty exists then intentionality represents faith in the goodwill of others and this begins with past experiences of interactions with those others or with that party. Hence, it is the ability to predict the other party's future actions based on assessment of this party's past behaviour and level of caring during the relationship. Heffernan (2004) contends that intentionality or goodwill refers to doing more than is formally expected. Based on Heffernan's argument an individual or an organisation with intentionality to participate and do more than expected in a relationship becomes trustworthy to others in that relationship. This does not only highlight the goodwill that involved in the relationship and the willingness to do good to an exchange party in the relationship but it indicates that exposing this goodwill in the relationship requires achievement that goes beyond the other party's expectations.

In relation to the foregoing discussion, the literature on goodwill shows that it is highly related to perceived benevolence of an exchange party, which involves quality of care. Therefore, the goodwill of a party begins to form in a relationship

when an exchange party perceives through past experience of repeated interactions the benevolence of the other party.

**i) Integrity**

Integrity can be defined as adhering to some set of principles or values (McFall, 1987). Mayer *et al.* (1995) argue that integrity depends on the trustor's perception about the trust relationship and it is a key to the formation of trust, in that the trustee adheres to a set of principles that the trustor finds acceptable. They agree with McFall that adherence to and acceptability of common principle or values are essential elements to the formation of integrity. Presence of integrity in a relationship makes the trustee dependable and reliable (Jarvenpaa *et al.*, 1998). Working with integrity refers to behaving in a consistent and honest manner (Iivonen, 2003). Integrity is related to openness of an exchange party in a relationship. It is fulfilment of promises under conditions that involve reward and punishment.

**j) Confidence**

Luhmann (1988) differentiated between trust and confidence, saying that trust differs from confidence because confidence requires a previous engagement on a person's part. Confidence is referred to as a willingness to rely on an exchange partner (Moorman *et al.*, 1993). Morgan and Hunt (1994) and Fairholm (1994) contend that people conceptualize trust as existing when one party has confidence in an exchange partner's reliability and integrity. Therefore, willingness to rely on an exchange partner is a key to trust occurrence. However, they argue that if one believes that a partner is trustworthy without being willing to rely on that partner, trust is limited.

### **k) Ability**

Many authors defined ability as a set of skills or competencies that allow an individual to perform in some area (for example, Butler, 1991; Mayer *et al.*, 1995; Mishra, 1996). In this context, the group of skills and competences generate characteristics that enable a party in a relationship to have influence within some specific domain. These authors (Mayer *et al.*, Butler, and Mishra) assert that in a relationship the trustee may be trusted to perform analytic tasks related to the trustee's possessed skills, competences and characteristics. However, the trustee in this relationship is merely trusted within the specific ability (skills, competences, and characteristics) domain. This view is supported by William (2001) who also contends that the individual may not be trusted beyond the area of perceived ability.

### **l) Consistency**

Consistency is related to the consistency of an individual's behaviour. In a relationship, both the consistency of the trusting party and the behaviour of others are crucial for trust occurrence (Brenkert, 1998). According to Brenkert (1998) an individual who acts arbitrarily or inconsistently would not readily be trusted. Consistency of behaviour helps a trusting party to assess and predict outcomes or expectancies from engaging in a relationship (O'Brien, 2001). Beslin and Reddin (2004) indicate that trust can be retained through consistency of behaviour. Therefore, in supply chain relationships, consistency as a trustworthiness-attribute relates to perception of regularity of an exchange party's attitude and faith in this consistency results in trusting the party.

### **m) Predictability**

Predictability is strongly related to outcomes of relationship. Much of the literature tends to equate predictability with trust. To be meaningful, trust must go beyond predictability (Deutsch, 1958 cited by Mayer *et al.*, 1995). Predictability seems not to be sufficient to characterize the everyday meaning of trust (Huemer, 2004). A basic argument for why predictability is not sufficient is, therefore, that perceptions of positive motivation, or benevolence, are required if expectations of trust are to occur (Huemer, 2004). Predictability is based on behaviour. If an individual keeps changing routines and values, then predictability will be minimal and trust will be more difficult to establish.

### **n) Fairness**

Fairness is referred to as equity. The literature shows that fairness is classified into two types: interactional fairness and procedural fairness (Ruyter and Wetzels, 2000). Bies and Moag (1986) describe interactional fairness as the manner in which the individual is treated in terms of respect, dignity and politeness. On the other hand, procedural fairness is described by Thibaut and Walker (1975) as the process that leads to a certain outcome. Irrespective of the interactional or the procedural classification of the area it occurs in, fairness is defined by Oliver (1997) as rightness or deservingness in comparison to other entities, whether real or imaginary, individual or collective, person or non-person. In business, fairness is based on the perception that management will be as even-handed or equitable as possible (O'Brien, 2001). It can be defined as the lack of bias in procedures and rules (O'Brien, 2001).

The defined trustworthiness attributes represent ways of identifying trust in relationships. The literature describes trust in terms of two types of relationships which are interpersonal relationships and organisational relationships. The following section shows classifications of trust in interpersonal relationships.

#### **2.4.3 Classifications Of Trust In Interpersonal Relationships**

The literature offers classifications of trust in both interpersonal and organisational relationships. In interpersonal relationships, several authors have identified different types of trust. In this respect, Solomon and Flores (2003) define two types of trust, namely, simple trust, which is taken for granted and when betrayed cannot be restored, and blind trust that is unconditional and based on familiarity. Solomon and Flores' classification is based mainly on the approach of embedding trust in the relationship and emphasises the characteristics of trust. Axelrod (2004) argues that there are two types of interpersonal trust: specific trust that occurs within certain circumstances and general trust where people tend to trust everyone unconditionally. Axelrod in this classification is almost supporting Solomon and Flores' classification. In this context, Sonnenwald (2004: 82) asserts the existence of two effective types of trust and defines them as cognitive, focused on judgements of competence and reliability, and affective, focused on interpersonal bonds among individuals and institutions.

The literature shows that the interpersonal types of trust identified by the mentioned authors are mainly based on personal relationships, which are different from organisational relationships. Trust in organisational relationships is defined and conceptualised based on trustworthiness attributes, defined before in section

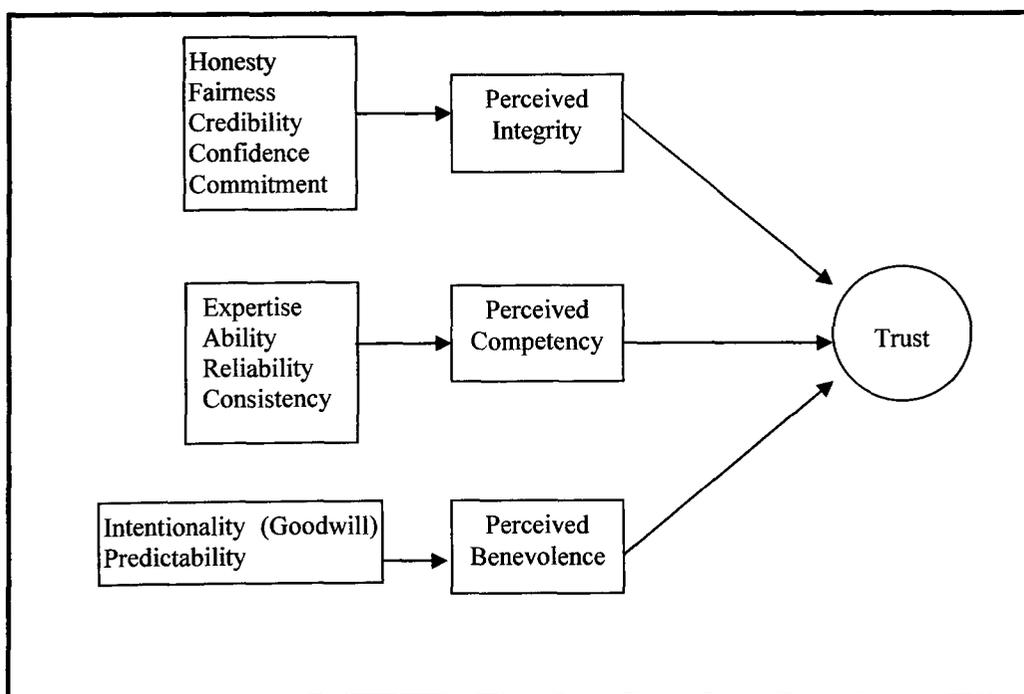
2.4.2. As mentioned previously, the literature shows that the defined trustworthiness attributes are ways of conceptualising trust. To conceptualise trust occurrence in a supply chain relationship, then, the attributes are classified into trustworthiness attributes and trust dimensions. The following section discusses this classification and develops a conceptual model of trust.

#### **2.4.4 Trustworthiness Attributes And Related Trust Dimensions**

Literature on trust classifies the trustworthiness attributes defined in section 2.4.2 into trustworthiness attributes and trust dimensions. According to Chatterjee and Pearson (2002) the macro level sources of trust can powerfully shape the micro level forces of integrity, benevolence and competence. In this context, the literature on supply chain relationships shows that in supplier-customer relationships there are three main uncertainties faced by customers in supply chain interaction. The first uncertainty is related to the fulfilment of customers' expectations and it is referred to as perceived competence. The second uncertainty is related to the willingness to comply with the supply chain transaction and commitment and it is referred to as perceived integrity. The third uncertainty in the supply chain relationship is related to intentionality to engage in an exchange relationship and to positively motivate the transaction in the supply chain relationship which is referred to as perceived benevolence.

In supply chain relationships, Sako (1992) classified three types of trust, namely contractual trust, competence trust, and goodwill trust. According to Sako, contractual trust is related to the perceived integrity of an exchange party, while competence trust is related to perceived competence and the benevolence of an exchange party results in goodwill trust. Perceived integrity, competence and

benevolence are the results of combinations of other trustworthiness attributes (Chong *et al.*, 2003). In regard to classification of trustworthiness attributes, honesty, fairness, credibility, confidence, and commitment are classified as attributes responsible for the formation of the perceived integrity trust dimension (Nicholson *et al.*, 2001; Heffernan, 2004). Expertise, ability, reliability, and consistency are classified as trustworthiness attributes that represent existence of the perceived competency trust dimension in the relationship (Sako, 1992; Smith and Barclay, 1997). On the other hand, perceived benevolence is a trust dimension that develops from perceptions of intentionality or goodwill and predictability trustworthiness attributes in a relationship (Sako, 1992; Doney and Cannon, 1997; Green, 2003). In this research the three trustworthiness attributes and their dimensions are conceptualised as a model of trust. This model is shown in Figure 2.7.



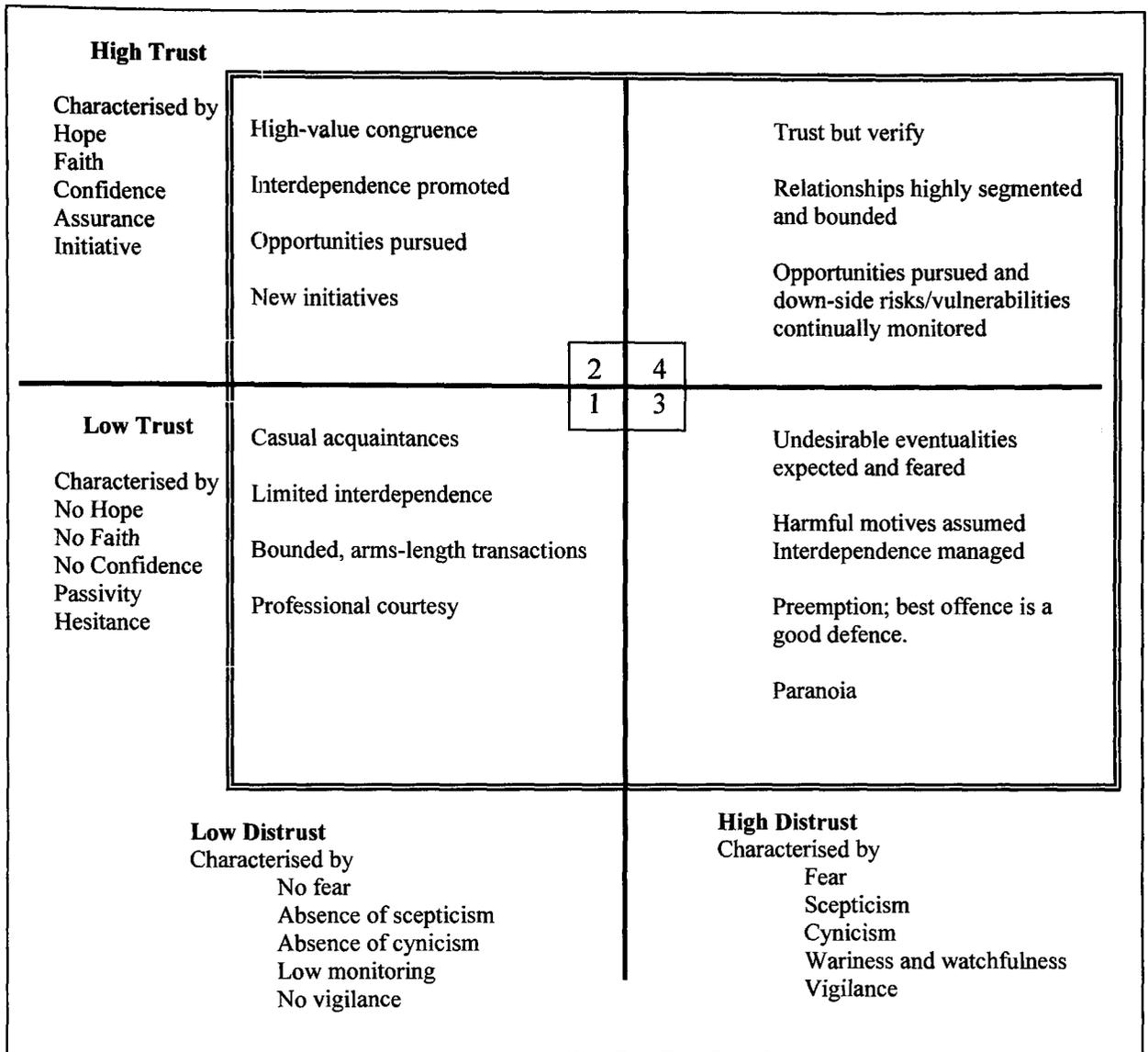
**Figure 2.7: Trustworthiness Attributes and Trust Dimensions**

The trustworthiness attributes; perceived integrity, perceived competency and perceived benevolence encompass the trusting party's perception of the dimensions of these attributes.

We have now defined the three dimensions of trust and related trustworthiness attributes in organisational relationships and particularly in supply chain relationships. Following from this, the next section shows stages of trust development conceptualised on the basis of the classified trust dimensions.

#### **2.4.5 Stages Of Trust Development**

The literature on trust shows that trust evolves over time through repeated interactions between parties in a relationship. In relation to the classification of types of trust indicated in the previous section, Lewicki and Bunker (1996) proposed three stages of trust development: calculus-based trust, knowledge-based trust, and identification or transference-based trust. Ford *et al.* (1998) contend that there are four stages of relationship development where trust culture development becomes possible: the pre-relationship stage, the exploratory stage, the developing stage, and the maintaining stage. These four stages of trust are also highlighted by Lewicki *et al.* (1998) in distinguishing between trust and distrust, as illustrated in Figure 2.8.



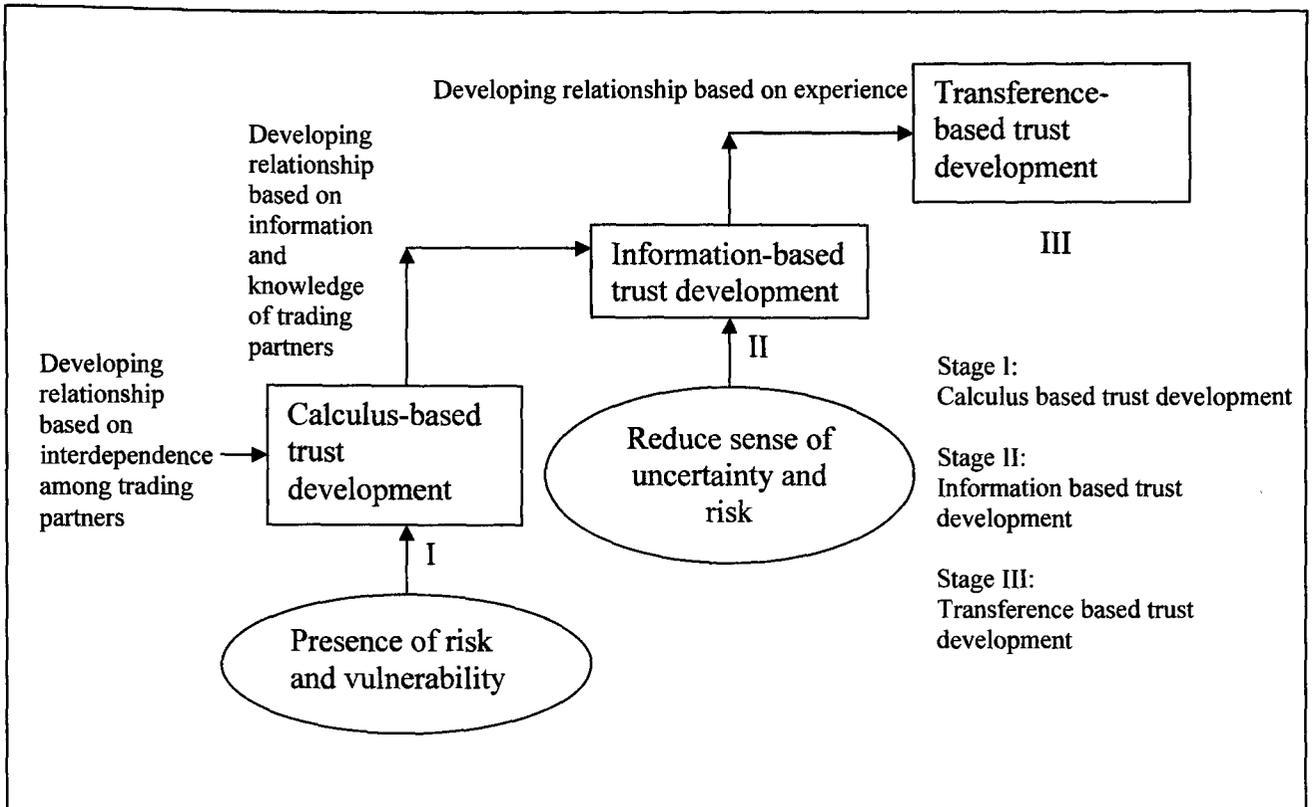
**Figure 2.8: Integrating Trust and Distrust: Alternative Social Realities (Lewicki et al., 1998).**

By comparing the four stages of trust defined by Ford *et al.* (1998) and the four cells of Trust/Distrust defined by Lewicki *et al.* (1998) it is clear that cell 1 represents Low Trust/Low Distrust and it relates to the developing stage of trust defined by Ford and colleagues, cell 2 represents High Trust/Low Distrust and relates to the maintaining stage, cell 3 represents Low Trust/High Distrust and relates to the pre-relationship stage and cell 4 represents High Trust/High Distrust

and relates to the developing stage. Therefore, the four stages of trust defined by Ford *et al.* (1998) are supported by Lewicki *et al.* (1998).

Comparing between Lewicki and Bunker's proposed stages of trust development and the stages proposed by Ford and colleagues, the pre-relationship stage and the exploratory stage proposed by Ford and colleagues both involve the calculus-based trust proposed by Lewicki and Bunker. In the calculus-based trust stage, the parties explore possible outcomes from the relationship based on the reputation of an exchange party. Therefore, the stages of trust development proposed by Lewicki and Bunker seem to be more appropriate to identify trust development between parties in a supply chain relationship. Creating an emotional bond between people is regarded as the first step of trust occurrence and exchange (Wicks *et al.*, 1999). In business relationships, right communication is referred to as the first step in developing trust. Henriott (1999) accentuates that in supply chain relationships, openness and information-sharing are prerequisites for trust development.

Agarwal and Shanker (2003) argue the same stages of trust development defined by Lewicki and Bunker (1996). The stages defined by Agarwal and Shanker are shown in Figure 2.9.



**Figure 2.9: Stages of Trust Development modified from Ba (2001) (Agarwal and Shanker, 2003)**

Openness, fairness, recognition, and care and concern focusing on parties' welfare and wellbeing are behavioural attributes that lead to trust development between parties (O'Brien, 2001). With different supply chain parties, trust develops through reputation (So and Sculli, 2002). The reputation of the party's perceived integrity then becomes responsible for trust development and opens doors in the relationship to enable perception of the other trust dimensions, which are the perceived competency and the perceived benevolence defined previously. According to Cousins and Crone (2003), time delays in social exchanges and availability of information about the party are the two key problems that exist in building trust.

The literature shows that the development of each trust dimension in a supply chain relationship is associated with formation of a type of trust that is directly related to that developed trust dimension. These types of trust are classified as shown in the literature as stages of trust development.

**a. Calculus-based Trust**

Calculus-based trust develops on a basis of rational calculation of the possible advantages and disadvantages expected from the relationship. This rational calculation, according to Luhmann (1988), leads to trust if the advantage one seeks appears greater than the possible damage. In relation to this stage of trust development, Morgan and Hunt (1994) elucidate that trust develops and becomes established in a relationship when one party has confidence in an exchange partner's integrity. Therefore, perceived integrity is the dimension that leads to the first stage of trust development. As indicated before, perception of integrity is highly related to the honesty of an exchange party and therefore in this stage a threat of punishment as a consequence of failing to fulfil a promise is likely to be a more significant motivator than a promise of a reward (Lewicki and Bunker, 1996). Hence, parties in calculus-based trust engage in a trust relationship based on the reputation of the trustee through the party's openness and honesty, that forms potential for developing an interdependence relationship between the parties (Agarwal and Shanker, 2003).

Therefore, in this stage of trust, the parties tend to engage in a trust relationships based on perception of the integrity of each party in the relationship, which implies tendency to believe each party without independent evidence of accuracy. The trust development in this stage is in particular related to calculated risk-

taking and advantages expected to be gained from relationship with an exchange party. Perceived integrity, defined before, is the dominant trust dimension in this trust development stage and trust occurs based on perception of trustworthiness attributes that leads to this dimension, as highlighted before.

**b. Information/Knowledge-based Trust**

The second stage of trust is knowledge based trust. Gulati (1995) stresses that the perception of the reliability and consistency of a party during this stage depends on prior contact with this party or experience through repeated interaction. The development of this stage of trust in a relationship relies on information rather than deterrence (Lewicki and Bunker, 1996). Therefore, besides the supply chain relationship, the parties through calculus-based trust exchange information regarding their competency and this perceived competency results in developing and building this second stage of trust. This stage of trust development addresses the competence of a party as a component of trust (Handfield and Bechtel, 2004). In the knowledge-based trust stage or level, as the name suggests, trust is based on detailed information about the trustee which is based on perceived competency. Information about the party's past behaviour and promises through repeated interaction develops confidence about an exchange party (Sahay, 2003). Therefore, knowledge-based trust develops based on perception of an exchange party's competence, which builds confidence in knowing the other party sufficiently well that this party's behaviour is anticipatable based on information gained through past experience through repeated interaction.

### **c. Transference-based Trust**

Transference-based trust is the third stage of trust development. As suggested by Lewicki and Bunker (1996) this third stage of trust develops based on people's confidence and belief that the other party will act in their best interest. Therefore, it develops on perception of an exchange party's benevolence (Sako, 1992; Doney and Cannon, 1997; Green, 2003; Wintoro and Mulya, 2005). Hence, perceptions of the trustworthiness attributes of goodwill, intentionality and predictability, which responsible for construction of the benevolence trust dimension, are the basis for the intensity and level of this type of trust in the supply chain relationship. In this stage of trust, information-sharing between the parties occurs through formal and informal communications. Formal communication takes more planning and execution to capture feedback and it is worth the effort, but informal communication helps in making changes and addressing issues more quickly and flexibly (Beslin and Reddin, 2004).

The literature on the stages of trust development, as illustrated previously in Figure 2.9, indicates that the development of trust in the relationship involve presence of risk and vulnerability. The literature on trust in supply chain relationships reveals that many authors in this field assert that trust reduces risk (as indicated in Figure 2.9). However, other authors contradict this view. Therefore, besides the culture, the view of the outcome of trust in supply chain relationship could also affect the embracement of trust between supply chain parties. The next section discusses the two prospects of viewing the trust in relation to risk and vulnerability; the prospect of trust reduces risk and the contradictory prospect that claims trust is a source of risk.

#### **2.4.6 Trust Relationships and Vulnerability to Risk**

Trust in supply chain relationship and vulnerability to risk is one of the subjects that demand understanding in relation to supply chain performance and organisation performance. The occurrence of risk often has adverse effects on the performance and the supply chain parties usually seek reduction of risk. In this context, many authors see trust as a factor required for minimising risk. Some of these authors are Agarwal and Shanker (2003), Morgan and Hunt (1994) and Guilbert and Tang (1998). Agarwal and Shanker assert that trust is critical when uncertainty is present in a supply chain transaction.

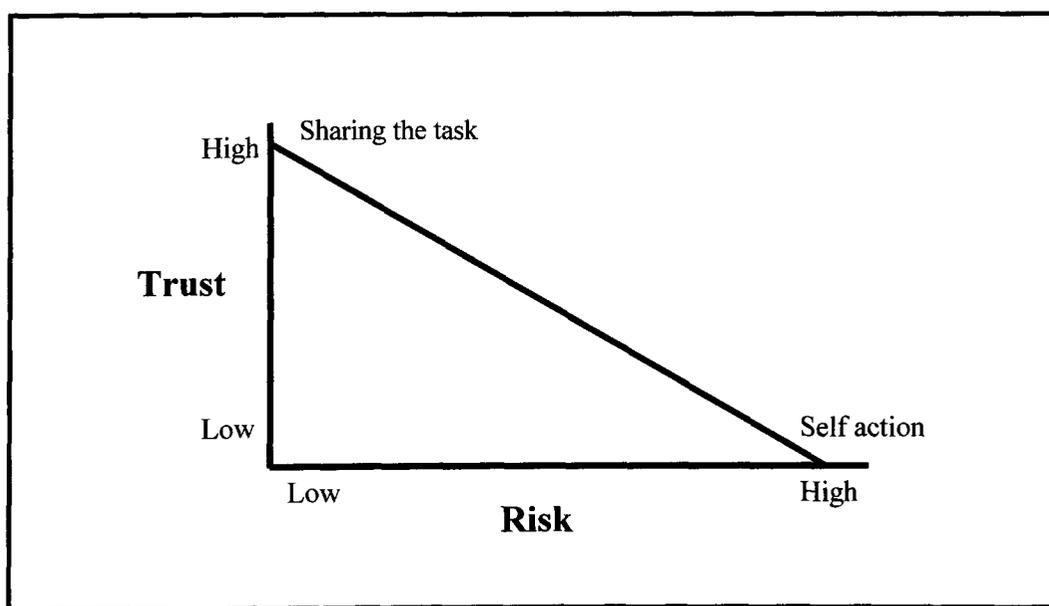
The literature shows that quality of information has a fundamental effect on organisation business and risk occurrence. The research literature indicates that, one way in which trust may operate to reduce risk and strengthen relationships is through the promotion of behaviours such as information-sharing (refer to Figure 2.9). Reflecting this point of view, Konrad *et al.* (2001: 403) argued that

***“information on the relative pleasantness of managerial activities can help organisations align their incentives and training, helping managers to focus efforts on all-important activities, including those they may consider unattractive.”***

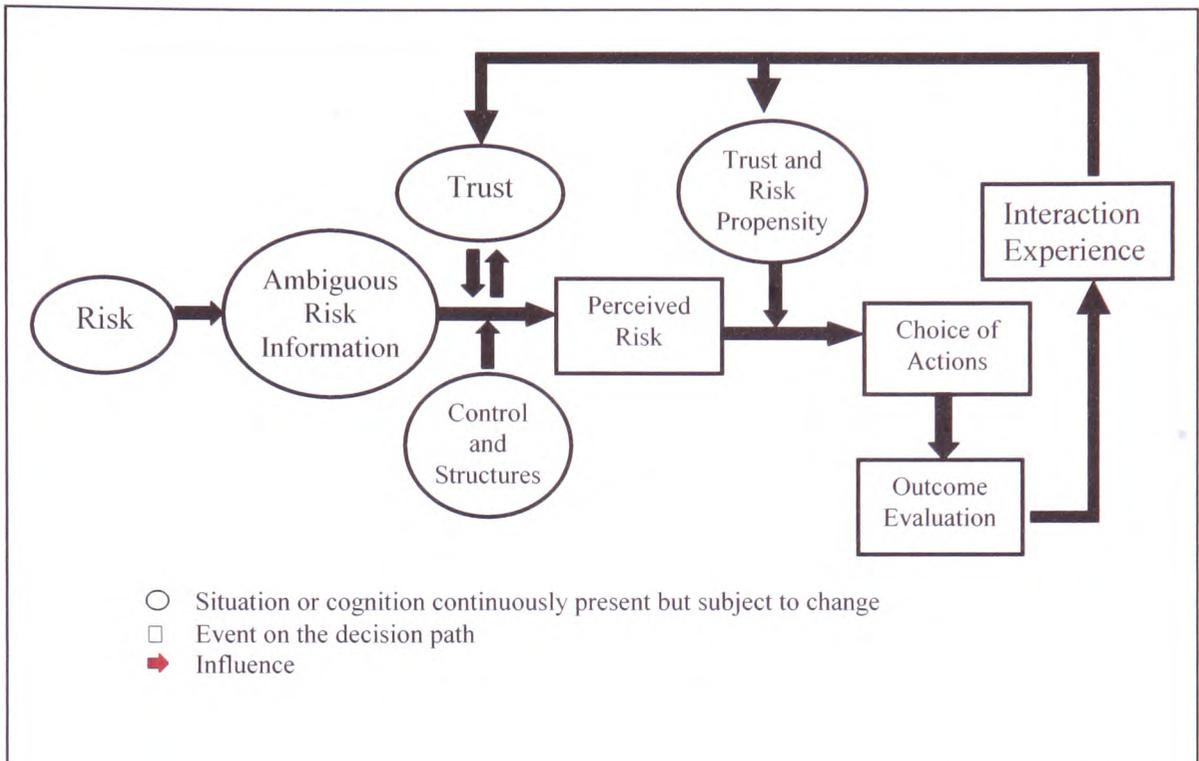
Therefore, information is a critical driving force for directing managers' attention. Hence, misleading information could mislead the managers. Based on this view, the idea that information-sharing reduces risk is contradicted in the literature through the possibility of risk occurrence from exchanging incorrect information. The literature indicates that risk could occur because of trust, when a party takes information for business use without questioning and exploring its

reliability, based on the trust relationship. Misleading managers by providing false or insufficient information or not sharing sensitive information with partner organisations in the supply chain is suspected to cause risk or unwanted situations.

The authors that contradict the view that trust reduces risk see trust as a source of risk. For example Swan *et al.* (1985: 204) indicate that “*if a salesperson fails to be dependable or reliable, the buyer will suffer a loss*”. To this extent, Mayer *et al.* (1995) assert that risk exists in business relationships that involve trust. McLain and Hackman (1999) support this view and contend that whenever organisations decide to exchange trust in a relationship, then risk is involved in that relationship. They explain the occurrence of risk as the possibility of negative outcomes to a decision and present a theoretical relationship between trust and risk as shown in Figure 2.10 and they illustrate how risk occurs in trust based relationships as shown in Figure 2.11.



**Figure 2.10: Influences of Trust on the Degree of Allocation of Risk in a High Control Situation (McLain and Hackman, 1999).**



**Figure 2.11: The Process Surrounding Trust Building, Trusting, and Socially Distributed Risk Taking in an On-going Organisational Interaction (Mclain and Hackman, 1999).**

Nowadays, during the technology era, technology occupies a significant role in business activities. However, technology is regarded as another factor that converts trust in supply chain relationships to risk. Gallagher (2001) explains that this risk occurs if technology is regarded as a replacement for the relationship instead of a means of relationship enhancement. In this regard, and as Gallagher shows, risk taking and risk occurrence are based on the individual's values and business factors. Misunderstanding of how other factors such as technology fit into business can reduce the importance of exchanging trust and deteriorate the trust relationship and convert it to risk.

In fact, by referring to the stages of trust development highlighted in a previous section, the risk in trust supply chain relationships is reflected in calculus-based trust, where a rational calculation is carried out by parties prior to involvement in a trust relationship. As indicated before, in this calculation, the parties weigh the expected advantages and possible unwanted risks and engage in a trust relationship after measuring a cognitive and realistic motivation to participate in trust relationship. Hence, the probability of risk occurrence in trust supply chain relationship, as indicated by the literature, is expected to be low, because it should be appropriately calculated before engagement in a trust relationship and trust development is mostly on the basis of perception of trust dimensions that require consistency of behaviour.

The foregoing section shows the two facets of trust in supply chain relationships in regards to vulnerability to risk. Besides the view that trust reduces risk and the opposing view that trust is a source of risk, the literature indicates that trust is believed to have economic value. The next section discusses this view of trust in supply chain relationships.

#### **2.4.7 Beliefs Of Economic Value Of Trust**

The literature shows that trust between parties in a business relationship is consistently believed to have economic value. In this respect, Rotter (1967) contends that interpersonal trust in a relationship influences the efficiency and survival of any social group. This belief constructed on the basis of trust, permits one party to substitute for the other party in interpersonal transactions (Tyler and Kramer, 1996). In relation to trust in supply chain relationship, such substitution can save time in the supply chain process and consequently provide time for other

aspects of the process to be tackled and this should improve supply chain efficiency.

In exchange relationships, trust has been hypothesized to be a valuable economic asset (Dyer and Chu, 2003). According to Fawcett *et al.* (2004) although true supply chain trust can be achieved, new research confirms that in relationships where power is one-sided, supply managers view real trust as a rare commodity. Hence, a high-quality relationship is required to achieve trust between supply chain parties. In this context, Fynes *et al.* (2005: 341) indicated that “*adapting to one relationship may enhance the competences and attractiveness of a particular supplier/customer*”. Therefore, in supply chain relationships, trust implies sharing power, which means sharing responsibility. In this context, many researchers believe that involving trust in supply chain relationships improves supply chain performance. However, this belief is subject to assessment and empirical investigation and research has been called for by many authors, to examine its validity (Sako, 1992; Tomkins, 2001; Gallagher, 2001; Dyer and Chu, 2003; Kwon and Suh, 2004).

In relation to supply chain information-sharing, Tomkins (2001) argues that trust is required between supply chain parties to ease the process of information-sharing. Supporting Tomkins’s argument, Narayanan and Raman (2002) assert that aligning interests in the supply chain becomes difficult when one organisation has information or knowledge that others in the supply chain lack. Moreover, in this respect and in the context of supply chain alliances and networks, Dressler and Muller (2003) emphasise that trust facilitates information exchange between supply chain alliances and networks. Hence, trust is strongly

believed to have a constructive effect on improving information-sharing in supply chain relationships. From this perspective, Fynes *et al.* (2005) show a link between information-sharing and successful supply chain relationships. In contrast, low trust or distrust and fear are believed to add significant cost to the supply chain process (O'Brien, 2001).

The growing interest in exploring the economic value of trust has led some researchers to investigate the effect of trust on transaction cost. Consequently, it is proved that trust between buyers and suppliers reduces transaction costs in automobile manufacturing organisations (Sako, 1998; Dyer and Chu, 2003). However, these results are based on research done in an automobile industry setting and with a focus on the effect of trust between parties on transaction costs. The extent of efficiency enhancement and the applicability of these studies' findings to other industry settings are open to question. Therefore, further research has been recommended by the researchers who carried out these studies, to clarify this ambiguity in relation to the effect of trust on transaction cost. This recommendation is seriously taken by this research and the research, through its aims and objectives, will investigate the trust between supply chain parties, in order to explore its impact on the supply chain performance and the organisation performance in different industry settings.

The literature on the stages of trust development of trust indicates that the development of trust between the supply chain parties could be affected by the organisation culture or the way the organisation accomplishes its tasks (norms, values, and beliefs). The following section reviews the literature on the effect of culture in trust relationships.

## **2.4.8 Trust and Culture**

The literature indicates that the stages of trust development between the supply chain parties, mentioned above, are affected by the organisational culture, which could be affected by the regional or national culture. Literature on culture shows that culture is classified into regional or national culture and organisation culture (Morden, 1999; Steenkamp, 2001). National culture relates to a set of norms, customs and beliefs shared by nations in a country. On the other hand, organisation culture relates to a set of norms, customs and beliefs shared by a group of people within an organisation. Culture and its effect on trust development in supply chain relationships is not the subject of study of this research. Rather, it aims to investigate the trust between supply chain parties and its effect on supply chain performance. Culture and its effect on trust development has been explored by other researchers like Sako (1998) and Dyer and Chu (2003). This section aims to give an overview of the effect of culture on trust in supply chain relationships. It commences with a literature review on country culture and then moves to review organisation culture.

### **2.4.8.1 Culture Differences Between Countries**

Regional or national culture can have an influence on organisation culture. The regional culture can be different from country to country based on the norms, values and beliefs related to the nation in each country. Cultural differences between countries in an organisational context can be explained in terms of power distance, uncertainty avoidance, individualism, and masculinity (Hofstede, 1980). Specific descriptions of the dimensions follow.

### **a. Power Distance Culture**

Power distance refers to human inequality in the area of influence, prestige and status in each culture. The extent of acceptance of unequal power is culture-based and it reflects the hierarchical power relationships. The power distance varies from country to country and results in high power distance and low power distance societies. In relation to trust, in societies with low power distance cultures, basic mistrust between the powerful and the powerless seems to prevail, whereas in high power distance cultures, there seem to be higher levels of internal harmony (Hofstede,1980; Pagell *et al.*, 2005).

### **b. Uncertainty Avoidance Culture**

Uncertainty avoidance is related to avoidance of risk-taking embedded in unpredictability (Trompenaars, 1994). In terms of countries' culture, it measures the extent to which countries deem the pursuit of certainty important. Low uncertainty avoidance cultures accept informal actions and are willing to take risks, while predictability of rules, work arrangements and relationships characterises high uncertainty avoidance cultures.

### **c. Individualist Culture**

The individualist culture is opposite to collectivism and it considers the importance of individual responsibility for actions rather than group shared responsibility (Pagell *et al.*, 2005). Relationships in this culture are closely linked with social norms and it is not a matter of ways of living together. The nature of the relationship between a person and the organisation to which he/she belongs will be strongly affected by the society's norms for individualism.

#### **d. Masculine Culture**

The masculine culture is opposite to the feminine culture. This dimension of culture takes into consideration differences in gender and differentiation of roles in society according to gender and gives males more dominance and autonomy. Families, religion, schools, peer group and media are responsible for this pattern of culture. The masculine culture is dominant in business organisations, although it varies according to the organisation's country of origin and work group norms and beliefs.

Trust is socially constituted and affected by cultural affinity (Child, 1998). Culture is recognised as one of the most important variables influencing ethical decision-making. The difference in norms and beliefs of groups of people results in different culture and this produces variety of cultures. The literature on trust and country culture shows that country culture and organisation culture influence the level of trust between management and employees in organisation. Morehead *et al.* (1997) found that in Australia employees, particularly within the public sector, have a very low level of trust in managers. Also Davis and Landa (1999) conducted a survey in Canada and found that three out four Canadian employees do not trust their management. These cultures of trust exchange with management are affected by country culture, which is embedded in organisation culture. The next section reviews organisation culture.

#### **2.4.8.2 Organisation Culture**

Corporate or organisation culture is defined as norms and rules that influence the way of doing business shared by organisation members (Johnston and Marshal, 2005). Organisation culture is heavily influenced by the industry in which it

operates and therefore it has many definitions. Organisation cultures have several key elements: they include organisation vision, adaptability and adjusting to external conditions. Moreover, in most organisations the culture is consistent and change of culture is very difficult.

The literature shows that an organisation culture cannot exist without widespread employee support. For example, to realise an organisation's vision, it needs to be supported by organisation values consistent with the organisation's aims and aligned with the personal values of organisation members. It is mostly embraced in the manner of employees' interactions at all levels.

Main and sub-cultures can both exist in one organisation. The main culture is the dominant one which is strongly embraced by organisation members (Sadri and Lees, 2001). The main culture distinguishes the organisation from other organisations. It is the factor that differentiates between organisations in the manner of innovation and risk taking, attention to details, outcome orientation, people orientation, team orientation, aggressiveness, and concern for stability in contrast to growth (Appelbaum *et al.*, 2004).

The optimal organisation culture is the culture that incorporates capabilities that realise the organisation's aims and objectives. An organisation with a positive culture is likely to enjoy many benefits, including employees enjoying a work environment with high morale and increased level of teamwork (Goffee and Jones, 1996).

The literature shows that organisations cultures have been categorised into different types. Sonnenfeld (1988) defines four types of cultures: the academy, the club, the baseball team, and the fortress. According to Sonnenfeld, the academy culture exposes employees to many different jobs and through job rotation the employees can move around within the organisation. The club is concerned with how employees will fit into the organisation. The baseball team is about team talent and concerned with how employees will work in a team in the organisation, and how they will be rewarded for their accomplishment. The fortress is concerned with organisation survival and how the organisation achieves prosperity.

Another categorisation of culture is offered by Goffee and Jones (1996). They classified four cultures based on levels of sociability and solidarity. Sociability refers to social activities and solidarity refers to organisation members' team spirit. The four cultures are communal, mercenary, fragmented, and networked cultures. The communal culture is characterised by high sociability and solidarity levels. The mercenary culture has a high solidarity level but a low sociability level. The fragmented culture is low in both solidarity and sociability. The networked culture is characterised by high sociability but low solidarity.

The foregoing review in this section shows that organisation culture could have impact on organisation relationships. Hence, the culture of the organisation could have possible effects on the trust building process in the supply chain relationship. The impact of culture on the trust building process has been investigated by previous researchers. In relation to this particular research, the trust built in the supply chain relationships, not the trust building process, is the

most significant issue. The research aims to investigate the effect of trust (the built trust) in the supply chain relationship on both the supply chain performance and the organisation performance. This aim is based on the reviewed literature that indicates the requirement for a research to clarify the impact of trust (the built trust) on performances. The research, through its findings, could provide motivation or inhibition to the trust building process between parties in supply chain relationship. The motives or the inhibitors are based on the proved effect of the trust as a factor in the relationship on the performances of the supply chain and the organisation.

## **2.5 ARAB GULF LOGISTICS AND SUPPLY CHAIN RESEARCH**

The research investigates organisations in Arab gulf countries and considers three territories for the research which are Oman, UAE and Qatar. This section reviews the literature on supply chain in those countries. It focuses on the types of supply chain adopted in these countries and supply chain researches in the light of trust between supply chain parties.

The literature shows that the developing countries are striving to get income from exchanging or exporting commodities (Carl, 2001). Hence, the Gulf States organisations, as part of the developing countries, are facing new challenges in terms of the supply chain management and globalisation of the supply chain. Since, they are economically oil rich countries that mainly depend on oil productions, differentiation of production became a strategy followed by these countries to avoid the threatening risk of oil depletion and consequently facing poverty. As a step in minimising the development gap, a developing country often

finds it cheaper and quicker to import knowledge through foreign direct investment by multinational organisations (Robertson, 2003).

The increasing and high costs of global assignments are now necessitating global organisations to search for more strategic means of cross-border communication (Bender and Fish, 2000). In this context, organisations in the developing countries became more interactive with global organisations and realized the need to use a suitable supply chain that involves co-operation with suppliers and customers. Since logistics is almost a new field in the developed world's business studies, to cope with development in this field the Arab Gulf Countries' organisations adopted changes through enforcing logistics divisions in their management structure. Moreover, the United Arab Emirates (UAE) established logistics city to provide knowledge and assistance to UAE's organisations regarding logistical issues. Similar organisation established in Qatar and condensed logistics conferences and workshops conducted in Oman.

In terms of the kind of supply chain adopted in these countries, Wood (2005) indicated that organisations in the Middle-East, as part of the developing countries, are mostly adopting traditional and lean supply chain patterns. Traditional supply chain was the main type in these countries' business. According to Wood, the supply chain in these countries developed from traditional to lean supply chain, which is applicable to commodities markets. The search for supply chain performance improvement and supply chain development was concerned as crucial to compete locally and internationally as well. The traditional supply chain is still in use in these developing countries in small organisations such as foodstuff retailers. However, the lean supply chain

is the dominant supply chain pattern in their medium and large size organisations.

The benefit of collaborative relationships, shown previously in the discussion of supply chain development, increases the worldwide interest in supply chain development. In terms of technology, the developing countries' organisations are new to the market, and have less experience than developed countries' organisations. Nowadays, beside the supply of commodities like oil and minerals, the Arab Gulf Countries started to develop their manufacturing techniques to upgrade their handicrafts from small business size that uses primitive production tools to organisations that adopt technology and work according to organised structures.

Organisations in the Arab Gulf countries are either local or international and generally both types employ multinational workforce. Relations management became one of the new challenges in these countries' organisations supply chain practices. In fact, improvement of Supply chain performance is dominant goal to prove competency in front of changing market circumstances and ever changing rules of the market game.

As mentioned before, organisations in these countries adopt international business strategies and import experience from developed countries through employing international skilled people from developed countries such as UK, France and USA. Hence, the organisation culture in most of these countries' organisations is multicultural that works according to international norms and values regardless the territory difference.

The research did not consider developed countries like UK and USA because the role of trust between suppliers and buyers in such countries was considered by previous researchers such as (Sako, 1998 and Dyer and Chu, 2001). Additionally, Burchell and Wilkinson (1997) had considered trust, business relationships and contractual environment in Italy, Britain and Germany. Moreover, Fynes *et al.* (2005) had considered the impact of supply chain relationship quality on supply chain performance and chosen manufacturing companies in the electronics sector in the Republic of Ireland as population for research which is very close to Britain and part of the European Union. In their research they considered trust as one dimension of the supply chain relationship quality. The literature shows some researches in the European countries that considered trust among supply chain parties. In the other hand, the literature shows that in the Arab Gulf Countries there is no or rare researchers considered trust between supply chain parties and its role or impact on supply chain performance or organisation performance. The shortage of researches in these countries motivated the researcher to bridge this gap in the literature of the field of supply chain performance and management. Referring to the goals and objectives of this thesis, studying trust in supply chain relationships in some of these countries organisations and its influence on supply chain performance and organisation performance enriches the supply chain literature.

The main aim of this study, as mentioned in chapter 1, is to investigate trust in supply chain relationships to identify and clarify through practical evidence the effect that trust has on supply chain performance and on organisation performance. The literature review indicates that in the era of fierce competition and volatile market environment the performance could be the determinant of the

business success or failure. Therefore, improvements in supply chain performance and organisation performance are the pivot of improving the business competitiveness in the market.

The next chapter, after the summary of this chapter, considers the organisation performance and the supply chain performance. It highlights performance measures and identifies the measures that will be used by the research in measuring organisation performance and supply chain performance in the process of exploring the effect of trust on each performance. Additionally it shows the research framework.

## **2.6 SUMMARY**

This chapter provided literature review on supply chain relationships and trust in supply chain relationships. The literature review on supply chain defined the concept of supply chain as a system includes all the activities and functions involved in filling a customer request. Then, supply chain management was defined as an organisational function responsible for the management and review of supply chain practices. After that, the review discussed supply chain development and identified and clarified three types of supply chain; traditional supply chain, lean supply chain, and the newly developed agile supply chain. Then, supply chain parties were defined and classified into suppliers, organisation, and customers to the organisation. After that, the literature review defined trust and the nature of trust relationships. Trust was defined as a state of mind regarding an expectation held by one trading partner about another that the latter will behave in a particular and mutually acceptable manner. Then, trustworthiness attributes were defined as a way of defining trust occurrence and

different trustworthiness attributes were identified and clarified. The literature identifies three main trustworthiness attributes; other trustworthiness attributes can be viewed as dimensions of the three main trustworthiness attributes. The trust was conceptualised on the basis of the classification of the three trustworthiness attributes and trust dimensions. This conceptualisation of trust represents measures of trust between supply chain parties. Different types of trust were then clarified. Then the literature defined different stages of trust development. Risk in trust relationships was clarified. Then, trust between supply chain parties was described.

The reviewed literature identified previous work in the supply chain relationships. Furthermore, the literature identified culture in form of national culture and organisation culture and clarified the relationships between trust building process and culture. Finally, the reviewed literature highlighted Gulf logistics and supply chain research.

## **CHAPTER 3**

### **LITERATURE REVIEW: PART 2**

#### **ORGANISATION AND SUPPLY CHAIN PERFORMANCE AND RESEARCH FRAMEWORK**

##### **3.1 INTRODUCTION**

This chapter reports findings of a literature review on organisation performance and supply chain performance. The review commences with literature on organisation performance and supply chain performance and defines their measures. It inaugurates the literature with clarification of organisation performance and then it proceeds to highlight supply chain performance. Then, it introduces performance measures for both the supply chain performance and the organisation performance. It discusses financial and non-financial organisation performance measures and supply chain performance measures. Through the discussion, the suitability of the measures to be used for this research will be highlighted. A model of performance measurement is adopted and financial and non-financial measures for the research are discussed. Subsequently, it highlights models developed to view supply chain relationships and trust in supply chain relationships in the light of the reviewed literature. After that, the chapter provides research questions in light of the reviewed literature. Then, it moves on to interlink the research independent and the dependent variables in terms of cause and effect in an integrated model that forms the research framework. Finally, the chapter ends with a summary of the reviewed literature.

## **3.2 ORGANISATION AND SUPPLY CHAIN PERFORMANCE**

This section reviews performance in terms of organisation performance and supply chain performance. The review also includes performance measures for the supply chain and the organisation and determination of the performance measures that are selected to be used by the research.

### **3.2.1 Organisation Performance**

Improvement in organisation performance has a significant effect on the organisation's economy and it is a determinant of its economic health (Dixon *et al.*, 1990). Investigation of trust between supply chain parties and impact on organisation performance is one of the main objectives of this research, as shown in the research aims and objectives in this thesis. This section defines organisation performance and clarifies its importance to the organisation's business.

Organisation performance is the umbrella of the entire organisation activities. The supply chain and its performance, which will be discussed later, is a part of the whole organisation activities. The supply chain encompasses all activities associated with the flow of goods and services (Ee, 2001). It accounts for a large portion of the organisation's activities, as shown in the section on the supply chain. Therefore, the discussion of organisation performance in this section embraces the supply chain performance.

Business or organisation performance is the way of executing activities that add tangible and intangible value to the organisation. Consequently, organisation performance is of competitive advantage to the organisation's business. As an

organisation is composed of different functions and activities, organisation performance is the result of the overall performance of organisation activities and functions. In this context, Castellano *et al.* (2004) argue that organisations are systems in the form of networks of independent processes that work together to realize the organisation's goals and objectives. Organisation systems include the supply chain and therefore supply chain performance influences the organisation's performance.

The foregoing discussion shows that organisation performance is the accumulated result of the performance of each of the independent organisation systems. Managing organisation performance entails undertaking possible controls and corrective actions for performance enhancement to meet the planned performance and rectify performance deviations at the right time. Weatherly (2004) contends that significant investment in time, effort and resources can be made by organisations through making a concerted commitment to performance management. Therefore, an organisation will make more of its time, reduce effort and save resources through managing organisation performance and these are significant outcomes to organisation business.

Organisation performance acts as a measure of organisation efforts. It indicates the extent of success in achieving the organisation's goals and objectives. Organisation performance is a significant aspect in evaluating organisation functioning. The literature indicates that organisations with unhealthy economy represented by low performance and are certainly expected to face more problems in a market with a highly competitive environment than organisations in the same market with higher performance.

Given the significant role that supply chain performance plays in achieving the organisation's set goals and objectives, the next section reviews the literature on supply chain performance.

### **3.2.2 Supply Chain Performance**

The driving force for many developments in supply chain management is the notion of world-class performance (Burman, 1995; Cullen *et al.*, 1999). Competition drives organisations to look for and deploy new competitive advantages. Because competition continues to be a characteristic of business and markets, developing new competitive advantages in business seems to be a never-ending trend. Today, organisations that wish to stay competitive in a fiercely competitive market environment seek to improve efficiency through fine-tuning supply chain operations.

Chopra and Meindl (2001, 50) contend that improving supply chain performance in terms of responsiveness and efficiency requires testing inventory, transportation, facilities and information. Therefore, these are the drivers of supply chain performance. Hence, to gain competitive advantage through the supply chain, managers must identify and control the factors that influence the performance of the chain in the procurement, processing and distribution areas (Prasad and Sounderpandian, 2003).

Supply chain efficiency improvement results in higher performance in the form of decreased operations cost, contributing to decreasing production cost (Yue *et al.*, 2004). In this context, satisfying customers with lower price products represents a significant competitive advantage to price-aware customers. According to

Tiernan (2004) and Farrell (2004), research shows that these competitive advantages of supply chain improvement result in attracting and retaining new customers. Regarding high supply chain performance in the form of decreased operations cost, Chauhan and Proth (2005) support Yue's view that it contributes to decreased production cost. Consequently, this enhances the organisation's profitability and certainly is a great contribution to the organisation's business survival. Therefore, improving supply chain performance is of economic value to supply chain parties.

The relationship between supply chain parties has a significant influence on supply chain performance. As shown in chapter 2, the development of supply chain patterns is based on modifying the relationships between the partners. When the pattern is one of loosely linked parties, the supply chain performance is low and it is less capable to provide competitive advantages in a volatile market. Supply chain integration, previously discussed in chapter 2, takes into consideration better relationships between the organisation and its supply chain parties. The lean supply chain is criticised for not involving human integration. Therefore, organisations have come to realize the influence of the type and strength of relationship between the parties on supply chain performance.

The foregoing literature considers discussion on supply chain performance and the importance of the supply chain parties in this performance. This part of the literature review also includes discussion of supply chain performance measures. Supply chain performance is one aspect of the organisation's performance. Therefore, measures of supply chain performance are presented in accordance with organisation performance in this section of the literature review. However,

supply chain performance is often exposed to occurrence of a phenomenon called the bullwhip effect. The next section discusses the bullwhip effect on supply chain performance.

### **3.2.2.1 Bullwhip Effect On Supply Chain Performance**

Lee *et al.* (2004) define the bullwhip effect or whiplash effect as a phenomenon that occurs when the variance of orders is larger than that of sales, and the distortion tends to increase as one moves upstream. Therefore, the bullwhip effect occurs when orders to the supplier tend to have larger variance than sales to the buyer which causes demand distortion that propagate upstream in an amplified form to cause variance amplification. De Kok *et al.* (2005: 38) confirm this definition by saying that: *“The bullwhip is the metaphor for the phenomenon that variability increases as one moves up a supply chain”*. Definitions found in the literature, regarding the bullwhip effect in the supply chains tend to be the same and target the same phenomenon (Hull, 2005; Meixell and David Wu, 2005; Kaipia, Korhonen and Hartiala, 2006). Therefore, the definition stated above will be used throughout this research.

The causes of the bullwhip effect have received attention with the aim of reducing or if possible eliminating its occurrence in the supply chain. The following section considers the causes of the bullwhip effect.

### **3.2.2.2 Causes Of The Bullwhip Effect**

Study of the bullwhip effect in supply chain goes back to the year 1958, when Forrester argued that management must discover the underlying principles which unify its separate aspects, for a far better understanding of the dynamic, ever-

changing forces which shape a destiny of a company. Forrester identified two causes of the bullwhip effect in the supply chain: demand processing and lead times. These two causes are mainly related to effectiveness of order handling and time delays. Burbidge (1985) and Lee *et al.* (1997a, b) found order batching to be a cause of bullwhip and this supports Forrester's argument.

The above mentioned causes, determined by Forrester, Burbidge and Lee, lead to many problems in the supply chain, such as delivery problems and unfilled orders, as well as high and fluctuating inventory. This forces parties upstream in the supply chain to keep inventory in order to respond to fluctuating demand and to sacrifice quality to fulfil orders. Material costs, overtime expenses, transportation costs and lead time are expected to increase, leading to significant deterioration in the supply chain.

Uncertainty due to price variation is another cause of the bullwhip effect (Houlihan, 1988; Lee *et al.* 1997a, b). Uncertainty is a major cause of bullwhip, and as it is argued by Hull (2006), uncertainty occurs as the fear of limited supply by chain members results in over-ordering to ensure that they receive adequate supplies. This in turn results in excessive and highly fluctuating inventories and the problems are magnified as one moves back up the supply chain. This cause of the bullwhip effect underpins the view of demand as stochastic (subject to random fluctuations) rather than stationary based on the product life cycle (an introduction phase, a mature phase, and an end-of-life phase). However, the most important element in Hull's explanation of this cause of the bullwhip effect is the interference of the supply chain parties and their relationships, which leads to such problems.

In addition to the aforementioned causes of the bullwhip effect, Lee *et al.* (1997a, b) mentioned rationing and gaming as another cause of bullwhip effect. Companies engage in rationing and shortage gaming to secure the amount they want in the case of shortage, in order to compete in the event of an unexpected product deficiency. The previously mentioned fear of limited supply on the part of chain members, argued by Hull (2006) is highly imbedded in this cause and therefore it can be regarded as uncertainty that leads to this particular practice.

### **3.2.2.3 Elimination Of Causes Of Bullwhip Effect**

The foregoing section showed that the bullwhip effect has a major impact on parties upstream in the supply chain and consequently the efficiency of the whole supply chain. Elimination of the bullwhip effect is a necessity to build an efficient supply chain and use it as a competitive value in the organisation's business operations. According to Kaipia *et al.* (2006) sharing downstream demand information is considered as one of the main means of eliminating the causes of the bullwhip effect. However, information-sharing is bound to some organisational practices and therefore the extent to which correct and relevant information is provided during the sharing stage is expected to have some impact on the shared information and the supply chain.

Trust between supply chain parties can strengthen their relationships and may result in the elimination of the bullwhip effect. Therefore, this study aims to investigate the role of trust between supply chain parties and its effects in the elimination of the bullwhip effect in the supply chain.

In this section, the bullwhip effect has been identified as a phenomenon that occurs in the supply chain when information-sharing between supply chain parties is weak, inadequate or insufficiently precise to be used as a tool for predicting future customer need or when the downstream parties face difficulties in satisfying the upstream requirements in a supply chain, due to unexpected customer demand. As shown in this section, it is believed that elimination of the bullwhip effect requires strengthening of information-sharing between supply chain parties.

Performance, whether supply chain performance or organisation performance, could be measured through performance measures. These measures aim to analyse performance in order to improve it further or to depict the functioning of the implemented activities and resources. The next section highlights performance measures.

### **3.3 PERFORMANCE MEASURES**

This section discusses literature on supply chain and organisation performance measures to facilitate selection of appropriate research measures for this research. Based on the research objectives highlighted in chapter 1, the research focuses on measuring organisation performance and supply chain performance through study of trust in relationships between supply chain parties. The supply chain, as discussed in a previous section, is a part of the organisation performance. Supply chain performance is regarded as micro performance, in this research, and organisation performance as the macro one. The research focuses on supply chain performance and considers it as a portion of overall organisation performance. Therefore, supply chain performance and organisation performance are what will be

measured by the research. This section starts with a literature review on supply chain performance measures and then moves to discuss organisation performance measures. It explains performance measures and gives justifications for selection of an appropriate model for the research.

### **3.3.1 Supply Chain Performance Measures**

Supply chain performance can be greatly impacted by the physical and material flows, supply chain management practices, supply chain parties' relationships, organisation, and information needed to make decisions and support leading practices (Hoole, 2005). Improvement in these areas leads to improvement in supply chain performance. Supply chain analysis for improvement is becoming increasingly important.

Analysis of performance through performance measures can offer practical support to the development of customer relations (Van Hoek, 2001). The analysis of supply chain performance helps the organisation to generate insight into system performance and this enables it to evaluate its supply chain objectives in accordance with its supply chain capabilities.

Supply chain performance can be measured or analysed by many methods. Benchmarking is one method of analysing supply chain performance. Through this method an organisation compares its supply chain performance or business performance with other organisations' performance. This method serves as a means of identifying improvement opportunities.

Qualitative performance measures are often preferred to analyse the performance of systems such as the supply chain (Beamon, 1999). The quantitative measures are financial measures. Hadley (2004: 28) argues:

*“In particular, opportunity exists to significantly improve many financial and operational measures such as: 1.inventory, 2. cost of goods sold, 3. cash-to-cash cycle time, 4. revenue per fixed assets, 5. asset utilization, and 6.revenues.”*

These measures can be maintained from organisation financial systems and financial records.

In regard to the above mentioned financial measures, an inefficient supply chain could increase the inventory cost, increase cost of goods sold, lead to longer cash-to cash cycle time, reduce revenue from fixed assets due to increased cost, reduce the opportunity of asset utilization, and cause reduction in revenue due to suffer of high supply chain cost. Improvement in supply chain performance leads to improvement in these financial areas. Analysis of each of these financial measures enables an organisation to recognize its actual supply chain performance and compare it with its planned performance. This helps the organisation to identify and correct deviation in the supply chain, in the case of underperformance in the system, whereas in the case of over-performance, the analysis helps the organisation to reinforce its supply chain strategy or improve it to a further level.

Financial measures, however, are not the only method to measure supply chain performance. Lead time, quality of product and service, responsiveness to

customers and customer satisfaction are also drivers for supply chain improvement. These features of supply chain process represent qualitative measures to assess supply chain performance.

### **3.3.1.1 Supply Chain Performance Measures For The Research**

The literature review facilitates the selection of measures to be used by this research. The measures selected for the research are those that possess the capability to provide extensive insight of the performance. These supply chain performance measures are as follows:

#### **( i ) Bullwhip Effect Perspective**

The literature review indicates that information transparency and information sharing in the supply chain relationships in regard to customer demand and available resources in the supply chain is expected to exert significant impact on the bullwhip effect occurrence in the supply chain. This implies that the bullwhip effect occurrence has the ability to allow indication of the level of information sharing between the supply chain parties. As it has been indicated in the foregoing section, the bullwhip effect occurrence in the supply chain has direct effect on the supply chain lead time and the supply chain cost. In terms of measuring the bullwhip effect occurrence, the literature indicates that the bullwhip effect in the supply chain could be measured by ratio of variances of lead time demand to that of customer demand and increased supply chain cost incurred to fulfil such demand in comparison to fulfilling similar demand on a normal supply chain lead time.

Based on the reviewed literature, the bullwhip effect has disadvantages where it forms challenge to supplier supply unexpected demands on demanded time. Insufficient preparation by the supplier due to weak information sharing with the customer was regarded as the main reason for this bullwhip effect occurrence and consequently the fulfilment of such demand within the customer demanded lead time could require extra resources and extra cost to be incurred by the supplier in the supply chain (Dejonckheere, 2002; Warburton *et al.*, 2004; Ravichandran, 2006). Therefore, identification of frequent bullwhip effect occurrence in the supply chain implies low supply chain performance because it exposes the supply chain to perform under pressure to deliver the unexpected demand within satisfactory demanded lead time to the customer. Hence, the research would consider the bullwhip effect occurrence in the supply chain as indicator of supply chain performance.

**( ii ) Cost Saving Perspective**

Cost saving is one of the measures that used to measure supply chain performance (Richardson, 1997; Labro, 2006). As indicated in the reviewed literature, trust between parties in supply chain relationships has the possibility to reduce monitoring and control costs (Miles, 1996; Sako, 1998; Wicks *et al.*, 1999; O'Brien, 2001; Dyer and Chu, 2003). Achievement of cost saving in the supply chain indicates improvement in executing the supply chain processes in regards to cost efficiency of the chain. Therefore, selecting cost saving as an instrument to measure supply chain performance in this research enables the researcher to

indicate the effect of trust on the supply chain performance from this perspective.

**( iii ) Risk**

As shown in chapter 2, trust in supply chain relationship is viewed from two perspectives. The first perspective contends that trust in supply chain relationship minimises supply chain risk while the second perspective argues that the trust is a source of risk in supply chain. Therefore, trust in supply chain relationship and its impact on risk occurrence in the supply chain was investigated by researcher to clarify the role of trust on supply chain risk. Thereby, risk occurrence in the supply chain was utilised as a measure to indicate the supply chain performance.

**( iv ) Information Sharing**

The literature shows that the level of information sharing between supply chain parties is believed to be influenced by level of trust between supply chain parties (Tomkins, 2001). Regarding the importance of the information sharing in the supply chain, Narayanan and Raman (2002) argue that the process of information sharing is required to align interest in the supply chain through shared information with all parties in the supply chain relationship. Sharing demand information upstream in the chain has the possibility to improve supply chain lead time (de Treville *et al.*, 2003). Foremost, as before indicated, information sharing in supply chain relationship is believed to reduce bullwhip effect occurrence in supply chain and therefore reduce risk and cost that could be incurred as

a result of bullwhip effect occurrence (Lee *et al.*, 2004; Kaipia *et al.*, 2006).

In relation to trust in supply chain relationships, the literature indicates that trust is believed to facilitate information exchange between supply chain parties, alliances and networks (Dressler and Muller, 2003; Fynes *et al.*, 2005). Hence, the use of supply chain information sharing as a measure by this research enables the researcher to utilise this significant measure to maintain critical insight about the supply chain performance.

**( v ) Return On Investment (ROI)**

The literature review shows that Return on Investment (ROI) is one of the tools that could be used to measure supply chain performance. Achievement of ROI maximisation in a supply chain is indicative of high supply chain performance (Vesset, 2003). The literature shows that, ROI indicates the performance of the supply chain in terms of gained return from invested capital. This measure is directly related to supply chain financial functioning. It has the capacity to explicit the supply chain capability to achieve its financial targets. The selection of the supply chain ROI to measure supply chain performance allows the researcher to identify the extent of supply chain successfulness in contributing to activities and efforts exercised by the parties. Therefore, this measure has the ability to yield significant advantages in measuring supply chain performance in relation to trust between supply chain parties.

#### **(vi) Lead Time**

The lead time is defined in the literature as the time required for processing an order placed by a customer and it starts from placing the order and ends with delivering the ordered product or service to the customer. As indicated before, de Treville *et al.* (2003) show that lead time can be improved through sharing demand information upstream in the supply chain. Achieving short lead times in meeting customer orders are indications of high supply chain performance and success (Lyons *et al.*, 2006). The utilisation of the lead time by this research as a supply chain performance measure has advantages to depict the capability of the supply chain in fulfilling the demanded lead time by customer and assists in understanding the activities coordination between supply chain parties. It assists in providing clarification regarding trust in supply chain relationship and the capability of the supply chain in achieving desired lead time in relation to the demanded by customer.

Besides supply chain performance, the research, based on its aims and objectives, considers organisation performance. Measures relevant to this purpose are reviewed in the next section.

#### **3.3.2 Organisation Performance Measures**

The previous section presented literature on supply chain performance measures. This section discusses performance measures that are applicable to measure organisation performance to facilitate selection of measures for this research.

The traditional perspective of organisational performance focuses on financial performance (Yeo, 2003). In this traditional perspective, the financial benefits of organisational performance are the determinants of organisational success. According to Dixon *et al.* (1990: 142) “*Performance measures must appraise, reinforce, and reward improvements*”. Therefore, performance measures start with appraising performance but end up with reinforcing and rewarding improvements to the appraised performance.

The traditional performance measures (financial) have been criticised as tending to be very limited, since they are based on financial transactions, fail to include the less tangible factors of performance such as product or service quality and are poor predictors of future performance (Walker, 1996; Parker, 2000; Tangen, 2003, 2004, 2005). Financial statements fail to measure and show intangible capitals: human capital, organisational capital, and customer capital (Kannan and Aulbur, 2004).

Indicators of business performance are not only financial data but also non-financial ones (Eccles, 1998). Organisational change has become inevitable, yet financial measures do not indicate the suitability of the organisation setting to the change. Analysis of non-financial performance such as type of competition and developing marketing strategies is important to assess an organisation’s position in the market.

A balance between financial and non-financial measures of organisation performance is the best way of measuring organisation performance (Dixon *et al.*, 1990). Incorporating financial and non-financial measures was a topic of

considerable interest to authors and researchers for most of the 1990s. It is widely considered essential that an organisation's performance measures are linked to its strategic objectives and its competitive environment (Lynch and Cross, 1995; Kaplan and Norton, 1996; Brander Brown and Harris, 1998).

Over the last fourteen years, some authors and operations management researchers have developed performance models or frameworks for measuring organisation performance as better alternatives to the traditional financial indicators. Examples of these models are the broad framework proposed by Anthony (1965) brought up by Rouse and Putterill (2003), a high level framework proposed by Keegan *et al.* (1989), a multi-dimensional model proposed by Azzone *et al.* (1991), the results and determinants model proposed by Fitzgerald *et al.* (1991), and the balanced scorecard model proposed by Kaplan and Norton (1992). Anthony's model is criticized because it focuses on the management control level and neglects the strategic planning and operational control levels. The high level framework is not specific and is criticised for its diversity. Azzone's model comprises cost, quality, innovation and time dimensions of organisation competitiveness and it is criticised for focusing on time as a dimension for measurement (Rouse and Putterill, 2003).

In addition to the above mentioned models, Likierman (2005) asserts that organisation performance can be measured through comparison of objective to actual, through comparison with others, and through comparison with what is possible. Measuring performance through comparison with others is referred to as benchmarking. Measuring performance through comparison with what is possible is based on opportunities and threats in the business environment and

strengths and weaknesses of the organisation in terms of capability, compatibility and strategy.

The two significant organisation performance measures are the results and determinants model proposed by Fitzgerald *et al.* (1991) and the balanced scorecard model proposed by Kaplan and Norton (1992). The results and determinants model, shown in Table 2.3, is one of the significant examples of the recent development of performance measurement frameworks (Atkinson and Brander Brown, 2001). This model considers performance dimensions in the form of competitiveness, financial performance, innovation, flexibility, resource utilization, and quality of service. The model, as illustrated in Table 3.1, offers suitable measures to evaluate each of these dimensions. The model classifies the performance dimensions into results and determinants. It looks at the organisation's innovation, flexibility, resource utilization and quality of service as determinants of the organisation's business competitiveness and financial performance.

**Table 3.1: Results and Determinants Model (Source: Atkinson and Brander Brown, 2001)**

	<b>Performance dimensions</b>	<b>Types of measures</b>
R E S U L T S	Competitiveness	Relative market share and position Sales growth Measures of the customer base
	Financial performance	Profitability Liquidity Capital structure Market ratios
	Quality of service	Reliability, Responsiveness Aesthetics/appearance, Cleanliness/tidiness, Comfort, Friendliness, Communication, Courtesy, Competence, Access, Availability, Security
D E T E R M I N A N T S	Flexibility	Volume flexibility Delivery speed flexibility Specification flexibility
	Resource utilisation	Productivity Efficiency
	Innovation	Performance of the innovation process Performance of individual innovators

The Balanced Scorecard by Kaplan and Norton (1992) is the other significant contribution to the development of performance measurement. The balanced scorecard translates the organisation's mission and strategy into a set of measures around four perspectives: financial, customer, internal business, innovation and learning (Kaplan and Norton, 1992).

The four perspectives in the balanced scorecard model comprise most aspects of the organisation. The financial perspective measure intends to assess the

organisation's financial performance. The financial measures have the advantage of being precise and objective (Parker, 2000). These measures look at the shareholders' value. Kaplan and Norton (1998a, 1998b) describe the customer perspective as customer concerns and they assert that these tend to fall into four categories: time, quality, performance and service, and price. The internal business perspective comprises capability of organisation technology, manufacturing excellence, design productivity, and new product or service introduction. The innovation and learning perspective refers to human resources and comprises technology leadership, manufacturing learning, product focus, and time to market.

The foregoing discussion shows that a balance between the financial and non-financial measures is the best way of measuring organisation performance. The balanced scorecard, through the inclusion of the customer, internal business, and the innovation and learning perspectives, achieves a balance between financial and non-financial measures.

There is no agreement on what criteria the selection of performance measures should be based on (Tangen, 2003). The results and determinants model and the balance scorecard model are both applicable for the research. The balanced scorecard, through the four perspectives of organisation performance, takes financial and non-financial measures into account and looks into internal organisation performance, including employees. Parker (2000: 64) contends that

***“The balanced scorecard is a useful predictor of future performance and has shown successful results in many private-sector companies, as well as in some government organisations.”***

Therefore, the balanced scorecard model is a reliable method of performance measurement. In this context, in order to explore and investigate the impact of the trust relationships on organisation performance, the research will use the balanced scorecard model. Owen *et al.* (2001: 17) assert that

***“The scorecard provides a multi-level view of the organisation which balances the internal and external perspectives, current versus future needs, and leading versus lagging indicators.”***

This view is also supported by Ahn (2005). Therefore, the use of balanced scorecard to measure organisation performance yields comprehensive view of the performance. Because of the highlighted advantages involved in the balanced scorecard model, this research will utilise it to explore and investigate the impact of trust in supply chain relationships on organisation performance. The four perspectives of the model will be highlighted here in the light of the reviewed literature.

### **1. Financial Perspective**

According to Kaplan and Norton (1992) the financial performance measures are intended to reflect the needs of stakeholders. In addition to the reflection of the stakeholders' needs, the previous discussion shows that the financial measures assess the shareholders' value. The financial measures indicate the organisation's financial success (Thurbin, 1994). In order to measure organisation financial performance, this research will use some measures that are of significant

importance for the organisation's financial success. These financial measures are return on investment, earning growth, profitability, cost saving, and market share. The foregoing section shows that these financial measures are quantitative measures and they can be collected readily from organisation financial records and the organisation's financial systems. The financial measures selected for the research are available in most for-profit organisations. The literature reveals, however, that some financial measures cannot be used for all organisations. For example, if an organisation is a family business and limited to its shareholders, without shares in the stock-market, then share price movement is not a useful measure for such an organisation.

Financial performance measures will be used in this research to indicate the financial performance of the organisations selected for study. The next section reviews the selected financial measures.

### **3.3.2.1 Financial Performance Measures For The Research**

#### **a) Return On Investment**

Return on investment (ROI) is one of the financial measures selected by the researcher for indicating organisation performance. The literature indicates that, ROI takes into consideration organisation's net income (NI) and the book value of assets. In relation to its usefulness, the literature shows that ROI provides a useful overall approximation of the success of a firm's past investment policy by providing a summary measure of the ex-post return on capital invested (Drury, 1998; Vesset, 2003). The use of ROI as an organisation performance measure is useful to indicate the amount of capital organisation invested and return or income gained from this investment. According to Riahi-Belkaoui and Picur

(1998) high return on investment increases the organisation's growth opportunity. Therefore, in the context of performance measurement, high return on investment indicates high financial performance. Hence, this measure is helpful to indicate the organisation performance.

#### **b) Earnings Growth**

Earnings growth is utilised by this research as financial measure selected for indicating the level of organisation performance through its earnings. In the literature, it is defined as the annual growth rate of earning for an organisation. The literature shows that it can be calculated in different ways but the most common is to calculate the average annual growth rate over the past 5 years excluding extraordinary items (compounded annually). Earnings are used by organisations' boards and institutional investors to gauge enterprise performance and quality of management (Lev, 2003). According to Barnett (2003) high earnings growth indicates high level of sales, improved gross margins, and lower interest rate. Therefore, earnings growth is an effective financial measure to evaluate organisation performance.

#### **c) Profitability**

Profitability is the third financial measure that has been used to indicate the organisation performance. Supply chain management through supply chain development aims to improve organisation profitability and return on capital through cost reduction (Chauhan and Proth, 2005). In private organisations, profitability is the key to long-term survival and growth (Noone and Griffin, 1997). Profitability indicates the organisation's performance in the market. It shows the relationship between the organisation's product or service quality and

customer satisfaction. In this context, profitability is determinant of business growth.

Glancey (1998) contends that there is a positive relationship between organisation profitability and its reputation in the market. Higher organisation reputation in the market allows it to earn a higher margin on sales, which results in higher organisation profitability. Organisation reputation, as discussed in the review of trust literature, is a dimension of trust that is likely to lead to trust occurrence between business parties, including supply chain parties. Hence, organisation reputation in the market is believed to have consequences on trust building in the supply chain relationships and it is supposed to increase the organisation profitability. Therefore, organisation's profitability is an effective indicator of the organisation's financial performance.

#### **d) Cost Saving**

According to Selnes (1992) profitability is not enough to measure organisation performance and cost saving as a measure for organisation performance needs to be used in conjunction with profitability. Analysis of organisation profitability and its cost gives a broader view about its performance. Using cost saving as a measure for organisation performance has the capacity to indicate the cost that the organisation incurred to achieve a given profitability.

The literature indicates that cost saving is referred to as cost minimisation or cost reduction. It compares organisation productivity and operations versus organisation incurred cost such as production and operation cost, marketing cost or administration cost. Organisation operations include employee cost. Barber

(2005) asserts that there is a relationship between productivity and employees' cost. Regarding the use of this measure in indicating organisation performance, the literature indicates that organisations with high employee cost and low employee productivity are characterised by low organisation performance in terms of cost saving. Organisations with high productivity and low operations cost are organisations with high performance. Therefore, this measure was selected to be used in this research on basis of the identified effectiveness it has on measuring the organisation performance.

#### **e) Market Share**

The last financial measure for the research, which is the market share, indicates the percentage of market share obtained by the organisation and it describes the organisation's position in a market. Fraering and Minor (1994: 27) contend that *"The relationship between market share and profitability is too weak to achieve market share dominance."* Therefore, profitability as an organisation measure is insufficient to reflect an organisation's market share. Market share indicates the organisation's performance in the market and it implies that the bigger the market share, the more successful the organisation (O'Regan, 2002). Therefore, the use of market share as a measure for organisation performance is helpful to generate insight into the organisation's performance in the market.

As indicated before, the financial performance measures are useful for indicating the financial functioning of the organisation. In other words, as indicated by Kaplan and Norton (1992) the financial performance measures are intended to reflect the needs of stakeholders. As highlighted in the foregoing section, in conjunction to the financial perspective the balanced scorecard model considers

non-financial measures of organisation performance through considering customer perspective, internal business perspective, and innovation and organisation learning perspective. The non-financial perspectives enable the researcher to draw comprehensive view of the organisation performance. The following section reviews these perspective in conjunction to this research aims in measuring organisation performance.

### **3.3.2.2 Non-Financial Performance Measures For The Research**

#### **a. Customer Perspective**

The Customer perspective is very important to be considered by business organisations. The Customer perception concerns product and service reliability, responsiveness, assurance and empathy (Parasuraman *et al.*, 1988). This view is also supported by Kaplan and Norton (1998b), who assert that the customer perspective refers to customer satisfaction. Many business organisations today are racing to re-establish their connections to new as well as existing customers, to boost long-term customer loyalty (Chen and Popovich, 2003). Customer satisfaction is a prerequisite of customer loyalty (Lee *et al.*, 2003) and leads to customer retention (Stauss *et al.*, 2001; Ryals and Knox, 2005). It prolongs the relationship between the customer and the organisation and is an indicator of high organisation performance (Van Triest, 2005). Kaplan and Norton (1998b) show that customer satisfaction can be measured through percentage of sales from new products, percentage of sales from proprietary products, on-time delivery which is defined by customer, share of key accounts' purchases, and number of cooperative engineering efforts. Kaplan and Norton look at measures of customer perspective from inside the organisation.

The customer perspective can also be measured from the customer's point of view. Parasuraman *et al.* (1985) assert that customer satisfaction can be assessed by comparing customers' expectations and their perception of the actual product or service delivered. Teas (1994), Cronin and Tayler (1994) and Smith (1995) criticised this view and contend that customer perceptions alone need to be measured to analyse customer satisfaction. Therefore, the customer perspective indicates the organisation performance from the perspective of the customer in relation to the level that the organisation achieved in satisfying its customer.

#### **b. Internal Business Perspective**

Another performance measure is the internal business perspective. Kaplan and Norton (1998a) describe the internal business perspective as organisation thinking. It refers to the organisation internal processes and operations. According to Kaplan and Norton (1998b), the internal business perspective concerns cycle time, unit cost, quality, employee skills, and productivity. The internal business perspective refers to the organisation's internal performance. This perspective can be measured through analysis, which concern business prosperity. For an organisation to prosper, it has to be customer driven, responsive and consistent in meeting its promises to customers (Evans and Castek, 1999). Cycle time is the time taken to produce a product or provide a service.

According to Ng *et al.* (1997) organisations' competitive priorities are now changing from quality to improved customer response time by focusing on delivery speed and reliability. In this context, cycle time reduction is a competitive advantage to organisation business. Unit cost refers to activity based

cost and allows organisations to realize the true cost-to-serve for their customer (Davila and Wouters, 2003). High unit cost has negative consequences on the organisation's business; it influences the organisation's overall productivity cost and reduces profitability which is an indication of low organisation internal performance. Quality of product and services, as shown in the discussion of customer perspective, is one of customers' concerns. Quality of product and services reflects the organisation's internal capabilities and indicates high internal business performance. Employee skills reflect employee capability. According to Owen *et al.*, (2001) the right people in the right roles with the right managers result in sustainable high performance. Therefore, employee skills enable employee to execute tasks with efficiency related to the possessed skills. Productivity refers to the rate of business production. Measurement of productivity helps to establish potential for internal business improvement and make the organisation accountable for the state of productivity (Sahay, 2005).

The literature indicates that the organisation that seeks to improve its internal business perspective is often concerned with innovation and organisational learning perspective. The following subsection highlights the innovation and organisational learning perspective as organisation performance measure.

### **c. Innovation and Organisational Learning Perspective**

This perspective addresses key practices directed toward creation of high performance work place and a learning organisation. In a fiercely competitive business environment, organisational learning is found to be an important absorptive process driven by innovation (Zhang *et al.*, 2004). An organisation can, through innovation and learning, make continual improvement to its

processes, products and services. Learning to innovate implies development of something new. It can happen in technical and administrative organisational aspects. Technical innovation refers to a new product, technology or service, while administrative innovation is in the form of new procedure, policy, and organisational form. “Get innovative or get dead” has become a concept in current business organisations. Technical innovation greatly influences organisation success. Ability of a new product to solve the customer’s problem is a significant indicator of the organisation’s success in innovation (Studt, 2005).

After literatures on trust in supply chain relationship, organisation performance and supply chain performance have been reviewed, the next section considers the research questions based on identified gaps in the literature review. These questions take into account strategic issues in the knowledge of operations management and trust in supply chain relationships.

### **3.4 THE RESEARCH QUESTIONS IN LIGHT OF THE REVIEWED LITERATURE**

The reviewed literature indicated that trust in relationships among different parties in supply chain management is believed to have influential effect on current organisations’ transactions. As shown in the literature, in this research, supply chain parties are considered to be in the form of supplier, organisation, and customer to the organisation. The supply chain parties are defined in the literature review as individuals or organisations that have an interest in the supply chain process and could affect its daily management activities. This section of the thesis aims to present the research questions based on the reviewed literature. The questions constructed for this thesis are as follows:

## **1. Question Related To Length Of Supply Chain Relationship and Existence Of Trust In The Relationship**

The literature review indicated that the trust takes place in the supply chain relationships in accordance to expectation of each party's behaviour. In other words, the possibility of trust exchange in supply chain relationship increase with the duration of the supply chain relationship and the gained experience of the party about each other. This suggestion is claimed on the basis that as suppliers and customers gain more experience with each other through ongoing relationships they become less likely to use formal procedures in agreements (Gulati, 1995). Recently, Rinehart *et al.* (2004) relate this development in relationships to trust emergence between the parties; trust develops when tangible benefits appear to both parties from the business relationship.

Besides the believe in the effect of the duration of the supply chain relationship on trust existence between the parties, the literature indicated that the duration of the relationship assists the trust in supply chain relationship to move through trust building process where it reaches to stages based on the experience of each supply chain party. Therefore, trust when get exchanged in the relationships its level becomes expected to increase with length of supply chain relationship. Hence, the following question arises to seek answer based on practical research that involves data collection and analysis. This question is as follows:

**Question 1: *Does the level of trust between supply chain's parties increase in accordance with the length of the supply chain relationship?***

This question is related to the first research objective highlighted in chapter 1 of this thesis.

## **2. Questions Related To Trust Between Supply Chain Parties and Supply Chain Performance and Organisation Performance**

The reviewed literature indicates that there is unexamined believe that claims trust in business relationship could improve business performance. The literature identifies the organisation performance as an umbrella that involves supply chain performance and improvement in supply chain performance implies improvement to organisation performance. In relation to trust between parties, Tetlock (1985) cited by Curtis *et al.* (2005) assert that when people are trusted they are made responsible for their actions and this makes them more self-conscious and use more analytic strategies in their decision-making process. Therefore, this implies that trusting people makes them responsible to produce expected outcome from them which indicates that putting trust in people improves their performance. Thus, trust in relationships is believed to influence performance. Moreover, Costigan *et al.* (1998: 303) argue that “*High performance teams are characterized by high mutual trust among members.*” Costigan in this argument support Tetlock (1985) view of trust between parties and expected positive effect on performance. Emphasizing this Kaplinsky *et al.* (2000: 01) argued that “*supply chain efficiencies can only work effectively when firms learn to trust each other*”. Therefore, trust between parties in supply chain relationship is expected to improve supply chain performance.

The literature also indicated that the trust between parties in business relationships has the possibility to reduce monitoring and control costs. In this

context, Creed and Miles (1996:27) describes the work of Bromiley and Cummings (1992) and the work of Lorenz (1988) by stating:

***“For the most part, organisational scholars have viewed the cost and benefits of trust and distrust in terms in control costs (e.g., as a trade-off relative to the costs of risk minimisation), with the cost of monitoring trustworthy individuals likely to be less both in terms of direct costs and the costs of losses.”***

This view of trust in business relationships and its influence on cost is supported in the literature by Sako (1998), Wicks *et al.* (1999), O'Brien (2001), and Dyer and Chu (2003).

According to Wicks *et al.* (1999: 99) *“Managers can find a wealth of benefits from trust, including cost savings and enhanced organisational capacities.”*

This argument directly involves the expected effect of trust between business parties on cost savings and extends to highlight possible outcome in form of enhancement of organisational capacities. While O'Brien (2001:25), clarifies the expected effect of trust between business parties through the assertion of impact of mistrust between the parties in his argument that *“Mistrust bears a high cost in terms of time-meetings, memoranda and justification.”* O'Brien through this argument indicates expected time and cost savings from trust in business relationships and point to possible improvement in organisation performance through exchanging trust relationship with its parties.

Dyer and Chu (2003:60) conducted similar research to a research conducted by Sako (1998) and in similar industry setting identified that,

***“A buyer with a “trustworthy” reputation in exchange relationships should have lower transaction costs, which in turn should translate into better profit performance.”***

As identified in the literature review, this finding of their research indicates that the reputation of trust in exchange relationships has positive impact on transaction costs. Also Harisalo and Stenvall (2004:66) argue that, *“Trust as capital empowers and facilitates production by keeping people together, motivating them and rewarding them.”* Therefore, based on Harisalo and Stenvall assertion trust between business parties is expected to facilitate production which implies performance improvement. Hence, this literature suggests that today’s organisations that do not adopt trust in their business relationships are likely to face difficulties in the supply chain that might result in high transaction costs associated with high production and time cost.

Therefore, the literature indicates that the trust between supply chain parties improves supply chain performance and organisation performance. This result in the formulation of the following research questions:

**QUESTION 2:** *Does the supply chain performance improve with development of trust in the supply chain relationship?*

**QUESTION 3:** *Does the organisation performance improve with development of trust in the supply chain relationship?*

These two questions are related to the second research objective, which is identified in chapter 1.

### **3. Questions Related To The View Of Trust In The Supply Chain Relationship In Accordance To Risk Occurrence**

As highlighted in chapter 2, the literature indicates that trust in supply chain relationships has been viewed through two different views. The first view as shown in the reviewed literature suggests that the trust in supply chain relationship minimises risk. The authors support this view contend that the trust is needed in business relationships to minimise business risk. The risk associated with a trust relationship is the cost of building a relationship that helps to reduce risk (McLain and Hackman, 1999). So and Sculli (2002) argue that whenever parties in business relationships recognise the existence of any sort of risk, then they adopt trust relationship to minimise it.

Rinehart *et al.* (2004: 28) argue that

*“The role of trust is also indirectly addressed through investments in the personal relationships between the boundary spanners that minimize the risk to both parties. This attitude often leads to a sharing of responsibilities traditionally considered the exclusive domain of one party, such as “implanting” a representative in the operations of the other party to facilitate operational flows and transaction activities between the parties.”*

Thus, through minimising risk, trust is believed to carry financial and non-financial benefits to organisations. Risk minimisation is believed to be an advantage for organisations' business. Consequently, the value embedded in trust is expected to prolong the duration of the relationship between supply chain parties (Rinehart *et al.*, 2004). Risk in business is the probability of occurrence of unwanted situations, including probability of loss. However,

The literature review indicates that, the view of trust in supply chain relationships minimises risk as clarified by the reviewed literature is contended by another view of trust in supply chain relationships. This view envisages trust as a source of risk (see the research literature review in chapter 2). Sloman (2004) has supported this view by indicating that adoption of trust in supply chain relationship involves risk. Based on this view, supply chain parties who are willing to take risk are normally assess the benefit and risk involved in the relationship and decide to take up the relationship based on this evaluation. Therefore, according to this view the parties in the relationship remains cautious in dealing with each other when exchanging trust in supply chain relationship.

Based on the reviewed literature of the research the following questions are formulated to be considered as strategic issues to be explored by the research.

**QUESTION 4:**        *Does trust availability in the supply chain relationship minimise supply chain risks?*

**QUESTION 5:**        *Does the existence of trust between supply chain parties represent a source of risk in the supply chain?*

**QUESTION 6:**     ***Does trust in the supply chain relationship strengthen the supply chain relationship and prolong the supply chain relationship?***

In relation to this research aims and objectives, these questions are related to the third objective of the research.

**4. Question Related To Level Of Trust and Information Sharing In Supply Chain Relationship**

The literature review indicates that the sharing of information is fundamental to most aspects of supplier–customer relationships (Mohr and Nevin, 1990). This argument is supported by Kulp *et al.* (2003:101) where in their empirical findings stated:

***“information-sharing, specifically information-sharing about consumer needs and store inventory levels (but not warehouse inventory level), is associated with increase in profit margins from below average to average, relative to the industry.”***

This finding highlights the benefit of information sharing between supply chain parties. However, the literature review indicates that the information sharing between business parties and supply chain parties is not easily achievable. In this context, Tomkins (2001: 164) stated that *“Information is not given on a take it or leave it basis. Relevant information is itself a function of the interactive process.”* This implies that the relationship between the parties could have possible effect in this process.

Concerning trust between supply chain parties and information sharing between the parties, Austin (1998) asserts that trust in supply chain relationships is able to dilute boundaries between organisations to enable information to be extensively shared so that they may build decisions based on this information. Furthermore, according to Dyer and Chu (2003:60),

***“If the supplier can trust the buyer not to behave opportunistically, it will be more willing to share confidential information.”***

Therefore, trust between parties expected to result in information-sharing between them and the level of information-sharing is expected to be dependent on the level of trust exchange in the relationship between the parties.

In the extent of trust and its impact on information sharing, Lee (2004) argues that trust is an effective means to improve communication and information sharing among group members. Additionally, Huotari and Iivonen (2004:13) describe the way of embracing trust by organisation to reach to information sharing and assert that:

***“Trust must be embedded in organisational culture, enabling the sharing of knowledge and information, as well as learning for the creation of new knowledge.”***

Thus, trust between parties is an indicator of the strength of their relationship and is expected to result in a high degree of information sharing. Hence, the following question is formulated:

**QUESTION 7:**     *Does trust between supply chain parties reduces barriers in the processes of information sharing between the parties and lead to better level of information sharing between them?*

This question is related to the fourth objective of this thesis and it is seeking answer about the relationship between trust and occurrence of information sharing between the supply chain parties.

**5. Questions Related To Influence Of Industry Setting and Territory On Trust's Impact On Organisation Performance and Supply Chain Performance**

Previous researches done by Sako (1998) and Dyer and Chu (2003) on impact of trust between buyers and suppliers on transaction costs recommended other research to be carried out in different industry setting. Sako recommended this to compare her findings with other research findings in different industry setting in order to validate the generalisation of her research findings in regards to transaction costs into other industry settings. Dyer and Chu also in their recommendation point to shared view with Sako. The two researches conducted in automobile industry setting, and these recommendations indicate possibility of difference in the effect of trust between parties on the studied phenomena in regards to trust in supply chain relationship. This research took this point of view seriously and it involved the study of organisations and their supply chain parties in three different industry settings as significant part of its aims and objectives. Based on the reviewed literature in regards to trust in supply chain relationships and impact on supply chain performance and organisation

performance among different industry settings, the following question is formulated based on the literature review.

**QUESTION 8:** *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the supply chain performance differently from one industry setting to another?*

**QUESTION 9:** *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the organisation performance differently from one industry setting to another?*

These two questions are related the fifth research objective stated in chapter 1.

The literature review reveals that the impact of trust between parties on supply chain performance could possibly change from territory to another. The reviewed literature indicates that trust between parties and related impact on supply chain performance in different territories is one of the ambiguities that demand clarification. Interest in understanding the trust in relationships among different countries become noticeably rising after mid 1990s. Burchell and Wilkinson (1997) stress that the effect of trust in relationships on business performance can be influenced by the contractual environment, Dyer and Chu (2003) studied supply chain parties across three different countries to figure out the possible effect of trust on transaction costs, and Davies and Prince (2005) suggested that trust in business relationships has dynamic influence on business

performance based on the territory or environment of the parties in the trust relationship. Therefore, through the reviewed literature the following question become constructed in accordance.

**Question 10:**            *If trust has an impact on performance, is the impact of trust between supply chain parties territory oriented, so that when it exists in one territory it impacts the supply chain performance and the organisation performance differently from the trust that occurs between supply chain parties in another territory?*

Referring to the research objectives, this question in addition to questions 8 and 9 are related to the fifth objective of this research.

Having formulated the research questions on the basis of the literature review, the next section of this thesis will provide the development of the research framework.

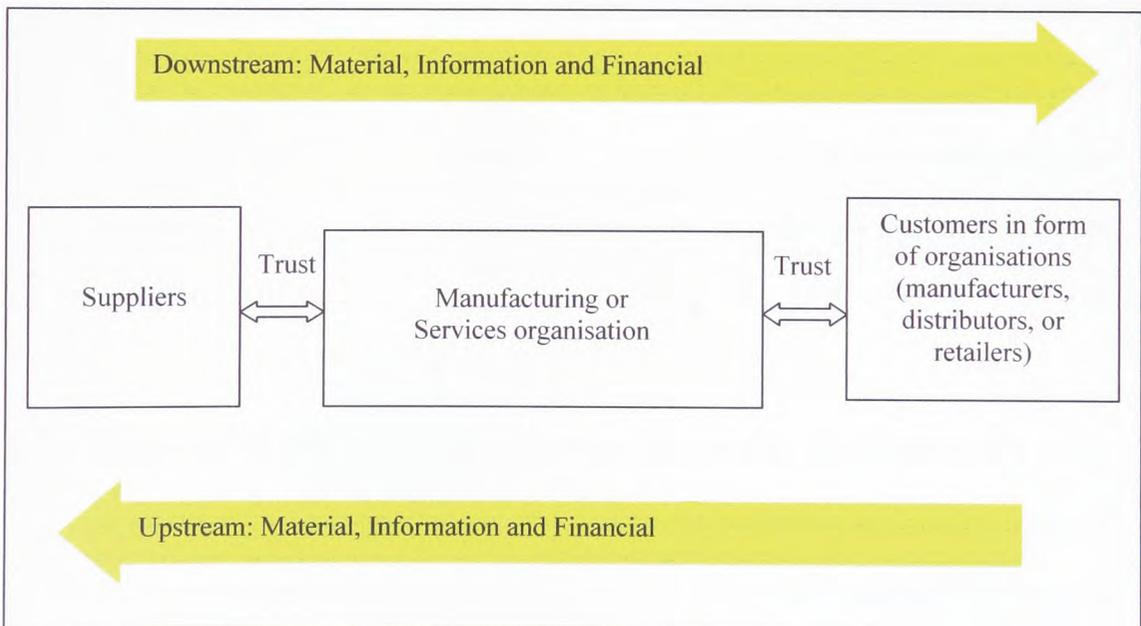
### **3.5 DEVELOPMENT OF THE RESEARCH FRAMEWORK**

#### **3.5.1 Conceptual Model Of Trust Between Supply Chain Parties**

This research aims to investigate trust in supply chain relationship and its impact on supply chain performance and organisation performance. The research to achieve this goal it considered the supply chain relationship in form of organisation and its upstream and downstream parties. The model shown in Figure 2.6 in the research literature review in chapter 2 for this study indicates

the supply chain relationships between each proposed organisation and supply chain parties.

The research literature indicated that the trust between the organisations happens through the supply chain interactions in the upstream and the downstream of the chain. Since the research aims to investigate business-to-business relationships between an organisation and its upstream and downstream parties then the trust expected to happens between the organisation and its parties along the supply chain interactions. Based on the literature, a conceptual model of trust between organisation's supply chain parties and the organisation for the research is developed, as shown in Figure 3.1.



**Figure 3.1: Model of Trust between Organisation and its Supply Chain Parties**

The trust and trust exchange in the supply chain relationship happens through perception of trustworthiness attributes indicated and clarified in the literature review in chapter 2. As shown in the literature the perceived trust has been

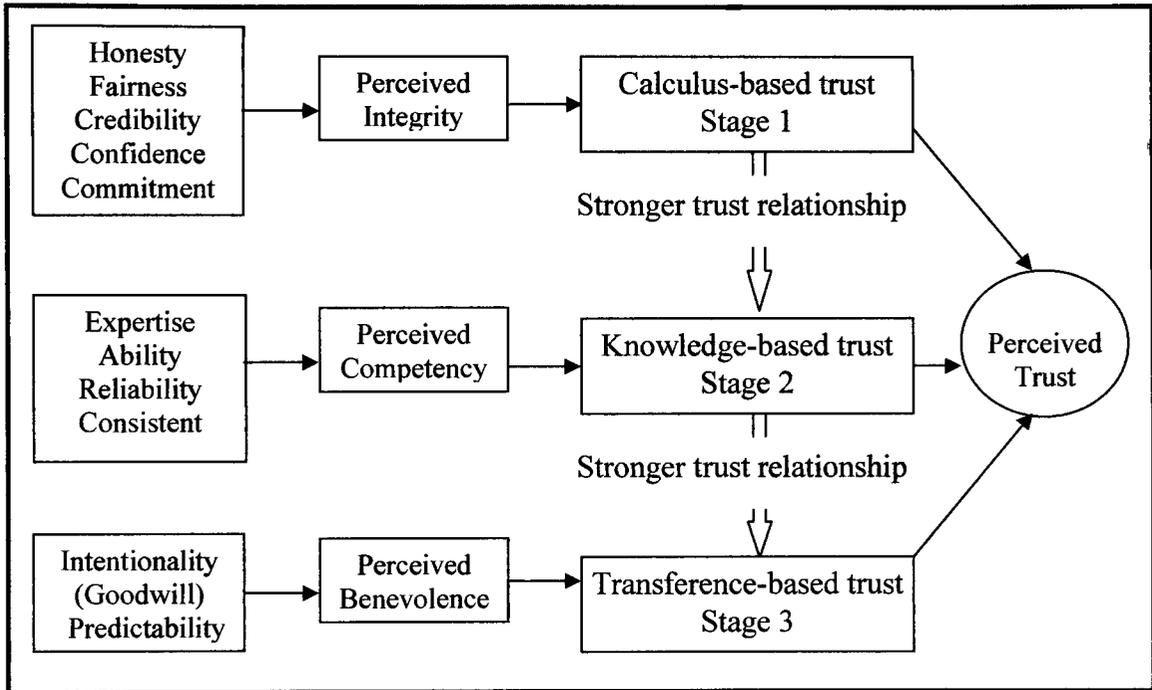
classified into perceived integrity, perceived competency, and perceived benevolence.

The literature also highlighted trust building process and indicated trust stages where the parties in trust relationship perceives the trustworthiness attributes in accordance to the reached trust stage in the relationship. These stages are classified in the reviewed literature as calculus-based trust (stage 1), information/knowledge-based trust (stage 2) and transference-based trust (stage 3).

It was identified in previous section that the strength and weakness of trust in supply chain relationships is determined by the availability amount of trustworthiness attributes in the relationships. The perception of these attributes forming together trust dimensions and the strength of each of these dimensions is highly dependent on the number of attributes forming each dimension; the higher the number of attributes available in the relationship the stronger is the formed trust dimension.

The literature reviewed stages of trust development in relationships that could be measured, as believed in the literature, through the development of trustworthiness-attributes over time of supply chain relationship. The literature showed that trust in relationship is expected to develop through three stages from calculus-based trust built on basis of perception of integrity to knowledge-based trust that forms on basis of perception of competency and could reach to transference-based trust based on perception of benevolence between the parties. Dominance of each of the three trustworthiness-attributes in the trust

relationship determines the stage of trust that embraced in the relationship. The trustworthiness attributes, trust dimensions and trust development stages are clearly presented in the research conceptual model of trust as it is shown in Figure 3.2.



**Figure 3.2: The Research Conceptual Model of Trust**

Based on the research literature, the stages of trust illustrated in the above model in Figure 3.2 represent strength of trust level in the supply chain relationship. The level of trust when moves from calculus-based trust to knowledge-based trust then it moves from a relatively weak level to a stronger one. As shown in the model the higher level of trust could be realised in the supply chain relationship when the stage 3 of trust exists and become in exchange between the supply chain parties.

After having developed the trust model for this research, the next section will reflect on the performance measures selected to be utilised to explore the impact of trust on the performance.

### **3.5.2 The Performance Measures**

The literature review defined organisation performance as the umbrella of the entire organisation activities and the way of executing activities that add tangible and intangible value to the organisation. Referring to the research goals and objectives, the research aims to investigate the influence that trust could have on both supply chain performance and organisation performance. Hence, besides the developed conceptual model of trust indicated in Figure 3.2, the development of the research framework requires the concern of performance measures. As indicated previously in the selection of the performance measures for this particular research, certain measures were selected in the light of the reviewed literature. Justifications for this selection were given in section 3.3.1.1 and in section 3.3.2. Now, as a process of developing the research framework, the previously identified and selected measures for this research could be summarised here as follows:

#### **A. Supply Chain Performance Measures**

1. Inventory (Bullwhip effect)
2. Cost Saving
3. Risk
4. Information sharing
5. Return on Investment (ROI)
6. Lead time

**B. Organization Performance Measures Relevant To Each Perspective Of  
The Four Perspectives Of Balanced Scorecard Model**

**1. Financial Perspective**

- a. Return on investment
- b. Earning growth
- c. Profitability
- d. Cost saving
- e. Market share

**2. Customer Perspective**

- a. Lead time
- b. Quality
- c. Cost
- d. Performance and service

**3. Internal Business Perspective**

- a. Cycle time
- b. Quality
- c. Employee satisfaction
- d. Productivity
- e. Inventory

**4. Innovation and Organisational Learning Perspective**

- a. Technical innovation
- b. Administrative innovation

### 3.6 THE RESEARCH FRAMEWORK

The model of trust in supply chain relationship, as illustrated in Figure 3.3, is combined with the performance measures selected for this study to develop the research framework as shown in Figure 3.3.

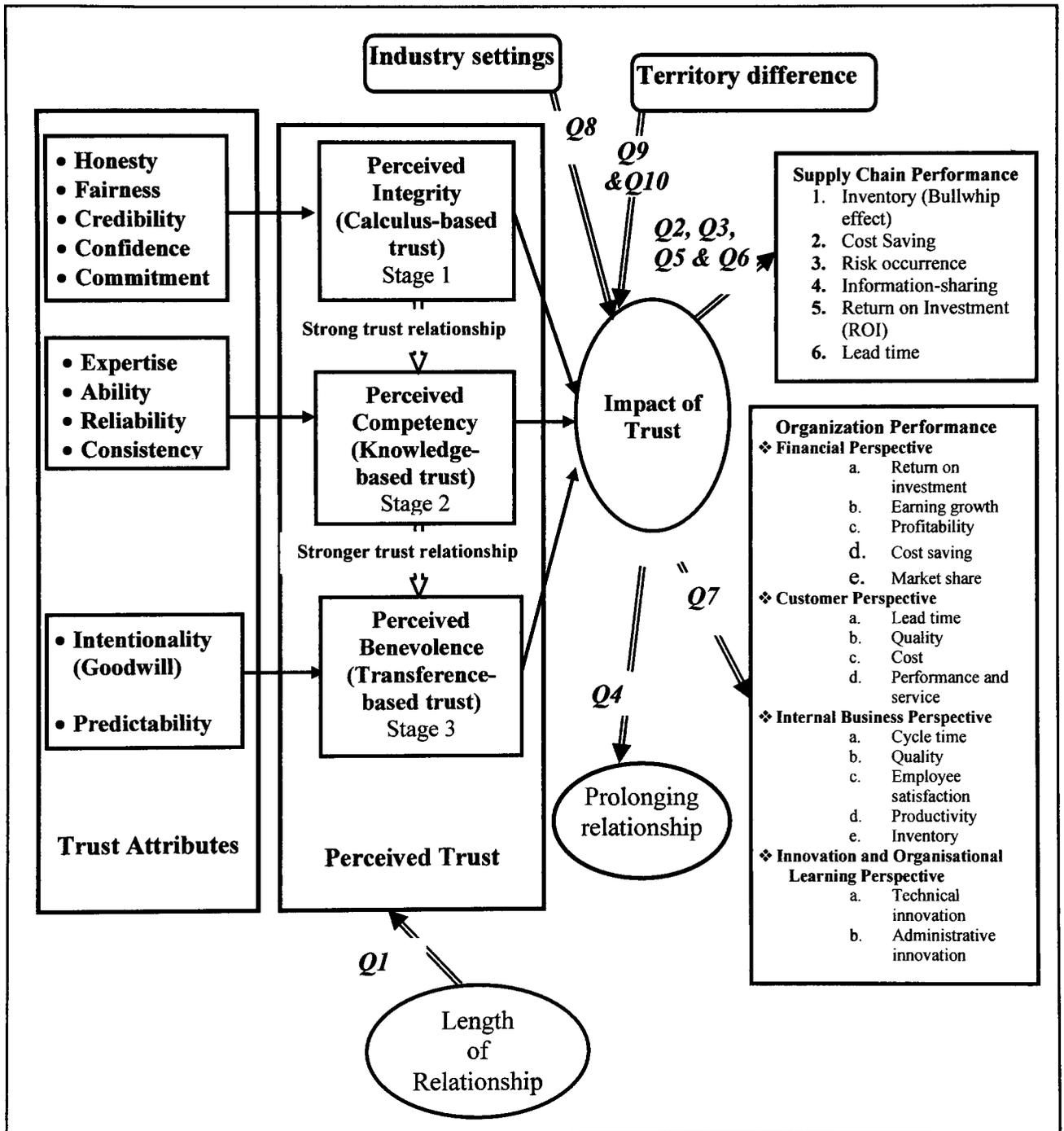


Figure 3.3: The Research Framework

To examine the existence of trust between the parties then the three trustworthiness attributes will be measured through the parties' perceptions. Based on the investigated and measured trustworthiness attributes the perceived trust dimension in the supply chain relationship will be determined. The identified perceived trust dimension will be used to identify the stage of trust development maintained in the relationship in accordance with the concept of stages of trust development identified in the literature. This step enables the researcher to identify the level of trust between the studied supply chain parties. As indicated in the research framework, the effect of the identified level of trust between the supply chain parties will be utilised to investigate the impact it has on the organisation performance and the supply chain performance.

In relation to the cause and effects between the research variables, as clarified in the research framework, the supply chain performance and the organisation performance represent dependent variables, while the trustworthiness attributes that leads to the identified trust dimensions are independent variables for the research.

### **3.7 SUMMARY**

The chapter provided a literature on supply chain performance and organisation performance. It highlighted the performance measures for the supply chain and the organisation and indicated the measures that have been selected to be used by this research. Then, the research crystallised the literature review on trust and supply chain and organisation performance in research questions that represents strategic issues for this study. After that, the chapter preceded to provide the research framework. It commenced with construction of a model of trust related

to supply chain interactions in form of organisation and its supply chain parties in accordance to the reviewed research literature. Furthermore, a model for trust antecedences and trustworthiness-attributes that leads to trust stages in the supply chain relationships was constructed. Then, the chapter illustrated the research framework on basis of the reviewed literature.

## **CHAPTER 4**

### **RESEARCH APPROACHES AND METHODOLOGIES**

#### **4.1 INTRODUCTION**

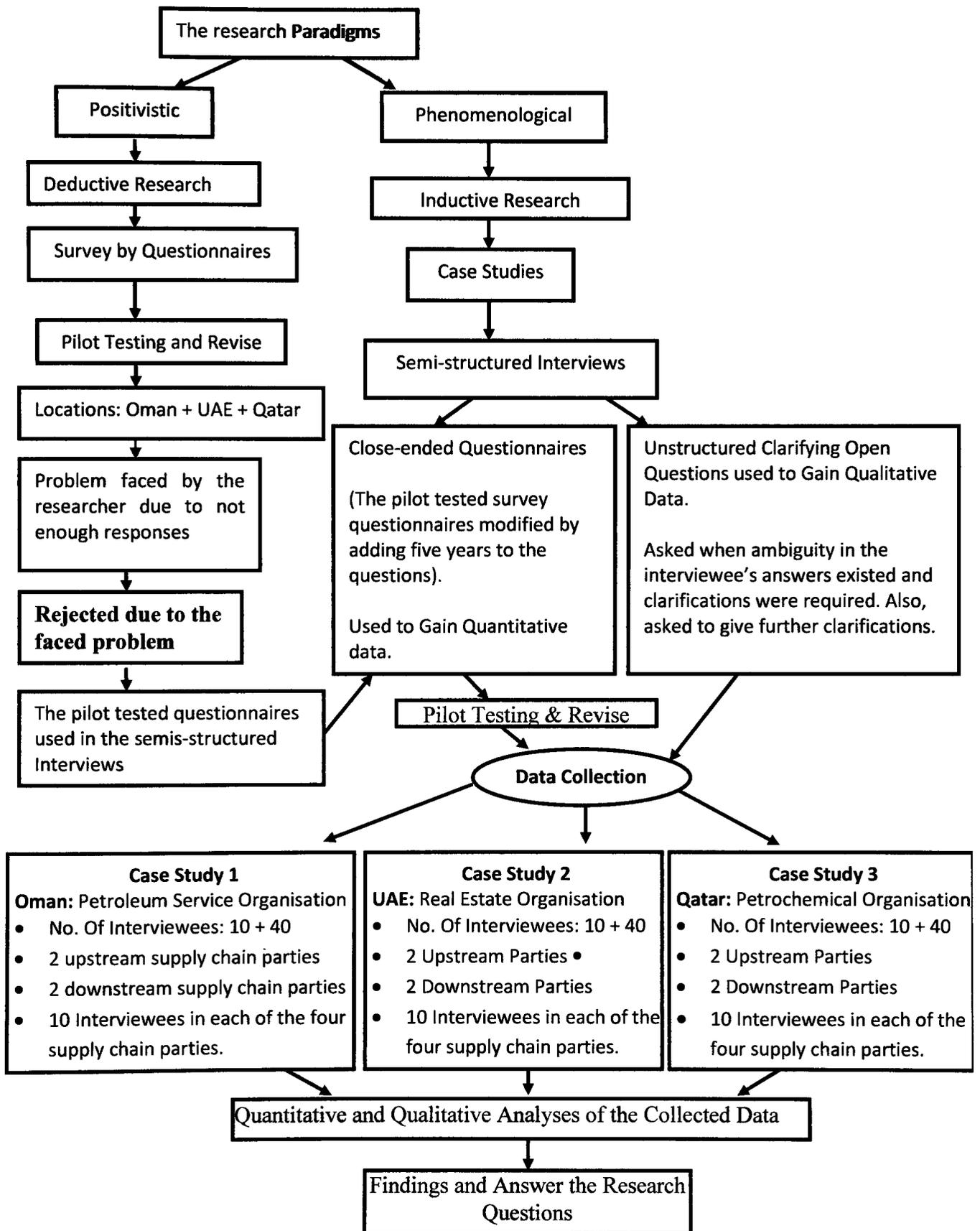
This chapter discusses the research approaches and methodologies adopted for conducting the research. It reflects on the research approaches and methodologies and identifies the approaches and methodologies selected for the research. It commences by illustrating the research process that has been followed by the researcher. Then, it proceeds to clarify the reasons for the process followed by the researcher by introducing the research approaches and paradigms on basis of the reviewed literature. Then, it clarifies the selected approaches and methodologies for this research. After that, it proceeds to identify the research collection methods and the locations selected for conducting the research. Then, it highlights the research sample and clarifies reasons for the selection of the specified samples used in this research. Moreover, it demonstrates the number of participants considered by the research and clarifies criterion used in the selection of the participants. Furthermore, it clarifies pilot testing of the research questionnaires and indicates reasons for assigning time scale for the questionnaires. After that, it considers validation of the research data and highlights processes followed in analysing the collected data of this research.

Before progressing in this chapter it worth mentioning that, in this research, trust development in the supply chain relationship was considered by the researcher only to investigate the type and level of trust reached in the supply chain relationship. The researcher through investigating the process of trust development in the relationship along certain period of time aimed to define whether trust exist in the

relationship or not and if exist then how it developed along the specified period of investigation. The researcher did not take initiative in developing better trust among partners because it is not an aim of this research. As indicated by the literature, considering initiatives to develop better trust among parties is believed to consume intensive time and heavy cost that are beyond the capability of this research. Rather, through this research the researcher aimed to clarify through practical evidence the relationship between trust and performance. The literature shows that developing better trust between partners is believed to require time and efforts to convince unconvinced partners to accept change in the supply chain relationship by involving trust as an ingredient in the relationship or developing better trust when the partners are not willing to develop better trust. Therefore, the literature shows that the previous researchers concentrated on studying the role of trust between suppliers and buyers. Most of the previous researches came out with classifications of trust types and stages of trust development along the supply chain relationship as indicated in the part of the reviewed literature of this thesis. Additionally, the previous researchers concerned factors that cause trust development between partners and reasons that could lead to distrust or trust violation.

#### **4.2 ILLUSTRATION OF THE RESEARCH PROCESS FOLLOWED BY THE RESEARCHER**

The process followed in conducting this research is illustrated in the following figure.



**Figure 4.1: Summarises The Followed Research Process**

The process indicated in Figure 4.1 was designed based on the reviewed literature and the selection of the suitable approaches, methodologies and data collection methods for this research. The following sections will provide details of the research design and clarify reasons behind the followed research process illustrated in Figure 4.1.

#### **4.3 THE RESEARCH PARADIGMS AND APPROACHES**

The role of trust on organisation performance and on supply chain performance was identified as gap in the knowledge of supply chain and operations management that demands a research to fill the identified gap. Based on the reviewed literature, research is a term used when people or researchers try to investigate a phenomenon or behaviour in order to find results. Sekaran (2000: 4) defines business research as

*“an organised, systematic, databased, critical, objective, scientific inquiry or investigation into a specific problem, undertaken for the purpose of finding answers or solutions to it.”*

Therefore, this research was undertaken for the purpose of finding results in a systematic way in order to add knowledge to the supply chain knowledge and operations management knowledge as an attempt to fill the existing gap. To do so, research approaches and methodologies were followed as the system determining and leading the research path. The research philosophy or paradigm was used to indicate the process undertaken to tackle the research problem. According to Mangan *et al.* (2004: 566), *“The concept of the Paradigm is central to the research process in all areas of study.”* In identifying the role and impact of trust on organisation and supply chain performance, the researcher employed

both the positivistic and the phenomenological research paradigms. The adoption of the two paradigms that were employed by this research was supported by Hussey and Hussey (1997) and Mangan *et al.*, (2004).

The deployment of the positivistic and the phenomenological paradigms in this research aimed to combine the two research philosophies to gain broader view of the research problem and to gain intensive insight about the trust between the parties and its impact on both the supply chain performance and the organisation performance. Specifically, the positivistic research philosophy was deployed by the researcher to expose the cause and effect in studying the relationship between trust in supply chain relationships and its impacts on supply chain performance and the organisation performance. The reviewed literature indicates that this paradigm is based on natural science, which relies on the natural occurrence of things and denies any effect caused by the act of investigating the reality of things or phenomena (Saunders *et al.*, 2000) and it is the dominant one in business research (Collis and Hussey, 2003).

Both paradigms were selected and used in this research because the reviewed literature indicated that the positivistic paradigm is criticised by social scientists and the phenomenological paradigm developed as a result of this criticism (Hussey & Hussey, 1997). However, the positivistic paradigm remained considered by the researcher and deployed in this research because the phenomenologists consider the social reality to be constructed in our minds and can be changed or adjusted by investigating this reality (Collis and Hussey, 2003). In fact the change or the adjustment of the reality is natural reaction because the investigation of the reality bears awareness about the investigated

issue. This is clearly stated by Hussey and Hussey (1997: 53) by arguing that “*There is no reality independent of the mind; therefore, what is researched cannot be unaffected by the process of the research.*” Therefore, in this research, the phenomenological paradigm was utilised to be the influential process in qualifying the trust in the supply chain relationships and its impacts on the supply chain performance and the organisation performance. Additionally, it was found useful to be used in understanding the human behaviour in the supply chain relationship in relation to the trust investigation and to depict the influence of the investigated trust on the supply chain performance and the organisation performance from the participant’s own frame of reference. Consequently, the two research paradigms allowed the researcher to generate comprehensive prospect about the research problem.

As indicated by authors in the field of research methods and methodologies, a research paradigm has direct influence on the selection of research approach (Saunders *et al.*, 2000; Collis and Hussey, 2003). Hence, to comply with the research paradigms the deductive and inductive research approaches were employed by the research. “... *the deductive approach owes more to positivism ...*” (Saunders *et al.*, 2000: 87). While, the inductive research approach is a qualifying approach and it practically reflects the phenomenology research paradigm. This particular approach was deployed by the researcher to provide assistance in examining the validity of the results.

After the research paradigms and approaches have been highlighted, the next section will consider the research methodologies.

## **4.4 THE RESEARCH METHODOLOGIES**

Based on the research paradigms and approaches, two research methodologies were found suitable for conducting this research. The first methodology is survey by questionnaire and the second one is case studies methodology.

### **4.4.1 Survey and Case Studies**

Initially the researcher intended to utilise two methodologies in accordance with the research paradigms and approaches. These methodologies were triangulation of survey and case studies. In regard to the research paradigms, the survey research methodology was selected to be utilised by this research to comply with the deductive research approach in order to yield quantification of the research data. On the other hand, the case studies methodology was selected to comply with the inductive research approach. Through the selection of the two research methodologies for this research the researcher aimed to utilise triangulation of methodologies in form of mixed survey and case studies methodologies.

Triangulation of survey and case studies was decided to be used in this research because the reviewed literature indicates that the triangulation of research methodologies has the ability to provide a broader and complementary view of the research issue. Besides that the researcher preferred to use the two research methodologies to avoid criticism related to the survey questionnaire methodology, which are availability of bias, unavailability of researcher at situation, occurrence of misunderstanding of questions, careless in answering questions, ideologically obscure, and often not enough responses for data analysis (Kuula, 2000; Imp-Act Institute of Development Studies, 2003; Peninsula research and development support Unit, 2003; Venkatachalam, 2004). However,

the researcher faced a problem in utilising the survey questionnaire methodology for this research and eventually the only methodology that has been utilised in this research was the case studies.

The following section considers pilot testing of the survey questionnaires and provides clarification of the problem that faced the researcher in using the survey methodology for this research and consequently caused discarding this methodology from application in this research.

#### **4.5 PILOT TESTING OF THE SURVEY QUESTIONNAIRES**

Prior to pilot testing, the questionnaires were pre-tested through maintaining opinions of academic colleagues for terminology and content validity. This step was intended to make sure that the questions involved in each questionnaire are understandable to respondents and able to give its purpose as required by the research. The revised questionnaire then had undergone pilot testing. Prior to pilot testing, the questionnaires were tested by interviewing seven managers and twelve supervisors in Oman in different industry settings. As pilot testing of the questionnaires they were mail posted to 20 core organisations, 40 upstream parties, and 40 downstream parties in Oman and equivalent number of questionnaires to organisations, upstream parties and down stream parties in the other territories; UAE and Qatar. Only 3 surveys were returned from Oman (2 upstream parties and 1 downstream party), 4 from UAE (1 organisation, 2 upstream parties and 1 downstream party) and 2 from Qatar (an organisation and a downstream party). In other words, the response rate was very weak but the overall responses were enough to cover the requirement of testing the clarity of the questionnaires (refer to appendix 1 for the survey questionnaires).

#### **4.5.1 Problem Faced The Researcher and Selection Of Case Studies As The Only Research Methodology For This Research**

As mentioned before, the pilot tested survey questionnaires have been mail posted to respondents but very few responses received and no response was received from parties in one supply chain. The questionnaires were not taken seriously by most of the supply chain parties who were selected for this study. Consequently, the researcher faced a situation of getting no response from both the core organisation and the parties or either a response from the organisation and nothing from the parties or a response from a party and nothing from the organisation and the other parties. This caused deficiency of data for the research, which hindered the researcher from maintaining the required data necessary for the data analysis. Then, the researcher decided to conduct semi-structured interviews with case studies.

#### **4.6 THE CASE STUDIES METHODOLOGY**

The reviewed literature indicates that the case studies research methodology is a methodology that possesses the facility to develop detailed and intensive knowledge about a situation or small number of related situations (Saunders *et al.*, 2000). It is defined as a historical or current phenomenon compiled from different sources of evidence (Voss *et al.*, 2002). In this context Yin (2003: 15) stresses that

***“Case studies can be based on any mixed quantitative and qualitative evidence. In addition, case studies need not always include direct, detailed observations as a source of evidence.”***

The case studies research methodology is a very useful way of exploring in depth a programme, an activity, a process, or one or more individuals (Saunders *et al.*, 2000; Collis and Hussey, 2003; Creswell, 2003).

The case studies were used in this research and they are significantly helped the researcher to overcome the faced problem in utilising the survey methodology. In this research, the case studies research methodology has been used to provide the researcher with comprehensive view of the trust in the supply chain relationship and the effect that this trust has on the supply chain performance and the organisation performance.

The reviewed literature indicated that the case studies research methodology has the capability to provide useful description of situations that can be used for theory building and refinement (Fillippini, 1997; Malhotra and Grover, 1998; Forza, 2002). This represented good reason for using the case studies in this research. Therefore, it was utilised to gain the research qualitative data and to maintain clarifications of situations and phenomena related to trust and organisation performance and supply chain performance. This methodology has the ability to look into understanding and explaining what is happening (Collis and Hussey, 2003), and therefore, it was selected and deployed by the researcher to provide valuable assistance in understanding the impact that trust has on both the organisation and the supply chain performance.

Yin (2003) has indicated that the case studies research methodology is appropriate to research that aims to understand the research phenomena and also when the research uses multiple research methods for collecting data. The

researcher investigated three cases to provide understanding of the relationship between the trust in supply chain relationships and organisation and supply chain performance. According to Bartezzaghi and Ronchi (2003) study of multiple cases develops wide perception of different possible situations in the research and helps in generation of general conclusion about the research results. Therefore, the findings generated from using this methodology in this research can be generalised to cover the other organisations that were not involved in the research.

#### **4.6.1 Reasons That Makes The Use Of The Case Studies Methodology As A Must For This Research**

There were specific reasons for using this research methodology for this particular research. In particular, the exploitation of case studies research methodology for this specific research was anchored in many significant reasons that are directly related to the aims and objectives of this research. The first reason was embedded in the conformation of the supply chain relationship determined to undergo the research. The research, as mentioned early, had aimed to investigate the trust between supply chain parties in form of organisation and its upstream and downstream parties. In order to realise this goal it was inevitable that the supply chain relationship between the three forms of the parties (upstream parties, the organisation, downstream parties) need to be investigated thoroughly. This implies that the researcher has to explore the relationships in form of a full supply chain. Hence, it was found that the trust to be investigated then the parties in the individual supply chain need to be investigated collectively. Based on the reviewed literature, trust cannot be investigated from the view of one party about the other without investigating the other party's view. Otherwise,

as indicated in the literature, it is called the investigation of trust from one side or prospect. This kind of investigation certainly does not yield the overall trust in exchange between the parties in the studied supply chain relationship. According to the reviewed literature, in the supply chain relationship the parties have interrelationship with each other where each party could have trust on each other based on specific related expectancies. Hence, the investigation of trust from the prospect of each party in the supply chain relationship was identified as a significant requisite that accepts no ignorance to maintain reliable data about the trust in exchange between the parties. In this context, the case studies methodology was found to be able to provide the required mechanism to facilitate the study of the relationship from the specified parties' points of views in a manner that ensure the attainment of the perception of all the parties selected for the study about the trust in the studied supply chain relationships.

The other significant reason for selecting the case studies methodology for this particular research was entrenched in the process of investigating the impact of trust on supply chain performance and the organisation performance. The research to realise its objective in exploring the impact of trust on the performances then the investigated trust between the specified supply chain parties is the one that will be used to identify the impact. This can be justified through the cause and effect principle. In other words, investigating trust in one supply chain relationship and studying the effect that trust has on unrelated organisation and supply chain party will not provide realistic findings of the research data analysis. Hence, when trust get investigated as the cause that could have possible effect on the performance then the impact of that investigated and identified trust has to be explored on the performance of the investigated supply

chain and the organisation. Otherwise, the cause and effect does not match and the research cannot prove reliability in terms of findings. Therefore, an organisation and its upstream and downstream supply chain parties were needed to be specified for conducting the research and investigating both the trust and its role and impact on the organisation and its supply chain performance.

In addition to the above mentioned reasons for the exploitation of case studies for this particular research, the exploration of case studies enriches the understanding of trust between supply chain parties and helps to expose the reality of the trust in the relationship through justifications based on the participants own references. Consequently, the use of the case studies provided not just the magnitude and mode of effect the trust has on the organisation and the supply chain performances but also explained and enhanced the analysis and the findings of the research. This certainly helped in enhancing the reliability of the research data and accordingly helped the researcher in the explanation of the findings of the data analysis.

Having identified the research methodologies used in this study and clarified reasons for the selection of case studies methodology, the next section will discuss the methods used in collecting the research data.

#### **4.7 DATA COLLECTION METHODS**

The research utilised semi-structured interview method for the data collection. The semi-structured interview has been adopted as an explanatory and exploratory method to gather the research data. The use of interview with the case studies research methodology increases the validity and reliability of the case

study findings, clarifies doubts and enriches the research data (Voss *et al.*, 2002). The interview data collection method has been used to provide descriptive or explanatory research data that enhances the research. During the interview the researcher has used close-ended questions in each questionnaire to enable the researcher to quantify the data. The questionnaire as data collection method is widely used in the quantitative research (Converse and Presser, 1988; Babbie, 1990) and, therefore, it has been adopted to gain quantitative data for the research. The questionnaires are very useful for measuring research variables (Sekaran, 2000) and work best with standardised close-ended questions that can be interpreted the same way by all respondents (Saunders *et al.*, 2000). Because the research seeks to describe and explore reasons for the trust between supply chain parties and its impact on supply chain performance and on organisation performance, the researcher has utilised the close questionnaires to maintain quantitative data for the research.

To enrich the research data the researcher has used unstructured open questions whenever was found necessary to clarify the interviewee's answers and to trigger the interviewee to provide data and information that helps the research aims and objectives and allow qualitative analysis of the data. The use of the unstructured questions with the structured closed questionnaires all together formed the semi-structured interview used in this research.

#### **4.7.1 The Questionnaires Used In The Semi-Structured Interviews**

In the semi-structured methodology, the researcher utilised the pilot tested questionnaires that were intended to be used for the survey methodology. The researcher then modified the questionnaires to involve five years time period

where the respondents have to clarify perception for five years (see the modified and used case studies research questionnaires provided in appendix 1). As highlighted in the research data collection methods, besides the close-ended questionnaire, unstructured open questions were asked by the researcher during the semi-structured interview. The open questions were utilised to maintain intensive and clarifying data to provide qualitative data for the research. The new questionnaires then tested by interviewing 11 supply chain managers. The respondents reacted positively toward the questionnaires. The questionnaires then used in the interviews with the selected organisations and their supply chain parties.

#### **4.7.2 Reasons For Assigning Time Scale To The Research Questionnaires Used In The Case Studies**

As indicated in the literature review in chapter 2 of this thesis, the trust has been identified to develop over time of the supply chain relationship. This necessitates the researcher to concern time scale in collecting the research data. Time scale of five years was decided by the researcher as reasonable to study supply chain relationships. This step has been followed to allow the researcher to gain broader view about the stages of trust development in the investigated supply chain relationships in order to allow correlation of relevant impact on performances. In this respect, the research data has been collected for five years of the supply chain relationships.

The research data were gathered for the year 2001, 2002, 2003, 2004 and 2005. For simplicity of the research data analysis, each of these years are denoted in the research as before five years, before four years, before three years, before two

years and before one year respectively. The denotation aims to attract attention in regard of the period of the relationship in relation to the investigated trust in the relationship. For instance, instead of mentioning that in 2001 the relationship was involving certain type of trust it is clearer to mention that before five years of the relationship where in this way the denotation has the sense of pointing to the oldness of the relationship between the organisation and the supply chain parties.

In relation to the quality of the relationships selected for this study, the assignment of this time scale to the data collection allowed the researcher to discard relationships happened in a period less than the decided reasonable supply chain period, which is the five years. Also this time frame ensures that the relationship can be studied practically for a reasonable time period. Furthermore, the time scale that has been given to the collected data aims to help in tracing the trust building process in the studied relationship through enabling the researcher to explore the influence that the length of the supply chain relationship has on the development of trust stages in the relationship. Additionally, this time scale aims to render assistance in tracing changes in organisation performance and supply chain performance in accordance with development of the trust in the relationship.

#### **4.7.3 Scales Assigned To The Research Close-Ended Questionnaires Used In The Case Studies**

Scales were assigned to the interview questionnaires to assist the researcher in the interview stage to assign scores to the questionnaires and maintain quantified data. Two scales were used in this research to collect data in regard to trust in

supply chain relationships and to collect data related to organisation performance and supply chain performance.

The most common form of attitudinal scaling in social science research was used in the questionnaires. To avoid criticism of mid-point value that criticised by Lundstorm and Lamont (1976) as the neutral point that allow no decision to be made, a five-points semantic differential scales were used for the research. In respect to the investigation of trust in the supply chain relationships, this scale takes the agreeing and the disagreeing points of view of the supply chain parties in five levels that could measure trustworthiness attributes in the supply chain relationship. The scale used in this research to investigate the trust in the supply chain relationships is as below:

- |   |                     |
|---|---------------------|
| 1 | = Strongly Disagree |
| 2 | = Disagree          |
| 3 | = Moderately Agree  |
| 4 | = Agree             |
| 5 | = Strongly Agree    |

This form of scale also used to investigate the supply chain performance and the organisation performance in accordance with the type of the investigated relationship. Concerning this form of scale, the following scale was used by the researcher to indicate and reflect on the organisation performance and the supply chain performance in relation to the investigated trust in the supply chain relationship.

1	= Worse
2	= Bad
3	= Good
4	= Very Good
5	= Excellent

The interview questionnaires were personally administered by the researcher to collect data from each selected interviewee. During each interview, numbers were assigned to the questionnaires by the researcher in accordance to the participant's opinions.

#### **4.8 VALIDATION OF THIS RESEARCH DATA**

The collected data were validated in this research through the interview stage by maintaining the data from different people across the organisational level within each investigated organisation. This allowed the level of confidence in the maintained data to rise to best possible level through making sure that the given data are agreed by the different organisational level which involves the supply chain management and related employees and in the relevant departments. Moreover, the researcher in assigning the scores to the research questionnaires was exploring the interviewee confidence through explaining and demonstrating the meaning of the questions and detecting the confidentiality of the interviewee involved in answering the question. Adequate demonstration for each question was exerted by the researcher when hesitation was noted in answering the question till a level of confidence is reached by the interviewee in the given answer. Thus, the scores maintained through the research involve optimal level of confidence. Differences in answering the research questionnaires were expected

due to different level of education, responsibility and experience among the interviewees but this issue was sorted out by the researcher through direct intervene and clarification of the questionnaires.

In regard to the data and information provided by the interviewee, the presence of the researcher helped in observing and discussing the given data and information. Since the interviewees were human beings then bias occurrence is expected in the given data. However, the presence of the interviewer during the time of data collection extremely helped in the elimination of the bias occurrence. During the interview, the participants have showed documents and business records to enforce their opinions which were utilised in this research to gain in-depth insight about the maintained data provided by the related supply chain parties. Moreover, the researcher has conducted the interview and assigned scores to the questionnaire simultaneously without span of period to ensure that the correct data was collected from the interview. Furthermore, clarifying open semi-structured questionnaire was utilised by the researcher to allow the interviewee to give justifications and details for the provided answers to enrich the research data and to highlight points relevant to the interview main questionnaire.

#### **4.8.1 Factual Evidence To Support The Research Findings**

Data validation is important to any business research. Since, the collected data is based on the interviewees' perceptions, factual evidences collected by the researcher from each organisation and its parties would be utilised to support the findings on the relationship between trust and performance indicators. The factual evidence would be in form of sample raw data that indicate the real performance achieved in five years starting from 2001 till 2005. This will allow

the researcher to know the extent of reality reflected by the collected data. Therefore, the factual evidences would be used to verify the credibility of the interviewees' perceptions through knowing the extent of reality reflected by them and would provide a base to indicate how far was the interviewees' perceptions closer to the reality. Hence, the factual data would be used by the researcher as a tool to validate the collected data.

#### **4.9 LOCATIONS SELECTED FOR THE STUDY**

The research has been conducted in three different territories namely Oman, United Arab Emirates (UAE), and State of Qatar. The three territories are located in the Middle-East (refer to appendix I for maps indicating the territories).

Three case studies, one in each territory, have been investigated for trust in supply chain relationships, organisation performance and supply chain performance. In each case study the supply chain was chosen on the basis of the research sample that was determined in accordance with the research aims and objectives. The next section details the research sample selected for this research.

#### **4.10 THE RESEARCH SAMPLE**

The sample selected for conducting this research is in form of three supply chains that have large and medium sized parties. Each supply chain is in form of upstream supply chain parties, organisation, and downstream supply chain parties. This selection was based on the research aims and objectives to explore full supply chain that has the capability to expose the trust in the supply chain relationships and its impact on the performances of the supply chain and the organisation. To ensure considerate supply chain parties taken for study the

parties were decided to be major upstream parties and major downstream parties to the organisation. This selection is directly related to the probability of trust presence in the relationship. The research to study trust in supply chain relationship then relationships with expected trust in them represents the target for the investigation. Otherwise, a relationship without trust does not help the research to realise the aimed goals and objectives. Hence, the major parties in each supply chain were considered to be the target segment for the research that could yields real advantages to the research.

To gain deep insight about trust between supply chain parties and its effect on supply chain performance, holistic views of supply chain parties are considered by this research. The holistic view in supply chain management research is recommended by Womack *et al* (1990) and supported by Slack (1991). The holistic research view was discussed with the core organisations to be taken into consideration for investigating supply chain parties. In this regard, two major upstream parties and two major downstream parties were selected for the research with each core organisation. The number of the parties selected for this research was bounded by the research limited time and cost constraints.

The supply chain parties were selected to be parties that have domestic supply chain relationship where all the parties are located in one territory. This setting of the research sample allows the researcher to investigate the impact of trust in each territory in the domestic supply chain relationship and to compare the explored effect the trust has among the different territories. The three supply chains were decided to be related to different industry settings. This feature of the research sample has aimed to facilitate the research process in exploring the impact that

could be caused by the industry settings difference on the effect the trust could has on the performances. In other words, it enables the researcher to compare the effect of trust on the performances among the different industry settings and denote the difference.

#### **4.10.1 Reasons For The Selection Of The Three Organisations For This Research**

Based on the research aims and objectives, the organisations selected for this research were based on specific characteristics that allow the researcher to investigate trust between supply chain parties and impact on supply chain performance. Organisations that are weakly established, not well known organisations, small organisations that have no reputation of success, or new organisations that could be classified as “fresh to the market” with no or few experiences in the market were decided to have no value to this research and therefore these types of organisations were discarded and not taken into consideration for this research. Therefore, the three organisations that had been selected for this research were based on three criteria:

- 1- Having well established and sound successful supply chain reputation.
- 2- Acquired a recognised leadership in its business specialisations or field.
- 3- Have both upstream and downstream parties.

Furthermore, to study the trust in the supply chain relationship and effect of relationship duration on trust building process, the organisation was further required to have more than five years of relationship with its upstream and downstream parties. This is in order to ensure that the selected organisation is an experienced organisation, which could allow the process of picking up any

possible experience-based knowledge on supply chain relationship and how it evolves over time. This was expected to allow broader view of trust development in the supply chain relationship, which allows exploration of related impact on organisation performance and supply chain performance.

#### **4.10.2 Number Of Participants In Each Case Study**

In each case study 50 people that are directly related to the supply chain activities were selected to participate in the research. The 50 people were in form of 10 people from the core organisation and 10 people from each upstream and downstream party. The chosen people were from different organisational positions that are directly related to the supply chain daily activities and management.

#### **4.10.3 Selection Of Interviewees In Each Core Organisation and Its Supply Chain Parties**

The researcher discussed selection of interviewees in each core organisation and its upstream and downstream parties. The interviewees were selected on basis of their experience in the supply chain relationships and acquisition of well established knowledge of the supply chain performance and the organisation performance. Each of the interviewees selected for the research was having not less than five years experience in the selected organisation. Furthermore, the interviewees were selected on basis of their ability to have access to the organisation's data and information in order to provide the researcher with valuable data required for the research. Since the literature identified stages of trust development in the supply chain relationships, the five years experience criterion in the selection of the interviewees was used to ensure that the

interviewees are able to provide historical data regarding the trust in the supply chain relationships and the related organisation performance and supply chain performance.

#### **4.11 ANALYSIS OF THE COLLECTED RESEARCH DATA**

As mentioned before, the collected research data will be analysed quantitatively and qualitatively. Each case study will be analysed individually and then the generated results from the analyses of the case studies will be compared to reveal differences indicated by the analyses results.

The research in the quantitative analysis utilises statistical approaches to indicate the trust between supply chain parties and to figure out impact on the supply chain performance and the organisation performance. While the qualitative data analysis will be used in this research to enrich the research findings by validating the data analysis and to clarify the results maintained through the quantitative analysis of the data.

##### **4.11.1 Quantitative Data Analysis**

The research data has been analysed quantitatively to indicate the relationship between trust in supply chain relationships and organisation performance as the first concern and trust and supply chain performance as the second concern.

The analysis will start with time-series analysis where the data have been gathered for five years of the supply chain relationship. The data will be analysed in accordance with these five years. Average analysis will be utilised in this research to analyse the data. The average analysis used in this research aims to

maintain the levels of trust in the supply chain relationships based on the different perceptions of these levels via trustworthiness attributes perceived by the supply chain parties through their management and employees who are directly and indirectly interfere with the daily supply chain processes and management.

The average analysis will be represented into bar charts to indicate the level of trust in the relationship and the correspondent organisation performance and supply chain performance over the five year period of the supply chain relationship. After that comparison of the analysis results will be carried out to identify correlation between the trust and the performance. The research through following this sequence of analysis aims to provide quantitative evidence about the effect that trust has on the organisation performance and the supply chain performance.

#### **4.11.2 Qualitative Data Analysis**

The qualitative data analysis would qualitatively assess the supply chain relationship for availability of trust in the relationship and impact on supply chain performance and organisation performance. In this analysis the supply chain parties' perceptions of trustworthiness attributes exchanged in the supply chain relationship were grouped under trust dimensions in form of integrity, competency, and benevolence. Each trustworthiness attribute in the supply chain relationship was considered in relation to its contribution to the formulation of the trust dimension in the supply chain relationship. Then, perceptions of supply chain performance and organisation performance in accordance with the explored trust in the relationship were analysed.

The qualitative analysis will be used as a clarifying object to the quantitative data analysis's results. Therefore, it will start with analysing the supply chain relationships between the core organisation and its upstream parties for trustworthiness attributes in the supply chain relationships. Then it will consider analysis for trustworthiness attributes between the organisation and its downstream parties. The interviewees' comments would be used for judging type of relationship between the parties, perception of trust in the relationship, trust development and level of trust between the parties in the investigated supply chain relationship. Additionally, the interviewees' comments on perceptions of supply chain performance and organisation performance in relation to the investigated trust, would be used to draw judgement on performance.

During the investigation of supply chain performance, occurrence of the bullwhip effect in the supply chain was taken into consideration and explored in relation to the research aims and objectives. The supply chain performance and organisation performance were investigated for five years of the business relationship in accordance to trust investigated within the same period. Consequently, this allows the researcher to develop comparison between the trust in the relationship and the performances and assist in enabling indication of trust development between the parties in relation to the length of the supply chain relationship.

The literature review in chapter 2 showed that the trust in the supply chain relationships is theorised to develop over time. The collected qualitative data would be utilised to extract evidences regarding this theory. Based on the comments of the participated supply chain parties, trust development in the relationship would be taken into consideration and the relationships could then be

compared to previous periods of relationships and the related performance of supply chain would be analysed.

The research through the investigation of the supply chain relationship for five years aims to facilitate the exploration of trust development in the relationships. Additionally, it eases the investigation of trust impact on performance by enabling the researcher to trace performance in each year in relation to the investigated trust and to build correlation between the two variables. This allows comparison between trust and performance in each year of supply chain relationship.

Based on the research goals and objectives, one of the research objectives is clarifying and identifying the influence that territory differences has on the impact that trust has on performance. Besides this objective, the research aims to identify the role that differences in industry setting has on the impact of trust on the performance. The results generated from the quantitative analysis and qualitative analysis of each case study will be utilised to conduct cross territory comparison and cross industries settings comparison. The aim of these comparisons is to indicate whether or not these variables have effect on the role that trust has on the supply chain performance and the organisation performance. Then, discussion of the research questions in the light of the results of the quantitative and qualitative analyses of each case study will be provided.

#### **4.12 SUMMARY**

This chapter provided the research methodologies and approaches. The research paradigms were identified to be positivistic and phenomenological and research approaches were identified to be deductive and inductive. The selection of these two approaches was clarified on basis of the research aims and objectives. Relevant literature review underpinning arguments to this selection were indicated in accordance in this chapter. The research appropriate methodologies were identified in this chapter to be triangulation of survey and case studies. Reasons for this selection were given and clarification of a problem faced the researcher in conducting survey questionnaire has been stated. Then, the research data collection methods were identified to be interview questionnaire by utilising close-ended questionnaire reinforced with clarifying open ended-questionnaires in a semi-structured research interview. Oman, UAE and Qatar were named to be the locations of conducting this research. The sample for the research has been clarified in relation to the research aims and objectives. The number of participants in each supply chain was identified to be 10 participants from each organisation and 10 participants from each upstream and downstream party (50 participants in each case study). The chapter indicated and clarified the pilot testing process of the utilised research questionnaires. Then, the data collection process used in collecting the research data was clarified. After that, the chapter has clarified the two methods used in analysing the collected research data, which are quantitative and qualitative data analyses.

## **CHAPTER 5**

### **ANALYSES OF CASE STUDY 1 THE OMANI ORGANISATION (OMO) SUPPLY CHAIN**

#### **5.1 INTRODUCTION**

Based on the research aims and objectives highlighted in chapter 1 of this thesis, the research main aim is to identify impact of trust in supply chain relationships on supply chain performance and organisation performance. This research has paid particular attention to the achievement of this goal and the researcher has investigated each case study selected for this research for existence of trust between the organisation and the selected supply chain parties and explored the organisation performance and the supply chain performance relevant to the trust in the relationships.

As indicated in the methodology part of this thesis, to maintain the research aims and objectives, the data of each case study will be analysed quantitatively and qualitatively to enrich the research findings. Commencing the analysis of the first case study, which is the Omani Organisation case study, the chapter here starts with providing overview of the Omani organisation and its supply chain parties considered for this research. Then the chapter provides analysis of the case study on basis of the quantitative and qualitative data maintained from the Omani Organisation and the selected supply chain parties. Both the quantitative and the qualitative data analyses aim to identify level of trust in the studied supply chains through identification of types of trust in each relationship. Then the chapter will proceed to provide analyses of the organisation performance and the supply chain performance in light of the identified trust in the supply chain relationships.

Reflecting on the research aims and objectives, this step of the analyses aims to trace impact that trust could have on both the supply chain performance and the organisation performance.

## **5.2 OVERVIEW OF THE OMANI ORGANISATION (OMO) AND ITS SUPPLY CHAIN PARTIES**

The Omani Organisation (OMO), an oilfield services organisation, is one of the successful wholly owned private Omani organisations. As an oilfield services organisation, it is one of the large organisations in Oman that provides rare, high-tech, and integrated services and keeps abreast of technology development in the area of oilfield services. OMO's indicated size is based on the classification of Omani organisations' sizes provided by the Ministry of Commerce and Industry in Oman. OMO was initially founded as a spare parts supplier to oilfield owner organisations and to oilfield services organisations. The organisation, through research and a well-planned business strategy, entered the oilfield services market and commenced its oilfield services operations with sound knowledge and a determination to succeed. It utilised its previous experiences in providing spare parts to the oilfield services organisations to understand the market of oilfield services market and to forecast its requirements. This helped OMO to achieve prosperity in the market since the commencement of its oilfield services operations.

The oilfield services business is recognised by OMO as a very profitable business and very risky at the same time. In Oman, the most required services at the time of OMO's entrance in the market was seismic survey, which is part of the geophysical survey required for oil exploration, geological services and oil well

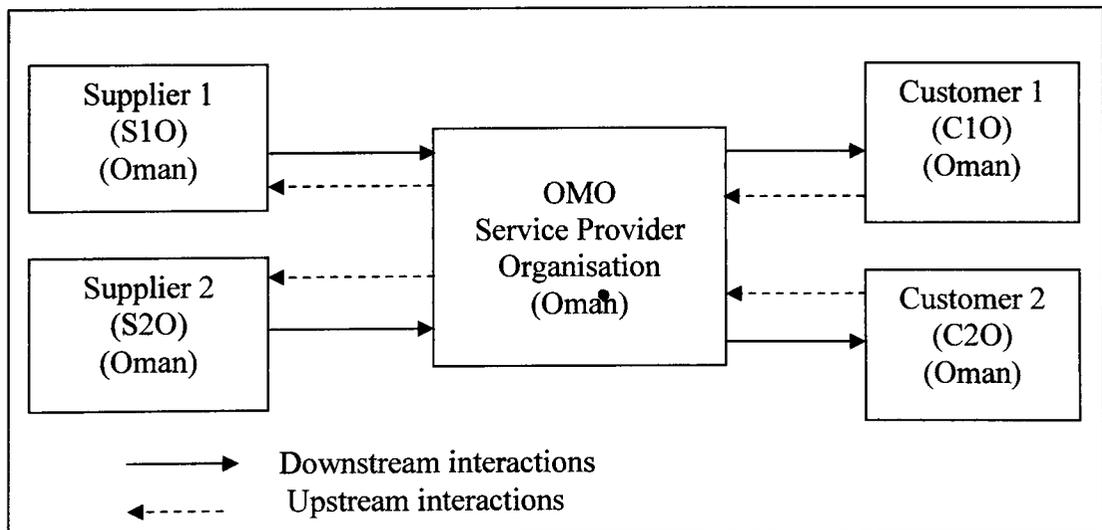
drilling and logging. Due to the shortage of organisations providing oil well drilling services at that time, OMO drew up a vision to become a provider of oil well drilling to oilfield organisations. OMO was attracted to provide this type of services by the high profit forecast in this kind of business. However, the initial investment required to render such services was very high, due to the high cost reaching multimillions of USD, required for importing a single oil drilling rig from USA to be used for the drilling operations in Oman. Therefore, the business was perceived by OMO as potentially very profitable, but involving a high level of risk, due to the required initial investment. Through strong persistence, OMO proved successful in its new services and expanded its operations to become one of the large organisations providing oilfield services in Oman. With its growing reputation it became one of the well-recognised oilfield services in Oman. This provided it with an opportunity to penetrate the Middle East market and then go worldwide to become one of the services providers in Europe, Asia, Africa, and USA.

OMO became an international organisation, providing services worldwide. The organisation employs multinational employees and has more than 3000 employees for its operations in Oman alone. In Oman, the organisation's main business is providing oilfield services to oil producing organisations. From its headquarters in Muscat, the capital of Oman, it provides services to oilfield locations all around Oman, that are worked by its major customers. The location of Oman in the world map is shown in Appendix 1.

Twenty years ago, the business environment, as described by OMO's Operations Manager, was steady and competition was relatively weak. Eventually, the

competition and business environment underwent many changes and new entrants to the market have been realised by OMO to constitute a possible threat to its business. Perceiving the high quality of its services and customer satisfaction to offer a competitive edge that would allow it OMO to realise advantages compared its competitors, OMO has focused on this and worked hard to achieve quality certification.

In terms of supply chain relationships, the supply chain parties selected for this study were upstream parties, which are major suppliers that provide OMO with the tools and equipment needed to facilitate its business in providing services to its customers and downstream parties in the form of major customers, which are Medium (MO) and Large sized Organisations (LO) that are possessing oilfield concessions based on agreements signed with the Omani government. The supply chain between OMO and its parties can be illustrated as shown in Figure 5.1.



**Figure 5.1: Supply Chain Parties In Oman**

OMO’s downstream parties are organisations that need other organisations such as OMO to drill oil wells and provide services associated with oil well drilling,

like oil well maintenance, well logging, mud engineering, reservoir engineering, geological consultancies, field mapping and well monitoring.

Two major downstream parties have been selected for this study and are denoted in this thesis as C1O and C2O. According to OMO, C1O as a downstream party in OMO's supply chain represents the most important one to OMO's business because OMO initiated its oil services business in Oman as a supplier to this party and achieved business growth based on this supply chain relationship. From OMO's perspective this downstream party is perceived as a strategic ally to its business. However, by referring to Pyke and Johnson's (2003) categorisation of supply chain relationships, discussed previously in the literature review, the analysis of the collected research data identifies the relationship between OMO and C1O as an ongoing relationship. This is because both of them identified their relationship as based on medium-term contracts and both of them stated that they do businesses with each other's competitors. However, this ongoing relationship with C1O can be described as archaic in comparison to OMO's supply of services to other oilfield organisations. The relationship with C1O takes the form of multiple medium-term contracts that are bounded by different commencement and relinquishment periods, where OMO provides services based on the terms stated in the contracts. Signing multiple contracts with C1O ensures the continuation of the supply chain relationship. According to OMO's Logistics Manager, the process of maintaining multiple contracts to work with C1O is continuous. Hence, the long-standing stability of the relationship with C1O could be the reason for OMO's perception of this relationship as a partnership.

Concerning the second downstream party (C2O), OMO described this party as ranking second in its classification of the importance of its major customers. Referring to the research data maintained from OMO and C2O and in relation to Pyke and Johnson's (2003) classification, the supply chain relationship between them is identified as a partnership. This is because OMO supplies its services to C2O on the basis of longer-term contracts and the analysis of the collected data shows that C2O is committed to OMO as its main supplier, doing limited businesses with OMO's competitors.

OMO, since its establishment in Oman, has followed a strategy of becoming a large organisation that provides multiple and integrated services to its oilfield customers. The supply chain relationship between OMO and its suppliers started as a traditional supply chain, with no backward and downward integration between the parties. It was an arm's length relationship, and in terms of Pyke and Johnson's (2003) classification of the types of business relationships, OMO's relationships with its suppliers were buy-the-market relationships. However, OMO through achieving advancement in its business came to perceive a need to have better relationships with its suppliers that would ensure availability of required tools and equipment and all materials at the required time. This needs the required materials, tools and equipments to be supplied without delay and within an appropriate period of time.

Suppliers are also faced with new competitors and new entrants in the market, which has become fiercely competitive. Therefore, OMO has found it easy to meet its requirements from other suppliers. The process of looking for a suitable supplier was quite time consuming. Often, there could be misunderstanding of

requirements and when ordering, specifications of the materials were often confused with other similar materials.

OMO, in its search to improve its supply chain relationship, was determined to build high quality relationships with its upstream parties. A deciding factor in this respect was the high level of frequent bullwhip effect occurrences in its supply chain, leading to excessive and unanticipated supply chain costs. Extension of lead time, beyond what demanded by customers was a common problem. According to the interviewees in OMO, this happened because of the cycle time required by OMO's operations, which were affected by the bullwhip effect. To reduce effects on its supply chain, OMO decided to enhance its inventory management and upgrade its warehouse information system, to include implementation of an expansive high-tech computerised network between the relevant technical and administrative departments and the warehouse. This process aimed to assist OMO to manage its inventory in a more sophisticated manner. The process resulted in improved management of OMO inventory level and reduction in the frequency of bullwhip effect occurrences in the supply chain.

OMO perceived that internal information sharing between its departments regarding the supply chain needs buttressed supply chain performance. As indicated here, this was happened internally between OMO departments. Information sharing between OMO and its suppliers and customers, however, could be a different story. The researcher investigated the supply chain relationship between OMO and its parties to identify trust in the supply chain

relationship and to explore the impact that the identified trust could have on supply chain performance and organisation performance.

The interviews with OMO's managers and personnel indicated that improvement of performance in terms of supply chain and organisation is very important issue. The supply chain relationship between OMO and its upstream and downstream parties involves activities that were identified by OMO to be critical in its daily business operations. Therefore, the impact of trust between supply chain parties on supply chain and organisation performance of OMO was investigated.

OMO claims to differentiate its business for customers on the basis of profitability and the amount of benefits gaining from the relationship with its downstream parties. In clarifying this OMO's Operations Manager stated that

*“All our customers are of great value to our business; however the prices that our customers can afford to pay in return to our services vary from one customer to another. Additionally, the amount and type of services in demand by each customer differ on the basis of size of operations owned by the customer and the number of concessions possessed by the same customer.”*

In relative to this point, of view OMO's Logistics Manager indicated that

*“C10 has wide operations and a large number of concessions and it often demands a large number of services. This allows OMO to be a multiple services provider to different oilfields owned by C10 at the same period of time with different medium-term contracts.”*

Therefore, C2O was classified as second in importance to OMO's supply chain business, was without any bias towards C1O. The partnership relationship was perceived by OMO in its relationship because even though the contracts are medium-term, the number of contracts covers a sufficiently term to convert the relationship into a partnership. Since OMO provides multiple services to C1O through different medium-term contracts, when it finishes carrying out services based on a specific contract, it often continues to provide services to C1O in different concessions on the basis of other contracts signed with C1O. This ensures the continuation of OMO's supply chain relationship with this downstream party and this allows the number of contracts with this party to substitute for longer-term contracts. Consequently, the ongoing relationship is perceived by OMO to be a partnership due to its continuation and the level of benefit gaining associated with it.

In terms of length of supply chain relationship, OMO has engaged in relationship with C1O for more than 15 years. In contrast, OMO has a significantly shorter relationship with C2O; according to OMO, its relationship with C2O is a by few months long than six years.

OMO utilises its relationship with its upstream parties in order to ensure satisfaction of the downstream parties. The upstream parties selected for study in OMO's supply chain are responsible for providing OMO with the necessary tools and equipments to carry out its services and to allow it to provide quality services to its customers. OMO's services are based on its customers' requirements and it provides them in accordance with contractual agreements signed with them. The

two studied suppliers for this research are the major ones in OMO's supply chain, which were recommended by OMO to be selected for this research.

A summary profile of OMO and its supply chain parties selected for the study, and identification of the positions of the interviewees who performed a facilitating role in the collection of the research data is provided in Appendix 1.

The next section reflects on the results of the analysis considering the trustworthiness attributes that form the trust dimensions of integrity, competency and benevolence.

### **5.3 ANALYSES OF TRUST IN THE STUDIED SUPPLY CHAIN RELATIONSHIPS**

This section analyse the research data for perception of trust in the supply chain relationships between OMO and its supply chain parties. In the quantitative analysis, graphs are utilised to illustrate the trust along five years of the supply chain relationships. The qualitative data maintained through the research will be utilised to provide explanation of the quantitative analysis results in order to show support or justification of the maintained quantitative results and to provide deep explanation of the trust in the relationships as well. Moreover, the graphs are utilised to illustrate the organisation performance and the supply chain performance in relation to the explored and identified trust in the supply chain relationships and the qualitative analysis are utilised to justify the quantitative analysis results through the participants' opinions. Then, both the graphs and the maintained qualitative data will be used to draw conclusion about the impact that trust has on the organisation and its supply chain performance.

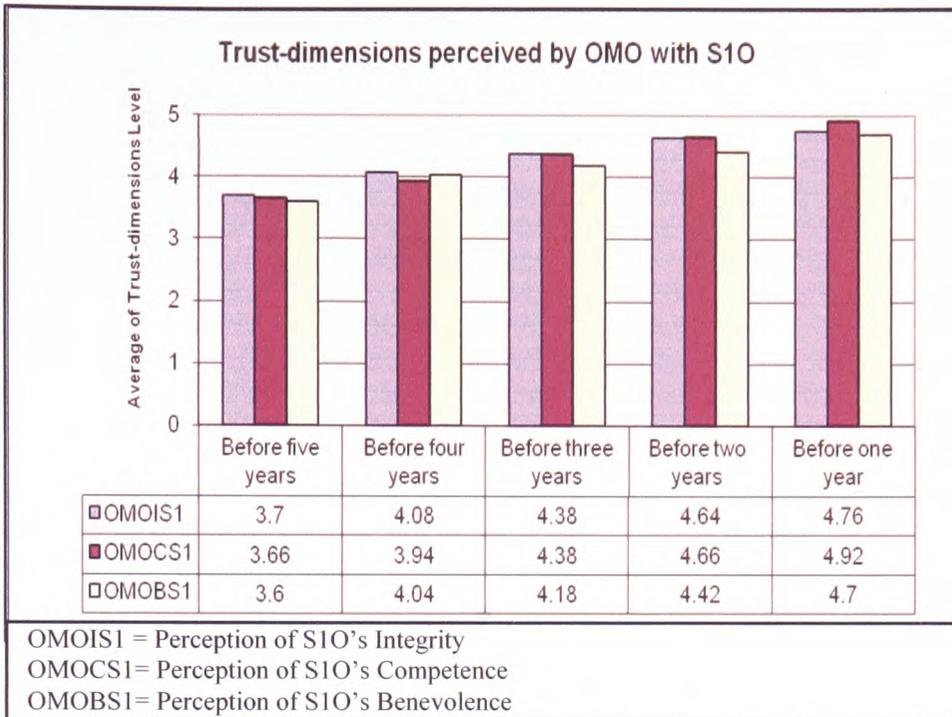
As mentioned before, the analysis is carried out for five years of the supply chain relationship from 2001 to 2005. Therefore, in the quantitative analysis, the graphs show results for five years. In order to indicate the oldness of the relationship, in the graphs used in this quantitative analysis the year 2005 is denoted as before one year of the relationship, 2004 is denoted as before two years, 2003 is denoted as before three years, 2002 denoted as before four years and 2001 is denoted as before five years.

The analysis here starts with the perception of trust between OMO and S10 as it is shown in the following section.

### **5.3.1 Analysis Of The Research Data For Trust In The Supply Chain Relationships Between OMO and Its Upstream Parties**

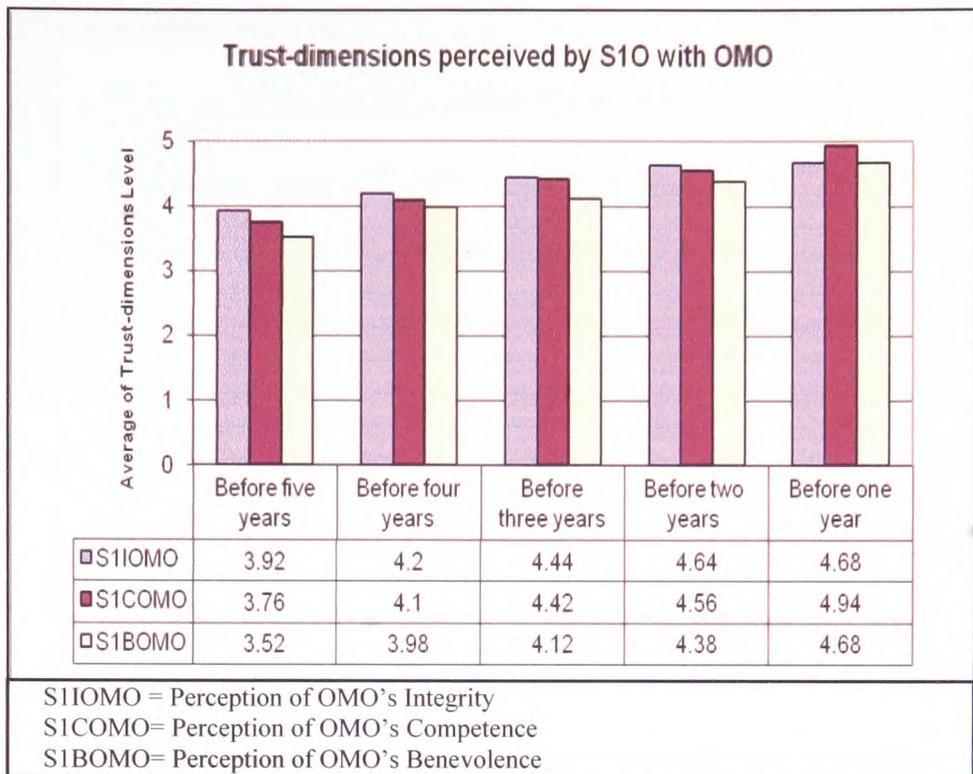
#### **1. Trust In The Relationship Between OMO and S10**

The relationship between the Omani Organisation (OMO) and the first upstream supply chain selected for this study was investigated for perception of trustworthiness attributes that constitute the trust dimensions. As indicated the research literature review, the trust dimensions are responsible for the formation of the types of trust in the relationship, which are the calculus-based trust, knowledge-based trust and transference-based trust. The relationship was investigated initially from OMO's point of view and the perceptions of the trust from OMO's perspective were obtained and quantified. Based on average analysis approach the average of the perceived trust dimensions are illustrated in the following graph.



**Graph 5.1: Shows the trust-dimensions perceived by OMO in the relationship with S1O**

Concerning the analysis of the relationship from S1O's perspective, the relationship was investigated from S1O's point of view to explore this upstream party perception of OMO's relationship. The aim of this step is to clarify the trust in exchange between OMO and this upstream party. The perception of S1O of these attributes was considered to be important to the research because it will help in assessing the level of exchange of trust by both parties in the supply chain relationship. This will allow the researcher to make a decision regarding the trust in exchange between OMO and S1O. Starting with quantitative analysis, the results of the average analysis of the research data of S1O's perceptions of OMO's trust dimensions are indicated in the following graph.



**Graph 5.2:** Shows the trust-Dimensions perceived by S1O in the relationship with OMO

Both graphs (Graph 5.1 and Graph 5.2) show the results for the perceptions of the three trust dimensions along the five years chosen for investigating the supply chain relationship between OMO and S1O. As illustrated in the graphs, the analyses of the data indicate that both OMO and S1O had perceived incremental level of trust in the relationship between them increased along the three trust dimensions over the five years of the supply chain relationship. Based on this analysis, the length of the supply chain relationship has affected the trust building process between OMO and S1O and resulted in higher perception of S1O's trust.

Considering each trust dimension individually and analysing the data starting with the integrity trust dimension, the data has been analysed as follows:

**a. Integrity between OMO and S1O**

Graph 5.1 indicates that the integrity perceived by OMO had undergone incremental improvement over the five years selected for studying the relationship with S1O. Based on the qualitative data analysis, the collected data of OMO's perception of trustworthiness attributes that forms the integrity in its relationship with S1O indicated that the organisation perceives honest relationship with this upstream party.

The fairness of S1O was also perceived by OMO in this supply chain relationship. This was indicated in the interviewees' opinions and comments. Most of the interviewees asserted that S1O shows desirable fairness throughout its relationship with OMO. Moreover, this perception was defended by various comments. For instance, OMO's Logistics Manager positively commented on S1O's fairness by stating that

*“S1O is a party whose fairness we experience in the daily activities of our logistics operations. We are left with no suspicion in trusting the fairness of this party. This is because we cannot criticise the party's fairness in the relationship with us till we experience the unfairness of that party.”*

OMO's Operations Manager pointed to the perception of S1O fairness through stating that

*“We normally view our suppliers as fair parties unless they prove otherwise through their dealings. S1O has proved its fairness and we are more than happy to have a business relationship with such a party.”*

In relation to the credibility of S1O in its supply chain relationship with OMO, the organisation believes that S1O is credible as a supplier to its business. The perception of S1O's credibility, as indicated by the interviewees, was realised through repeated interaction with this supplier, which it showed credibility in its supply chain interaction. On this point, OMO's Logistics Supervisor indicated that

***“The credibility of our suppliers is something we cannot predict through experience in dealing with other suppliers. We believe that each organisation has its own organisational ethics and business relations ethics that are governed by the organisation's rules and policies. S1O showed credibility in its previous and present interactions with us and based on this we believe this party is a credible party that is worth our confidence.”***

As indicated by the Logistics Supervisor, OMO perceived confidence in dealing with S1O. This confidence was highlighted and emphasised by all the interviewees in OMO, with slight variations in the intensity of the perception, as represented in the quantitative analysis of the research data.

The commitment of S1O to its supply chain relationship with one was explored by the researcher and the analysis of the collected data shows that OMO perceives S1O as a committed upstream party. S1O's commitment to its supply chain relationship with OMO was perceived by OMO through the persistence of S1O in continuing to improve its supplies to OMO according to the feedback it receives. In addition, during OMO's business difficulties, S1O was often found

helpful in providing assistance in sorting out problems related to supply chain operations.

According to OMO's Logistics Manager

***“When OMO faced a shortage in inventory and it received unexpected demand with a shorter than expected lead-time, then S10 was found helpful in speeding up its supply to minimise as much as possible the bullwhip effect that could be caused by this kind of demand. According to OMO the commitment of S10 is also perceived through the selectivity of S10 in prioritising OMO's orders regardless of the urgency of its other supply chain parties' orders.”***

Similar comments were made by the interviewees highlighting the roles that S10 plays to reinforce OMO's position in facing supply chain difficulties and problems. This is, of course, as indicated by the interviewees, provided that doing so is within S10's capabilities. OMO's Chief Accountant referred to this as a priceless attitude exercised by S10 in its supply chain relationship with OMO.

***“S10 is a customer-focused organisation and it shows a priceless attitude as a supplier to our business. This attitude is very kind of this party and expresses the understanding of the kind of relationship between us. During our relationship we have saved a reasonable amount of cost that could have been spent in the logistics process if S10's attitude was different.”***

In terms of integrity, the analysis of the collected data indicates that S10 was recognised by OMO as a customer-focused organisation that treats customers

with respect. This integrity was perceived in the form of honesty, fairness, credibility, confidence and commitment.

Considering the relationship from S1O's point of view, the qualitative analysis supports the quantitative analysis results indicated in Graph 5.2. The integrity of OMO through S1O's perception was explored by the researcher in order to visualise the relationship from a diversified point of view that clarifies the nature of exchange of the integrity in this supply chain relationship. The qualitative analysis of the data indicates that S1O perceives OMO as one of the honest supply chain parties to its business, as indicated in the interviewees. The interviewees showed no hesitation in describing OMO as honest, and some of them emphasised this attribute. For example, S1O's Business Development Manager not only pointed to the honesty of OMO but also stressed this perception of OMO's honesty by mentioning that

***“We are selecting our partners and build a long lasting relationship with the partners that we perceive as honest and worth our honesty. Therefore, we strongly believe that OMO is an honest partner.*”**

In this comment, the Business Development Manager illuminated a significant reason for embracing the supply chain relationship with OMO, which allows it to be a long-lasting relationship. This reason, as indicated in the comment, was OMO's honesty. Moreover, as the comment shows, the perceived honesty of OMO in its supply chain relationship with S1O inspired the latter to show honesty in this relationship. This certainly indicates the influence of the attitude the party shows in the supply chain relationship on shaping the relationship itself.

S1O Logistics Manager referred to OMO's honesty as an intangible asset, stating that

***“The honesty of OMO is an intangible asset that we utilise in developing our business and build our relationship in form of a win-win business relationship. By referring to the influence of S1O’s experience in the market in its relationship with OMO, as an organisation that has broad experience in logistics with oilfield services organisations, S1O has no hesitation in judging OMO as an honest party.”***

Referring to honesty as an intangible asset this statement shows appreciation of OMO's honesty in this supply chain relationship. Furthermore, it indicates the positive magnitude that the perceived honesty adds to the nature of the supply chain relationship. Also this shows OMO's capability to stimulate and build a win-win relationship between the supply chain parties.

The finance and support services manager related OMO's honesty to OMO's norms and values, which were embedded in its supply chain relational behaviour. Therefore, OMO's honesty is a common attribute in its supply chain relationship with S1O, that is strongly perceived by S1O.

The fairness of OMO was investigated as the second attribute of OMO's integrity. In this supply chain relationship, S1O as OMO's upstream party in OMO's supply chain referred to OMO as an organisation that treats its valuable suppliers fairly. The fairness of OMO was described by the interviewees to as concrete. In this regard, S1O's Logistics Supervisor commented that

***“Materialism and greediness are two risky appetites of one coin. At times when materialism was dominant and S1O was vulnerable to risks, OMO showed a fair attitude towards us. There were plenty of chances for OMO to take advantage of S1O without risking its own business. However, OMO did not taking advantage of those chances but rather it provided necessary advice to S1O that cultivated the intended fair relationship.”***

OMO, as indicated by the Logistics Supervisor, is a farsighted organisation that behaves in a mutually acceptable manner in its supply chain relationship in order to strengthen this relationship. This picture of OMO’s fairness was emphasised by the interviewees. They highlighted that OMO has excellent reputation in the market, which is a factor that allows it to have freedom of choice to take alternative courses of action in its dealing with S1O. However, it has continued to deal with S1O according to the moral norm of fairness, causing S1O to have respect for OMO in its supply chain relationship.

The credibility of OMO in S1O’s perception was demonstrated by the perception of OMO’s supply chain relationship as free of hidden action. This perception was identified by S1O based on past experiences with OMO through repeated supply chain interactions.

According to S1O, many organisations lack the credibility that OMO has because of the hidden action in the relationship. OMO was identified as free of such hidden action because it is committed to its contract with S1O. S1O indicated that some organisations impose conditions to be complied with. Some of these indicate greedy terms that will serve those organisations’ interests at the

expense of S1O. For instance, some organisations demand monetary compensation if a delivery is delayed or when defects are noticed in the delivered products. This condition is often associated with a lead time that could be difficult for S1O to fulfil. The specified lead time was often made deliberately short in order to gain the monetary compensation stated in the contract terms. In contrast, OMO has been credible in its supply chain relationship and demonstrated its credibility through providing co-ordination and co-operation that facilitates the supply chain process rather than hindering it to gain advantages at S1O's expense.

The credibility of OMO in its supply chain relationship was one of the moral norms that S1O put faith in. Moreover, S1O showed loyalty to OMO and indicated that OMO is a trustworthy organisation that is worthy of its confidence. This confidence has been gained through the continuous good behaviour of OMO in this supply chain relationship. This triggered a conscious perception of confidence in S1O towards OMO.

OMO was perceived by S1O as a committed party that has never committed a breach of contract. Additionally, the commitment of OMO in its supply chain relationship, as demonstrated by S1O, has been perceptible in OMO's loyalty to S1O products, especially as competition is fierce and OMO has the potential for building supply chain relationship with other suppliers.

The market environment in Oman where OMO and S1O have a supply chain relationship is volatile and new entrants, in the form of both local and international organisations, often represent threats to both parties. However,

S10, through OMO's commitment, does not perceive this as a risk that could hinder its supply chain relationship. Instead, it is viewed by S10 as an opportunity to improve its operations and produce products that are able to compete locally and internationally. Additionally, S10 considers this as an incentive that stimulates its creativity to improve its supply chain relationship with OMO and to prove that its logic of manufacturing and business relationship are harmoniously managed to achieve prosperity. In clarifying the importance of competition to its business development, S10 referred to the type of market that involves a low level of competition as "uncreative market". S10 asserted that competition forces organisations to use their active imagination and creativity and develop their products and processes in the search for survival and prosperity. However, in its supply chain relationship with OMO, it considers the competition and the availability of a wide range of possible suppliers to OMO as an indicator of OMO's commitment and a test that it needs to pass by proving its worth to OMO, in comparison to other suppliers. Accordingly, OMO's commitment was truly perceived by S10.

Having analysed the supply chain relationship between OMO and S10 for the integrity trust dimension, the next section reflects on the analysis of the supply chain relationship between OMO and S10 for the competency trust dimension.

#### **b. Competency between OMO and S10**

Competency of OMO and S10 was the second trust dimension investigated by the researcher. Referring to Graph 5.1 and 5.2 previously indicated, the quantitative analysis shows incremental increase in the perception of each party competency in the supply chain relationship along the five years selected for

studying the relationship. Referring to the qualitative data analysis maintained from OMO and S1O, OMO indicated that it has more than eight years of supply chain relationship with S1O. This supply chain relationship was initiated on the basis of a perception that this upstream party had the required capabilities to satisfy OMO's procurement requirements. In the investigation of S1O's competency, all the interviewees identified this party as dependable and reliable. In this context, OMO's Logistics Supervisor mentioned that

***“S1O has been reliable and proved through continuous interactions with this party that it is a party that we can depend on. Its reliability is related to its capability to forecast our supply chain requirement in a manner that allows it to perform in the supply chain to provide us with maximum satisfaction, which is often beyond our expectations”***

Perceived reliability of S1O was clarified to be the reason behind OMO's dependence on this party. The three interviewed OMO's Logistics Personnel asserted the importance of S1O's reliability in this supply chain relationship. They indicated that this perceived reliability expedited their supply chain tasks and made OMO feels confident to work in accordance with its planned operations.

In relation to the strength and durability of the relationship, OMO's Logistics Manager and OMO's operation supervisor both indicated that the perceived reliability of S1O in this supply chain relationship acted as a catalyst to build a stronger and long lasting relationship with this specific party. OMO's Customer Services Supervisor asserted that

***“In situations where OMO’s customers are demanding challenging services, SIO’s reliability often saves OMO’s face in front of its customers and enables it to prove its high competence in its business in a manner that could be difficult to be imitated and hard to be realised by its competitors.”***

SIO’s reliability was supported by SIO’s expertise in its business. The interviewees indicated that SIO is highly experienced in its business field and its expertise was regarded as the driver that resulted in its reliability. In this regard, OMO’s Operations Manager said:

***“SIO is a supplier that through long experience in its business understands the adverse outcome that could be generated if the supplier’s reliability is breached. SIO in its supply chain relationship aims to position itself as a reliable party and works to sustain this as an attribute of its reputation.”***

Consistency related to SIO’s relationship with OMO was indicated and emphasised by the interviewees. SIO’s consistency was highly valued by OMO and in this regard OMO’s Logistics Manager indicated that

***“We have perceived SIO’s consistency throughout the supply chain relationship and we have no doubt in this because it is a proven stable trait of SIO’s attitude.”***

OMO’s Logistics Manager indicated that confidence in SIO’s constancy was based on information about this party gained over time, through repeated supply chain interactions. The other interviewees also emphasised the perception of this attribute in the supply chain relationship. According to these interviewees,

S1O's consistency was a determining factor in the good relationship with this party. The perception of this trustworthiness attribute, along with the other previously identified ones, reveals that the competency dimension of trust is perceived by OMO in this supply chain relationship.

The researcher investigated the perception of competency in the supply chain relationship from S1O's point of view in the same way as it was investigated from OMO's point of view. The analysis of S1O's perception of OMO's competency attributes in this supply chain relationship indicates that OMO was perceived as an expert supply chain party. The interviewees have clearly identified OMO's expertise as a supply chain party. All ten of them emphasised this attribute of OMO in their relationship. In this supply chain relationship, S1O viewed OMO as an expert that had the required expertise in the supply chain and was able to provide high quality services and generate customer satisfaction. Also, respondents described OMO's expertise in terms of supply chain interactions, which was clarified through the experienced of coordination with S1O regarding the supply chain process. Moreover, the interviewees supported this point of view by describing OMO as an organisation that has wide and sophisticated experience in the Omani market. In addition to OMO's expertise, the interviewees emphasised the perception of OMO's reliability and explained this perception with reference to on another attribute, which was OMO's consistency. Hence, the perception of OMO's competency was identified in this relationship and OMO was regarded as a competent supply chain party. This identifies that S1O perceives OMO's competency in this supply chain relationship.

The next section concerns reflection on the analysis of the relationship between OMO and S1O, for exchange of benevolence in the supply chain relationship.

**c. Benevolence Between OMO and S1O**

Concerning the quantitative analysis results of both parties benevolence illustrated in Graph 5.1 and 5.2, both graphs indicate improvement in the perception of each party's benevolence with the length of the supply chain relationship. The analysis of the qualitative data indicates that OMO considers S1O as a party that has intentionality of goodwill towards its supply chain. In this context, OMO's logistic manager indicated that

*“S1O is often working to assist the realisation of OMO's goals of logistics. It is the most important target of this relationship and considering this in the relationship safeguards OMO's rights and ensures achievement of a positive outcome from this relationship. This supplier often stands by OMO and looks at OMO's achievement as its own achievement and, therefore, it works with goodwill and intentionality in this supply chain relationship.”*

In relation to information sharing between OMO and S1O, both OMO's Logistics Manager and OMO's Operations Manager indicated that S1O is a party that is worthy of a high level of information sharing. The other interviewees in OMO emphasised this view and indicated that a high level of formal and informal information sharing takes place between OMO and S1O. According to the interviewees, information sharing takes place through faxes, telephone conversations, official meetings, official and non-official visits, computer networks, and e-mails. According to the interviewees, OMO allows this information sharing to happen between it and S1O because OMO believes

that this party is predictable and its actions in the supply chain are often OMO's benefit. It has no intention to harm OMO. In this context, OMO's Logistics Supervisor stated that

***“We can predict S1O's actions toward us in this relationship and we are sure that this party is a caring party that acts in our interests and has no intention to betray our supply chain relationship to realise an objective for its benefit. Therefore, we confidently share information with it formally and informally to ensure the realisation of our relationship goals and to ensure that this party is aware of our requirements and business scope so it can prepare itself to serve and supply our business accordingly.”***

The point view of OMO's Logistics Supervisor was underpinned by the other interviewees' opinions. From the analysed trustworthiness attributes, it is obvious that OMO's perceived S1O's benevolence in this supply chain relationship. Hence, transference-based trust was perceived by OMO in this supply chain relationship. This transference-based trust can be identified on the basis of OMO's views on its relationship with S1O. In other words, it indicates and explains trust from one side, which is OMO perception.

As indicated in the literature review, the level of trust in the supply chain relationship can be determined through identifying trust in exchange between the parties. OMO's benevolence in its supply chain relationship with S1O was investigated to determine this dimension from S1O's point of view. During the interview stage of this research, perceptions of trustworthiness attributes responsible for constructing this dimension were highlighted by the interviewees in S1O. The analysis of S1O's perception of the benevolence

dimension of trust indicates that OMO has consistently shown goodwill in its intention towards S1O. According to S1O's Business Development Manager:

***“OMO is a large organisation and OMO's goodwill toward us is obvious in its daily activities. We perceive this through OMO's continuous business interaction where it has always been involved in care for our business. For instance, during occurrence of downs or business recession that could have a critical effect on our business, OMO has always supported us by providing us with business to do that primarily aims to strengthen our position in the market and to convert the downs we faced to a better situation that could result in business ups instead. Similar actions were deliberately taken by OMO to assist us to overcome some of the problems we faced.”***

All the interviewees in S1O agreed in their opinions and comments with what was stated by S1O's Business Development Manager. In regard to information sharing with OMO, the interviewees perceived the goodwill of OMO when they identified OMO as a party that shares information. In relation to S1O's sharing of information with OMO, S1O considered this organisation as a predictable organisation, as indicated in the above mentioned statement of S1O's Business Development Manager, worthy of information sharing. According to the interviewees, S1O shares information with this party through official processes and non-official information sharing process. S1O's Logistics Manager stated that

***“The high level of information sharing, formally and informally, aims to achieve integration with OMO that could result in faster execution of processes related to our logistical relationship. Sometimes the process of information sharing involves transference of resources and expertise.”***

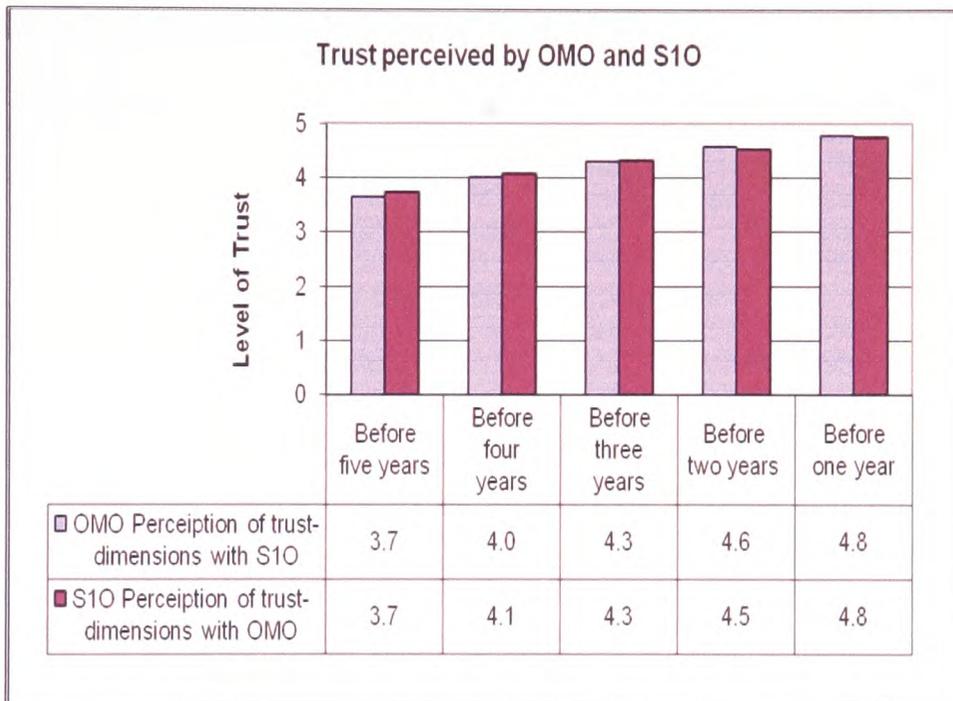
The interviewees indicated that the information sharing process is takes place through computerised systems and through work paper that is transferred between the parties in documentary formats. Face to face information sharing was also highlighted by the interviewees, in terms of official meetings and interaction of each organisation's employees through official and non-official visits. In relation to the level of information sharing, the interviewees indicated that this process happens across the organisational positions in both OMO and S1O. According to S1O's Operations Manager

***“Information sharing with S1O happens at all organisational levels and across organisational positions. We value information and we seriously interact with OMO to share necessary information. OMO understands the importance of this aspect in our relationship and confidently shares information that has potential advantages for our business and helps the improvement of the relationship with it.”***

S1O's perception of OMO indicates that S1O has confidence in its relationships with OMO. In regard to OMO's predictability, the interviewees in S1O perceived OMO as a party that is willing to perform positively in its supply chain relationship. Concerning this matter, the interviewees indicated that OMO has been performing in the interests of S1O and positively beyond S1O expectations. This perception of trustworthiness attributes manifested by OMO and perceived by S1O emphasises that the benevolence dimension of trust is well present in this supply chain relationship.

**d. Overall Trust in OMO and S1O Supply Chain Relationship**

Based on the quantitative and qualitative analyses OMO and S1O had perceived the three trust dimensions in the relationship. Therefore, the calculus-based trust, knowledge-based trust and transference-based trust existed between OMO and S1O. The overall trust perceived by OMO and S1O in this supply chain relationship is demonstrated in the following graph.



**Graph 5.3: The Overall Trust between OMO and S1O**

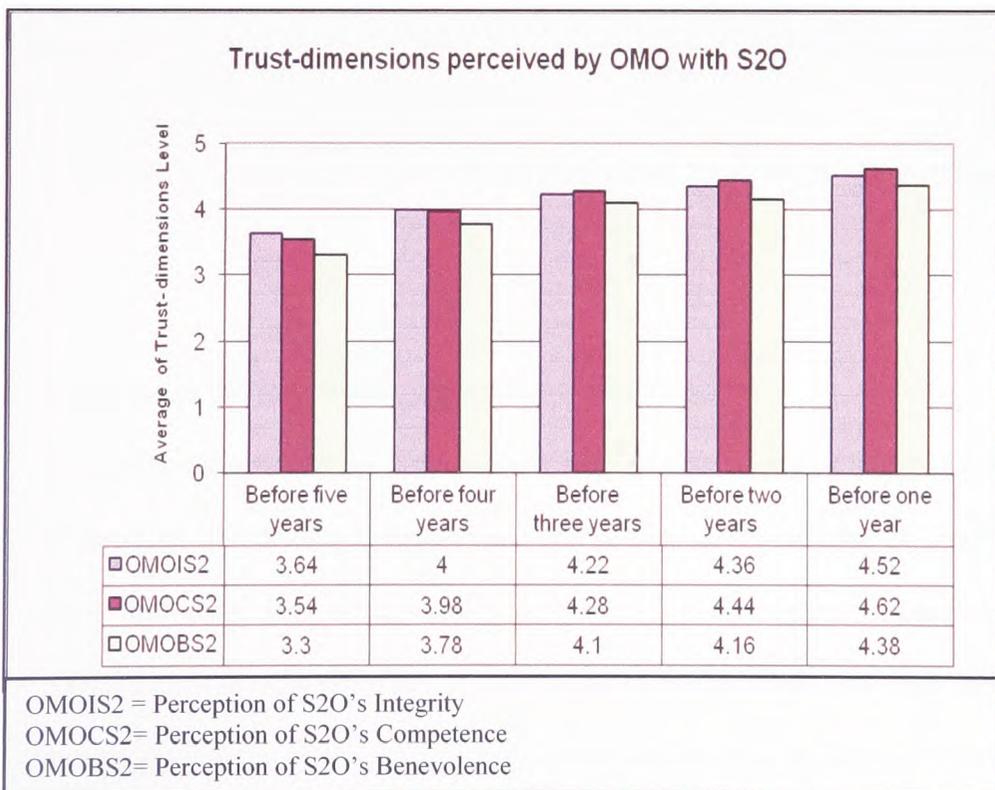
The above graph indicates that the trust between OMO and S1O had simultaneously developed in the relationship and both OMO and S1O had adopted the trust in response to the perception of trustworthiness attributes of each other. In other words, the graph indicates that both OMO and S1O had interacted with each other with aim to develop the trust in the relationship and exerted trust attributes that pushed further the trust in the relationship. Otherwise, the graph will indicate break point in the trust development from

either OMO's or S1O's perception. Therefore, both OMO and S1O were having the willingness to develop the trust in the supply chain relationship.

Having analysed the relationship between OMO and S1O and identified of the three types of trust in this supply chain relationship, the next section will consider analysis of the relationship between OMO and S2O.

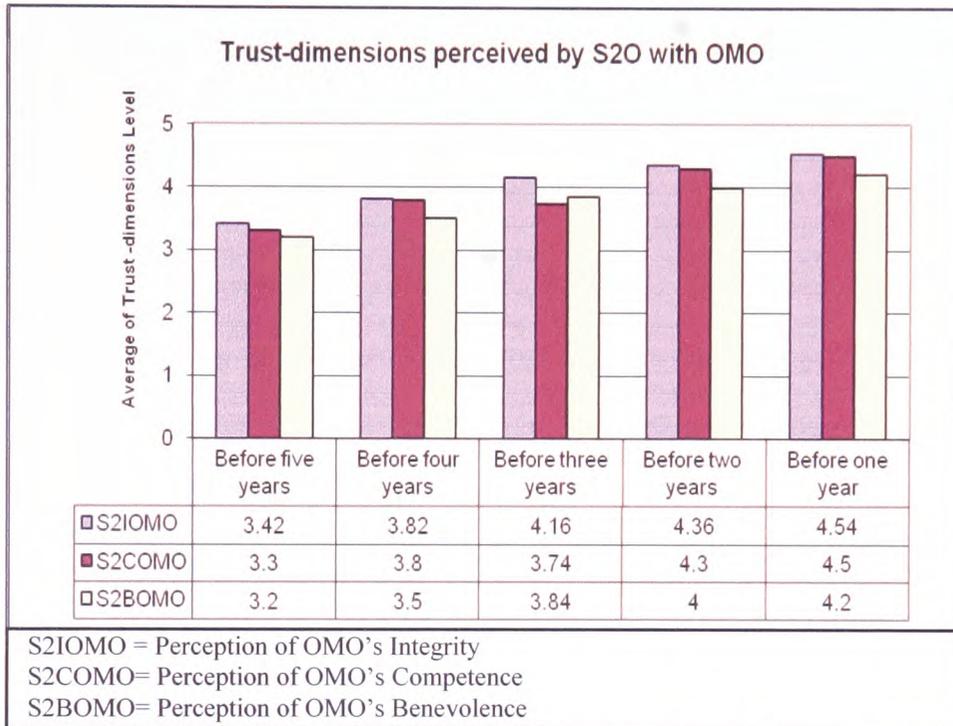
## 2. Trust In The Relationship Between OMO and S2O

The second upstream party (S2O) selected for the research was one of OMO's major suppliers. The results of the average analysis of the maintained data in regard to trust dimensions from OMO's perspective of S2O's relationship are indicated in Graph 5.4.



**Graph 5.4: Shows the trust-dimensions perceived by OMO in the relationship with S2O**

To explore the exchange of perceptions of trust dimensions in the relationship, the relationship was investigated from S2O's point of view. The maintained data has been analysed and the results of the average analysis is highlighted in the following graph.



**Graph 5.5: The trust-dimensions perceived by S2O in the relationship with OMO**

**a. Integrity in the Relationship Between OMO and S2O**

Commencing analysis of the research data of the relationship from OMO's perspective, the results of the quantitative data analysis, illustrated in Graph 5.4, show that OMO had incrementally perceived S2O's integrity. Concerning the qualitative data analysis of the research data, OMO indicated that S2O has been honest throughout their supply chain relationship. The honesty of S2O was manifested in the frankness that this supplier shows in its supply chain

interaction with OMO. The importance of S2O's frankness was highlighted by OMO's Logistics Manager, who stated that

***“S2O knows its capability and its limits and it works with us in accordance with this knowledge of itself. It does not puff itself up and show fake capability beyond what it is really capable to deliver, as many suppliers do. This allows us to make accurate comparative judgement in forecasting our inventory in the relationship with this supplier.”***

S2O's honesty was described by the interviewees as governed by internal and external factors. The internal factors were identified as S2O's norms and values that are intentionally embedded in its organisational culture. The external factors were clarified as S2O's persistence in building a sound reputation that facilitates its development in the business world and allows it to earning higher market share through retaining its customers and attracting new customers to its business.

S2O's honesty was a determining factor in driving OMO to maintain the supply chain relationship with OMO. In this regard, OMO's Operations Supervisor commented:

***“The honesty of our suppliers is a precondition and S2O's honesty was predetermined in this supply chain relationship through our past experiences, where it has been perceived through repeated interactions with this party.”***

Therefore, the honesty of S2O was perceived by OMO as fulfilling a necessary criterion, which led to the selection of S2O as one of the most important

suppliers to OMO. Therefore the perception of S2O was inevitable. However, the interviewees alluded to sustainability of the honesty in the supply chain relationship and indicated that the honesty perceived by OMO could be lost or reinforced based on the party's attitude in the supply chain with OMO. To this extent, the interviewees highlighted sustained honesty perceived by OMO in its supply chain with S2O.

The honesty of S2O was indicated in its communications, by matching appearance with reality. The honesty of S2O was also supported by the perception of its fairness in this supply chain relationship. S2O was following a policy of strengthening its reputation through its fairness in its supply chain relationship with OMO. S2O fairness was perceived in terms of fair prices, the quality of its products and services, delivery and related services after supply and sale. Furthermore, S2O was perceived as a fair party in the supply chain, because it fulfilled its commitments in its supply chain relationship as agreed with OMO. This fairness was perceived throughout the supply chain relationship. S2O's fairness was invaluable to OMO, especially in the inventory forecasting and the lead time and cost calculations. According to OMO's Operations Supervisor:

***“S2O through its fairness has been contributing significantly to minimising the cost of logistics operations through avoiding redundant inventory situations related to the correspondence between planned and actual inventory. Fairness is one of the factors that helps us in keeping our supply chain cost low through proper estimation and preparation of future logistics requirements.”***

The contribution of S2O's fairness to OMO's supply chain was seen as significant. It helped OMO in avoiding bottle-neck problems and was vital in reducing supply chain operational costs. In relation to the extent of the perception of S2O's fairness, the interviewees stressed that S2O has treated OMO fairly throughout their supply chain relationship.

OMO also emphasised the credibility of S2O. This was linked to the long lasting relationship between OMO and this upstream party. According to OMO there were no doubts regarding S2O's credibility. Additionally, OMO perceives this upstream party as a committed party that is worthy of its confidence. Thus, the supply chain relationship between OMO and its second upstream party selected for the study involves perceptions of integrity attributes claimed by OMO.

Since this research aims to investigate the impact of trust between supply chain parties on supply chain performance and organisation performance, the trust in exchange between the parties will determine the overall trust in the supply chain relationship. Therefore, the relationship was investigated from both OMO's and S2O's points of view. As indicated previously, the investigation of the relationship from both parties' perspectives was necessary in order to yield a better understanding of the supply chain relationship and provide sufficient clarification of the trust between the parties in the supply chain relationship. This is because, as identified in the literature, trust can be perceived differently by the two parties in the supply chain relationship. The next section shows the S2O's perception of OMO's integrity in this supply chain relationship.

In the investigation of OMO's integrity in the supply chain relationship with S2O, the collected data indicates the latter's perception of partnership with OMO in this supply chain. This was clarified by the S2O's Operations Manager, who described the relationship with OMO as sailing in one ship. The manager stated:

***“We are, as OMO's supplier, working in conjunction with OMO as two parties sailing in the same ship towards the direction that ensures the satisfaction of our downstream parties.”***

This vision of the relationship with OMO demonstrates how S2O values this supply chain relationship. Interviewees' comments on this relationship also indicated awareness of related quality issues and costs that could be incurred as a consequence of quality of the parties' participation in the supply chain. This perception is more to do with the supply chain as a process intended to achieve organisational goals and objectives. However, the perception of OMO's integrity is more related to OMO itself, as a party in the chain. In other words, that S2O and OMO work together through the supply chain relationship to satisfy the downstream parties is a description of a process. However, the perception of the integrity in the supply chain relationship with OMO shows the understanding between OMO and S2O and the perception of OMO's attitudes in relation to S2O expectations.

OMO's integrity as an organisation that has a supply chain relationship with S2O was investigated through S2O's perceptions in relation to the honesty, commitment, credibility and fairness that were felt and identified in OMO's treatment of S2O in the relationship.

OMO was perceived by S2O in this supply chain relationship as a party that has been honest and credible. In this respect, S2O's Operations Manager indicated that

***“During the first interaction and the start of our supply chain relationship with OMO, suspicions about OMO’s honesty and credibility were there. However, OMO never deceived us and we know of no incident that could be mentioned in accusing OMO of dishonesty. Therefore, we certainly believe OMO because we have dealt repeatedly with it and it has proved its credibility as its business ethic that accepts no negotiation.”***

The Customer Relations Manager identified OMO's honesty, stating that

***“OMO has been honest and credible throughout its business relationship with us. We have no doubt of OMO’s honesty and we refer to it as a believable party because it has been interacting with us in this way.”***

The view of the Customer Relations Manager was similar to those of other interviewees and it supported the Operations Manager's view.

However, as indicated in the Operations Manager comment on OMO's honesty and credibility, it is obvious that at the start of the supply chain relationship with OMO, this upstream party lacked trust in OMO's honesty and credibility. The interaction with OMO was the experiment used to test these attributes. Trust in OMO through these attributes was only gained when OMO proved itself honest and credible in accordance with S2O expectations.

S2O's Marketing Manager pointed out the consequence of this perception in developing and sustaining long-term relationship with OMO:

***“For us, as a supplier to OMO, OMO’s honesty in its relationship is significant. It allows us to build a better business relationship that assists in improving the flow of materials and information between us in harmony, which allows us to supply our products in the belief that OMO will fulfil its financial obligations. The honesty of OMO in this matter helps us in achieving success through our sales and realising competitive advantages through developing our products.”***

At the start of the relationship, S2O indicated, it took actions to monitor and control the supply chain process with OMO. S2O adjudged OMO to be honest and credible after its suspicions proved to be unfounded by the way of OMO's participation in the supply chain relationship. According to S2O, these attributes were proven through repeated interactions. Based on S2O's experience in the supply chain relationship, it seems that the party with whom a long term relationship is envisaged might claim to be honest and credible, but believing in them without caution could be risky. This was why S2O was way of trusting in OMO honesty and credibility at the start of the supply chain relationship, until OMO proved them through repeated interactions with S2O.

S2O also perceived OMO as a party that is fair in its dealings. According to S2O, fairness is a quality particularly required of the supplier in the supply chain, as supplier may supply products or services that are of less value than asked for. However, in terms of OMO's fairness it was perceived in terms of its fulfilment of its financial obligations towards S2O as agreed and scheduled with

OMO. Moreover, S2O perceived OMO as fair in the terms and conditions it applied in the supply chain relationship and the support and intervention it provided when necessary to underpin the supply chain process. According to S2O's Finance and Accounts Manager, "*OMO, through its fair supply chain relationship, pays for what it receives in accordance to what was agreed.*" Fairness was viewed by S2O in terms of rewards and fulfilment of financial obligations. Additionally, OMO's fairness was perceived in terms of not asking OMO to undertake something that beyond its capability. It was explained that OMO is well-informed about S2O's capacity and it knows the maximum limit of S2O's potential performance in the supply chain. Furthermore, when problems of foster effect happened in the supply chain, the fairness of OMO was perceived through its understanding of the problem. OMO did not blame S2O for its occurrence, unless it was caused deliberately by S2O, which was said to be impossible. The fairness of OMO was depicted in many ways in this supply chain relationship and it was perceived as a significant attribute of OMO's integrity.

The fairness of OMO was viewed by S2O as a quality that demonstrated OMO's commitment to this supply chain relationship. S2O indicated that OMO intentionally participated in a committed manner with S2O, to assist in perpetuation of the supply chain relationship with this upstream party. OMO's commitment was perceived in its efforts to develop the relationship with S2O, for example, provision of consultancy and support that were of help to S2O's business. OMO was perceived as committed to improving management of the supply chain relationship with S2O. This commitment was valued by S2O and

recognised as important in smoothing the flow of the supply chain and providing S2O with a sense of consideration.

OMO was perceived as having integrity in the supply chain relationship with S2O and S2O emphasised its confidence in dealing with this organisation through the demonstration of OMO's attributes of integrity. Additionally, S2O confirmed this integrity by declaring its confidence in OMO as a valued party in its supply chain relationship.

It worth to be mentioned that in this supply chain OMO and its upstream parties viewed themselves as parties that were working together towards the satisfaction of the downstream parties. The perception of the relationship between OMO and downstream parties was also investigated. The aim was to elicit the perception of trust in this supply chain relationship, in order to delve into the impact of trust on organisation and supply chain performance, as is the main concern this research.

**b. Competency between OMO and S2O**

Competency in the relationship between OMO and S2O was investigated in order to determine the existence of this trust attribute in the supply chain relationship. Commencing the analysis from OMO's point of view, Graph 5.1 emphasises that OMO in this supply chain relationship had incrementally perceived S2O's competency. Referring to the qualitative data maintained from OMO, the interviewees in OMO indicated that S2O is one of the supply chain parties that is able to provide OMO with the required consultancies, tools, equipments, and materials. The interviewees referred to this upstream party as

an expert party that knows its job and accomplishes its supply chain tasks in a manner that satisfy its customers. In this context, OMO's Operations Manager stated that

***“S2O is an expert supplier to our business and we feel this experience in the quality of supplies that have been delivering to us. The reputation of this supplier in the market is largely related to the perceived experience that this upstream party has. The expertise of this party facilitates our operations because our downstream parties feel the outcome in the form of the high quality services we provide, which would not be easy if this upstream party was lacking expertise. This is because the supplies delivered to us by this party act as foundation for rendering our services.”***

The emphasised perception of S2O's expertise in this supply chain relationship was illustrated by S2O's ability to provide quality products to OMO. Additionally, OMO's Logistics Manager indicated the expertise of S2O in its interaction in the supply chain. According to the Logistics Manager

***“S2O works with us in accordance with our supply chain cost and often provides its supply within the specified lead time. It takes into consideration the needs of our business and often provides us with valuable advice to use alternatives that are cost effective and capable to do the job with higher quality as required and demanded by our customers.”***

Understanding OMO's requirements and suggesting of alternative products to be utilised by OMO in its services was the dominant characteristic that identified S2O's expertise in this supply chain relationship. Besides S2O's expertise, the interviewees also indicated S2O's consistency in this supply chain

relationship and emphasised the perception of its reliability. The interviewees had faith in S2O's ability and felt that this upstream party had the capability to satisfy OMO's business. According to OMO's Marketing Manager:

***“If our supplier is not reliable then that will certainly reflect on our business. S2O's reliability and consistency, as an upstream party, has great effect on our reputation in the market. S2O's reliability helped us to stand firm to overcome situations that could lead to not fulfilling our promises to our customers. Indeed, this party helped us to prove to our existing customers and potential customers that we are a reliable organisation, which has helped greatly in building our reputation.”***

The analysis of the research data indicates that the attributes responsible for S2O's competency were clearly confirmed by the interviewees in their perceptions of this party's competency. This implies that OMO perceives this upstream party's competency in this supply chain relationship. As previously stated, the researcher investigated the supply chain relationship from both parties' points of view in order to identify trust exchange in the relationship. The next section shows analysis of S2O's perception of OMO's competency in the supply chain relationship.

OMO's competency in its supply chain relationship with S2O was investigated. For this purpose, S2O's perception of this trust dimension was explored. Based on the quantitative data analysis, Graph 5.2 indicates that S2O's had perceived OMO's competency. Concerning analysis of the qualitative data it indicates that S2O perceived OMO's expertise and identified this perception as one of the reasons that helped OMO to gain a technical reputation in the market. The interviewees in S2O identified OMO as an organisation that S2O feels lucky to

work with. According to the interviewees, this feeling is because of the reputation for ability and expertise that OMO has achieved in the market. According to them, this reputation motivates new customers to become OMO's and consequently, engagement in a relationship with OMO represents potential profit to S2O business. In this regard, S2O's Operations Manager indicated that

***“OMO is an expert organisation in its field and its expertise is certified and accredited with honour by its customers. It works in accordance with quality standards and its services are internationally recognised. It also demonstrated its expertise in our supply chain through exchange of knowledge and suggestions that were highly acknowledged and approved effective in situations of supply chain bottleneck occurrence.”***

In regard to OMO's reliability, S2O identified OMO as a reliable organisation whose reliability has never been breached throughout the supply chain relationship. All the interviewees in S2O agreed on OMO's reliability and they regarded it as a supply chain party that works consistently to improve its services and gain advantages for its suppliers in a win-win supply chain relationship. According to S2O's Customer Relations Manager:

***“Our relationship with OMO took into consideration OMO's reliability and we deploy our customer services in accordance with this perception to motivate OMO to keep this reliability. S2O believe that leading by example is the way to achieve S2O's desires. Through its customer services it aims to strengthen its relationship with its customers including OMO and to preclude occurrences of situations that could result in not satisfying our customer.”***

OMO's consistency was identified in this supply chain relationship and its reliability was indicated as a result of its consistency in this supply chain relationship. The identified trustworthiness attributes perceived by S2O in this supply chain relationship indicated a perception of OMO's competency.

Having identified the competency of OMO and S2O, the next section reflects on analysis of this supply chain relationship for perception of benevolence.

**c. Benevolence between OMO and S2O**

Presence of benevolence in the supply chain relationship between OMO and S2O was investigated. As indicated in Graph 5.6 and Graph 5.7 both OMO and S2O had perceived the benevolence trust dimension. Depending on the qualitative data maintained from OMO in this investigation, the ten interviewees in OMO indicated that S2O had consistently shown good intentions towards OMO. In this regard, the interviewees described S2O as a party that has showed goodwill towards OMO. According to OMO's Operations Supervisor:

*“Perceiving S2O's goodwill towards us allows us to exchange information with this party, which would be impossible to be shared without this perception. The information we are sharing with S2O is definitely related to our core business and access to this information could be costly to OMO's business if it reached competitors, because it is certainly of use for competitors. Therefore, our confidence in S2O's goodwill intention towards us enables us to share it.”*

The perception of S2O's goodwill in this supply chain relationship was clarified by the interviewees to be the reason for the existence of information exchange with S2O. According to OMO's Operations Manager,

***“S2O has the intention of goodwill in its business relationship with OMO. We have perceived this intention throughout the relationship and we think that this party works with us to keep the supply chain relationship. We have no doubt of S2O's goodwill and it has been interacting with us with this attitude since the initiation of the relationship. At the commencement of our relationship, S2O supplied us with materials at lower prices than the market prices and provided us with advice to make the best use of them. ”***

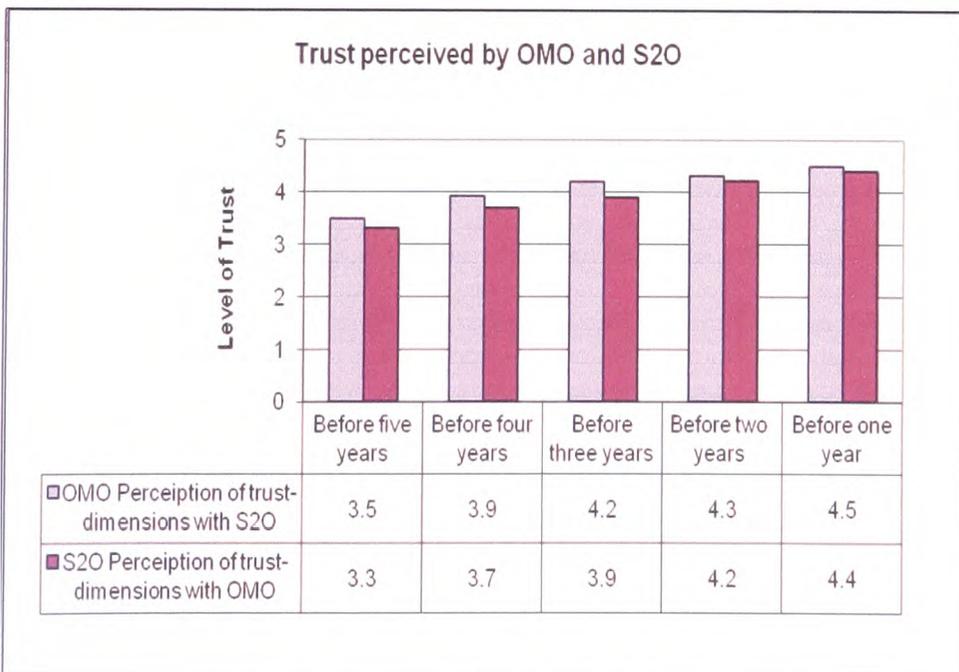
Therefore, the benevolence dimension of trust is perceived by OMO in its relationship with S2O. Hence, OMO perceives transference-based trust relationship with S2O, which is the third stage of trust development in the relationship. The next section considers analysis of S2O's perception of benevolence trust dimension in its relationship with OMO.

S2O's perception of OMO's benevolence was investigated to identify how far this dimension is exchanged between the parties. The analysis of S2O's perception indicates that OMO was perceived to have an intentionality of goodwill in this supply chain relationship. The interviewees in S2O indicated that OMO's goodwill towards S2O was perceived in the supply chain relationship through OMO's generosity in fulfilling its payments, instances where it drew S2O's attention to situations to be aware of, and the availability of resources and expertise provided by OMO to S2O. According to S2O's Customer Relations Manager, OMO always cares for S2O throughout the

supply chain relationship which makes OMO a predictable party that is worthy of S2O's confidence. The interviewees emphasised that OMO's perceived benevolence resulted in a high level of information sharing with OMO and transference of expertise and technical requirements. Additionally, the interviewees indicated that this perception led S2O to involve OMO in some issues regarding its strategy formulation and to consult it on issues important to S2O's business affairs. Therefore, S2O perceives OMO as a benevolent organisation in this supply chain relationship, which implies that the benevolence dimension of trust is perceived by S2O. Hence, transference-based trust is identified in this supply chain relationship.

**d. Overall Trust between OMO and S2O**

Based on the average analysis of the research data, the overall trust in the supply chain relationship from OMO's and S2O's perspectives is indicated in the following graph.



**Graph 5.6: The Overall Trust between OMO and S2O**

The graph suggests that based on both parties perceptions of the relationship, calculus-based trust, knowledge-based trust and transference-based trust were in exchange between OMO and S2O in this supply chain relationship. Moreover, the above graph indicates that OMO had perceived higher trust in its relationship with S2O than that perceived by S2O in this relationship with OMO. This emphasises better trustworthiness attributes demonstrated by S2O in the supply chain relationship to gain the loyalty of OMO in this supply chain. This was clarified by the qualitative analysis of the data which indicates that S2O took the initiative and exchanged trust with OMO and OMO responded in accordance with the perceived trustworthiness attributes in S2O's relationship.

Having analysed the relationships between OMO and each of the upstream parties selected for this research and identified the existence of the three types of trust in each relationship, the next section will analyse the relationships between OMO and the downstream parties selected for this study.

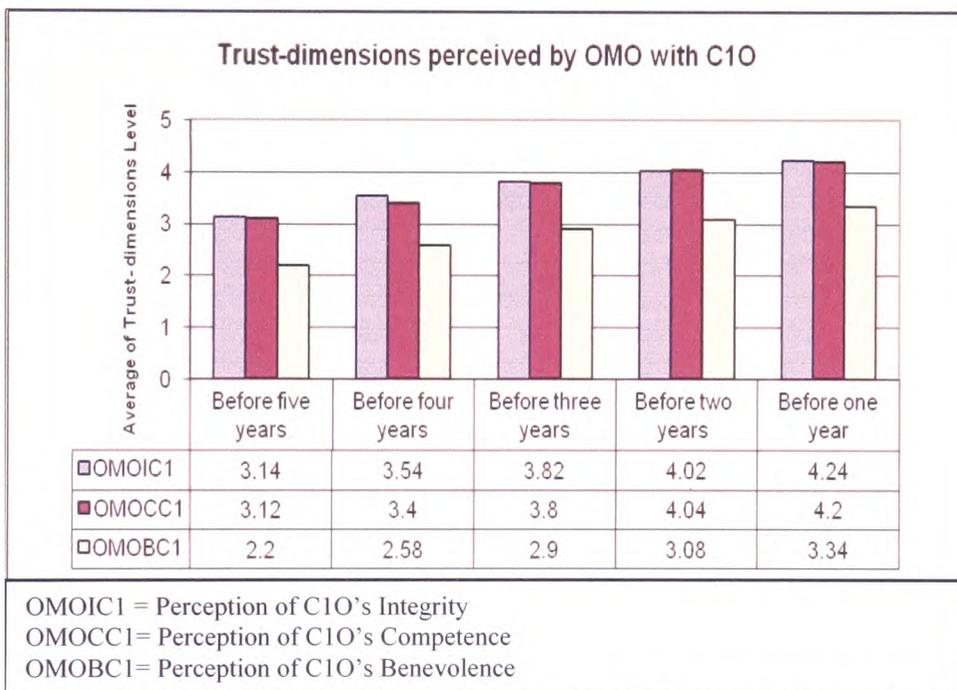
### **5.3.2 Analysis Of The Research Data For Trust In The Supply Chain Relationships Between OMO and Its Downstream Parties**

This section considers the downstream parties and provides analysis of the level of trust in the supply chain relationships between OMO and its downstream parties (C1O and C2O). The analysis here begins with analysis of the relationship between OMO and C1O.

# 1. Trust In The Relationship Between OMO and C1O

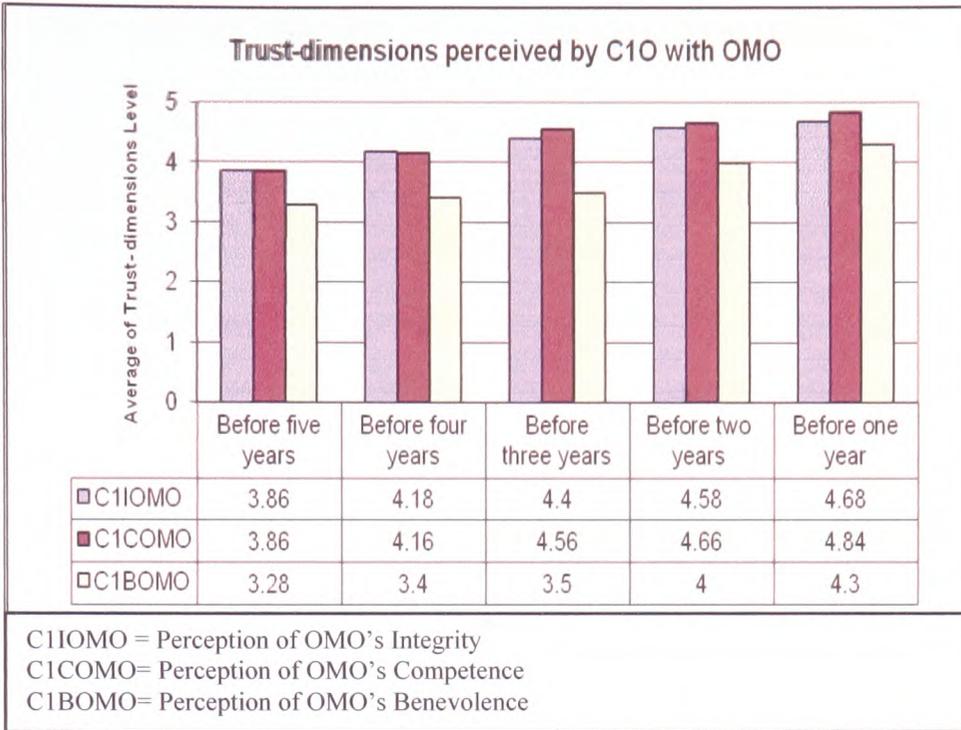
## a. Integrity between OMO and C1O

The supply chain relationship between OMO and C1O was investigated by the researcher for trust between OMO and this party. Commencing the analysis with the quantitative data of the research, the results of the average analysis of OMO’s perception of the trust dimensions are highlighted in the following graph.



**Graph 5.7: Shows trust-dimensions perceived by OMO in the relationship with C1O**

To explore whether or not the trust dimensions perceived by OMO had been exchanged by C1O in this relationship, the relationship was investigated from C1O’s point of view. The average analysis’s results for C1O’s perceptions of OMO’s trust dimensions in this relationship are illustrated in the following graph.



**Graph 5.8: Shows the trust dimensions perceived by C1O in the relationship with OMO**

Concerning OMO's point of view of C1O's supply chain relationship, Graph 5.7 indicates that OMO in its relationship with C1O had perceived high integrity trust dimension. Based on the qualitative data maintained from OMO about the relationship with C1O, OMO emphasised that the customers are very important to OMO's business and customer satisfaction is highly prioritised in its supply chain operations. In its relationship with C1O, OMO indicated the perception of C1O's honesty in this supply chain. According to OMO, C1O's business often involves operational risk and the probability of risk occurrence remains available in its business environment. However, C1O through its honest declaration and description of the expected risk contributes to the safety of OMO's working environment during the supply of services to this downstream party. Without confidence in C1O's honesty, then OMO might need to carry out

extra precautions that could involve unnecessary reconnoitring and inspection cost.

C10's honesty was also perceived in terms of not demanding extra work beyond what had been agreed in each contract. It was explained that some customers specify certain tasks to be accomplished and when those tasks are executed, they refuse to meet their financial obligations in full unless they get extra work done for them. Customers such as these are viewed by OMO as dishonest. In contrast, C10, through its continuous honesty towards OMO, was perceived as a credible party that has been believable throughout its supply chain relationship.

The fairness of C10 was perceived in its actions towards OMO in their supply chain relationship. It was manifested in its reaction towards difficulties faced by OMO, and in its clear specification of the services it required and the fair estimation of the service execution time. The fairness of C10 was mostly perceived in the attitudes C10 showed in this relationship towards OMO.

The commitment of C10 to the supply chain relationship with OMO was highly appreciated by OMO. OMO indicated that, despite the multiple contracts it has signed with C10 and the continuous relationship with this party, the commitment of this party was only bounded by contractual terms. C10 was took the initiative in providing OMO with contracts through its continuous preference and selection of OMO as its service provider, among the other competitors. Also, the commitment of C10 was perceived through its acknowledgement of OMO's services in the form of certificates that honoured

OMO. Through such behaviour C1O, was recognised by OMO as a considerate party that appreciated the quality of OMO's services and contribution to the supply chain relationship. Additionally, as indicated by OMO, C1O was committed to sustaining the relationship with OMO and through the appreciation of OMO services it was perceived as achieving success in retaining the supply chain relationship with OMO. According to OMO, "*the credible supplier represents wealth.*" As experienced by OMO, building a relationship with new supplier is often costly in terms of money, time and effort and C1O, through retaining a long relationship with OMO, saved this cost. According to OMO's Customer Services Supervisor:

***"The relationship with C1O could be built through contractual terms but the most important item in the relationship is confidence and this is very difficult to be gained without a previous and repeated supply chain relationship."***

Besides the perception of C1O integrity in this supply chain relationship, OMO perceived C1O as a downstream party that contributed significantly to OMO's business through its commitment to sustaining the relationship.

Confidence in C1O in this supply chain relationship was expressed in the perception of OMO's integrity. The perception of C1O's integrity represents OMO's interpretation of C1O's attitude in the supply chain relationship towards OMO. The supply chain relationship was investigated from the two parties' perspectives, in an attempt to provide a full and focused visualisation of trust exchanged between the two supply chain parties. The next section considers C1O's perception of OMO's integrity in the supply chain relationship.

Considering the relationship from C1O's point of view, Graph 5.8 illustrates that C1O in this supply chain relationship had incrementally perceived OMO's integrity. The graph shows that C1O in its relationship with OMO had perceived steady increase in the perception of the integrity trust dimension over the five years of the investigated relationship. Based on the qualitative data maintained from C1O, OMO was perceived as a significant party to its business. This perception was further investigated in terms of the perception of integrity in this supply chain relationship. C1O indicated that OMO has been honest in its supply chain relationship. The honesty of OMO was perceived in terms of matching what it had been agreed to provide. This was stressed by C1O's Logistics Supervisor, who stated that "*OMO holds true to its word.*" This was manifested in OMO's service quality, which was always delivered as represented by OMO. To this extent OMO was perceived as a credible party that was worthy of C1O's confidence.

Other attributes of C1O integrity were perceived in terms of OMO's fairness in this supply chain relationship and its tangible commitment to the development and retaining of this relationship. The fairness of OMO was explained in terms of its service prices in relation to the quality and added value involved in its services. It was also perceived in its listening to C1O's feedback and the actions it had taken to resolve C1O's complaints or to build on C1O's suggestions. The perception of OMO as a committed party was also indicated by C1O, and was perceived in OMO's continuous efforts to match the vision and purpose of the supply chain. Respondents in C1O commented on the continuous efforts expended by OMO to implement improvement in the supply chain processes

that embrace the satisfaction of the need and wants of C1O. C1O's Operations Manager has declared that

*“OMO, through considering C1O's strategic goals and objectives, has been positioning itself as a strategic party that contributes to the operational process of C1O's strategy implementation.”*

The perception of OMO's integrity in its supply chain relationship with C1O was consequently depicted by C1O. After this analysis of the integrity between OMO and its first downstream party (C1O), the relationship between OMO and the second downstream party selected for this research, C2O, will be considered. The next paragraphs consider this analysis and present the perception of integrity in the supply chain relationship between OMO and C2O.

**b. Competency between OMO and C1O**

The competency trust dimension in the relationship between OMO and C1O is indicated in Graph 5.7 from OMO's perspective and in Graph 5.8 from C1O's perspective. Analysing the relationship through qualitative data maintained from both parties in this relationship, C1O's competency in the supply chain relationship was investigated from OMO's perspective. The interviewees in OMO indicated that C1O is a significant downstream party in OMO's supply chain. In terms of expertise, the interviewees in OMO identified C1O as a party that possesses the required expertise needed for OMO's supply chain. In this context, the interviewees considered C1O's to have extensive ability in this supply chain. This ability was clarified by OMO's Logistics Supervisor to be in the form of C1O's owned resources in terms of its financial ability and wide operations, which demanding OMO's services. Moreover, OMO's Logistics

Manager indicated that C10's owns facilities in fields that enhance OMO's ability in executing its services. In addition to that, OMO's Operations Supervisor indicated that C10 is a downstream party that has the ability to fulfil its role, obligations and duties. In fact, all the interviewees indicated the perception of C10's ability in this supply chain relationship.

The interviewees indicated that the perceptions of these trustworthiness attributes were expected from C10 because of its sound reputation in the market. However, in relation to the correspondence between expectations and reality, OMO's Logistics Manager indicted that

***“C10's ability was expected with certainty based on its reputation. In the established relationship, C10 does not disappoint us, it has proved this relationship ability and expertise required in this supply chain.”***

All the interviewees in OMO believed in C10's ability and expertise. The interviewees also described this downstream party as a reliable party that fulfils its promises. However, OMO did not view in the consistency of this party in this relationship as self-initiated. Rather it saw that the consistency of C10 as based on contractual terms and almost based on beneficial exchange gained through OMO's reputation as a result of services previously provided to C10. This was clarified by OMO's Operations Manager, OMO's Logistics Manager and OMO's Logistics Supervisor, all of whom indicated that C10's consistency in this supply chain relationship is related to contractual obligations that C10 is obliged to fulfil. The other seven interviewees attributed this perception of C10's consistency to the inspections and review that C10 conduct after OMO's finalisation of the stages of service supply and noted that C10 pays OMO based

on its satisfaction with what has been done by the latter. This approach, followed by C1O in this relationship, was explained by the interviewees as related to C1O's broad expertise in its business. In this context, the interviewees referred to C1O's qualified cadres' ability to have influence in the supply chain relationship, as C1O's satisfaction was indicated to be in accordance with its cadre's suggestions. Thus, C1O's qualified cadres were perceived by OMO to be responsible for C1O's satisfaction. Hence, the interviewees refer to C1O to have confidence in OMO's competency but with a degree of independence, as this perception is subject to C1O's investigation and approval.

According to OMO's interviewees, C1O in this supply chain relationship has faith in OMO's ability to provide better services that are characterised by high quality and minimum cost. OMO's ability to supply its services with quality and cost in a convenient manner to C1O's business was described by the interviewees in OMO as the best rule to maintain C1O's satisfaction. In other words, OMO perceives that successful relationship with C1O is highly dependent on the ability of OMO to provide better services.

The most important ability required to be possessed by C1O in this supply chain was determined by the interviewees to be C1O's ability to provide financial incentives that reward OMO's services and strengthen its position in the market. It was highlighted that failure to do so could result in financial problems that might affect OMO's cash flow. C1O was perceived to have the required financial ability and the interviewees indicated that C1O was a rewarding party that financially motivated OMO to achieve better in this supply chain relationship.

OMO, through its perception of C1O's expertise, ability and reliability, perceives more than half of the trustworthiness attributes responsible for constructing the competency trust dimension in the relationship. The others were perceived by OMO as a matter of the contractual relationship, based on OMO's reputation and benefit to C1O. Thus, OMO still perceived C1O as competent but attributes this to their contractual relationship. This weakness in the perception of the consistency trustworthiness attribute indicates that the competency trust dimension is not fully perceived by OMO in this relationship. Hence, the competency perceived by OMO in this relationship could be described as moderate competency and dependent on OMO's competency. Thereby, it is obvious that the second stage of trust was moderately perceived by OMO in this relationship.

Looking at the relationship from the qualitative data maintained from the downstream party's point of view, the perception of competency in the supply chain relationship was investigated from C1O's perspective. The interviewees in C1O indicated that OMO has the required expertise for C1O's business. OMO's expertise, ability and reliability were said by the interviewees to be the reasons for utilising OMO's services. In addition, the interviewees in C1O focused on OMO's past performances in the supply chain relationship and indicated that repeated interactions with OMO had led to its being perceived as a coherent supply chain party that is consistent in performing its tasks in the supply chain relationship.

In C1O's perception of OMO's competency in this supply chain relationship the interviewees indicated the perception of all the trustworthiness attributes

responsible for the formation of this trust dimension, which leads to a conclusion that OMO's competency was perceived by C1O in this relationship. In comparison to OMO's perception of this trust dimension in its relationship with C1O, previously discussed, it is obvious that the two perceptions were different. The difference in the two parties' perceptions of competency in the supply chain relationship will be highlighted in the discussion of the analysis of competency between OMO and its downstream parties. The next section shows analysis of the relationship between OMO and C1O for perception of benevolence in the supply chain relationship.

**c. Benevolence between OMO and C1O**

Starting with the quantitative data analysis, although Graph 5.7 indicates perception of benevolence trust dimension, it is clear that this dimension was the lower in OMO's perception. On the other hand, the perception of OMO's benevolence is indicated by Graph 5.8 as weakly improved in comparison to the perceptions of the other trust dimensions, and lately it reached to 4.3 as indicated by the graph in the before one year of the investigation of this relationship. However, by referring to OMO's perception of C1O's benevolence, which is indicated in Graph 5.7, it is obvious that OMO had perceived less benevolence from C1O in this supply chain relationship. Hence, OMO in this supply chain relationship perceived C1O's integrity and competency in almost the same level while the perception of C1O's benevolence, as indicated by the graph, was weak throughout the supply chain relationship. Off course, the graph indicates improvement in all perceptions of the dimensions over the length of the supply chain relationship, but in the respect of the increment the improvement in the benevolence trust dimension is

very weak if it is compared to the increments occurred in the improvement of the integrity and the competency trust dimensions. Therefore, OMO in its supply chain relationship with C1O had weakly perceived this party's benevolence. Through the maintained qualitative data, the interviewees in OMO indicated that the relationship with C1O is a contractual relationship bounded by conditions, where each organisation, OMO and C1O, is responsible for the fulfilment of the conditions stated in the contract.

Concerning the continuation of this relationship, the interviewees indicated that C1O has the possibility to utilise the services of other organisations in the market, which are OMO's competitors. However, the interviewees indicated that because of OMO's competency, which has been highlighted previously, C1O had a preference to utilise OMO's services. Goodwill in this supply chain relationship was perceived by OMO, but with a caveat; the interviewees emphasised that C1O's benefit is the determinant of this goodwill. C1O's good intentionality towards OMO was perceived by the interviewees as a response to OMO's competitive prices and the high quality of its services. In other words, OMO's competency was perceived by the interviewees as the driving factor that leads C1O to show interest in OMO's services. On the other hand, OMO, as asserted by the interviewees, perceives C1O's goodwill to be manifested in terms of its rewards and the financial incentives it provides, which support OMO's ability in the supply chain. Moreover, the interviewees in OMO saw evidence of C1O's goodwill in this relationship in the facilities that C1O provided. Thus, in various ways, OMO perceived C1O's goodwill or the positive intentionality in this supply chain.

However, OMO did not perceive C1O's predictability and the interviewees indicated that this trustworthiness attribute is difficult to perceive in this supply chain relationship. The interviewees attributed this difficulty to C1O's huge and complex operations, which demand a variety of services. Moreover, the interviewees referred to the weak level of information sharing with C1O as a reason for the perception of difficulty in predicting this party. Additionally, it was thought that C1O's actions toward OMO could not be predicted, if OMO did not fulfil its tasks. The interviewees explained this in terms of the contractual relationship with this party, as C1O has the ability to take various punitive actions in such a case. According to the interviewees, there had been previous situations where misunderstanding with this party resulted in different various disciplinary actions taken against OMO.

Moreover, the interviewees highlighted that OMO sometimes made offers to C1O that could be beneficial for both OMO and C1O, and expected C1O to accept the offer, but often C1O declined such offers and took up other offers which OMO did not expect to be of interest to this downstream party. In this context, OMO's Logistics Manager indicated that it was difficult to predict this downstream party because of the nature of the supply chain relationship, which is a contract based relationship and C1O has a right, as a customer, to be satisfied by OMO's services whenever they are required. Therefore, the predictability attribute of trustworthiness was highlighted by the interviewees to be missing in OMO's perception of its supply chain relationship with C1O. Therefore, based on the perception of C1O's goodwill and the misperception of C1O's predictability, C1O's benevolence was partly perceived by OMO in this supply chain relationship. This identifies partial transference-based trust

perceived by OMO with C1O, where C1O is trusted for its goodwill but considered unpredictable. The next section reflects on the analysis of the relationship for OMO's benevolence through C1O's perception.

Referring to the qualitative data maintained from C1O, the interviewees in C1O indicated that OMO in this supply chain relationship shown goodwill toward C1O's business. The goodwill and the intentionality of the goodwill were reported by the interviewees to be reflected in OMO's execution of its services with high quality, which has often been beyond C1O's expectations. Moreover, C1O's Operations Manager indicated that OMO had provided its services at competitive prices in consideration of C1O's requirements, which could have effects on OMO's profitability, but its determination to remain C1O's supplier always drove OMO to show this goodwill in its relationship. In addition, the interviewees related OMO's goodwill intentionality towards C1O to on the low level of supervision practised by C1O in this supply chain relationship as, according to the interviewees, OMO had proved that it needed no supervision to execute its tasks as demanded by C1O except in the inspection procedures to measure the level of satisfaction based on the services supplied by OMO.

According to C1O's Logistics Supervisor, C1O had confidence in OMO's goodwill intentionality towards it and this perception had been developed in the supply chain relationship through OMO's repeated interactions in this relationship. Concerning the perception of OMO's goodwill, C1O's Operations Supervisor indicated that at times when C1O faced a shortage of resources or experienced a business down, OMO stood with C1O and provided its services as if nothing been happened, prioritising C1O's concerns before its own, just to

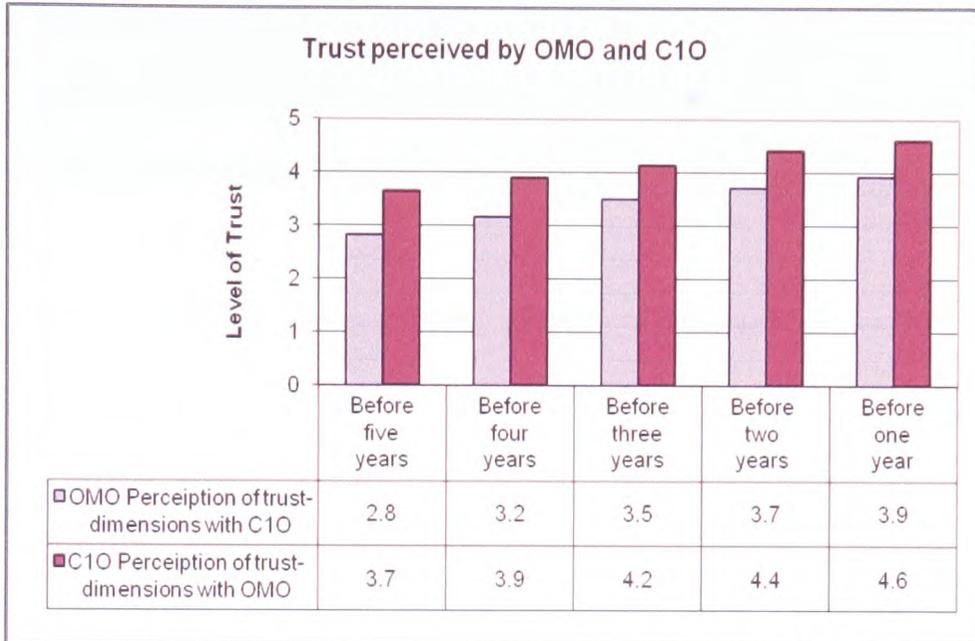
support C1O to overcome the situation it faced. Therefore, OMO's goodwill was perceived by C1O in this supply chain relationship.

However, C1O did not perceive OMO to be a predictable party in this supply chain. In this regard, the interviewees highlighted that the relationship with OMO is based on contractual terms, being subject to OMO's acceptance or refusal. The interviewees indicated that OMO's predictability is related to the conditions in the contract and fulfilment of the conditions is predicted but this predictability is bound by the contractual conditions. The interviewees regard the contract as the only guarantee of this predictability and of trust in OMO's predictability outside the contractual conditions was not perceived by the parties. In this context, C1O's Operations Engineer indicated that OMO worked in accordance with the organisation's interest according to the stated terms in the contract and it had been predictable in this matter.

Therefore, goodwill was the only trustworthiness attribute perceived in this supply chain relationship responsible for OMO's benevolence, while OMO's predictability was seen, not as a matter of trust, but as a matter of conditions stated in contracts, which OMO has to fulfil to be rewarded. Having reflected on the analysis of the perception of benevolence in the relationship between OMO and C1O, the next section will consider analysis of the relationship between OMO and its second downstream party, which is C2O, for perception of this trust dimension.

**d. Overall Trust in the Relationship between OMO and C10**

Quantitatively, the overall perception of trust dimensions in the supply chain relationship between OMO and C10 are illustrated in Graph 5.9 as follows:



**Graph 5.9: Shows the overall trust between OMO and C10**

As clarified in Graph 5.9, OMO in this supply chain relationship had perceived less average values of the trust dimensions than that perceived by C10 in the same relationship. This indicates that OMO had interacted with better trustworthiness attributes than that involved in the interaction of C10. Moreover, the graph indicates that the overall trust dimensions perceived by OMO in the last year, as denoted in the graph by before one year, is equivalent to the overall trust dimensions perceived by C10 before four years, which is indicated by the graph with the average value of 3.9. This emphasise the large difference in both OMO’s and C10’s perceptions of the trust dimensions and indicates that C10 was not interacting in accordance with the trustworthiness attributes exerted by OMO. Therefore, the trust between OMO and C10 is

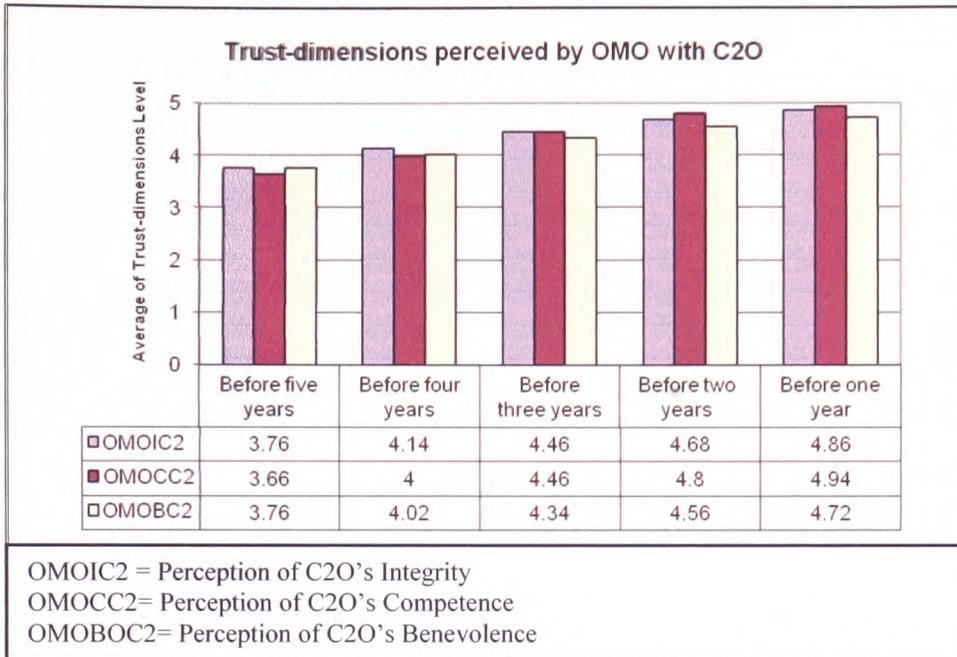
identified as weak. Based on the previous graphs, this relationship involves high calculus-based trust, moderate to high knowledge-based trust and low benevolence-based trust.

This clarifies that the two parties in the supply chain relationship could exert different trustworthiness-attributes and the perceived trust from both parties determine the realisation of the level of trust in the relationship.

Having considered the relationship between OMO and C1O, the next section will consider the relationship between OMO and C2O.

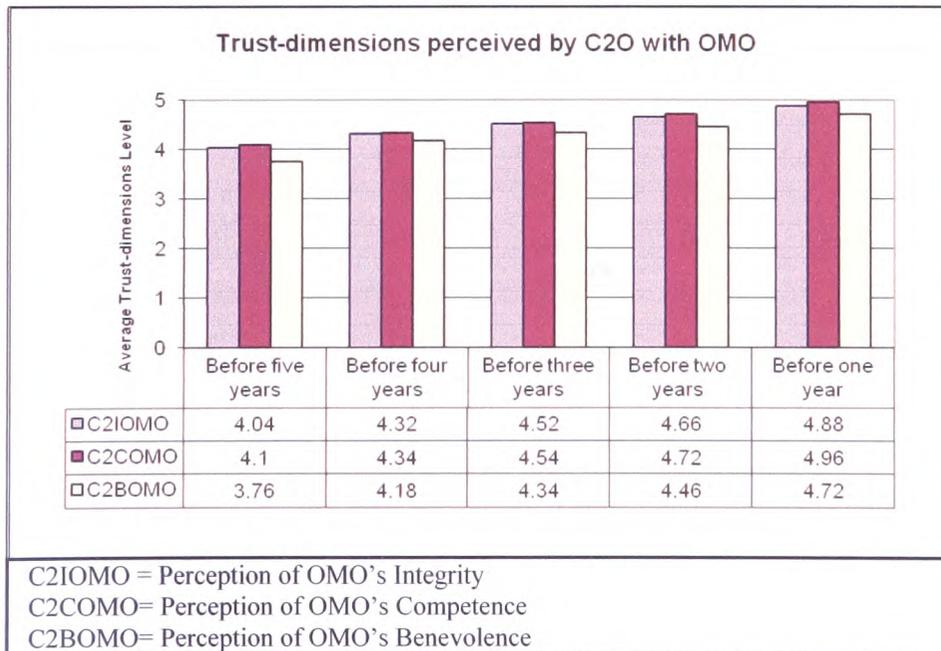
## **2. Trust In the Relationship between OMO and C2O**

The perception of trust in the relationship between OMO and C2O was investigated from both parties' perceptions. Starting with the quantitative data analysis, the results of the average analysis of OMO's perception of the relationship are illustrated in Graph 5.10.



**Graph 5.10: Shows the Trust-dimensions perceived by OMO in the relationship with C2O**

Considering analysis of the relationship from C2O's point of view of OMO's trustworthiness attributes, the results of the average analysis of OMO's trust dimensions are indicated in the following graph.



**Graph 5.11: Shows the trust-dimensions perceived by C2O in the relationship with OMO**

**a. Integrity between OMO and C2O**

The relationship between OMO and C2O was investigated to identify the perception of trust. In this stage the analysis of the collected data will be used in the exploration of integrity between the two supply chain parties. This section particularly addresses the analysis of the integrity perceived by OMO as a consequence of its supply chain relationship with C2O.

The investigation of the supply chain relationship between OMO and C2O brought to light the perceived integrity attributes. In this supply chain relationship, OMO demonstrated its perception of this downstream party as an honest party in terms of truth telling and performance of the required services to a standard commensurate with the quoted price. OMO indicated that no deception shown by this party in its supply chain relationship. Moreover, this party was described by OMO as a party that had always been frank with OMO. Concerning C2O's honesty in the feedback process with OMO, OMO's Operations Manager stated:

***“In our relationship with C2O we value its feedback because we are confident of its honesty and without this perceived honesty then it would be difficult to gauge the degree of professional feedback of C2O, which could require further actions and investigations to prove its truthfulness.”***

In this supply chain relationship, C2O was perceived as a credible party, with no hesitation shown in the interviewees' opinion in judging this party's credibility. Additionally, C2O fairness was clearly emphasised by OMO. This fairness was described in relation to C2O's consideration of OMO's

responsibility and efforts exerted in the supply chain. Moreover, the fairness of C2O was perceived in terms of its complete fulfilment of its financial obligations towards OMO. Furthermore, OMO indicated that C2O's behaviour and participation in the supply chain relationship reflected a fair attitude in terms of actions and disciplines stated in the contracts between the two parties. This led to a sense of commitment to OMO's services. In this context, OMO's Logistics Manager referred to C2O's commitment to this supply chain relationship by stating that

***“C2O prefers OMO's services more than those of other services providers. This perception has been the reality that we have perceived in this supply chain relationship.”***

The perceived attitude of C2O in this supply chain was indicated by OMO to represent a matter that encourages OMO to have confidence in its relationship with this downstream party.

As indicated in the literature review, the perception of one party may not correspond to the other party's perception. Therefore, the supply chain relationship was investigated from the perspectives of both parties. The analysis for the perception of OMO integrity in the supply chain relationship with C2O aims to identify the extent of the relationship in exchange between the two parties.

The investigation of the supply chain relationship from C2O's perspective indicated that this downstream party considers OMO as a valued supplier to its business. This assessment of OMO's importance to C2O was underpinned by

C2O's clarification of attributes associated with the relationship with OMO. The honesty of OMO was not only asserted by this downstream party but also emphasised by examples that illustrate this honesty. For instance, C2O's Technical Director indicated that

***“During our supply chain relationship with OMO we highly perceived the honesty of OMO which in return resulted in lowering the level of our technical supervision dramatically because of our confidence in OMO's honesty.*”**

OMO's credibility was perceived and it was described as a believable party. On this point, C2O's Operations Manager stated:

***“Credibility has been the impression in interacting with OMO. It is a supply chain party that has been credible throughout the period of our supply chain relationship. Throughout the relationship, we noticed no mentionable deviation in the level of its credibility.”*”**

C2O believed that during this supply chain relationship, OMO had been honest and proved, through its fair attitudes and behaviour towards C2O's business, to be worthy of C2O's confidence. Moreover, OMO in its relationship with C2O was also perceived as a credible service provider and highly committed to C2O business. Thus, the trustworthiness attributes forming the integrity trust dimension were perceived by C2O in its relationship with OMO and therefore calculus-based trust was perceived by C2O in this supply chain relationship.

## **b. Competency between OMO and C2O**

The perception of competency in the supply chain relationship between OMO and C2O was investigated by the researcher from both parties' perspectives. Concerning OMO's perception, the interviewees in OMO indicated that this downstream supply chain party has the required expertise for OMO's supply chain. This expertise, as was highlighted by OMO's Logistics Manager, is mostly related to acquiring concessions that enable OMO to be a potential supplier of services to this party. Moreover, the expertise was identified by the Operations Manager to be in the form of sophisticated knowledge and technical experience that are necessary to facilitate OMO's services, which represent guidance to OMO as to how to satisfy this downstream party. C2O's expertise was highlighted in multiple domains, including financial, technical and administrative expertise required by OMO in this supply chain. Importantly all the interviewees in OMO agreed that C2O has the required expertise in this supply chain relationship.

Also, the interviewees in OMO highlighted C2O's ability and indicated that this downstream party possesses the right ability required in this supply chain. C2O's financial ability was stressed by OMO's Chief Accountant, who viewed this ability as the most important factor to OMO's supply chain. In relation to the length of the supply chain relationship, C2O's ability was clarified to be the first principle in continuation of this supply chain relationship.

C2O's reliability was perceived in this supply chain relationship. In this context, OMO's Customer Services Supervisor indicated that C2O has been a reliable downstream party throughout the supply chain relationship. C2O's reliability

was also emphasised by OMO's Logistics Supervisor and OMO's Operations Manager. The other interviewees indicated that C2O's reliability was perceived through its consistency in this supply chain relationship. Generally, the trustworthiness attributes responsible for the formation of C2O' competency in this supply chain relationship were perceived by the supply chain parties.

Therefore, OMO perceives the competency trust dimension in its relationship with C2O. Furthermore, the perception of the total trustworthiness attributes by OMO in its relationship with C2O indicates that a high level of knowledge-based trust perceived by OMO in this relationship. The next section considers the analysis of competency perception from C2O's point of view, in its supply chain relationship with OMO.

Considering the relationship from C2O's point of view, the interviewees in C2O indicated that OMO is a reliable supply chain party. In this context, C2O's Operations Manager indicated that

***“OMO has been reliable all through the supply chain relationship and we strongly believe in its reliability. This party is consistent, open and truthful and we have no doubt in this party's reliability.”***

The other interviewees expressed a similar this perception and indicated that this party has been consistent in this supply chain relationship. C2O's Technical Director referred to OMO's reliability as a reflection of its consistency in this relationship. OMO's ability and expertise were highlighted by the interviewees and this perception was clarified to be the reason for using OMO's services. C2O's Operations Supervisor stated that

*“OMO’s expertise and ability are well recognized and we perceive them in this supply chain. In addition to that, OMO’s reliability has been declared by other customers and this reputation was announced even by its competitors, therefore, we participated in this relationship with certainty in this reliability and OMO has proved to be worthy of our confidence in its reliability and it has never disappointed us in this matter.”*

According to the interviewees’ comments, OMO’s consistency was perceived by C2O and well valued. The analysis of the interviewees’ perceptions identifies that the trustworthiness attributes responsible for the formation of OMO’s competency were firmly perceived by C2O in this supply chain relationship. Hence, OMO’s competence was perceived in this supply chain relationship. Consequently, based on the trustworthiness attributes perceived by C2O in this relationship, the second stage of trust development is highly perceived by C2O and thereby knowledge-based trust has been perceived by C2O in this relationship. The next section will analyse the availability of benevolence dimension of trust in the supply chain relationship between OMO and its supply chain parties.

### **c. Benevolence Between OMO and C2O**

The relationship between OMO and C2O was investigated for perception of benevolence between them. As indicated in the reviewed literature the perception of benevolence in the relationship is responsible for forming transference-based trust between the parties.

In the supply chain relationship between OMO and C2O, the interviewees in OMO indicated that C2O was perceived as a predictable party. In this context, they indicated that in this supply chain relationship, C2O worked in coordination with OMO. OMO's Operations Manager and Logistics Manager indicated that this downstream party permitted OMO to intervene in its supply chain strategy formulation, by consulting OMO on issues significant to its business. In addition, OMO perceived goodwill intentionality from C2O towards it from the manner of its interaction and its openness in information sharing with OMO. In this context, OMO's Logistics Supervisor highlighted this goodwill intentionality by mentioning that C2O trusted OMO and that the latter's goodwill in this supply chain relationship was the predominant factor in its continuous relationship and effective feedback, suggestions and advice it offered to OMO to improve the effectiveness of OMO's operations. Moreover, the interviewees indicated that the goodwill of C2O was perceived based on its care of OMO and drawing OMO's attention towards possible threats to OMO's business regarding the competition in the market, new products that could be of interest to OMO, new technology arrival and sharing information about other suppliers it had dealt with. Furthermore, the interviewees indicated C2O's goodwill intentionality in terms of transfer of resources and expertise to OMO, which assisted the performance of OMO in this supply chain and enhanced C2O's position in the market.

In terms of C2O's predictability, which is the other trustworthiness attribute responsible for the perception of C2O's benevolence, all interviewees indicated C2O's predictability. The existence of this perception was assorted to a virtuous relationship with this downstream party, that involved openness and credibility.

From this perspective, OMO's Operations Manager indicated that OMO could forecast C2O's operational requirements and, therefore, OMO was always prepared to provide its services to this party accordingly. Additionally, the interviewees stressed that C2O's actions in this supply chain relationship were predictable and that OMO in this supply chain relationship worked with this party as one team with the aim of achieving results satisfactory both OMO and C2O .

The overall opinions and comments given by the interviewees about the relationship with C2O indicate that C2O was perceived as a benevolent downstream party in this supply chain relationship. Furthermore, the perception of all trustworthiness attributes responsible for C2O's benevolence in this relationship indicates that this trust dimension was confidently perceived by OMO in this supply chain relationship. The next section provides an analysis of the existence of this dimension in the perception of C2O in its relationship with OMO.

OMO's supply chain relationship with C2O was investigated from C2O's point of view for perception of OMO's benevolence. In relation to the perception of OMO's goodwill intentionality in this supply chain relationship, the interviewees in OMO indicated that this attribute was perceived with a strong degree of certainty and proved by OMO throughout its interactions in this relationship. The interviewees emphasised the perception based on a high level of resources transfer and sharing. Moreover, it was clarified that OMO supported C2O's position through providing its services in consideration of C2O's ability in the supply chain. In times of business problems, OMO had

provided help that extended to providing C2O with financial support when required, as highlighted by C2O's Facilities Manager. C2O's Field Manager emphasised this point and also mentioned that OMO provides services of a quality beyond C2O's expectations, considered C2O's field requirements and supported C2O to optimise its operations outputs.

In relation to OMO's predictability, the interviewees stressed the perception of this trust attribute and visualised the strong relationship with OMO in terms of integration. According to the interviewees, OMO was predictable in this supply chain and its actions in the supply chain were always in directions that brought benefits to C2O. In this regard, C2O's Operations Supervisor indicated that confidence in this perception was the reason for OMO's independence in accomplishing the operations required by C2O. C2O's Quality Engineer indicated that in terms of quality of OMO's services, OMO's attitude in this supply chain relationship was optimal and it was a predictable organisation, so that C2O felt confident in its relationship with it. The interviewees referred to other services' suppliers to C2O and asserted that OMO was different in its relationship, so that C2O felt a spirit of teamwork with OMO.

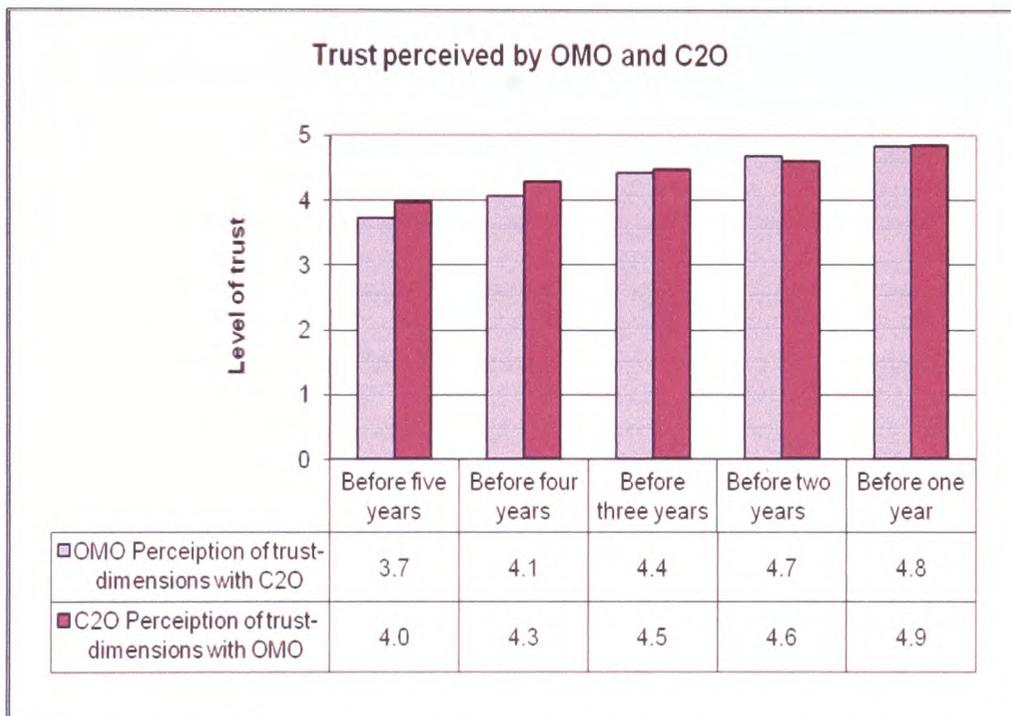
Therefore, in this relationship, C2O perceived the benevolence trust dimension responsible for existence and transference based trust. Hence, the third stage of trust development was perceived by C2O in its relationship with OMO.

After having analysed the relationship between OMO and its supply chain parties for trust occurrence and exchange in their relationships, the next section

will consider the effect of the identified trust relationships on OMO's performance.

**d. Overall Trust in the Supply Chain Relationship**

The overall trust dimensions perceived by OMO and this downstream party are illustrated in graph 5.12 as follows:



**Graph 5.12: Shows the overall trust between OMO and C2O**

Based on the data illustrated in graph 5.12 as indicated above, both OMO and C2O had perceived almost identical level of trust dimensions from before four years of the investigation of the relationship with slight difference in the perception before five years of the investigation of this relationship. Moreover, the graph indicates that C2O in this supply chain relationship perceived higher trust dimensions than that perceived by OMO in the same periods. This

demonstrates that OMO had interacted with high trustworthiness attributes than that involved in C2O's interactions. Furthermore, this clarifies that OMO was the party that took the initiative to develop the trust in the supply chain relationship and C2O through willingness to participate in higher trust relationship, had responded likewise. This behaviour was indicated in the analysis of the relationship between OMO and the first downstream party, which is C1O as previously highlighted. Hence, this explains that the difference in the perceptions indicated in the graphs shows the role that OMO had played in these relationships to gain the trust of its downstream parties. However, as indicated by the comparison of the analyses of OMO's relationships with each party, OMO had achieved success in developing higher trust relationship with C2O and failed to do so with C1O because of the difference in the willingness of the downstream parties to participate in a higher trust relationship with OMO. In other words, the analysis indicates that C2O in this relationship was willing to trust OMO while C1O has no will to put trust on OMO than what had showed regardless of OMO's high trust in C1O. However, OMO continued the relationship with this downstream party. According to OMO's Supply Chain Manager, "*OMO when lose trust with its contractors or customers then it reassesses the relationships and cease the unwanted ones*". Hence, OMO continuation of the relationship with C1O with the identified level of trust was based on OMO's benefit of this relationship and the value it gained from it. In this context, the graphs show that the integrity based trust is highly perceived between OMO and C1O throughout the studied relationship.

After identification of high calculus-based trust, knowledge-based trust and transference-based trust between OMO and C2O, the next section will consider

OMO's performance and OMO's supply chain performance in the light of the identified trust in OMO's supply chain relationships.

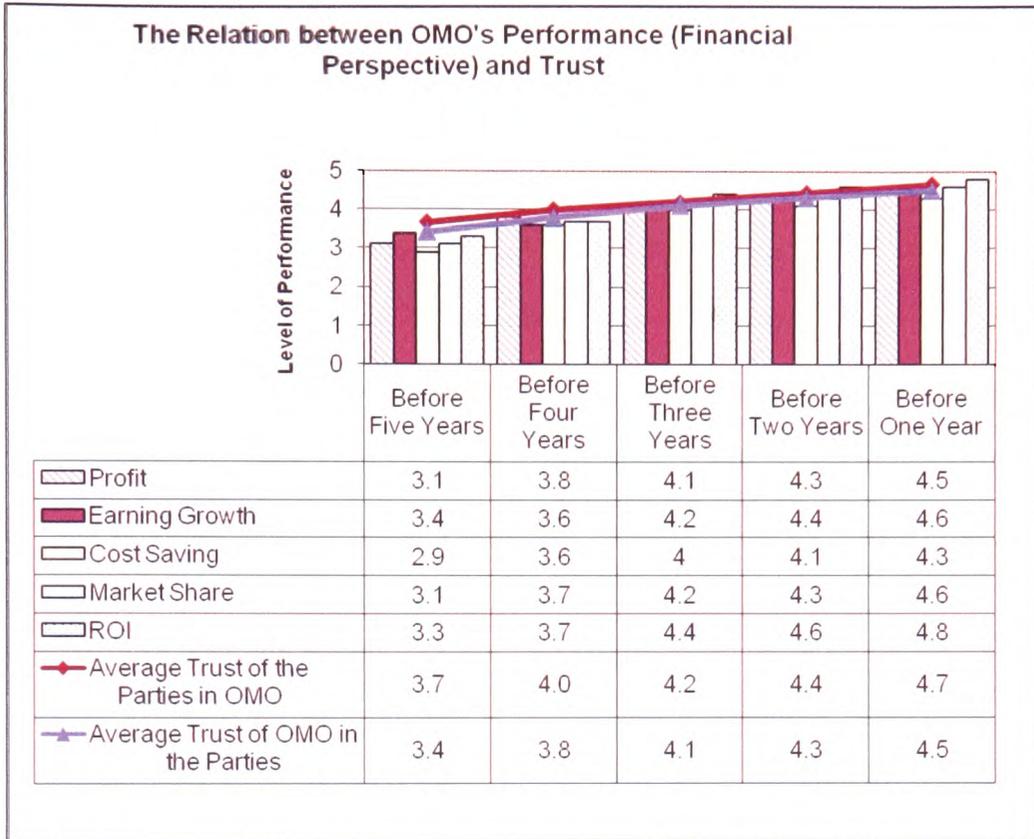
#### **5.4 ANALYSIS OF OMO'S PERFORMANCE IN RELATION TO TRUST**

OMO's performance in regard to the investigated supply chain relationship was investigated to explore the effect on this performance of the identified trust in the relationship. In order to achieve this objective, the performance measures selected through the literature review were utilised to measure OMO's performance. Each of the selected measures will be discussed in this section in regard to OMO's opinion about its performance and in relation to the foregoing findings on the supply chain relationship with its upstream and downstream parties.

##### **1) Trust and OMO's Financial Performance**

OMO's performance from the financial perspective was investigated in relation to OMO's relationship with the selected for study supply chain parties. In this perspective the interviewees highlighted OMO's performance for five years of the supply chain relationship. As indicated previously, this time frame was selected with the aim of identifying relevant changes in the performance that could be caused by the development of trust in the supply chain relationship.

The measures that were used to measure OMO's financial performance are OMO's profitability, earnings growth, cost saving, market share and OMO's return on investment (ROI). The results of the average analysis of OMO's performance in light of the studied supply chain relationships are highlighted in the following graph.



**Graph 5.13: Shows the relation between OMO's financial performance and the trust in the supply chain relationships**

OMO's financial performance, as indicated in the above graph, had improved over the period of the supply chain relationships and increasing in a parallel manner with the development of the trust in the supply chain relationships. Since OMO's performance shown in Graph 5.13 was based on the interviewees' perceptions, factual data could verify the accuracy of such perceptions. As mentioned before, the researcher collected sample raw data from OMO. As presented in Appendix 3, the factual data collected from OMO emphasises the improvement of OMO's financial performance shown in Graph 5.13. Hence, the analysed collected research data and the factual data maintained from OMO show consistency and this indicates that the research data collected from the interviewees were reliable.

**a) Return On Investment**

The interviewees in OMO indicated that through its relationship with its supply chain parties, its financial return on investment (ROI) is consistently growing high. OMO's Chief Accountant emphasised this point. However, the interviewees pointed out that better financial performance could be achieved in regard to OMO's relationship with CIO. Access to financial data was allowed by OMO and the financial data, as noted by OMO's Chief Accountant, indicated high ROI for OMO for the five years of this investigation. Moreover, the data showed an increase in OMO's ROI over time and this was attributed by OMO's Chief Accountant to OMO's success in its investments.

**b) Earnings Growth**

OMO's Chief Accountant commented that OMO's earnings growth was high and had consistently increased over the five years of the investigated relationship. The interviewees in OMO, including OMO's Operations Manager also emphasised this fact. OMO's financial reports were used by the interviewees to clarify OMO's performance in this financial aspect.

**c) Profitability**

OMO's profitability was investigated to indicate OMO's performance in this matter. The interviewees pointed to this financial dimension as the incentive of OMO's business. OMO's profitability, as clarified by the interviewees in OMO, had been high and it has been increasing with time over the five years.

**d) Cost Saving**

In this supply chain, OMO, through its interviewees and the documented financial data, indicated that it consistently achieved cost saving in its operations. According to OMO's Operations Manager, OMO's continued experience in its supply chain relationship had contributed greatly to this realised cost saving. OMO's Logistics Manager emphasised this perception and the other interviewees referred to the quality of OMO's supply chain management as having considerable effect in this regard.

**e) Market Share**

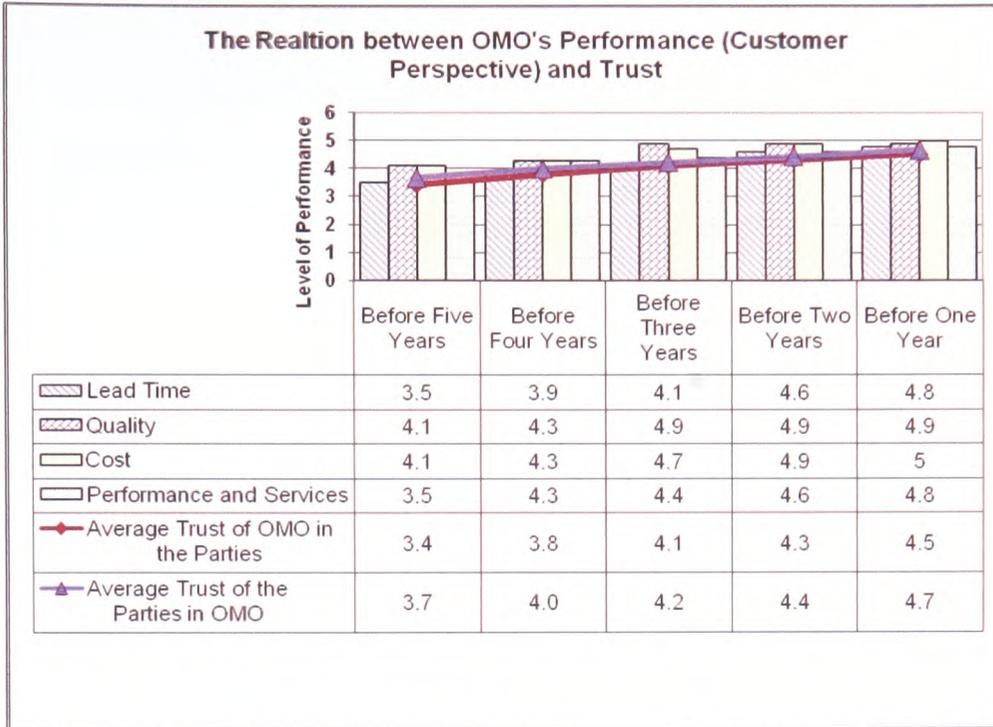
The market share gained by OMO was identified by the interviewees to be considerably large in relation to the market share achieved by its competitors. The interviewees in OMO attributed this achievement in the market share to its service quality and reputation and its virtuous business relationship with its supply chain parties. According to OMO's Logistics Manager and OMO's Logistics Supervisor, OMO's suppliers were very helpful in achieving this target, through the virtuous relationship it had with them that allowed it to provide its services to its customers in a cost-effective manner and with high quality, leading to customer satisfaction. Moreover, the interviewees in OMO considered the upstream parties (S1O and S2O) to play a significant role in achieving price competition in this supply chain, as they supplied OMO with affordable low price supplies. This enabled OMO to supply its services at competitive prices. The interviewees emphasised that through this strategy, OMO believed that it could acquire a higher market share, through maintaining its customers and attracting new customers to its business. According to the interviewees, this strategy had been successful because it was difficult for its

competitors to imitate, as it involved risks related to service cost and allocation of resources. The interviewees stressed that to provide high quality services at low cost to downstream parties, this required sophisticated knowledge and experience, precise forecasting, research supported market planning, and extensive market and operations experience. The interviewees indicated that the market share gained by OMO was related to its sophisticated relationship with its suppliers and experience in understanding the downstream parties' needs and wants.

The next section considers OMO's performance in regard to the customer perspective in light of the trust identified in OMO's supply chain relationships.

## **2) Trust and OMO's Performance From Customer Perspective**

OMO as an oilfield services provider had inner drivers on basis of its strategy to achieve prosperity in the market through satisfying its customers. OMO's performance from this perspective was investigated and measured through the consequence perceived by the customer in regard to OMO's lead time, quality of OMO's services, cost of OMO's services in respect to affordability and suitability of its services' prices and the performance of OMO's services; the services it provides to the customer. In relation to the identified trust in OMO's supply chain relationships, understanding OMO's performance in this respect enables the researcher to explore whether or not the trust had influenced this performance. The average analysis has yielded the results indicated in Graph 5.14.



**Graph 5.14: Shows the relation between the customer perspectives of OMO's performance and the trust in the supply chain relationships.**

The customer perspective was investigated to measure OMO's performance. From this perspective, OMO's points of view were taken into consideration in order to assess OMO's performance as an organisation that has achieved a successful reputation in the oilfield services market.

**a) Lead Time**

OMO had conducted market research to determine the level of its downstream parties' satisfaction with its services. By this means, OMO has identified that its lead time is suitable to its downstream parties and satisfies their requirements. Moreover, the interviewees in OMO identified its lead time as competitive. In so doing, they referred to benchmarking OMO's lead time with other organisations in the market.

## **b) Quality**

OMO's quality was investigated to indicate its performance in this aspect. The interviewees in OMO emphasised OMO's quality as reflected in its acquisition of the ISO 9001:2000 quality certificate. According to the interviewees in OMO, OMO works in accordance with the standards related to this certificate. They emphasised that OMO utilises these quality standards to assist its performance.

Moreover, they highlighted OMO's quality even in the selection of its suppliers. In this regard, the interviewees indicated that OMO selected its upstream supply chain parties on the basis of quality certification, to ensure the quality of its operations and supply chain interactions. In this context, the interviewees indicated that OMO does not do business with uncertified suppliers or suppliers that are not accredited by quality certifying bodies. According to the interviewees, this strategy was followed by OMO to ensure that it provided its services to its downstream parties with consideration of quality, in order to keep its reputation for high quality services.

## **c) Cost**

OMO's performance in regard to its service cost in relation to its customer perspective was investigated. Based on market research conducted by OMO, the interviewees in OMO claimed that OMO has the capability to supply its services at low cost and its services are perceived by its customers as cost effective. Therefore, it declared itself as a supplier of cost effective high quality oilfield services. According to OMO's research, OMO, compared to its competitors, was perceived to provide its services at affordable and competitive

prices and these services are often associated with added value. According to the interviewees in OMO, this strategy had been successful in attracting new customers to OMOs business and sustaining its reputation in the market, which helped in retaining OMO's existing customers.

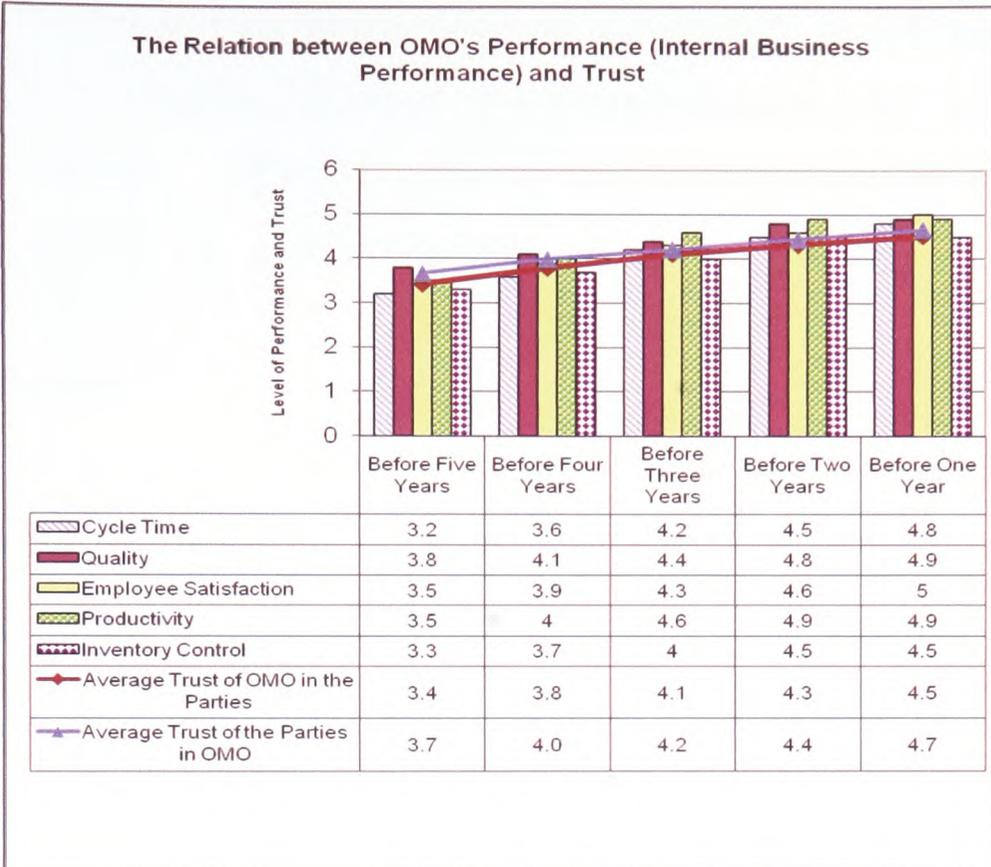
#### **d) Performance and Service**

OMO's service performance and customer services were investigated to highlight its performance in this customer perspective. The interviewees in OMO indicated that OMO's customer services, customer satisfaction, marketing scheme, performance in terms of customer convenience in executing financial transactions, and after purchase customer services were all well perceived by its downstream parties. In relation to other organisations in the oilfield services market, OMO has achieved high performance in this customer aspect, compared to its competitors.

### **3) Trust and OMO's Performance From Internal Business Perspective**

The researcher explored OMO's internal business performance in order to identify its performance in respect to the investigated level of trust in the supply chain relationship. OM's performance in accordance with the selected internal business performance measures will be discussed in this section.

OMO's internal business performance was investigated to maintain insight about the role of trust in the efficiency of this performance. The results of the research data are indicated in Graph 5.15.



**Graph 5.15: Shows the relation between OMO's internal business performance and the trust in OMO's supply chain relationships**

Graph 5.15 indicates improvement of OMO's internal business performance from before five years along the supply chain relationship till the before one year indicated in the graph. This improvement had happened in parallel with the development of trust in OMO's supply chain relationships.

**a) Cycle Time**

Graph 5.15 shows that OMO's cycle time had improved in accordance with trust development and, as illustrated in the graph, the highest performance achieved in these two measures occurred in the before one year of considering OMO's supply chain relationships. The interviewees in OMO indicated that OMO's performance on cycle time was high. OMO's Operations Manager emphasised high efficiency achieved in this regard. The interviewees in OMO

clarified that OMO had been able to achieve competitive cycle time in relation to its competitors. However, the cycle time, as indicated by OMO's Logistics Supervisor, could be further improved, to a level that would enable OMO to achieve more with a shorter cycle time.

## **b) Quality**

As illustrated in Graph 5.15, OMO's internal business quality had improved in consistent to trust development and the highest performance achieved in these two measures occurred in the before one year of considering OMO's supply chain relationships. The interviewees in OMO indicated that OMO executed its operations with high quality related to the quality standards set out in OMO's certified quality accreditation. In this regard, the interviewees indicated that OMO, by following the quality standards, aimed to enhance its productivity through minimisation of production waste, time saving, and cost saving. OMO's internal business quality was perceived by the interviewees to be high, and they saw this as based on OMO's continuous review of policies and procedures to improve this aspect of the organisation's performance. Concerning OMO competitors' performance in this aspect, the interviewees emphasised that OMO's achievement in its internal business quality is much higher than that of its competitors. They emphasised the role of experience and knowledge as well as technology in achieving this high level of performance.

## **c) Employee Satisfaction**

OMO's employee satisfaction was investigated to indicate OMO's performance in this regard. As indicated in Graph 5.15, when the trust reached an optimal level in the relationships as indicated in before one year, OMO was able to

achieve high employees satisfaction in its business as indicated in the graph. The interviewees asserted OMO's high performance in this matter. According to three Logistics Personnel in OMO, OMO made employee satisfaction as a priority to achieve survival in the market and success in its business. The interviewees highlighted that OMO is a service organisation that is highly dependent on its human resources to execute the demanded services, and if these human resources were not highly satisfied, then the quality of OMO's services could be affected and in turn, OMO's business and reputation could be influenced. The interviewees referred to other organisations in the market where some of them had worked and reported high absenteeism and high employee over turn, due to employee dissatisfaction. All the interviewees in OMO emphasised that its employees were highly satisfied.

**d) Productivity**

OMO's productivity was rated as high by the interviewees. The quantitative results illustrated in Graph 5.15 emphasise this point. As indicated in the graph, in the latest year and the year before, OMO's productivity was close to best in industry setting in Oman. Moreover, the interviewees indicated that comparison between OMO's planned and realised productivity was used to measure OMO's performance in this respect as a motive to achieve better performance in this aspect.

**e) Inventory**

As indicated in Graph 5.15, OMO's performance in the inventory control remained steady without change in the before two years and in the before one year but it improved in the period of before five years, before four years and

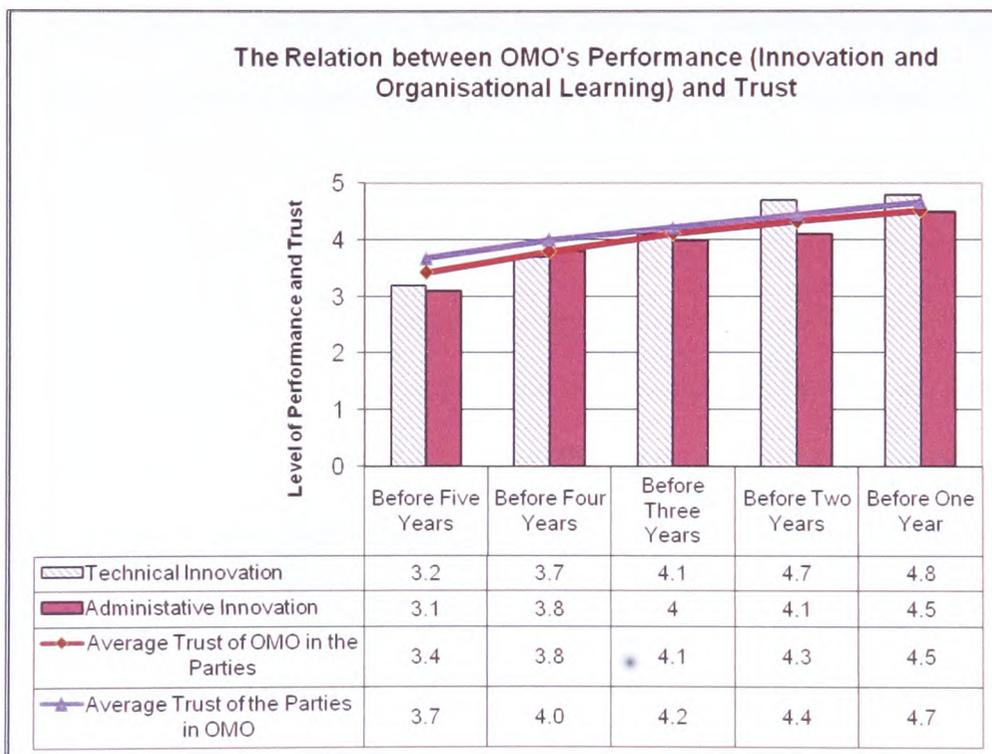
before three years. Although steadness had happened in OMO's inventory control performance in the last two years, its performance in this respect had improved with the developemnt of trust in the supply chain relationships, as indicated from the before five years untill the before two years of investigating this performance. In relation to OMO's inventory performance, the interviewees highlighted that OMO had been efficient in managing its inventory. Gaining competitive advantage was considered the motive for OMO's efficient inventory management. According to the interviewees, OMO had achieved low inventory cost; they emphasised this perception through benchmarking the inventory management achieved in OMO with OMO's competitors' achievements. According to OMO this has been achieved through its successful relationships with its supply chain parties. However, it indicated that bullwhip sometimes occurred in its inventory due to unexpected orders from C10 in its supply chain.

#### **4) OMO's Performance From Innovation And Organisational Learning Perspective**

OMO's performance in the technical and administrative innovation was investigated. Administrative innovation was perceived in the form of the efforts that OMO exerts in the continuous development of coordination between departments. This administrative innovation was described as the result of OMO's continuous learning from past lessons in the process and adoption of new actions that pay off. In regard to technical innovation, the interviewees indicated that in order to keep pace with innovation in this aspect, OMO has implemented quality standards in its organisational activities and its operations. According to the interviewees, OMO values innovation and it aims to adopt

changes in its business that add value and strengthen its position in the market. Distinguishing itself in the market and positioning itself in customers' minds as a high quality service provider, as clarified by the interviewees, were the reasons for OMO's adoption of technical and administrative innovations.

The research data in regard to the performance achieved by OMO in the technical and administrative innovation and organisational learning has been analysed using average analysis. The analysis results are illustrated in Graph 5.16.



**Graph 5.16: Shows the relations between trust in OMO's supply chain relationships and OMO's performance from the perspective of innovation and organisational learning.**

In respect to the value of trust in OMO's supply chain relationships, indicated in the above graph, OMO had achieved high innovation and organisational

learning in the before one year in accordance to the high level of trust developed in the supply chain relationships. By going backward along the five years of the relationships, the graph indicates parallelism in the decrease of the level of trust development and OMO's performance in the innovation and organisational learning perspective. As shown in the graph, the lowest performance in this respect was achieved by OMO in the before five years when the trust was in its lowest level among the five years of the relationships. Although, the technical innovation was higher, OMO's performance in the administrative innovation was considerable and had improved over the length of supply chain relationships in a consequent manner with the trust development in the relationships. According to OMO this has been achieved through high co-operation with its supply chain parties both upstream and downstream.

The improvement achieved in the administrative innovation was almost with minor difference than the improvement realised in the technical innovation. Interviewees in OMO have emphasised improvement of OMO's administrative processes and stressed that OMO has been realising innovation in this aspect throughout the supply chain relationships. This innovation was denoted as significant and it was said to have helped OMO's business to achieve more in a shorter period. According to the interviewees, OMO has achieved innovation in its administrative affairs through exchanging administrative experience and skills with its supply chain parties. Therefore, OMO's performance in this respect is high.

Having analysed OMO's performance, the next section will consider analysis of OMO's supply chain performance.

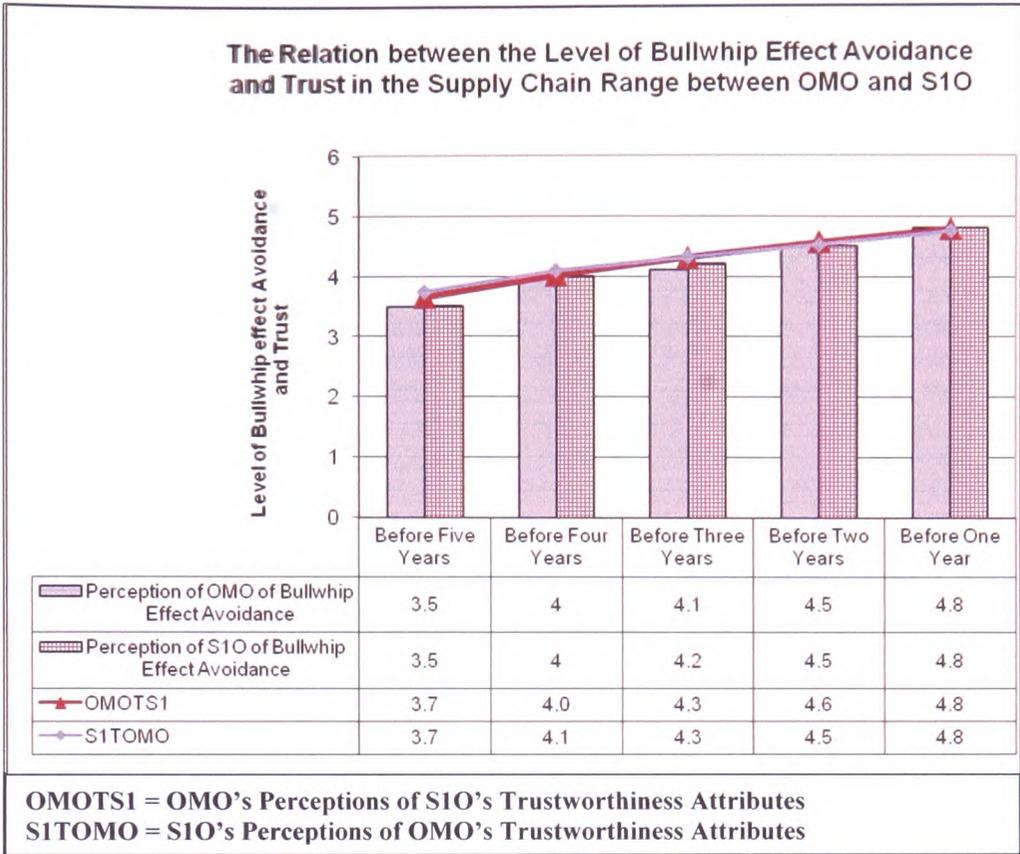
## **5.5 ANALYSIS OF OMO'S SUPPLY CHAIN PERFORMANCE IN RELATION TO TRUST**

This section considers analysis of the supply chain performance in regard to the trust between OMO and its supply chain parties. The measures identified and selected through the literature review of this research will be highlighted in this section to indicate OMO's supply chain performance. In this measurement the bullwhip effect, identified in the literature review, has been taken into consideration to indicate its occurrence in the supply chain in regard to the studied supply chain relationship between OMO and its supply chain parties. The performance dimensions that have been used to assess OMO's supply chain performance, as discussed in the reviewed literature, are as follows:

- 1. Inventory (Bullwhip Occurrence)**
- 2. Risk**
- 3. Cost Saving**
- 4. Information Sharing**
- 5. Return On Investment**
- 6. Lead Time**

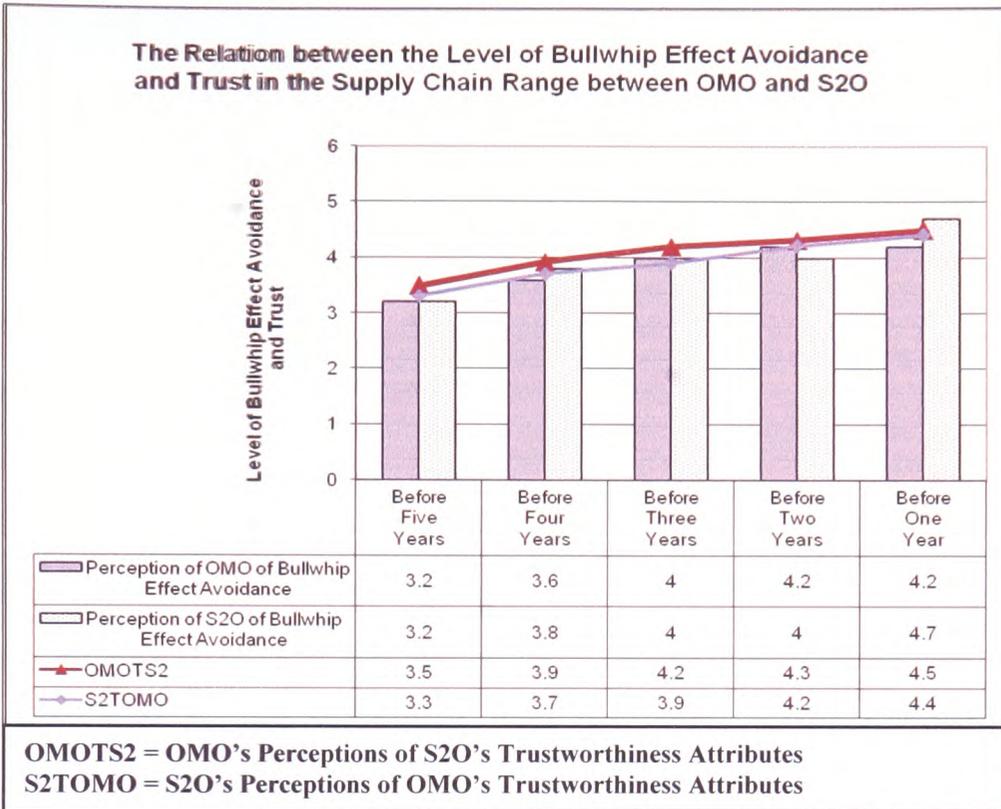
### **1. Inventory (Bullwhip Effect)**

The analysis will be commenced here by analysing OMO's supply chain performance in the first range of the supply chain, which involves the trust in the relationship between OMO and S10. The analysis of the research data of OMO's supply chain performance in this range for the last five years of the relationship from 2001 to 2005 has yielded the results indicated in the following graph.



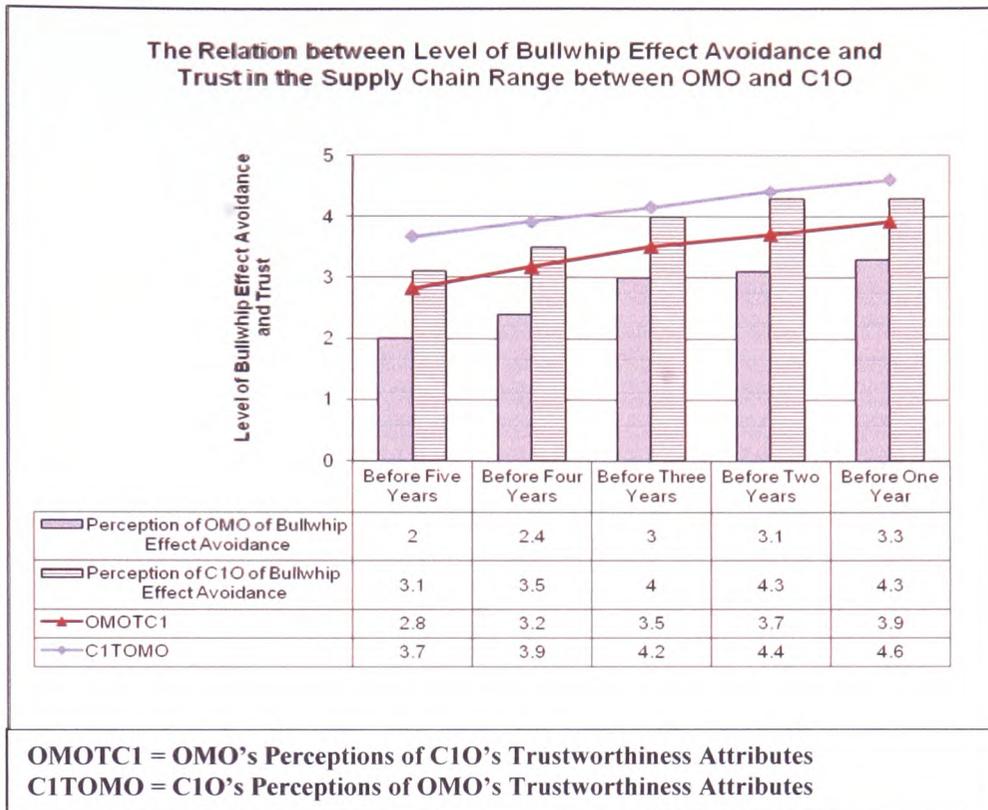
**Graph 5.17: Shows the relation between the bullwhip effect avoidance and trust in the relationships between OMO and S1O**

Considering the supply chain performance in the second range of the supply chain, which involves the relationship between OMO and S2O, the average analysis of the bullwhip effect avoidance in this range in relation to the trust with this party is highlighted in Graph 5.18 as follows.



**Graph 5.18: Shows the relation between the bullwhip effect avoidance and trust in the relationship between OMO and S2O**

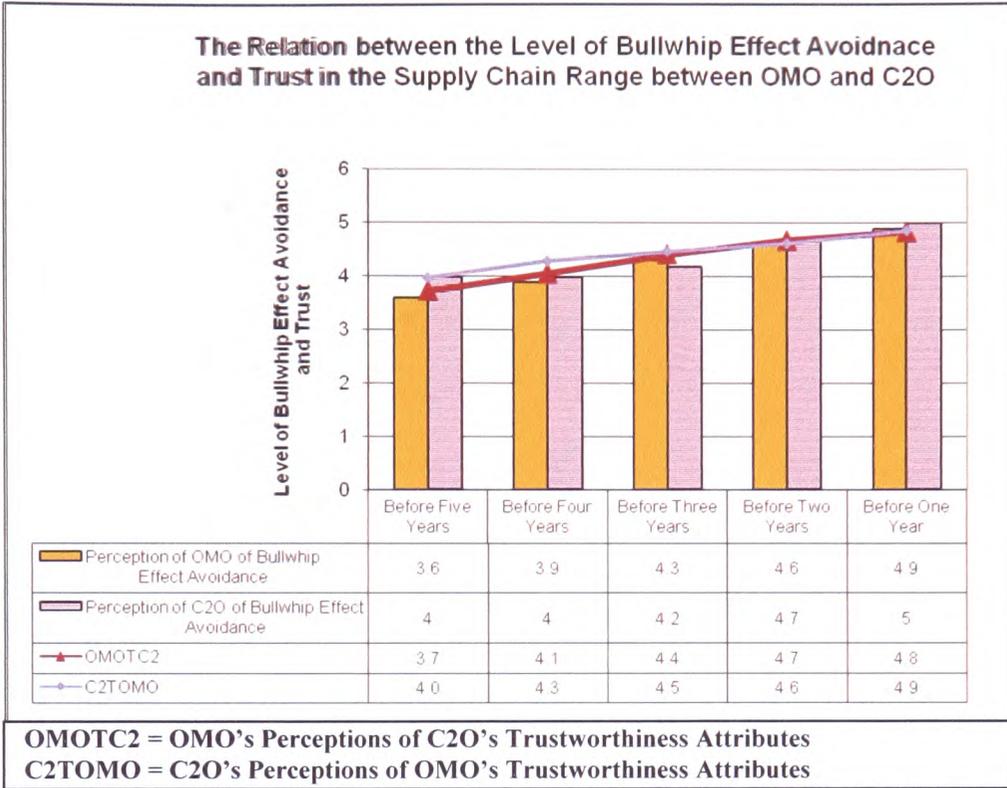
Regarding the supply chain performance in the third range, the average analysis results of OMO's supply chain performance in relation to the identified trust between OMO and C1O in this range are illustrated in Graph 5.19.



**Graph 5.19: Shows the relation between the bullwhip effect avoidance and trust in the relationship between OMO and C1O**

Regarding the relationship between the bullwhip effect avoidance and the trust in this relationship, Graph 5.19 indicates that the bullwhip effect had affected OMO's supply chain performance more than in the supply chain relationships with S1O and S2O. This low level of the bullwhip effect avoidance had occurred in accordance with the low level of the trust perceived in this supply chain relationship. Therefore, the analysis of OMO's supply chain performance in this range indicates that the less trust in the supply chain relationship results in a consequent low avoidance of the bullwhip effect.

In relation to the trust in OMO's relationship with the second downstream party considered by this research, the results maintained from the average analysis are indicated in Graph 5.20.



**Graph 5.20: Shows the relation between the bullwhip effect avoidance and trust in the relationship between OMO and C2O**

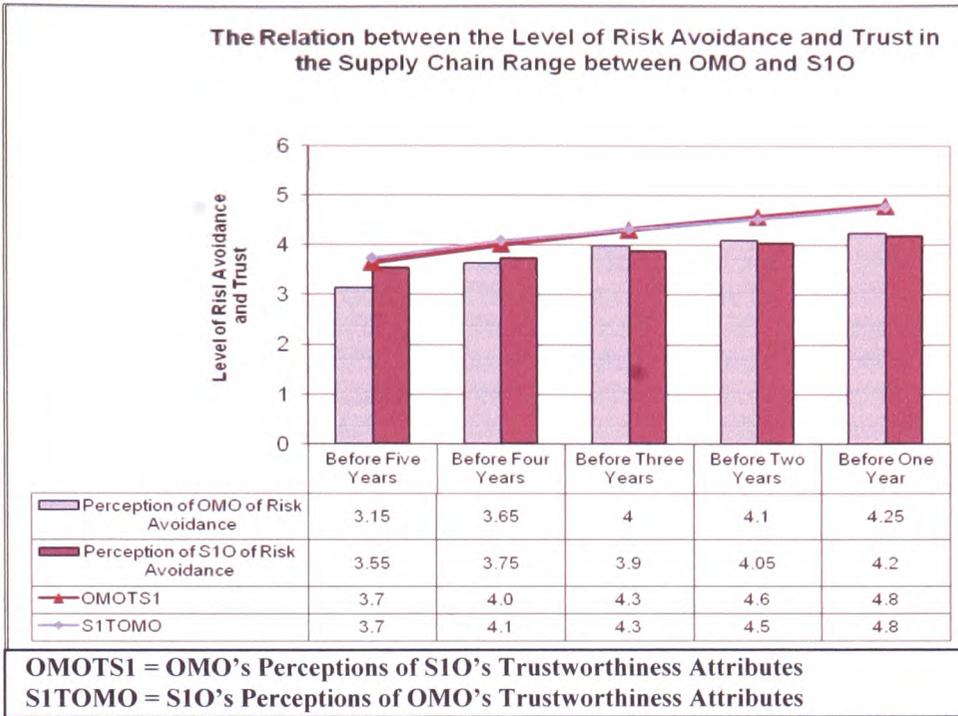
According to the interviewees in OMO, the occurrence of the bullwhip effect in its supply chain has been frequent. OMO's Logistics Manager pointed to the relationship with C1O and lack of optimal coordination, including information sharing about C1O's future needs, as the cause of this occurrence. OMO's Logistics Supervisor supported this view and indicated improvement in this aspect based on OMO's experience in the relationship with this downstream party, where precautions had been taken through considering an additional inventory level to the just-in-time strategy followed by OMO in its inventory management.

OMO's Operations Manager emphasised that C1O's predictability in terms of its extensive and complex operations was difficult, which regularly resulted in

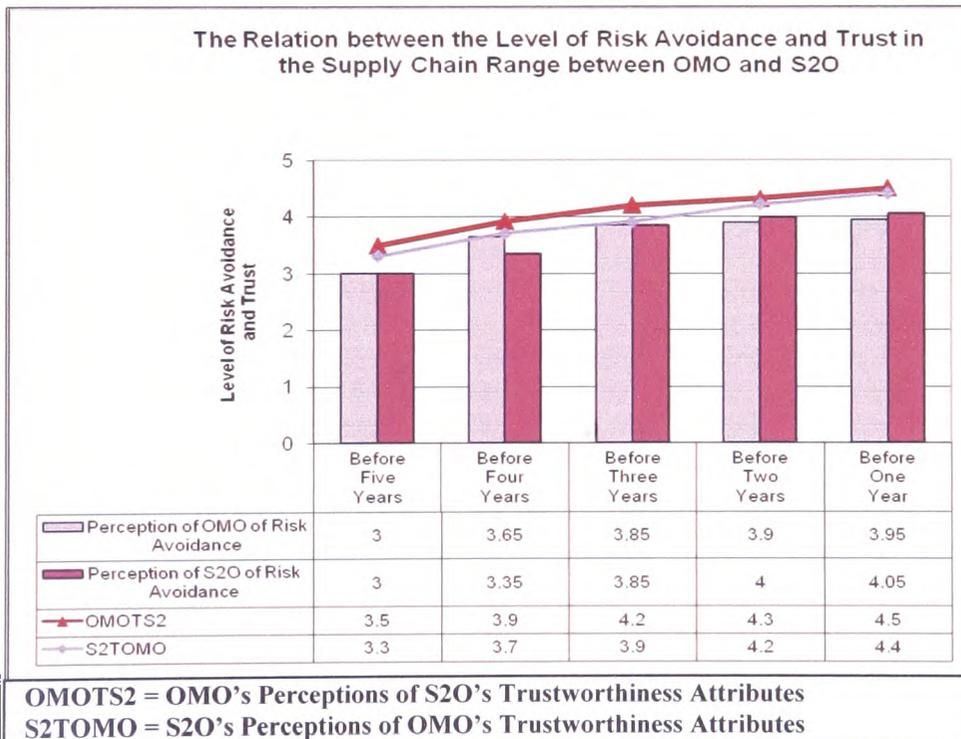
OMO being misled in regard to its inventory management and preparation to provide its services to C1O. However, during periods of unexpected orders from C1O, S1O and S2O performed in a way that minimised the expected effect of the bullwhip. OMO ascribed this performance of its upstream supply chain parties to minimise occurrence of the bullwhip effect to the high level of information sharing between OMO and these parties. According to OMO, bullwhip effect rarely or never occurred in the supply chain in its relationship with C2O and its upstream parties. The interviewees identified OMO's inventory performance to be more efficient in its relationship with C2O than in its relationship with C1O.

## **2. Risk**

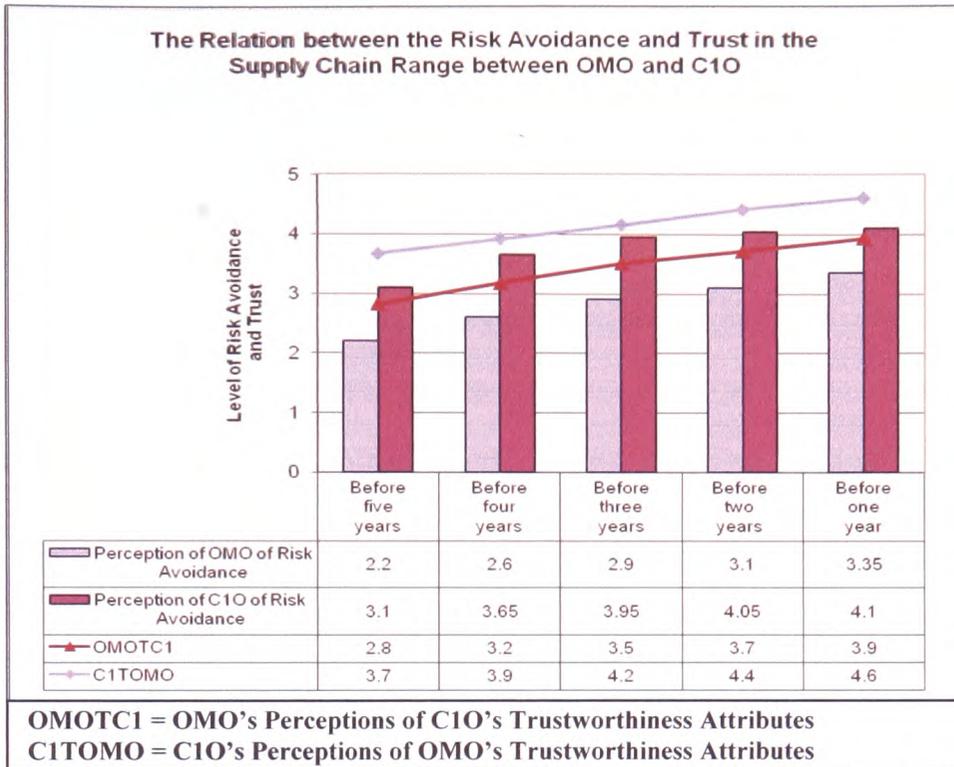
Risk in the supply chain was investigated to identify the supply chain performance in this aspect. This investigation was conducted to decide whether trust is a source of risk or helps in avoiding risk. This exploration is based on the turbulence found in the literature review in viewing the role of trust, where some authors contend the trust in supply chain relationship is a source of risk and others stress the trust in the supply chain relationship assists the parties to avoid risk. The results of the average analysis in relation to the trust in OMO's relationships are illustrated in the following graphs.



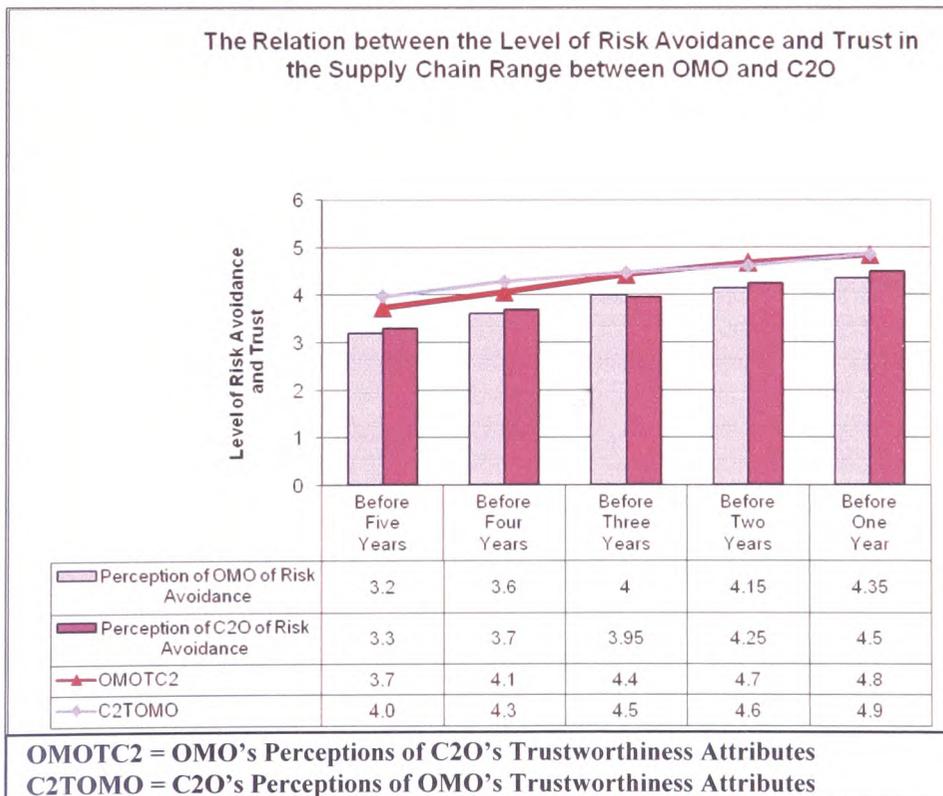
**Graph 5.21: Shows the relation between the risk avoidance and trust in the relationship between OMO and S1O**



**Graph 5.22: Shows the relation between the risk avoidance and trust in the relationship between OMO and S2O**



**Graph 5.23: Shows the relation between the risk avoidance and trust in the relationship between OMO and C1O**



**Graph 5.24: Shows the relation between the risk avoidance and trust in the relationship between OMO and C2O**

The above graphs indicate positive relationship between the trust development and the risk avoidance in the supply chain.

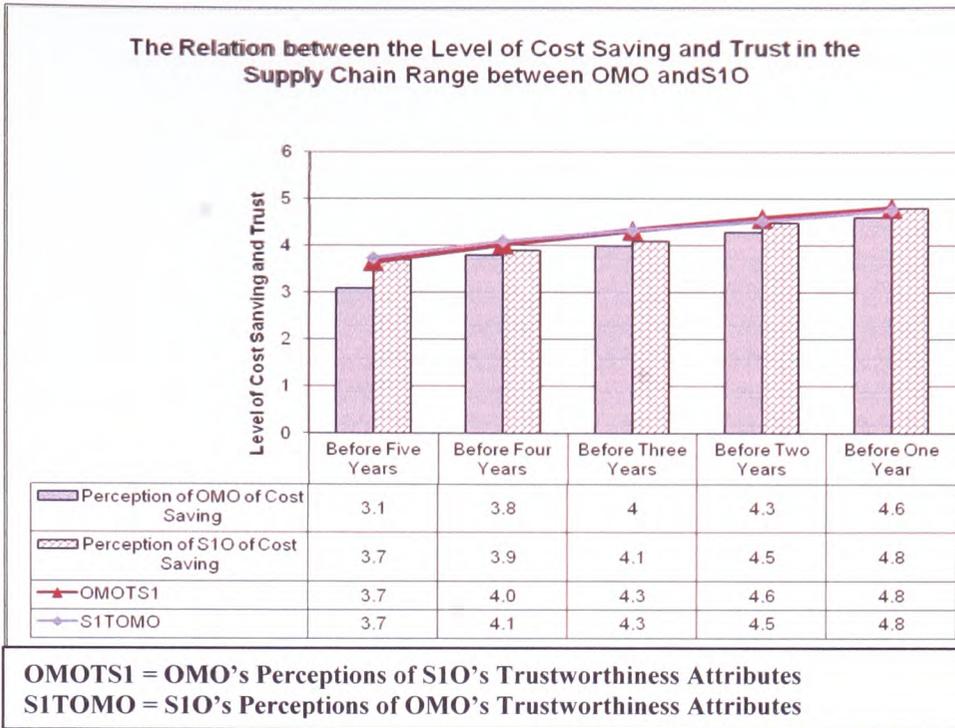
The interviewees in OMO and its supply chain parties including C1O indicated that risk occurrence was minimal in this supply chain. OMO and its parties attributed risk minimisation in this supply chain relationship to the virtuous relationship between them and to the experience in this supply chain. According to the interviewees in OMO, its supply chain business was risky when it initiated its business in the mid 1980s, due to the huge initial capital invested in this business, requiring OMO to plan the payback period accurately to avoid financial risk in its supply chain. Then, through its relationship with its upstream and downstream parties the risk occurrence gradually decreasing.

Moreover, operational risk and risk related to the supply chain ability was highlighted by the interviewees and they emphasised the achievement of risk minimisation in this supply chain. Both downstream and upstream parties highlighted the same impression of the risk minimisation achieved in the supply chain. For example, C1O indicated that before improvement of its relationship with OMO, it was striving to find an appropriate service supplier to serve its business requirement. The process of finding a competent supplier with the required expertise and skills, and able to supply services at affordable prices, was experienced by C1O, and identified to be time, effort and capital consuming. Therefore, the interviewees in C1O referred to risk that could be caused by losing competent contractors such as OMO. This risk was expressed in terms of the possibility of losing contracts with oil marketing organisations that had already

signed deals with C1O to get a certain amount of oil in a certain period of time. According to the interviewees, inability to fulfil the signed contracts implied costs to be paid by C1O to the oil marketing organisations, which resulted in occurrence of financial risks in C1O's operations. According to the interviewees in C1O, as the relationship with OMO developed and an ongoing relationship was built with trust in OMO's expertise and proficiency, risk was perceived to be minimal and decreased with the length of the relationship. Moreover, financial risks and operational risks were highlighted by the interviewees and identified to be low in this supply chain. In this respect, the supply chain parties pointed to risk minimisation occurrence in accordance with the length of the relationship. As will be highlighted in the discussion and findings of this research, this perception reflects the impact of trust development on the supply chain relationship and could be related to the stages of trust development.

### **3. Cost Saving**

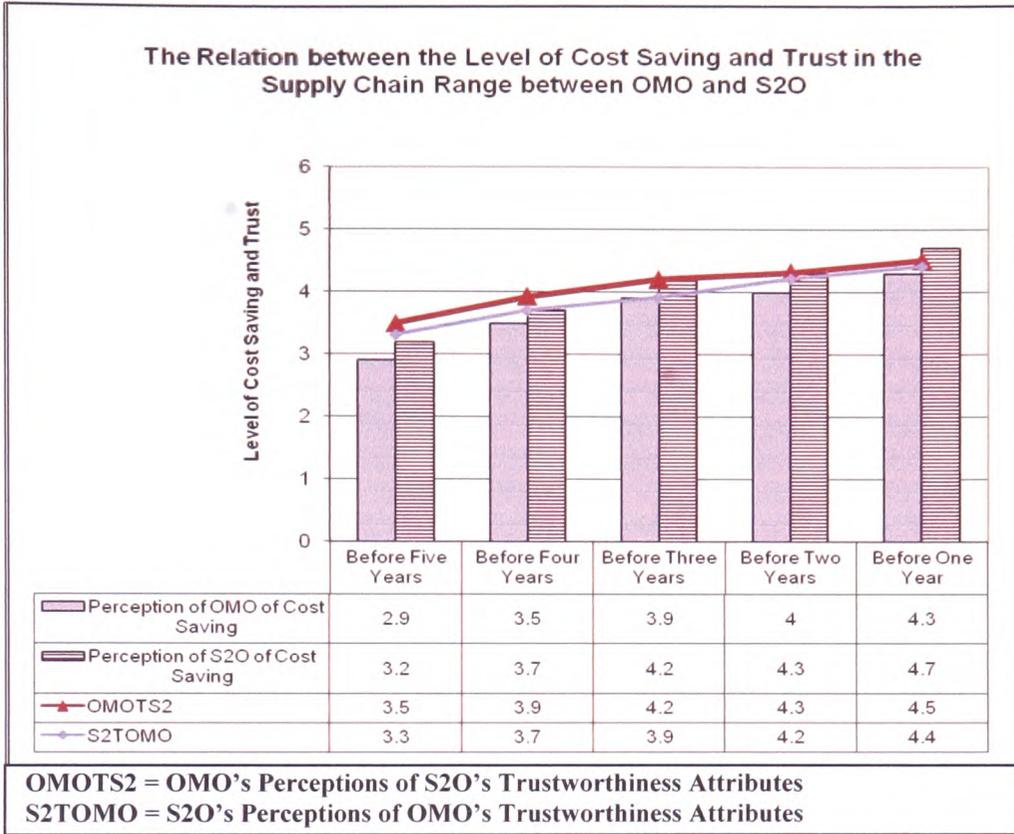
Supply chain cost saving was investigated to identify the performance of the supply chain in this matter, in relation to OMO's relationship with its upstream and downstream parties. The research data maintained during the data collection stage were subjected to average analysis. Starting with the first range in the supply chain, which represents the relationship between OMO and S1O, the results of the analysis of this performance in relation to the trust is illustrated in the following graph.



**Graph 5.25: Shows the relation between the level of cost saving and trust in the relationship between OMO and S10**

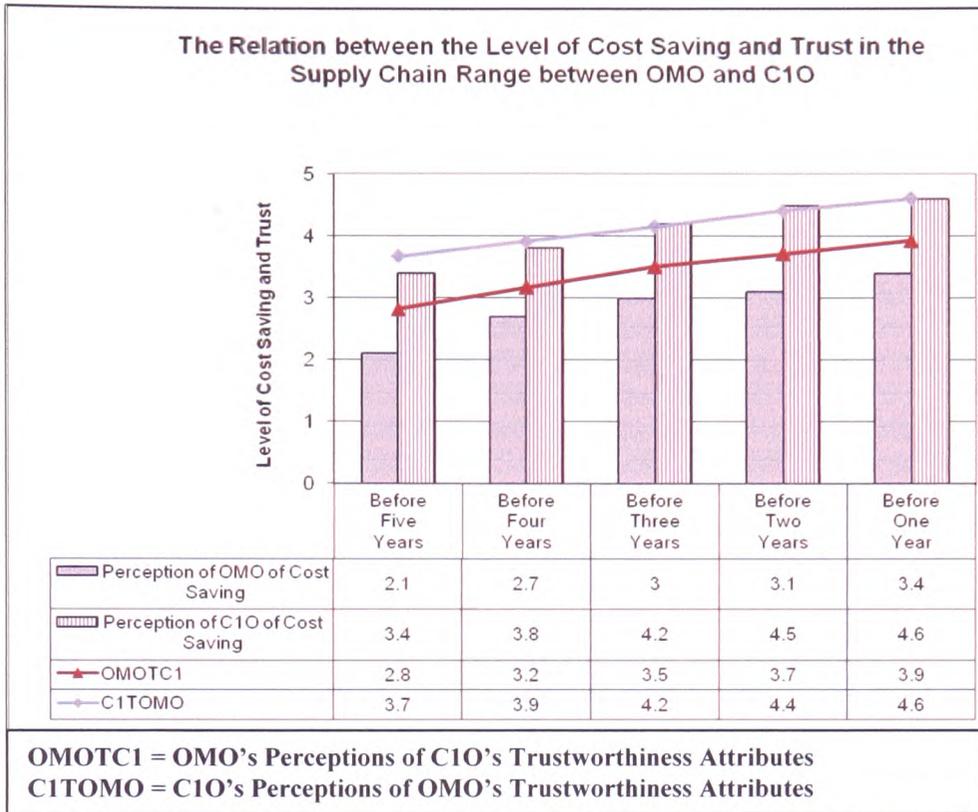
Graph 5.25, indicates that the trust in OMO's relationship with S10 had developed over the five years. Before five years of considering the relationship, the trust was less than in the later years and the supply chain cost saving was less than that occurred in the later years, which identifies influence of trust on this performance.

Similar effect of the trust on this performance is indicated in the analysis results of the second range of the supply chain which concerns the relationship between OMO and S2O as illustrated in Graph 5.26 as follows:



**Graph 5.26: Shows the relation between the level of cost saving and trust in the relationship between OMO and S2O**

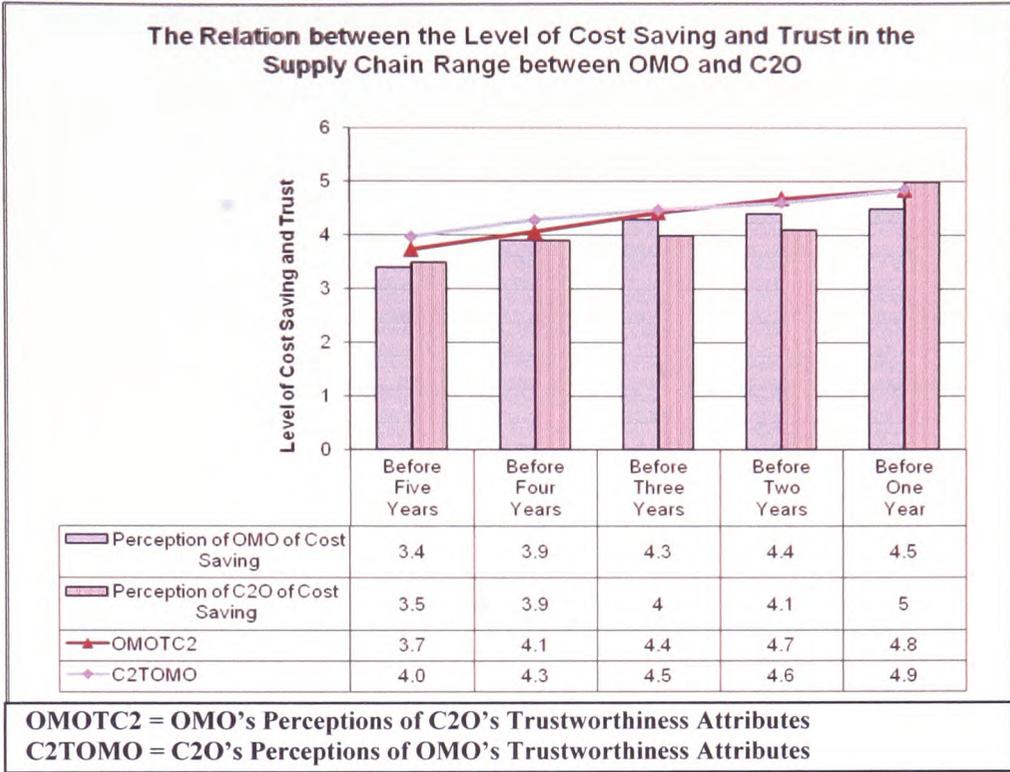
Graph 5.25 and Graph 5.26 indicate concurrent relationship between the perception of trust and the supply chain performance in the cost saving. The analysis shows different situation in case of the relationship in the third range of the supply chain. The results of the average analysis of the supply chain cost saving in relation to the trust in this relationship are indicated in the following graph.



**Graph 5.27: Shows the relation between the level of cost saving and trust in the relationship between OMO and C1O**

Graph 5.27, clarifies that the cost saving was perceived as high and an increase had occurred in the cost saving along the five years of the supply chain relationship in accordance with the perception of OMO's trustworthiness attributes.

Considering the fourth range of the supply chain relationship (the relationship between OMO and C2O), the supply chain performance in this range, as highlighted in Graph 5.28, is identified to be high in the perception of both OMO and C2O and this performance is in accordance with the perception of trust in the relationship.



**Graph 5.28: Shows the relation between the level of cost saving and trust in the relationship between OMO and C2O**

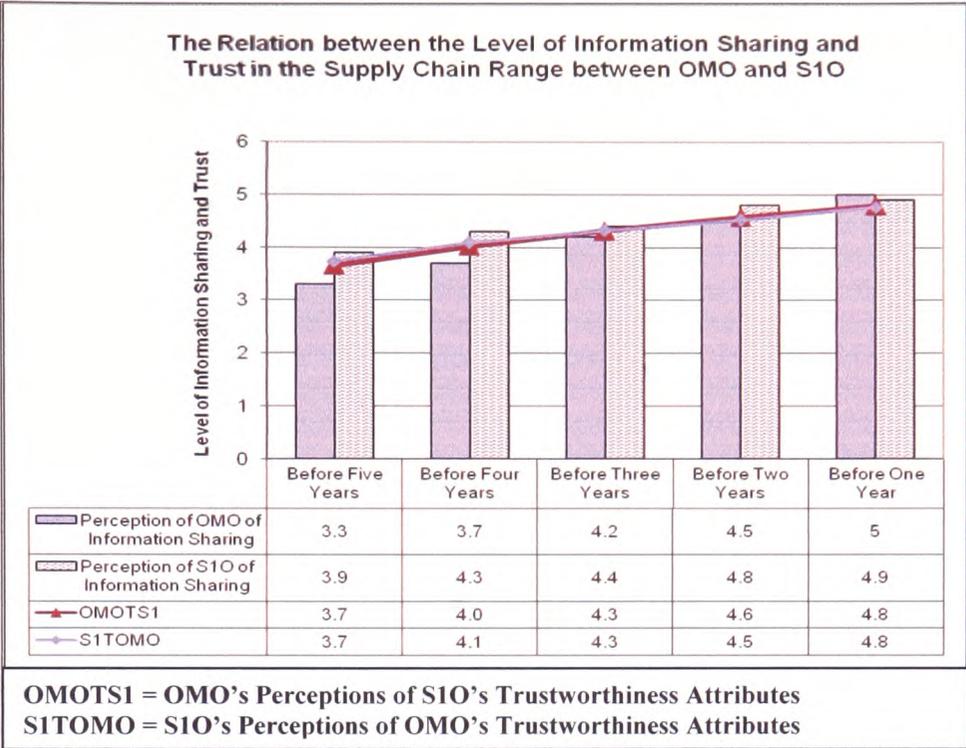
The interviewees in OMO and its supply chain parties indicated that the cost of its supply chain was low in comparison to other organisations with a similar supply chain. The interviewees in OMO indicated that improvement in cost saving happened over the lifetime of the supply chain relationship.

According to OMO's Marketing Manager, cost saving had occurred across the supply chain and had great influence on the cost of OMO's marketing activities. OMO, based on the cost saving achieved in this supply chain, maintained acknowledgement of its downstream parties and triggered attention of other downstream parties to engage in a supply chain relationship with OMO. OMO's Logistics Manager emphasised the high performance of OMO's supply chain with regard to cost saving and OMO's Operations Manager referred to the

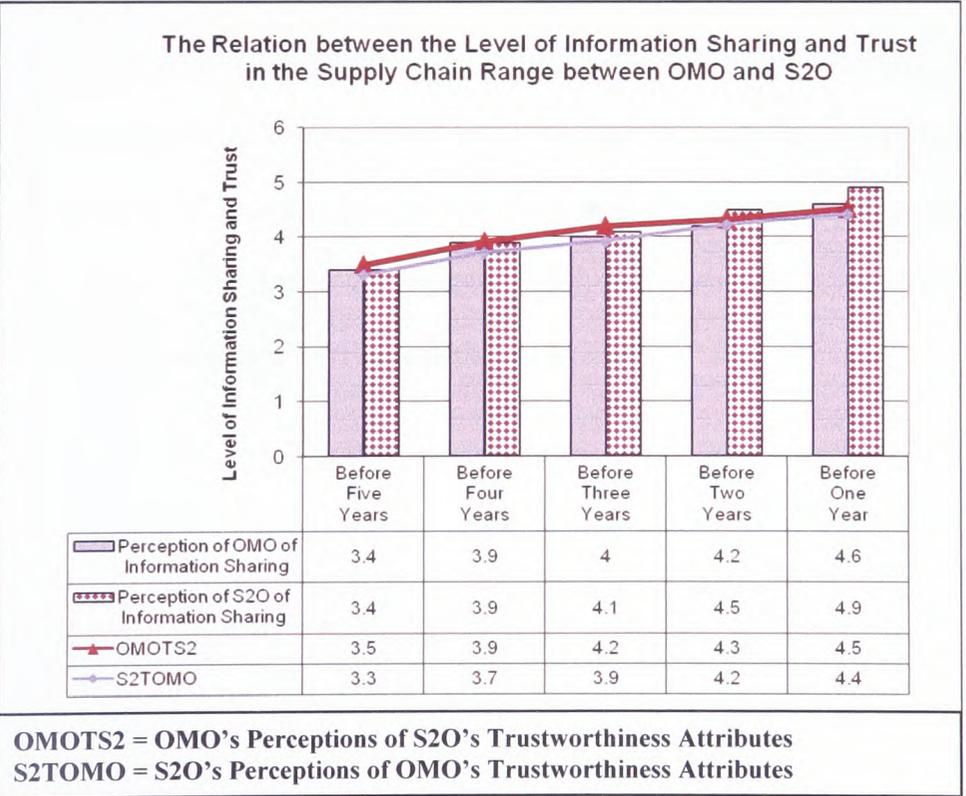
relationship between the duration of the supply chain relationship and increases in the achievement of cost saving in the supply chain. In general, the interviewees in OMO related the supply chain's high performance in this respect to experience in the supply chain relationship and sophisticated coordination with OMO's upstream parties. They claimed responsibility for the downstream parties in the occurrence of either high supply chain cost or cost saving. In this regard, the interviewees in OMO indicated that the appropriate level of information sharing with C2O had helped it to manage its inventory and forecast and prepare requirements with planned cost to achieve in its relationship with this downstream supply chain party. On the other hand, OMO indicated that its relationship with C1O was often responsible for incurring high supply chain cost, which this could be avoided through higher coordination and information sharing with this party. According to OMO's Logistics Manager and OMO's Logistics Supervisor, this happens in the supply chain due to unexpected placement of orders of services, which is often done by C1O without sharing enough information with OMO about these orders and the services required. This often put OMO in a situation of urgency to fulfil the requests at the time demanded by C1O and often caused a bullwhip effect in the supply chain that resulted in higher supply chain costs.

#### **4. Information Sharing**

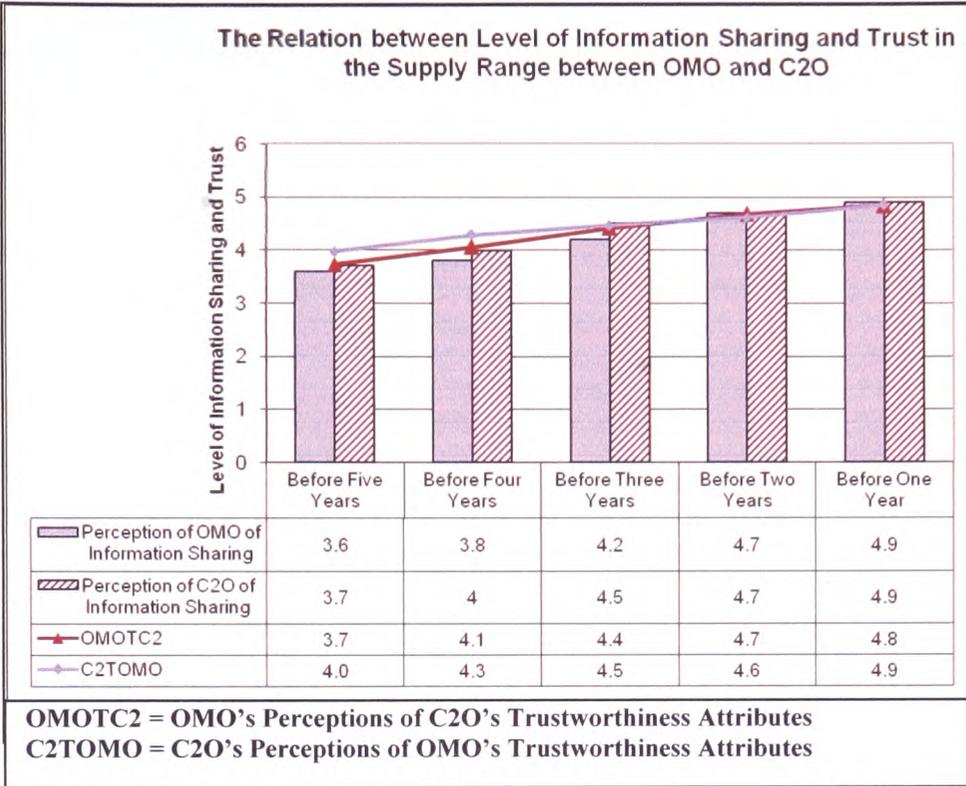
Considering exploration of the relation between trust in OMO's supply chain relationships and the information sharing, the analysis results, indicate high information sharing had occurred between OMO and its upstream parties and OMO and C2O, in which the trust in these relationships was identified as high (see Graphs 5.29, 5.30 and 5.31 below).



**Graph 5.29: Shows the relation between the level of information sharing and trust in the relationship between OMO and S1O**

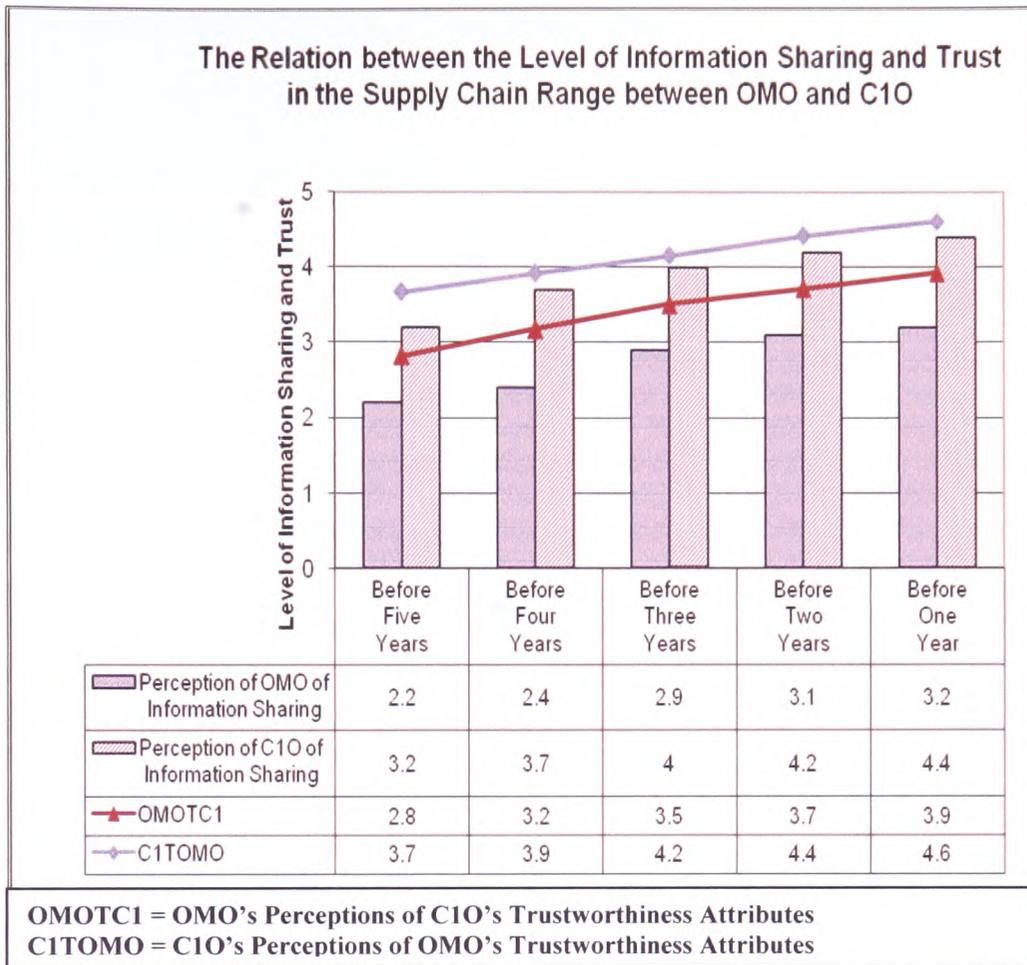


**Graph 5.30: Shows the relation between the level of information sharing and trust in the relationship between OMO and S2O**



**Graph 5.31: Shows the relation between the level of information sharing and trust in the relationship between OMO and C2O**

On the other hand, the results of the average analysis for the information sharing between OMO and C1O, as illustrated in Graph 5.32, indicates lower perception of information sharing occurred between OMO and this downstream party. In this respect, the graph shows that OMO's perception of C1O information sharing is lower than what was perceived by C1O.



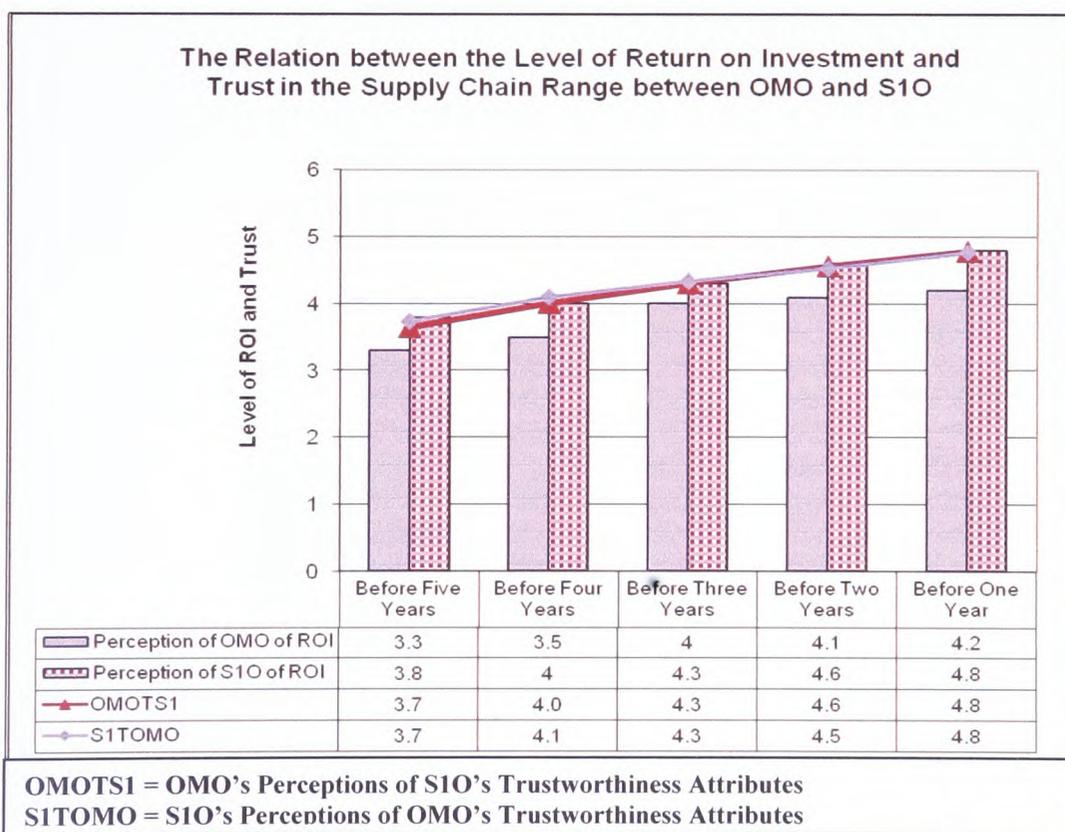
**Graph 5.32: Shows the relation between the level of information sharing and trust in the relationship between OMO and C1O**

The interviewees in OMO and its supply chain parties indicated that information sharing between OMO and its upstream supply chain parties was high and extended to sharing information informally. In relation to the downstream parties, however, the level of information sharing was perceived differently and the interviewees in OMO distinguished between information sharing with C1O and C2O. The interviewees in OMO and in C2O emphasised that OMO and this downstream party extensively share supply chain information with each other and the process of information sharing was indicated to include informal information sharing, where each party shared information with the other without going through formal processes. In the case of the relationship with C1O, in contrast, OMO and C1O had

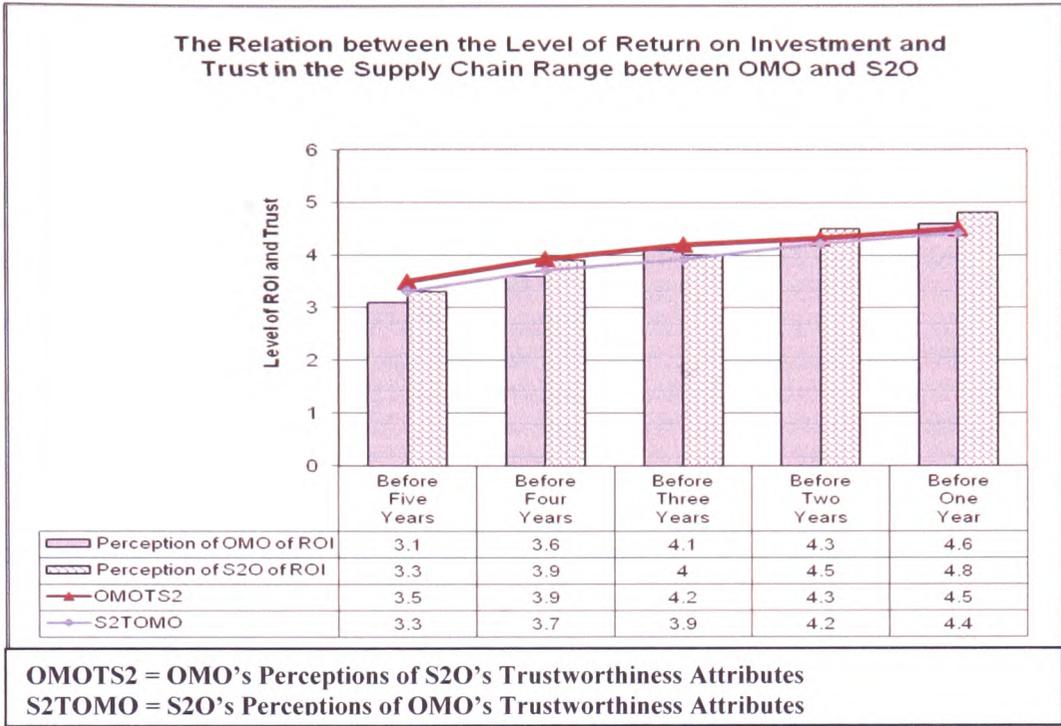
a minimum level of information sharing, bounded by contractual terms and obtained through formal procedures. Hence, the supply chain performance in terms of information sharing is high between OMO and S1O, S2O and C2O and low in the relationship with C1O.

## 5. Return On Investment (ROI)

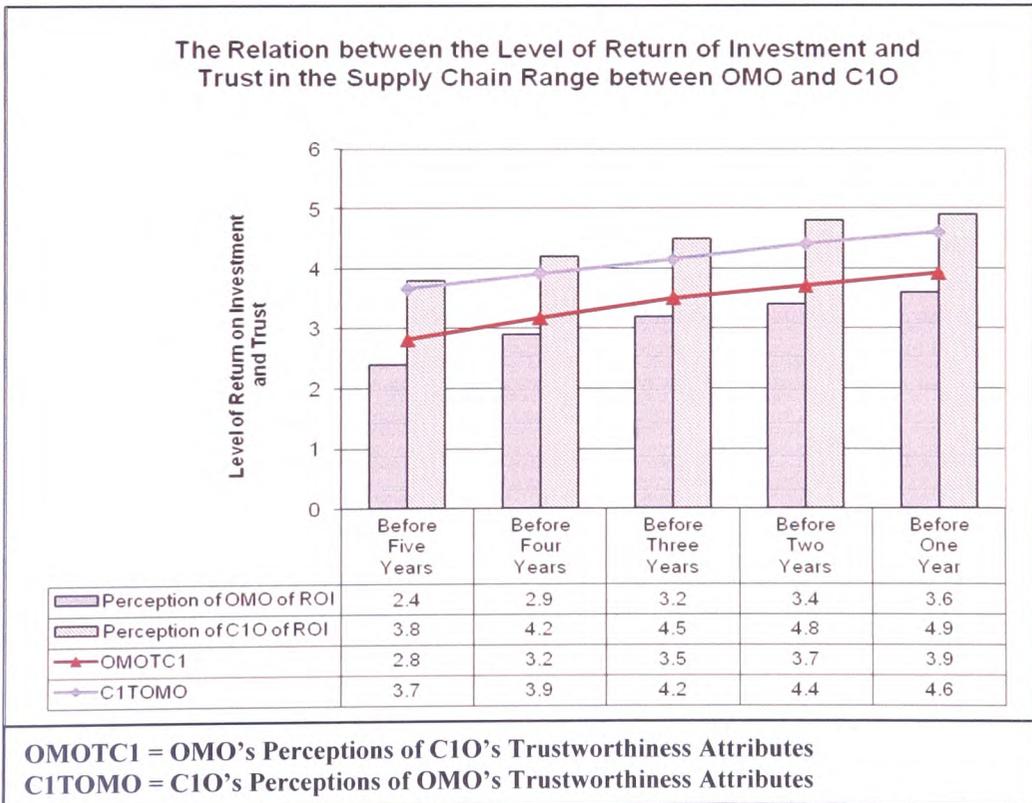
OMO's supply chain ROI was investigated by the researcher to explore the relationship between OMO's supply chain performance in this aspect and the trust in OMO's supply chain relationships. The results of the average analysis of the trust and the supply chain ROI are indicated in the following graphs.



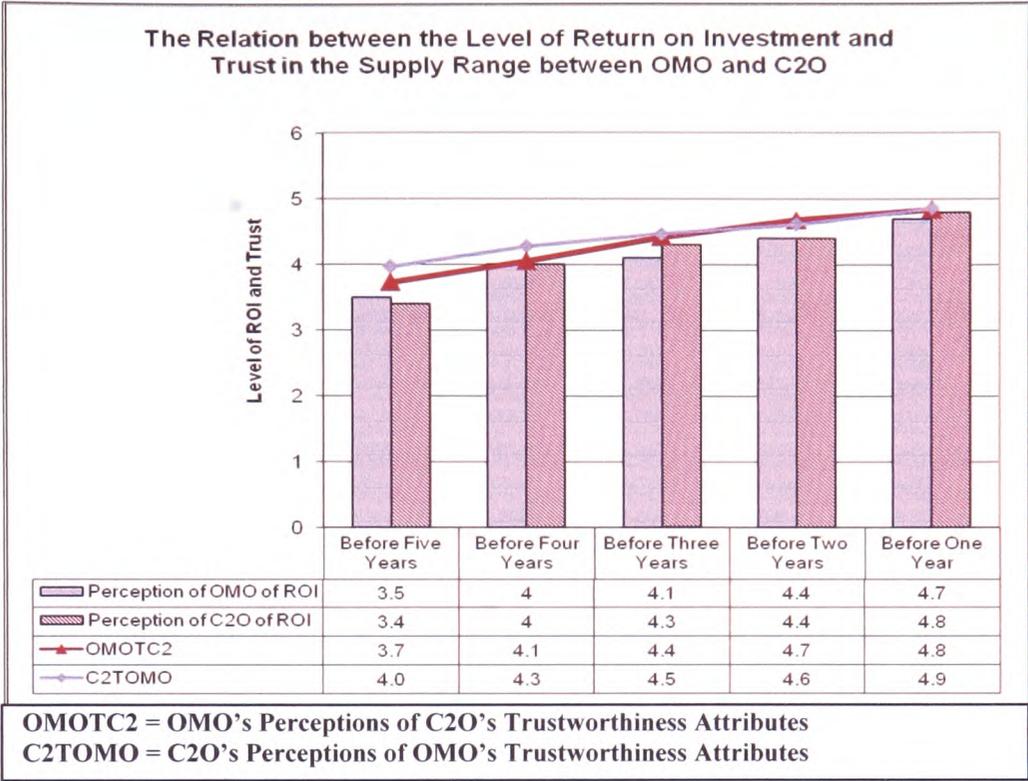
**Graph 5.33: Shows the relation between the level of ROI and trust in the relationship between OMO and S1O**



**Graph 5.34:** Shows the relation between the level of ROI and trust in the relationship between OMO and S2O



**Graph 5.35:** Shows the relation between the level of ROI and trust in the relationship between OMO and C1O



**Graph 5.36: Shows the relation between the level of ROI and trust in the relationship between OMO and C2O**

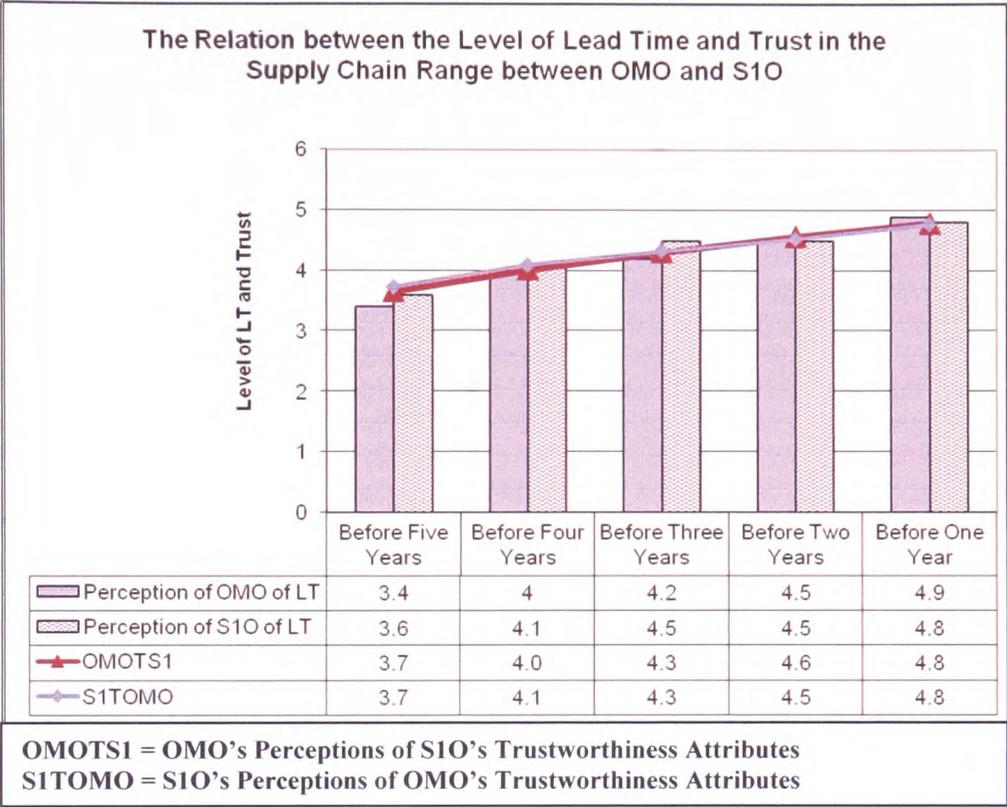
The graphs in this section show that the perception of ROI in the supply chain was high between OMO and its upstream parties and OMO and C2O and incremental increase in the performance had occurred over the five years of the relationship in consistency with the development of trust in the relationships. While, in the case of the relationship between OMO and C1O, in which lower trust perceived by OMO in this relationship, Graph 5.35 indicates that OMO perceived low achievement of ROI in this range of the supply chain, while C1O had perceived higher trust over the five years than that perceived by OMO in this relationship and consequently C1O's supply chain ROI in this range was high and improved with its perception of OMO's trustworthiness attributes.

Based on the data provided by the interviewees in OMO, its ROI was high and improving with time. According to OMO, its high ROI is related to its efficiency on its services and its virtuous relationship with its supply chain parties. However, in respect of OMO's relationship with C1O, the interviewees in OMO indicated the possibility of higher ROI being achieved in this supply chain relationship and referred to the cost saving, discussed above. OMO's upstream parties indicated higher ROI in their supply chain performance. Both S1O and S2O related the high ROI to the supply chain cost efficiency achieved through high coordination and a virtuous relationship with OMO and the downstream parties. OMO's downstream parties also indicated a high level of ROI in their supply chain relationships with OMO. In this respect, C1O related its high ROI in this supply chain to OMO's cost effective and high quality services, often supplied within a satisfactory lead time. On the other hand, the interviewees in C2O related the high level of ROI realised in its business to the virtuous relationship with OMO, which continuously assists it to minimise and save cost, minimises investment risks, and consequently maximises its profit. Therefore, the supply chain has high performance in terms of ROI and this high performance was perceived by OMO and its upstream and downstream supply chain parties, although they envisaged the possibility of improving this performance in relation to the supply chain relationship with C1O.

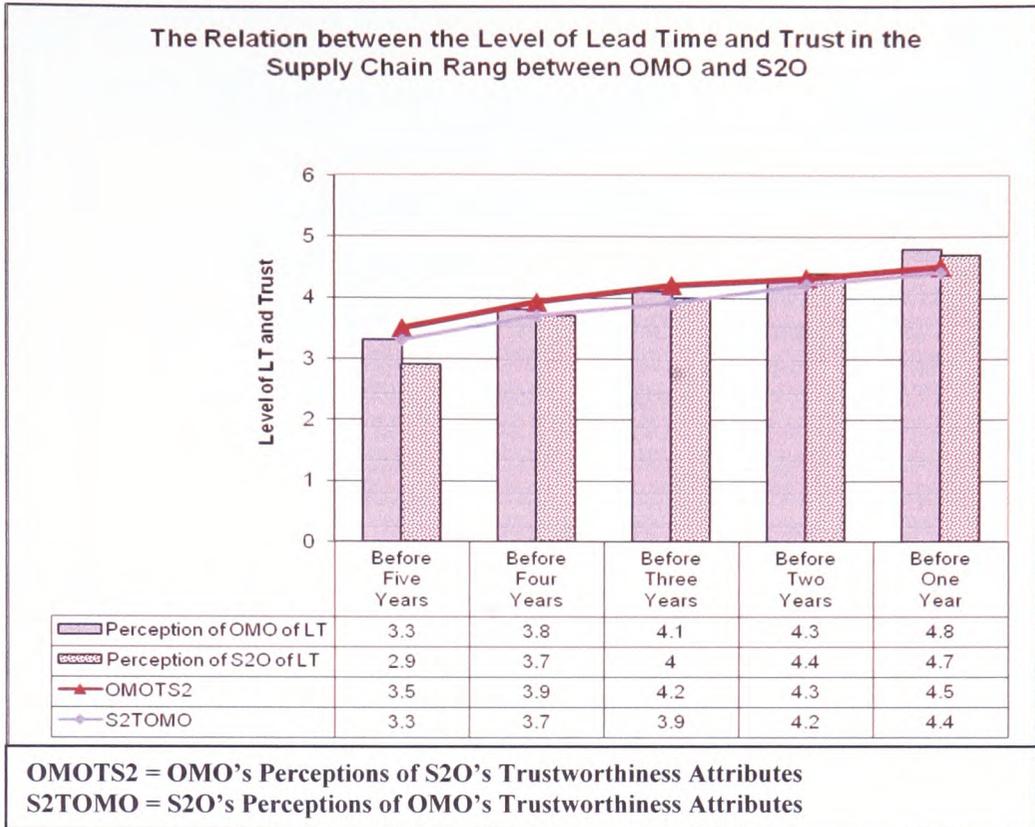
## **6. Lead Time**

The performance of OMO's supply chain lead time in relation to the trust in the relationships was explored and the data has been analysed using average analysis. The results of the analysis indicate interrelated relation between the trust in OMO's relationships and the supply chain performance in the lead time. The relation

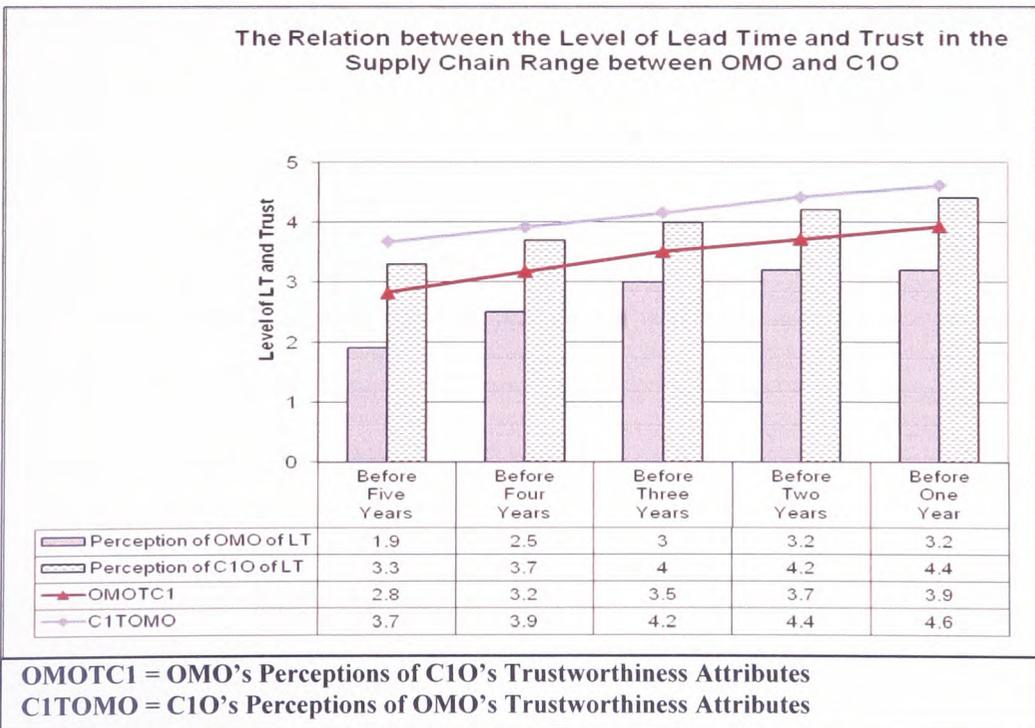
between the trust and the lead time involved in OMO's supply chain is illustrated in Graphs 5.37, 5.38, 5.39 and 5.40 as follows:



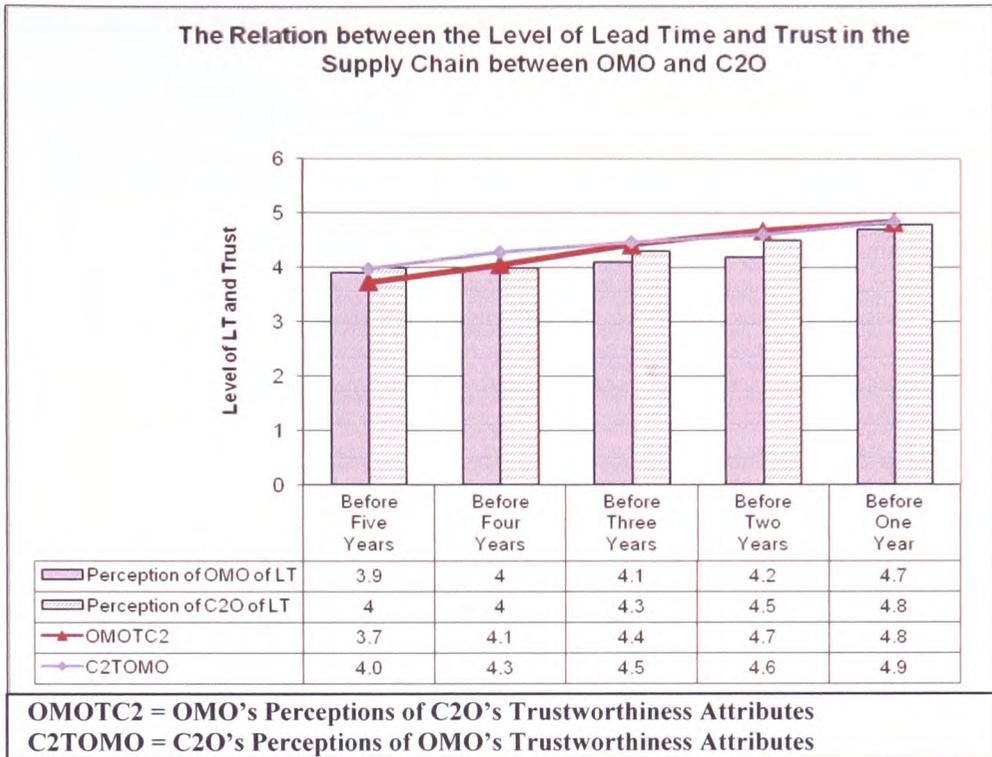
**Graph 5.37: Shows the relation between the lead time and trust in the relationship between OMO and S1O**



**Graph 5.38: Shows the relation between the lead time and trust in the relationship between OMO and S2O**



**Graph 5.39: Shows the relation between the lead time and trust in the relationship between OMO and C1O**



**Graph 5.40: Shows the relation between the lead time and trust in the relationship between OMO and C2O**

The above graphs show parallelism between the trust in OMO's relationships and the supply chain performance in the lead time. As indicated by the graphs, OMO's supply chain performance in the lead time was higher in the relationships with S1O, S2O and C2O and concurrent to the trust identified in each relationship. On the other hand, by referring to the trust level between OMO and C1O, Graph 5.39 indicates low trust level in this relationship and consequent low lead times achieved in the supply chain. In contrast, the trust between OMO and C2O was higher and higher performance in the lead time was perceived in accordance in as indicated in Graph 5.40, in this range of the supply chain.

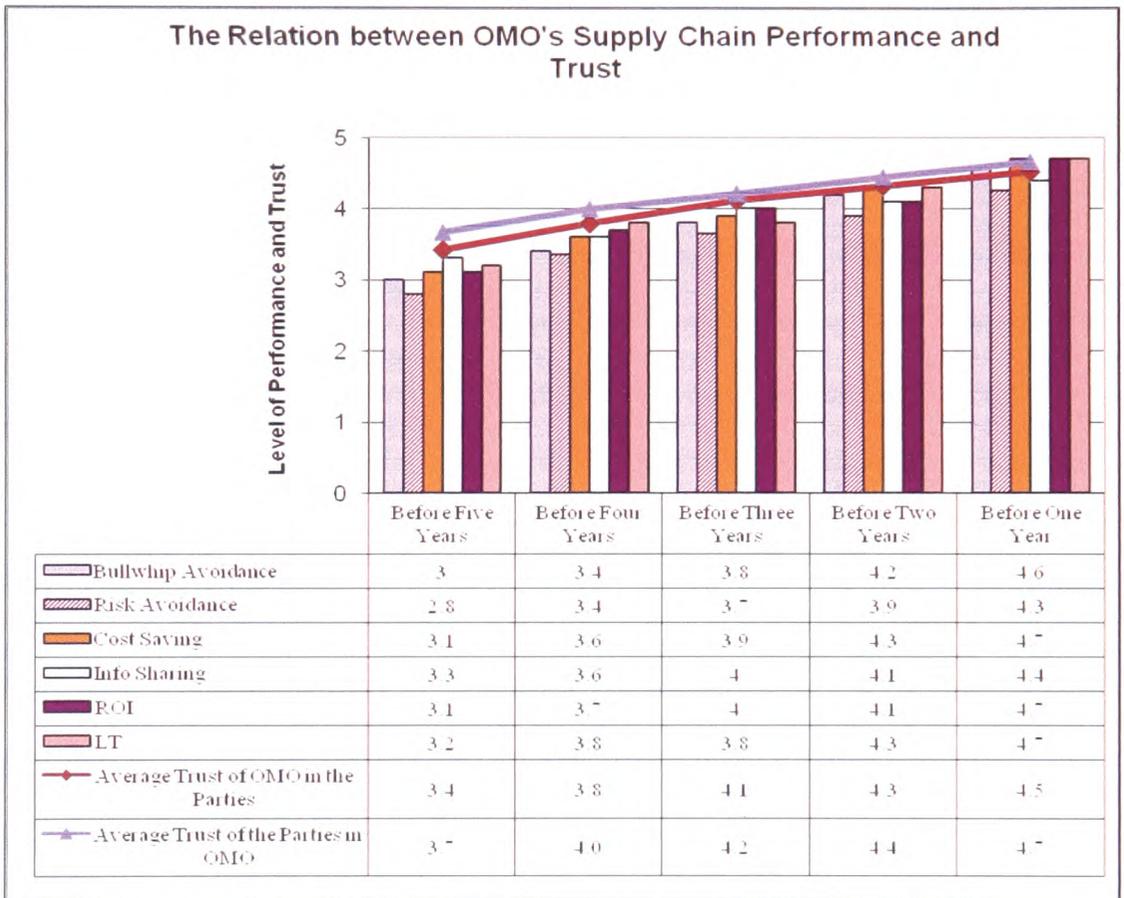
According to OMO and its supply chain parties, the lead time achieved in the supply chain was competitive. All the interviewees in OMO have indicated achievement of appropriate minimal lead time in this supply chain, which satisfies the downstream parties' demanded lead time and sometimes exceeds these parties'

expectations. However, OMO differentiated between its relationships with the two downstream parties, C1O and C2O. The interviewees indicated that OMO's relationship with its upstream parties and C2O were often characterised by low lead time in the supply chain. However, whilst the lead time in its relationship with C1O is often within this party's expectations, based on its demanded lead time, it rarely surpasses beyond its expectations. In this respect, OMO indicated that the standard of relationship with this downstream party made it difficult for OMO to prepare this party's future needs. In this context, the interviewees pointed out that more openness and informal interaction is required by OMO to improve the lead time efficiency in the relationship with this party.

In relation to the downstream perception of OMO's performance in this regard, the interviewees in C1O indicated that OMO's lead time was fair, but that frequent delay could occur when new services are required from OMO. OMO regarded this delay as due to the level of C1O predictability in its supply chain relationship. According to OMO's Logistics Manager and OMO's Logistics Supervisor, sometimes C1O placed unexpected orders with a short demanded lead time, which put OMO under pressure to provide the unexpected services in its supply chain. The parties indicated that this was the reason for the frequent delays perceived by C1O in this supply chain relationship. Concerning the second supply chain party investigated in this research, the interviewees in C2O emphasised that OMO's lead time was very efficient and highly satisfactory. In this context, differences were identified in the downstream parties' perceptions of OMO's performance in regard to the customer perspective in relation to OMO's lead time.

## 7. Overall Performance of OMO's Supply Chain

OMO's supply chain performance had realised improvement concurrently with the development of trust in OMO's supply chain relationships. The overall performance of OMO's supply chain performance in relation to the trust in the supply chain relationships is indicated in the following graph.



**Graph 5.41: Shows the relation between trust and OMO's supply chain performance**

The above graph shows that the overall performance of OMO's supply chain had improved concurrently with the development of trust between OMO and its parties.

Having identified positive relationship between the trust in OMO's relationships and OMO's supply chain performance, the next section will consider discussion of the research questions in the light of the analysis of OMO's case study.

## **5.6 DISCUSSION RELATED TO THE RESEARCH QUESTIONS**

Analyses of supply chain relationship between OMO and its supply chain parties show that different trust relationships exist between OMO and its downstream parties. The analyses indicate a medium level of knowledge-based trust in the relationship with C1O. On the other hand, transference-based trust was found to exist in the relationship between OMO and C2O, which is the second downstream supply chain party. The most important point in this identification of trust between the parties and OMO is the duration of the supply chain relationship. The supply chain relationship between OMO and C1O, as identified by the interviewees in OMO, C1O and C2O, is older than OMO's relationship with C2O. Based on the interviewees' comments and opinions of the relationship, the relationship with this party is a contractual relationship, where C1O ensures its rights in this relationship through the condition stated in the contract. Therefore, the identified trust is not developed to transference-based trust because C1O does not realise the need for such trust relationship. OMO's opinion was supported by C1O's comments on the level of trust required in the supply chain relationship with OMO, when it indicated that the contractual relationship with OMO has the required capability to run its business. In this context, OMO regarded its position in the supply chain as a supplier to C1O as significant because of the ability C1O's possesses, that has great influence on OMO's business. This indicates that the development of trust in this supply chain relationship has not reached to an optimal level because of C1O's reluctance. This clearly indicates that the

development of trust in the relationship is highly dependent on both parties' perception of the requirement of trust development in the relationship. OMO's perception of this requirement, without sharing the perception from C1O's point of view, did not yield an advantage in developing trust in the supply chain relationship. Therefore, in regard to the trust development stages and duration of relationship, highlighted in the literature review of this research in chapter 2, the situation of the relationship between OMO and C1O does not comply with this theory, while the relationships with the other supply chain parties are consistent with the theory. Hence, it can be indicated that trust develops in the supply chain relationship only when there is an inclination from both parties to develop trust. Otherwise, the level of trust in the relationship will remain constant, even though one party shows trust in the other, and trust exchange in the relationship will not improve.

In case of the relationship with C2O, OMO within a shorter period of relationship, than that with C1O, has realised high level of trust with this downstream party. Obviously, this indicates the significant role of the willingness of the parties in the process of developing trust in the supply chain relationship. The analyses of the trust in OMO's supply chain relationships indicate that the willingness of the parties to participate in a trust relationship is the determinant of trust occurrence and development in the relationship. Moreover, as indicated by the analyses of the relationships for trust between OMO and C1O, the reputation of the parties and experience in dealing with party through the past performance perceived by both parties in the relationship help the parties to develop knowledge about each other and calculate consequences of participating in a trust relationship or develop the trust in an existing trust relationship. However, based

on the analyses of OMO's supply chain relationships, the party's reputation and the gained experience and knowledge of the party are not enough to lead to trust development in the relationship unless there is willingness from both parties to develop the trust in the relationship, which is the most significant factor in this respect.

The analysis of OMO's supply chain relationships and the measure of its performance and its supply chain performance in relation to the identified trust will be utilised here to answer the research questions.

**QUESTION 1: *Does the level of trust between supply chain's parties increase in accordance with the length of the supply chain relationship?***

As mentioned above, the analysis of OMO's supply chain relationships indicated that the length of the supply chain relationship has positive effect on the development of trust in the relationship. However, as indicated by the analysis, the willingness of the parties to develop the trust has the major role in this aspect.

**QUESTION 2: *Does the supply chain performance improve with development of trust in the supply chain relationship?***

Based on the analysis of OMO's supply chain performance in relation to the identified trust in OMO's relationships, OMO's supply chain performance had improved in accordance with the trust development in the supply chain relationships. Hence, the analysis of this case study shows interlink between the trust development and occurrence of improvement in the supply chain performance.

**QUESTION 3: *Does the organisation performance improve with development of trust in the supply chain relationship?***

The analysis of OMO's performance in relation to the identified trust in OMO's supply chain relationships indicates that the development of trust had helped OMO to achieve higher performance in its industry. This was supported by the factual data collected from OMO as indicated in Appendix 3. Therefore, the analysis of this case study identifies that the organisation performance improves with the development of trust in the supply chain relationships. Moreover, the analysis of OMO's performance in relation to the trust identified that the transference-based trust has major role in improving the organisation performance.

**QUESTION 4: *Does trust availability in the supply chain relationship minimise supply chain risks?***

The analysis of OMO's case study identified that the trust in OMO's supply chain relationships had helped OMO and its parties to overcome supply chain risks. Therefore, the analysis of this case study supports the notion that the trust in the supply chain relationships minimises supply chain risks.

**QUESTION 5: *Does the existence of trust between supply chain parties represent a source of risk in the supply chain?***

Based on the identified relationship between the trust in OMO's supply chain relationships and OMO's supply chain performance, the analysis indicate that the trust does not represent a source of risk in the supply chain.

**QUESTION 6: *Does trust in the supply chain relationship strengthen the supply chain relationship and prolong the supply chain relationship?***

As early mentioned in this section, the trust identified in OMO's relationships had developed over the length of the supply chain relationships. The analysis indicated that the trust between OMO and its parties had motivated the parties to keep the relationship. Therefore, this case study identifies that the trust in the supply chain relationships prolong the supply chain relationships.

**QUESTION 7: *Does trust between supply chain parties reduces barriers in the processes of information sharing between the parties and lead to better level of information sharing between them?***

The trust in the OMO's supply chain relationships was identified to have significant role in motivating OMO and its parties to share supply chain information. Additionally, the analysis indicated that the higher trust in the supply chain relationships identified in the later years of the relationship had resulted in higher information sharing between OMO and its supply chain parties. The transference-based trust was identified as the most important type of trust that leads to higher information sharing between OMO and the parties. Therefore, this case study provides evidence that the trust in the supply chain relationships improves the process of information sharing between the supply chain parties.

**QUESTION 8: *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the supply chain performance differently from one industry setting to another?***

This question considers the role of different industry settings on the influence of trust on the supply chain performance. To answer this question, then the findings generated from the analyses of the three case studies considered by this research need to be

combined. Therefore, this question will be answered in the overall findings of the research.

**QUESTION 9: *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the organisation performance differently from one industry setting to another?***

Similarly to question 8, this question will be answered in the overall findings of the research.

**QUESTION 10: *If trust has an impact on performance, is the impact of trust between supply chain parties territory oriented, so that when it exists in one territory it impacts the supply chain performance and the organisation performance differently from the trust that occurs between supply chain parties in another territory?***

Territory differences and the role of trust on the supply chain performance and the organisation performance require findings to be generated from the three case studies considered by this research. Therefore, this question will be answered in the overall findings of the research.

## **CHAPTER 6**

### **ANALYSIS OF CASE STUDY 2 THE EMIRATI ORGANISATION (EO) SUPPLY CHAIN**

#### **6.1 INTRODUCTION**

This chapter provides quantitative and qualitative analysis of the research data collected from the second case study considered by this research. In this case study supply chain relationships between an Emirati Organisation (EO) and its supply chain parties were investigated to explore impact of trust on supply chain performance and organisation performance. The chapter starts with an overview of the relationships between EO and its parties and then it proceeds to provide analysis of the investigated supply chain relationships for perception of trust dimensions between the parties. Then both the organisation performance and the supply chain performance will be identified in relation to the analysed and identified trust in the relationships. Factual data maintained from EO and its supply chain parties will be used to identify whether the factual data support or repute the outcomes of the analysis of the research data.

#### **6.2 OVERVIEW OF THE EMIRATI ORGANISATION (EO) AND ITS SUPPLY CHAIN PARTIES**

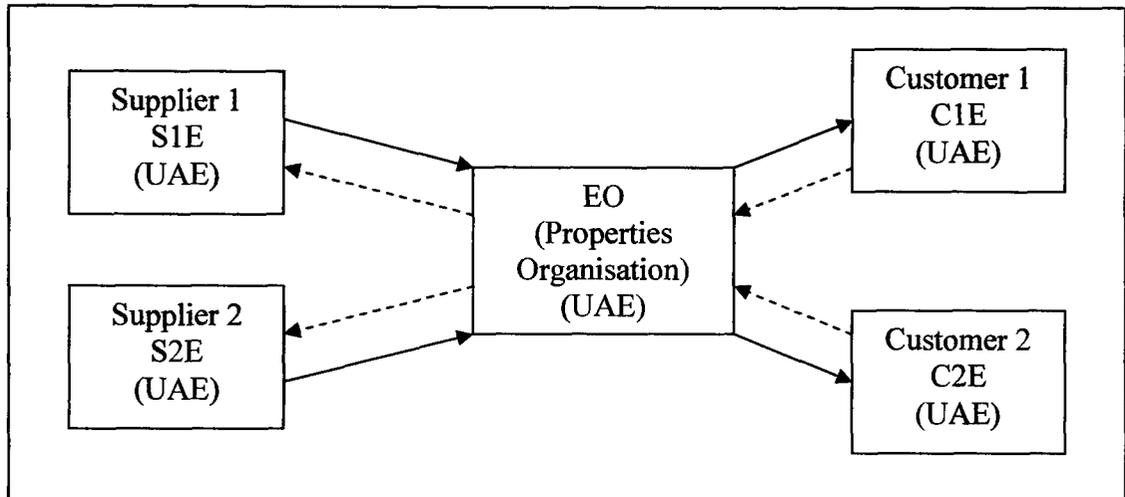
The Emirati Organisation (EO) is a real-estate organisation with headquarters in the United Arab Emirates (UAE) and offices worldwide including Malaysia, Indonesia, Egypt, Europe, and Middle East. The major business of this organisation is mainly establishing and developing new properties characterised by modern styles and luxury. Over a short period of relationships with its upstream and downstream parties, the organisation has managed to position itself in the properties market as a

luxurious properties establisher and seller. To distinguish its properties, EO always equips them with modern technology and luxurious designs and decorations. In this way it aims to fulfil the aspirations of local and international investors who are looking to purchase residential properties or hire or purchase commercial properties.

EO has a major supply chain that involves many suppliers as upstream parties and customers as downstream parties. The suppliers to EO are designers, consultants, contractors and building materials suppliers. These parties are responsible for providing EO with the required designs for establishing its properties, contracting with EO and supplying EO's operations with building materials, tools, equipment, and all its operations' requirement. On the other hand, the downstream parties are organisations responsible for marketing EO's properties and capable to provide financial approvals in the form of loans and mortgages to the final customers/buyers of EO's properties. In this supply chain, EO's downstream parties are responsible for the process of selling EO's properties, which involves signing contracts and finalising all the documentation required in transferring the properties to the ownership of the final customers or consumers.

Since the research aims to investigate trust in the supply chain relationships to identify the impact it has on supply chain performance and organisation performance, four major parties, two upstream and two downstream, in EO's supply chain were selected. The number of parties required for this study was discussed with EO, who suggested the two major upstream parties and the two major downstream parties and facilitated contact with each of the selected parties. All selected parties are Emirati organisations that operate locally and internationally. In

relation to the research aim of investigating the effect of territory on the influence of trust in supply chain relationships, these parties were considered for this research as domestic supply chain parties and the relationships between EO and these parties were studied in the context of their domestic scope. The supply chain relationships between EO and its parties could be imagined as illustrated in Figure 6.1.



**Figure 6.1: EO and Its Supply Chain Parties**

A summary profile of EO and its supply chain parties selected for this study and identification of the positions of those interviewees who performed facilitating roles in the collection of the research data are provided in Appendix 1 of this thesis.

The analyses process followed in the first case study of this thesis will be applied in this case study. The analyses will start by considering the trustworthiness attributes that are responsible for constitution of trust dimensions in EO's relationships. Then, the analyses consider EO's performance in relation to trust between EO and its supply chain parties. Finally, the analyses will explore EO's supply chain performance in relation to the identified trust in its supply chain relationships.

### **6.3 ANALYSIS OF THE CASE STUDY**

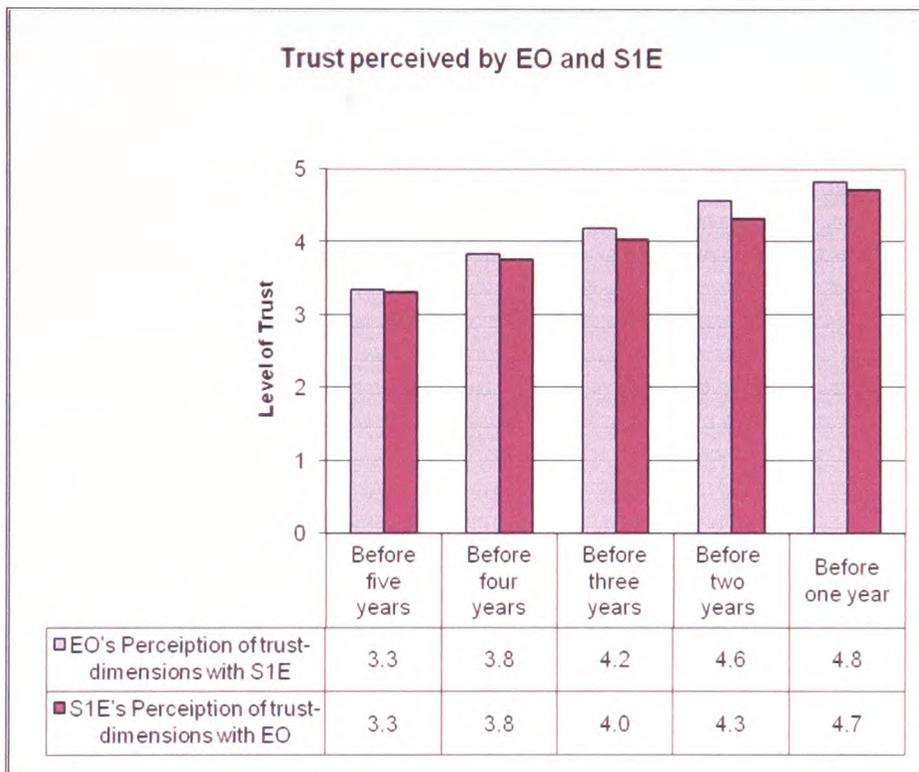
The analysis will take into consideration EO's perception of trust in the relationship with each party and the parties' perception of EO's trust will be considered in accordance. Then, the section proceeds to provide analysis of EO's performance in relation to the identified trust in its supply chain relationships. After that, the section will consider analysis of EO's supply chain performance in regard to the trust in EO's supply chain relationships with the considered supply chain parties.

Regarding the analysis of EO's supply chain relationships, through the investigation of the supply chain relationships in this case study, EO and its supply chain parties were found to reflect perceptions of trustworthiness attributes that were deemed and identified to form the trust dimensions in the supply chain relationship. The three trust dimensions, integrity, competency and benevolence, that were identified in chapter 2 will be examined for both upstream and downstream parties. The analysis begins with EO's relationships with its upstream parties and then analysis of the relationships between EO and its downstream parties will be considered in accordance. The analysis here aims to determine the overall trust in the supply chain relationships between EO and the considered supply chain parties. Therefore, besides EO's perception of the relationship with each party the parties' perceptions will be taken into consideration to identify the overall trust in exchange in the relationship. The analyses of trust from each party perspective are clarified in details in Appendix 2.

### 6.3.1 Analysis Of Trust In The Supply Chain Relationships Between EO and Its Upstream Parties

#### 1. Overall Trust In the Supply Chain Relationship Between EO and S1E

The average analysis of the research data for trust in EO’s supply chain relationship with S1E has resulted in the overall trust illustrated in Graph 6.1.



**Graph 6.1: Shows the overall trust in the relationship between EO and S1E**

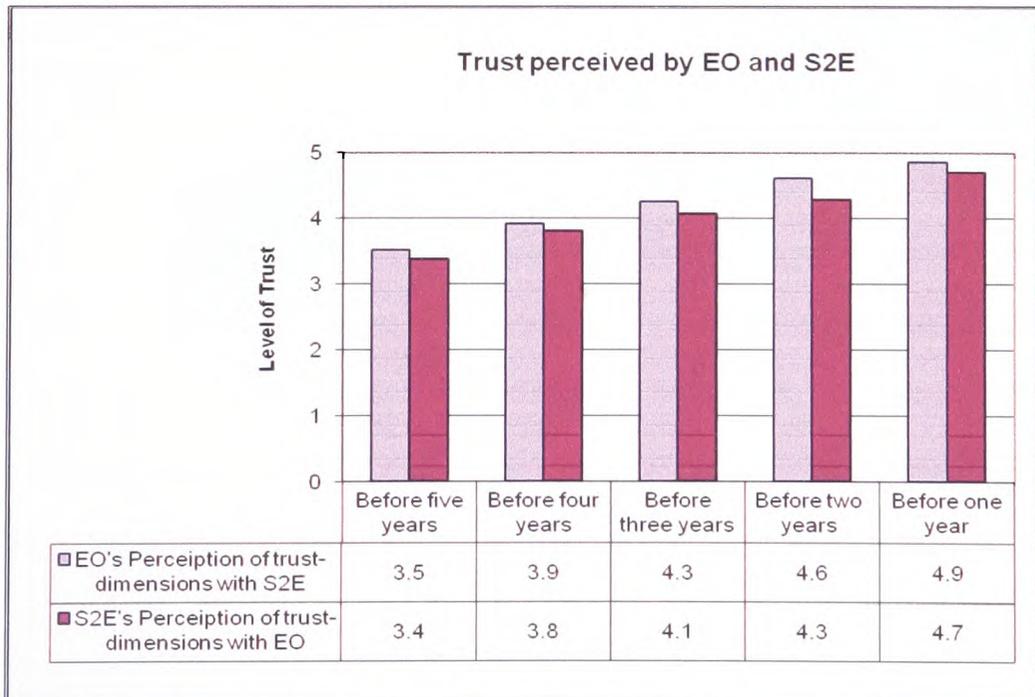
The analysis of the supply chain relationship between EO and S1E led to identification of existence of calculus-based trust, knowledge-based trust and transference-based trust in this relationship. Refer to Appendix 2 for details of the analysis of the supply chain relationship for perceptions of trust dimensions between EO and this upstream supply chain party. As indicated in the above

graph, over the five years of the supply chain relationship, EO and S1E remained exchanging high level of trust with incremental increase over the years with higher perception from EO's point of view.

Having identified the existence of mutual trust between EO and S1E that involves the calculus-based trust, the knowledge-based trust and the transference-based trust, the following section will consider analysis of the supply chain relationship between EO and its second upstream party for perception of trust dimensions.

## 2. Overall Trust in the Supply Chain Relationship between EO and S2E

The trust in the relationship between EO and S2E was investigated and the data analysis yielded overall trust in the relationship as illustrated in the following graph.



**Graph 6.2:** Shows the overall trust in the supply chain relationship between EO and S2E

The analysis of the supply chain relationship between EO and S2E identified mutual perceptions of the three trust dimensions of trust. Therefore, calculus-based trust, knowledge-based trust and transference-based trust are identified in this supply chain relationship. Refer to Appendix 2 for further details of the supply chain relationship analysis.

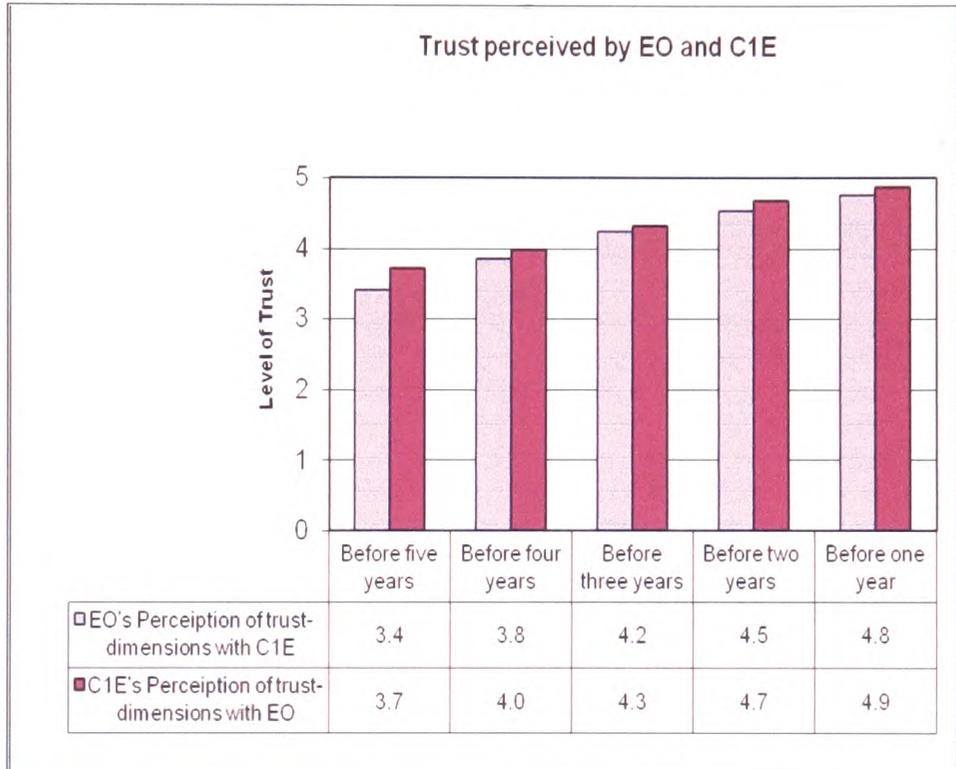
So far, the supply chain relationship has been analysed for perception of trust between EO and its upstream supply chain parties. Since the supply chain contains downstream parties to EO, the next section considers the analysis of the relationship for perception of trust between EO and its downstream parties.

### **6.3.2 Analysis Of Trust In The Supply Chain Relationships Between EO and Its Downstream Parties**

The relationship between EO and its downstream supply chain parties is the second link between EO and its parties in this supply chain. The researcher investigated the relationships from EO's point of view and from each downstream party's point of view. The investigation of trust with the downstream parties aimed to clarify the trust in this portion of the supply chain in order to reflect on the trust in the whole supply chain relationship. The analysis of the collected research data starts in this section with analysis of the relationship between EO and C1E and then it proceeds to analyse the relationship between EO and C2E and reflects on each party's perception of the three types of trust dimensions.

## 1. Overall trust in the supply chain relationship between EO and C1E

The average analysis results of the overall trust in the relationship between EO and C1E are demonstrated in Graph 6.3 below.



**Graph 6.3:** Shows the overall trust in the supply chain relationship between EO and C1E

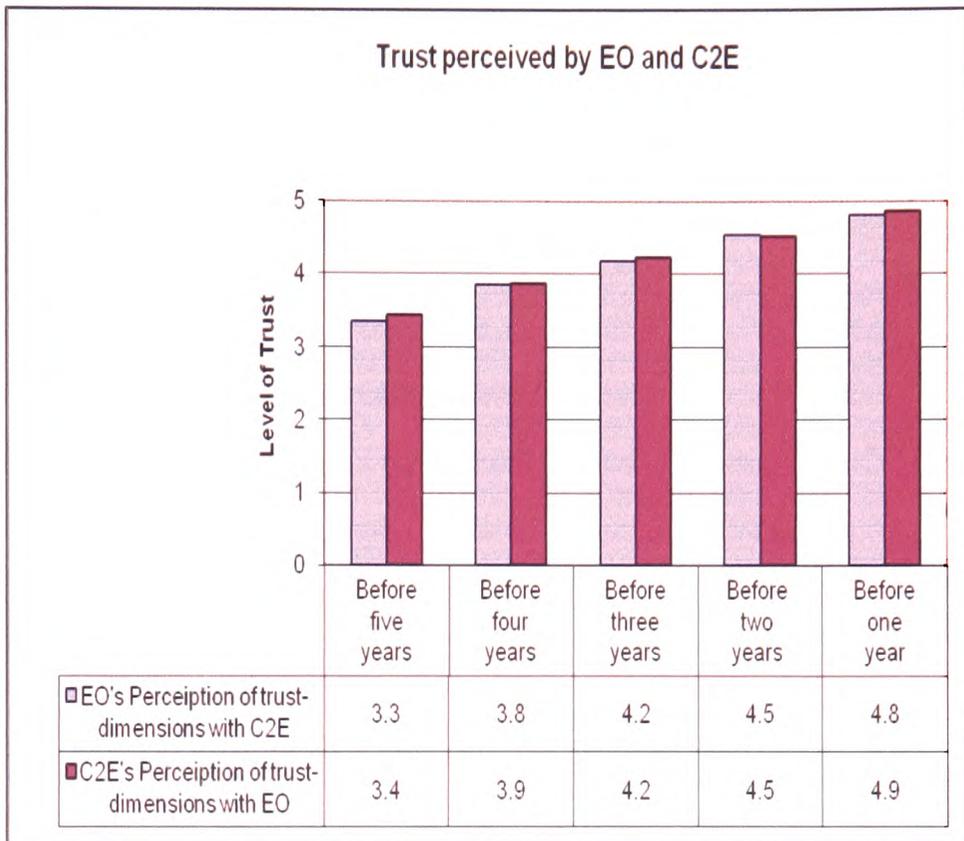
As indicated in the above graph, EO in its supply chain relationship with the first downstream party selected for this study indicated a valued supply chain relationship. In this aspect, the interviewees in EO highlighted the significant beneficial contribution of C1E in this supply chain relationship. In relation to the perception of C1E's integrity the relationship, the interviewees emphasised perceptions of attributes related to this trust dimension. Also the interviewees emphasised C1E's competency and benevolence in this supply chain

relationship. The relationship was investigated from C1E's point of view for perception of EO's integrity, competency and benevolence in this supply chain relationship. All the interviewees emphasised the perceptions of the three trust dimensions in the relationship with EO throughout the supply chain relationship. Therefore, calculus-based trust, knowledge-based trust and transference-based trust are identified in their supply chain relationship. As indicated in Graph 6.3, the perceptions of the trust dimensions were increasing with the length of the supply chain relationship, which identifies development of trust between EO and C1E over the length of the supply chain relationship. Refer to Appendix 2 for more details about analysis of each trust dimension in this supply chain relationship.

Having analysed the relationship between EO and its first downstream party, the next section will analyse the relationship between EO and its second downstream party to explore perceptions of trust dimensions.

## **2. Overall Trust in the Supply Chain Relationship between EO and C2E**

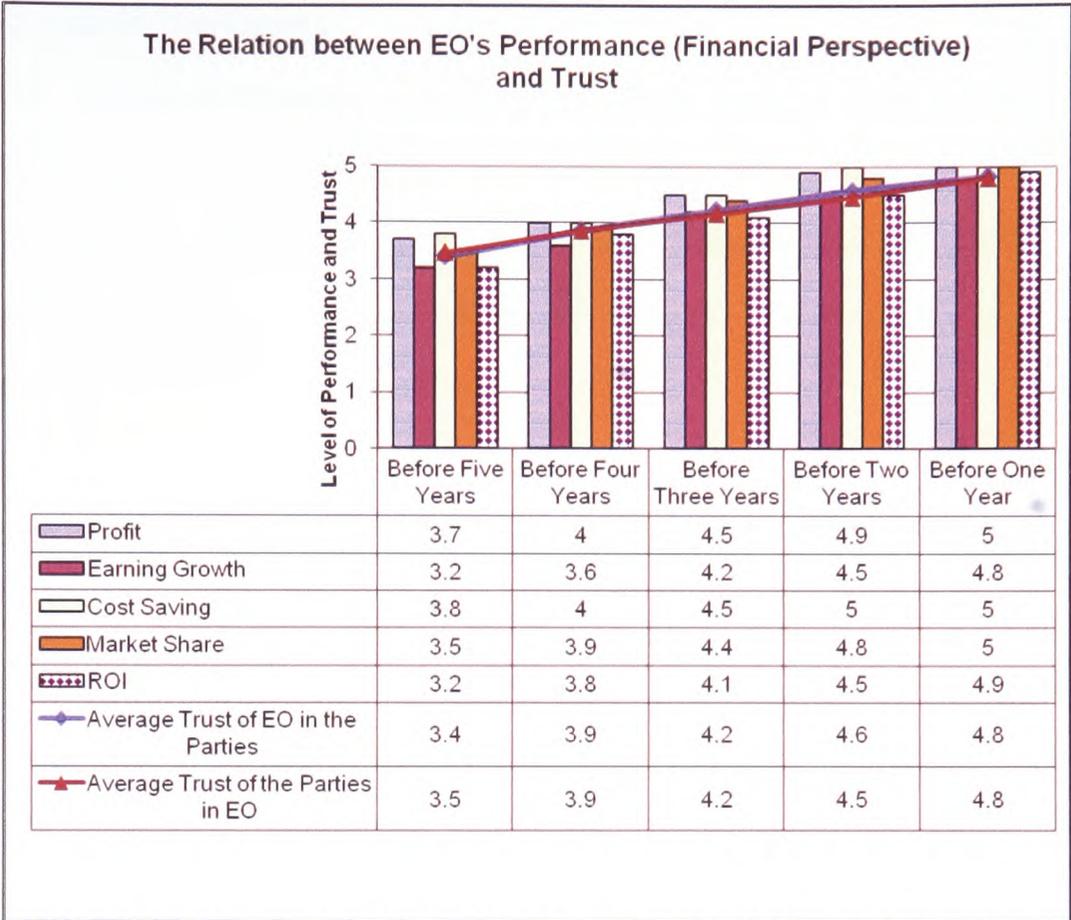
The average analysis results for the overall trust in the supply chain relationship between EO and C2E are illustrated in Graph 6.4.



**Graph 6.4:** Shows the overall trust in the supply chain relationship between EO and C2E

As indicated in the above graph, both EO and C2E perceive trust in the supply chain relationship between them. The analysis of the research data indicates mutual trust exists between EO and C2E that involves the perception of integrity, competency and benevolence from each party perspective. Refer to Appendix 2 for detailed analysis of the supply chain relationship for perception of trust dimensions.

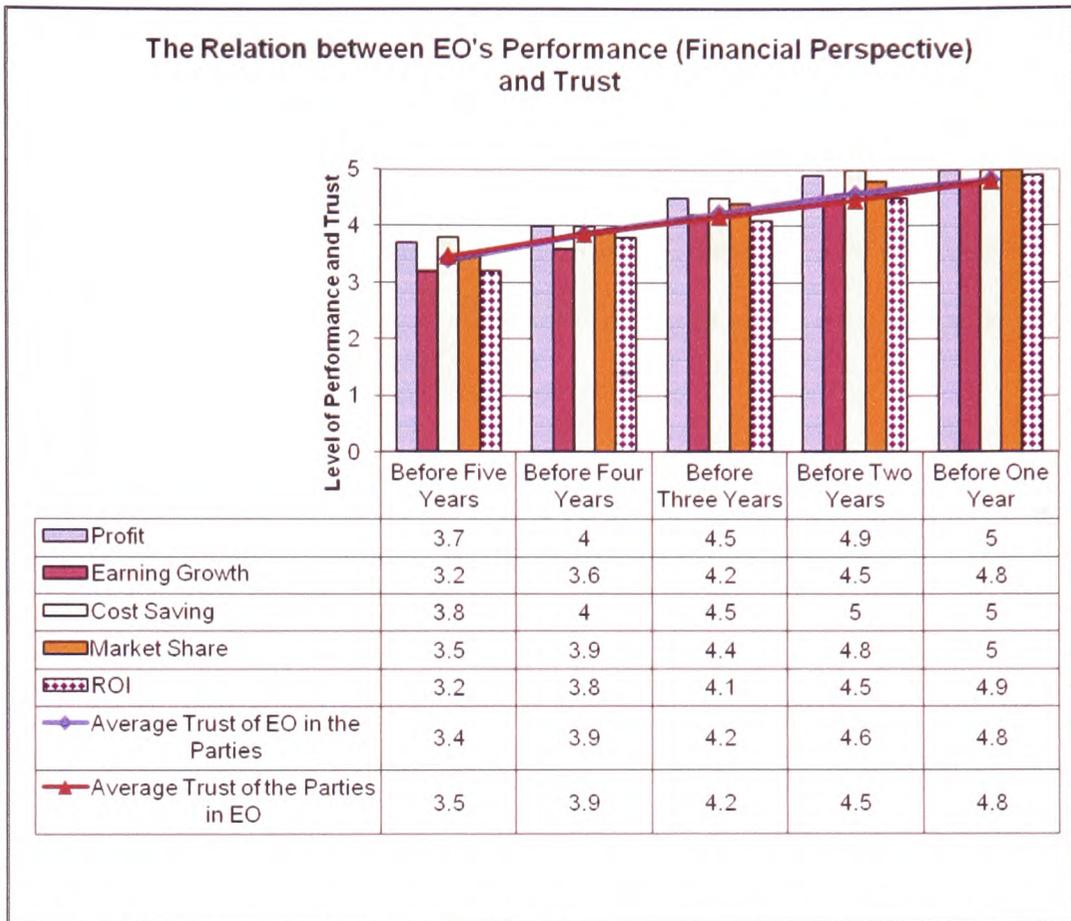
The above graph indicates exchange of mostly similar trust between EO and C2E in this supply chain relationship. The improvement of the trust in relationship emphasises the willingness that EO and C2E had showed to develop the trust in this relationship.



**Graph 6.5: Shows EO's Financial Performance in relation to the trust in EO's relationships**

As indicated in the above graph, EO's financial performance had improved over the five years of the supply chain relationships in a consistent manner with the trust development in its supply chain relationships. Factual data collected by the researcher, as indicated in Appendix 3, emphasise the improvement of EO's financial performance over the specified financial period. Hence, the factual data support the analysis of the research data that concerns EO's financial performance in relation to trust. Consequently, this proves the reliability of the research data collected from the interviewees.

Each of the financial performance measures could be explained as follows:



**Graph 6.5: Shows EO's Financial Performance in relation to the trust in EO's relationships**

As indicated in the above graph, EO's financial performance had improved over the five years of the supply chain relationships in a consistent manner with the trust development in its supply chain relationships. Factual data collected by the researcher, as indicated in Appendix 3, emphasise the improvement of EO's financial performance over the specified financial period. Hence, the factual data support the analysis of the research data that concerns EO's financial performance in relation to trust. Consequently, this proves the reliability of the research data collected from the interviewees.

Each of the financial performance measures could be explained as follows:

### **a) Return On Investment**

EO's Return on Investment (ROI) was investigated through interviewees' opinions about EO's ROI within the last five years of the relationship. As mentioned before, the five years are specified in this research to indicate differences in the performance in relation to the length of the relationship and the trust identified in the relationship.

The interviewees in EO emphasised that consistent growth in EO's ROI has been maintained during the last five years of the supply chain relationship. In this respect, EO's Finance and Risk manager stressed that EO had achieved higher ROI than was achieved in previous years because of the almost perpetual low operating cost incurred in the supply chain and low variable cost achieved through high cooperation with the supply chain parties. Meanwhile there was a gradual increase in the demand occurred in the market, which leveraged property prices and assisted EO to realise this gradual high ROI. This participant referred to EO's experience, skills and successful relationships with its parties as the major contributors to this achievement. This fact was emphasised by all the interviewees in EO. Concerning EO's investments, EO's Sales Manager pointed to the increase in the property market prices due to the high demand represented by the huge number of investors in real estate and the high profit achieved in EO's operations, resulting in high return on sales and consequently contributing to steady growth in EO's ROI.

The sales manager pointed out that the cooperative relationships between EO and its upstream and downstream parties have a great influence on EO's ROI. The high level of coordination in the relationships has helped to expedite

investment which in turn facilitated execution of projects earlier than planned and resulted in faster return from each project or investment. Concerning EO's ROI, EO's Projects Manager mentioned that

*“In EO's business each project represents investment and ROI in real estate depends on the market price controlled by supply and demand and the project cost controlled by prices of raw materials, labour cost, machinery cost, and period required for executing the project. In this supply chain, EO has achieved high ROI and EO's financial data indicates this fact and illustrates attainment of continual ROI growth.”*

In one way or another, all the interviewees in EO stressed the constant growth of EO's ROI. This indicates EO's high performance in this regard. The opinion was supported by the organisation's financial data investigated during the research stage. Therefore, over the five years selected for studying EO's performance, it had achieved high performance in terms of ROI.

#### **b) Earnings Growth**

EO's earnings growth or growth in EO's net income was investigated as another measure of EO's performance. Interviewees' opinions, supported by EO's financial data, indicated that EO's earnings were high and that EO had achieved higher earnings growth over time. The interviewees indicated causes of the earnings growth or the growth in the net income achieved by EO. According to EO's Finance and Risk Manager, the earnings growth achieved in this supply chain was supported by existence of financial factors in the market related to

gradual increase in property prices and high international and domestic demand in the region. This manager indicated a smooth earnings stream based on certainty of demand for EO's properties and increase in property prices associated with almost fixed construction cost. EO's Sales Manager noted this point and related the high earnings growth achieved by EO to the high volume of market transactions and major investment in real estate, such that EO's sales had increased and property prices had risen over time.

EO's Retail Manager emphasised EO's differentiation of its properties through added value in terms of design and location, high technology installations in the properties including automated security and safety devices and the distinctive features attached to the properties. These were said to have great influence in achieving high earnings and consequently realisation of earnings growth over time. Generally, all the interviewees in EO stressed EO's high performance in the earnings growth.

**c) Profitability**

EO's profitability was investigated and the interviewees in EO indicated high performance in this aspect. The interviewees highlighted similar aspects related to the contribution of ROI and earnings growth in explaining EO's profitability. They all stressed that EO had been able to earn profit based on its financial forecasting and planning and sometimes beyond what was forecast. EO's Finance and Risk Manager viewed EO's profitability as attributable to the right selection of upstream and downstream parties, who greatly contributed to improvement of operation quality and minimised EO's operating cost, which resulted in growing revenue realised by EO associated with decreasing

operating cost. Moreover, the interviewees pointed to EO's capital, which was used in this supply chain to play major role in constructing or developing properties in line with consumers' desires. This allowed EO to achieve high return on capital or return on investment, as highlighted in a previous section. In this respect, all the interviewees emphasised EO's high performance in terms of achieving high profitability in this supply chain.

**d) Cost Saving**

EO's performance in achieving cost saving was investigated to obtain insight about EO's savings in its operations in relation to the supply chain relationships. The interviewees in EO emphasised achievement of high cost savings in EO's business related to its administrative and operational costs. Most of the interviewees related this achievement to experience in the supply chain relationships and the reduction of cost through high quality operations. A slight increase in building materials cost was indicated by the interviewees but, compared to other organisations in the market, EO had achieved high cost saving in its business. The interviewees considered this achievement would have been impossible without EO's successful relationship with the supply chain parties.

**e) Market Share**

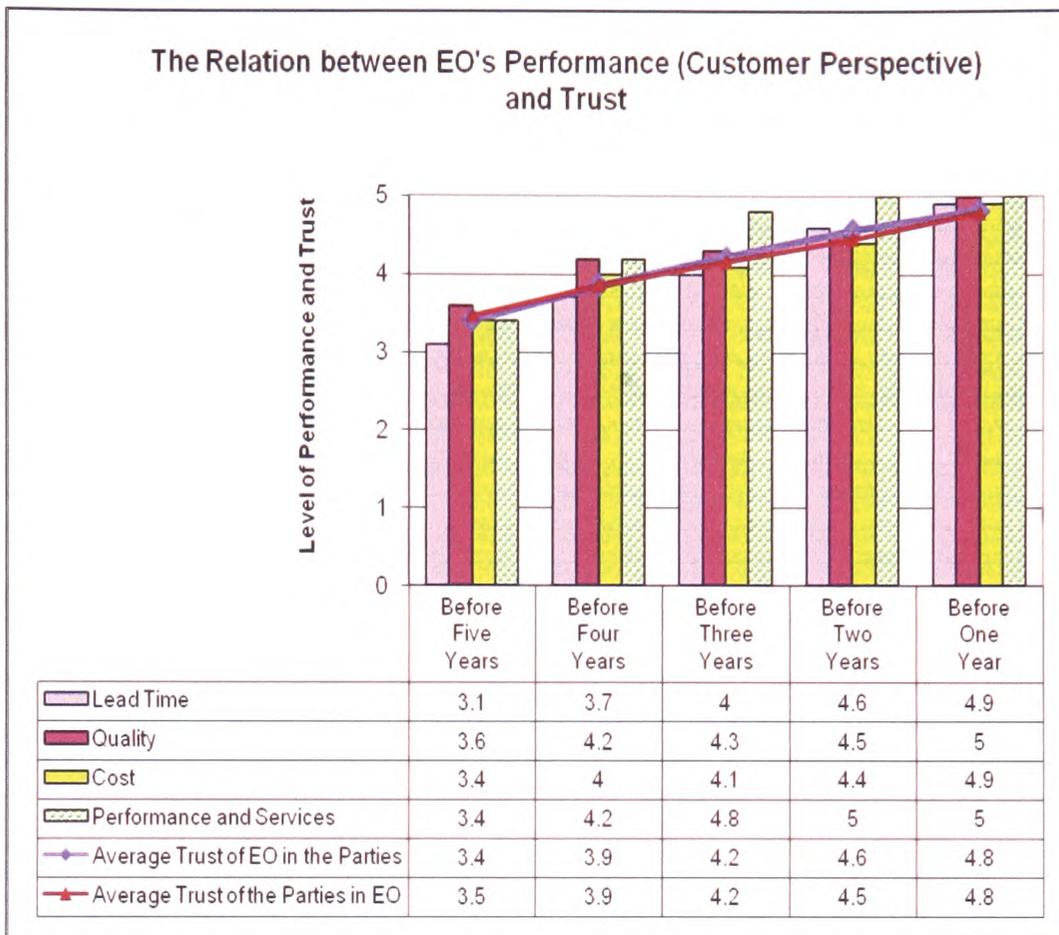
Market Share was another performance measure considered. The interviewees emphasised the high market share gained by EO. All the interviewees stressed that EO's market share was high and it had achieved advancement in this aspect over time. The interviewees referred to EO's huge projects established in the area and the high demand in the market for its properties and the large number

of transactions it had realised in the market. In clarifying EO's performance in this respect, the interviewees compared EO's market share with other organisations in the market and noted the high market share performance achieved by EO. In relation to the five-year period selected for studying this supply chain relationship, the interviewees stressed EO's improving performance over time. They viewed EO's well-built business relationship with its supply chain parties as a cause of this achievement. In this regard, the interviewees indicated that EO had been able to acquire higher market share through satisfying its customers. These satisfied customers outspread EO's reputation and this consequently resulted in potential customers having confidence to deal with it, which enabled EO to attract new customers to its business. Looking at EO's performance in terms of market share, EO's performance was identified as high.

Following the favourable evaluation of EO's performance from the financial perspective, the next section will consider EO's performance based on the customer perspective.

## **2. Trust and EO's performance From Customer Perspective**

EO's performance in regard to the customer perspective was investigated and EO's performance in this perspective in relation to the identified trust in EO's supply chain relationships is illustrated in Graph 6.6.



**Graph 6.6:** Shows the relation between the trust in EO's supply chain relationships and EO's performance in the customer perspective

As illustrated in the above graph, EO's performance in the customer perspective had improved consistently with the development of trust in EO's supply chain relationships.

**a) Lead Time**

EO's performance in lead time as a customer concern was investigated. The interviewees in EO had emphasised satisfactory lead times achieved by EO. They indicated that the lead time implies the execution of the projects within a specified period in accordance with the planned execution period and in case of

secured deals with consumers then the properties should be completed within periods that satisfy the new owners. In classifying EO's lead time as suitable time to satisfy its customers' requirements, the interviewees pointed to market research conducted by EO that supported this view. In addition, they identified EO's lead time as competitive and improving over the period of the supply chain relationship. However, according to the interviewees, EO's lead time is not fixed as projects vary in structure, height and design, and often each project has its own requirements that need to be fulfilled in different ways from the previous projects, but all the projects share the basic art and science of construction. In this respect, the lead time was clarified to be related to the planned execution period and any deviation from it indicates failure to fulfil the planned lead time. Concerning EO's performance in this regard, the interviewees highlighted that EO achieved better lead times than other organisations in the market, which implies that EO's performance is high in this respect.

#### **b) Quality**

Quality regarding EO's performance was considered in relation to the quality of EO's properties. The interviewees in EO emphasised the high quality of EO's properties based on skilled engineering design, up to date construction techniques and conformity accordance with market standards in this industry. They pointed to the important role of the upstream supply chain parties in this respect and indicated that those parties were quality certified and worked in accordance with the quality standards. Furthermore, the interviewees stressed customers' gratitude for EO's quality based on feedback received from them via EO's downstream parties. In respect of the supply chain relationships between

EO and its parties, the interviewees emphasised the achievement of high quality in EO's properties throughout the supply chain relationship. Therefore, EO's performance in terms of the quality customer perspective is identified as high.

**c) Cost**

EO's property cost represents the other perspective of customers taken into consideration. In terms of cost, the interviewees indicated that EO's properties are unique because they are luxurious and mostly target high class customers. Based on this categorisation, the interviewees indicated that EO's costs were reasonable, which allowed EO to offer properties at prices perceived as excellent by the buyers of its properties. Therefore, EO's performance in this aspect is high. However, the interviewees' emphasised increase in property prices due to high demand in the market which resulted in a rise in customer cost over time. Although this phenomenon occurred across the market, in relation to other organisations in the market, EO's customer costs remained reasonable and competitive. EO had conducted market research to investigate its customers perceptions of its prices and this research indicated that EO provided its properties at affordable prices associated with added value that attracted its customers. Also, the research indicated its high performance in this aspect among competitors in the market. EO's downstream parties supported this perception and referred to the quality of EO's properties, their luxurious styles and popular locations as the reasons for this perception. Overall, EO's performance in this respect was said by the interviewees to be high.

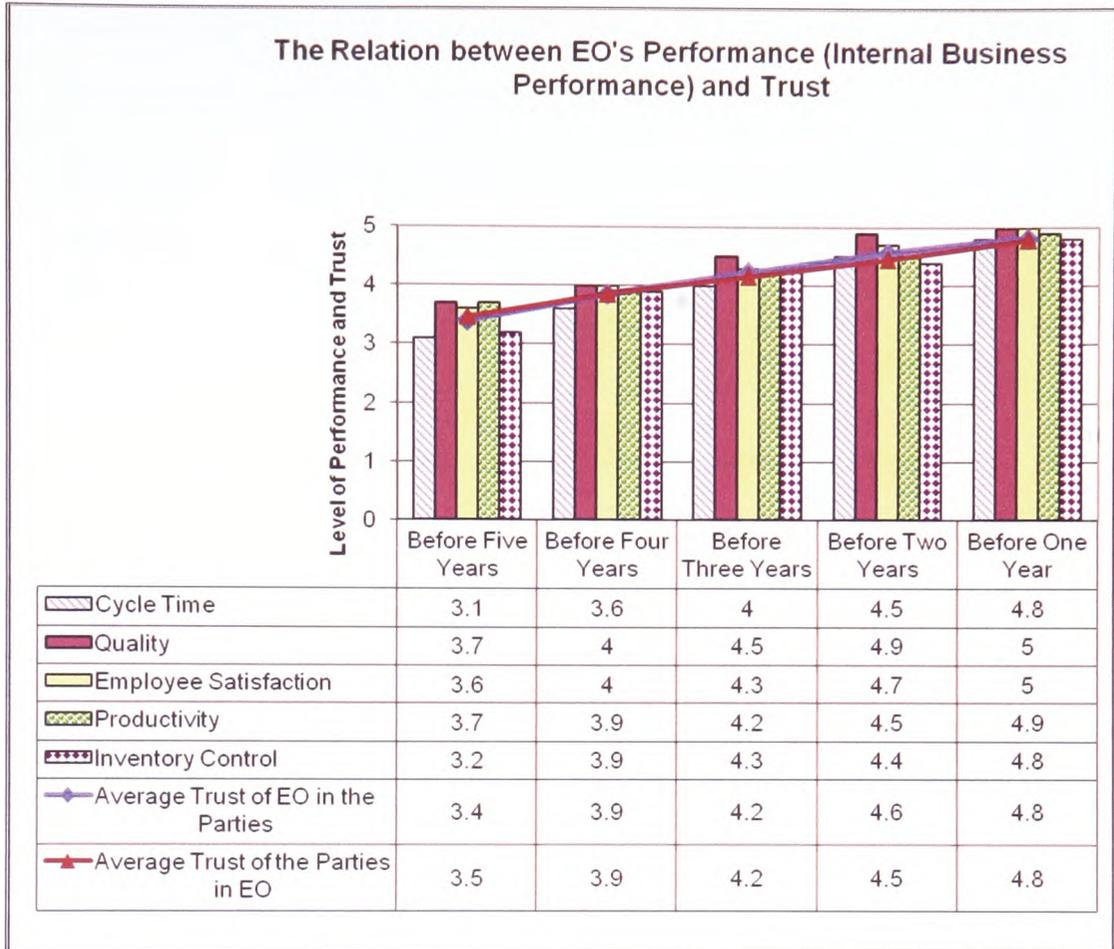
#### **d) Performance and service**

EO's performance in regard to supply of its properties and services was investigated. The interviewees in EO indicated this performance through the construction quality of EO's properties, while services were evaluated based on consumer/buyer's comfort after purchase of the property. In this regard, the interviewees in EO and both C1E and C2E emphasised that EO's customers or the buyers of EO's properties commended the high construction quality in EO's properties and EO's services satisfied the targeted market segment. C1E and C2E both stressed that EO's properties were rated by the consumers as deluxe properties that provide a high level of comfort to their final owners. Therefore, EO's performance in terms of performance and service is high and satisfies the targeted customers.

After the customer perspective has been indicated and EO's performance in this aspect has been identified, the next section considers the internal business perspective of EO's performance.

### **3. Trust and EO's Performance From Internal Business Perspective**

EO's internal business performance was investigated by the researcher to indicate the impact of trust on this perspective. The average analysis of EO's internal performance in relation to the identified trust in EO's relationships has produced the results illustrated in Graph 6.7.



**Graph 6.7: Shows the relation between EO's internal business performance and the trust in EO's supply chain relationships**

The above graph shows concurrent relationship between the development of trust in EO's supply chain relationships and EO's internal business performance.

**a) Cycle Time**

EO's cycle time was investigated to indicate its performance in this respect. Based on the interviewees' perceptions of EO's cycle time, EO has achieved very efficient cycle time in its operations, which were regarded as competitive in relation to its competitors. Both EO's Projects Manager and EO's Property

Manager emphasised the significant role of the skilled relationship with the upstream parties in achieving this performance. The other interviewees stressed this role and, in addition, highlighted the quality of the operations and the skilled labour force as major contributors in this performance. All the interviewees agreed about EO's high performance in respect to the cycle time.

#### **b) Quality**

Quality related to EO's internal performance was explored through the interviewees' opinions and perceptions. The participants pointed to quality in EO's internal business in its administrative and operational functions. The interviewees highlighted the importance of quality in EO's internal business performance and referred to EO's quality as the step door to customer satisfaction.

The interviewees emphasised the quality of EO's administrative functions through EO's continual implementation of advanced technologies to support EO's administrative tasks in regard to data storage, filing, interlinking the organisational departments, payroll systems, adopting advanced programs in finance and accounting and implementing automated operations monitoring systems.

With regard to the quality of EO's properties, the interviewees emphasised that EO provided lifestyle properties. This perception was supported by opinions of the consumers/buyers, obtained through market surveys that obtained customer feedback on the quality of EO's properties. The participants indicated that EO integrated its quality in both administration and operations to provide good

quality properties in a manner that satisfied its consumers and enhanced EO's productivity through waste minimisation and cost saving. The participants indicated that EO achieved high quality in its operations based on the skills of its upstream parties, the experience and skills of its personnel in addition to strong liaison with its downstream parties, which involved exchange of customers' information, needs and feedback. In one way or another, the participants stressed that EO's internal business was run with high quality which was reflected in its properties and acknowledged by its customers.

**c) Employee Satisfaction**

Employee satisfaction was explored to indicate EO's performance in satisfying its employees. In order to identify EO's performance in this respect, interviews were conducted with both managers and personnel in EO. The interviewees emphasised the perception of employee satisfaction and pointed to EO as a model in the market, especially in the real estate field. In this respect, EO's Projects Manager mentioned that EO satisfied its customers because by satisfying its employees it satisfied its customers, consistent EO with belief in the principle that satisfied employees are more likely to have desires to achieve the organisation goals and to accomplish their tasks with quality. Those of EO's personnel who were selected to participate in this research supported this perception. In addition, the interviewees demonstrated the tangible effect of the employees' satisfaction through the high level of employees' productivity, very low levels of absenteeism, and the employees' attachment to EO. In relation to the satisfaction achieved in relation to EO's supply chain relationships, the interviewees emphasised that employee satisfaction was realised by EO throughout the supply chain relationship and the employees had become more

satisfied as EO grows up and realised its business goals. Therefore, EO's performance in regard to the employees' satisfaction was rated as high.

**d) Productivity**

EO's productivity was investigated through interviewees in EO. The interviewees indicated high productivity achieved by EO. In this regard, EO's Projects Manager stressed the large number of projects that EO had been establishing and executed within efficient times. All the interviewees classified EO's productivity as high. In so doing, they referred to productivities achieved by other organisations in the market, noting that EO accomplished its projects within typical periods based on its planned completion periods, meeting the targeted execution times. Moreover, the interviewees pointed to EO's high productivity as manifested in its execution of projects at high speed associated with high quality, which helped EO to achieve rapid turnover in its business. Concerning EO's relationships with the studied supply chain parties and in terms of the period of achieving and recognising this high productivity, the interviewees indicated that EO's productivity had improved over time in accordance with the length of the supply chain relationships. Therefore, EO's performance in terms of its productivity was identified as high.

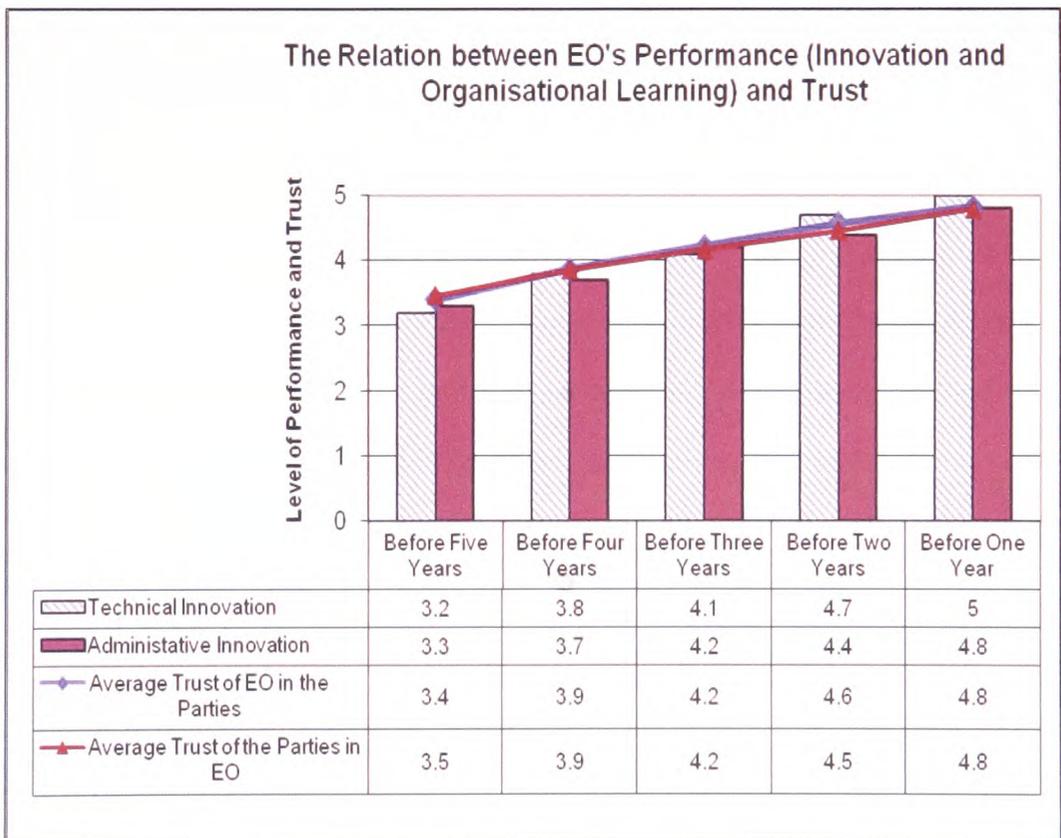
**e) Inventory**

EO's performance in the aspect of inventory and its control was clarified by the interviewees as high. All the interviewees in EO pointed at that the relationship with the upstream parties was a major contributor in this feature. In regard to the relationships with its supply chain parties, the interviewees emphasised that EO managed its inventory efficiency over the course of along this relationship.

However, they pointed to improvement in this efficiency with the length of the relationships. In addition, the participants identified a motive behind this performance, which was to gain competitive advantage through low inventory cost. Therefore, EO's performance in regard to this measure is high.

#### 4. Trust and EO's Performance From Innovation and Organisational Learning Perspective

EO's performance in the innovation and organisational learning is the fourth perspective considered to measure EO's performance. The average analysis's results of the research data in this aspect are presented in Graph 6.8.



**Graph 6.8:** Shows the relation between EO's performance in the innovation and organisational learning and the trust in EO's supply chain relationships

Graph 6.8 shows that EO had achieved concurrent improvement in the aspects of technical and administrative innovations with the development of trust in its supply chain relationships.

**a) Technical Innovation**

EO's performance in respect of technical innovation was evaluated by the interviewees as high. This was demonstrated by the participants in terms of continual improvements in EO's property designs, features and added installations that aim to achieve consumer satisfaction and to distinguish EO's properties among the other organisations in the market. Moreover, the interviewees emphasised EO's technical innovation in its processes, they indicated that EO had adopted new technologies in its operations and conducted research to improve its operations. As a result, it had implemented more efficient techniques in its operations. The participants stressed that EO's technical innovation in advanced year after year. In explaining this performance, the interviewees pointed to EO's relationship with its upstream and downstream parties as contributing in this achievement through sharing expertise and information that facilitate this innovation. Therefore, EO's performance in the aspect of technical innovation is high.

**b) Administrative Innovation**

Innovation in EO's administrative processes was explored and all the participants in EO stressed that EO was achieving high administrative innovation in its business. The interviewees pointed to EO's learning from previous lessons in this respect, sharing of administrative expertise and skills with its supply chain parties, and gaining knowledge through research and

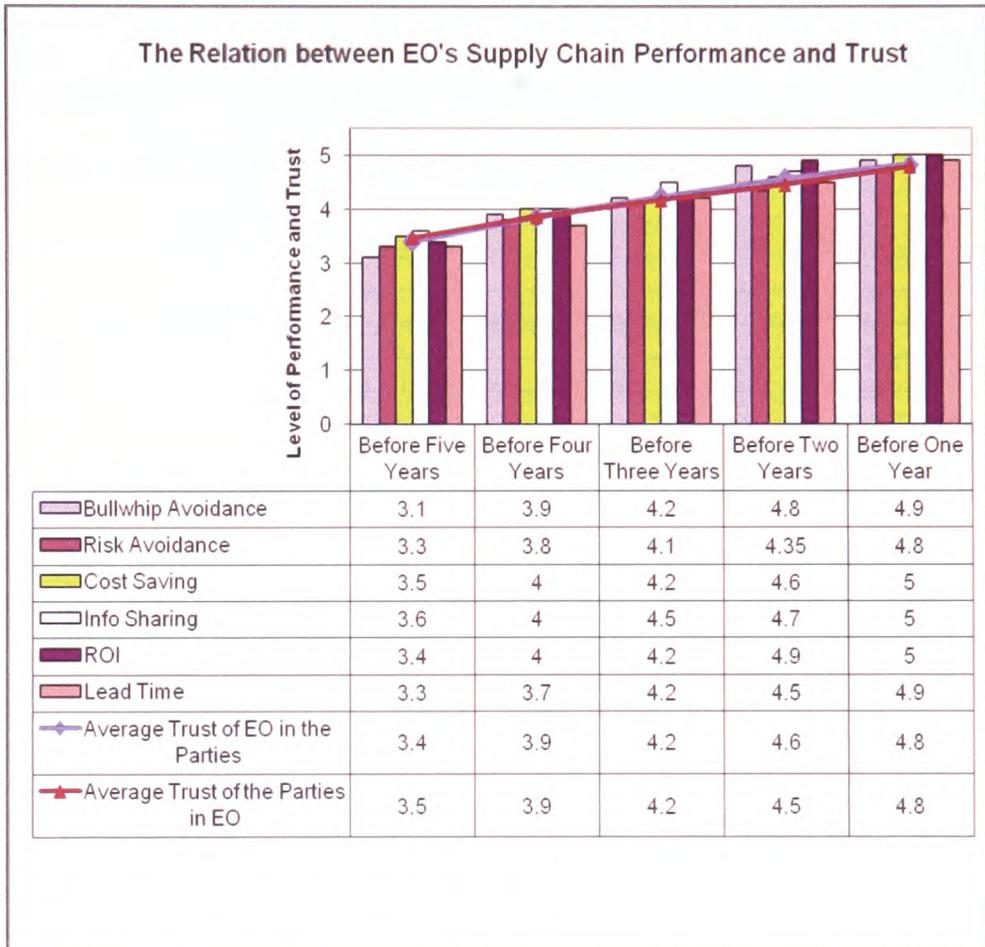
techniques used in other organisations as having major roles in this achievement. As emphasised by the interviewees, EO had achieved continual improvement in its administrative process with the length of the supply chain relationships, due to the experience and knowledge accrued. The participants indicated that most of EO's administration innovations had concentrated on facilitating the administrative tasks to achieve more organised administrative practices to save time and effort in accomplishing administrative goals. Therefore, EO's performance in the administrative innovation is identified as high.

Having reflected on EO's performance in regard to the studied supply chain relationships and identified high performance achieved by EO based on the identified performance measures, the next section will provide analysis of EO's supply chain performance in light of the studied supply chain relationships.

#### **6.3.4 Analysis Of EO's Supply Chain Performance In Relation To Trust**

As stated in the first chapter of this thesis, investigation of impact of trust on organisation performance and supply chain performance represents the main of the research. EO's supply chain relationships and its performance have been clarified in the previous sections. This section concerns the supply chain performance, which represents the second aspect of performance considered by this research, in relation to the identified trust in the relationships between EO and its supply chain parties. This analysis of EO's supply chain performance is based on the supply chain measures that were selected from the reviewed literature as illustrated in the research framework.

Based on the research quantitative data, the results of the average analysis of EO's supply chain performance in relation to the trust in EO's supply chain relationships is illustrated in Graph 6.9.



**Graph 6.9: Shows the relation between the trust in EO's supply chain relationships and EO's supply chain performance**

Graph 6.9 indicates that the development of trust in EO's supply chain relationships was associated with improvement in EO's supply chain performance. The graph clarifies influence exerted by the trust in EO's supply relationships on EO's supply chain performance and resulted in performance improvement.

The results indicated in Graph 6.9 represent EO's trust in its supply chain relationships with the considered four supply chain parties and the overall performance achieved by EO's supply chain throughout five years of the relationships.

### **1. Inventory (Bullwhip Effect Occurrence)**

The literature identifies the bullwhip effect occurrence as indicator of low supply chain performance. The degradation in the performance happens because of sudden rearrangements of the supply chain resources occur due to unexpected orders that often force the upstream parties to deploy additional resources to maintain the supply chain requirement and fulfil demand. As highlighted in the literature review chapter of this thesis, the deployment of the additional resources and the rearrangements of the resources often cause unnecessary cost in the chain and enfeeble its efficiency and effectiveness.

The researcher investigated EO's supply chain for occurrence of the bullwhip effect. The interviewees in EO noted that the bullwhip effect in the construction industry and property development was common easily controlled because of the reality of the projects and the prior planning characteristic of this industry, related to project designs. Concerning occurrence of the bullwhip effect in EO's supply chain, all the participants indicated that it occurred occasionally at the beginning of EO's supply chain relationships. They related this occurrence to the experience and skills of the parties and the level of understanding and coordination with EO at that time. Moreover, the interviewees stressed that inventory planning and control was the major cause of this occasional bullwhip effect occurrence. As clarified by the interviewees, the situation improved with

the length of the supply chain relationships and currently the bullwhip effect occurred rarely or not at all in this supply chain. EO's Projects Manager saw the high level of collaboration with the supply chain parties and the planning and control practised by EO to manage its inventory as the chief contributor in this achievement. EO's Corporate Services Manager emphasised that planning in advance and forecasting the requirements of EO's operations had resulted in maintaining steady level of inventory in its supply chain, free of bullwhip effect.

In addition, the interviewees pointed to the bullwhip effect in the demand for EO's properties which could be caused by the consumers through demanding shorter execution period than that planned by EO. In this respect, the interviewees emphasised that the consumers understood the speed of EO's operations and were aware of the implications of the time scale for property quality this understanding and awareness prevented occurrence of the bullwhip effect.

Highlighting EO's efficiency in this context, the interviewees stressed that through EO's relationships with its upstream and downstream parties it was able to execute its projects within shorter periods, beyond consumers/buyers' expectations. EO's Sales Manager referred to compromises with the consumers/buyers and the up to date process of feedback from the downstream parties as having strong effects on the elimination of the bullwhip effect in this supply chain.

As indicated here, the occurrence of the bullwhip effect in EO's supply chain was rare and this achievement was reached in accordance with the length of the supply chain relationship. Therefore, EO's supply chain performance in terms of inventory control and avoidance of the bullwhip effect is identified as high.

## **2. Risk**

Avoidance of risk occurrence is another measure selected to assess EO's supply chain performance. Based on the interviewees' opinions, EO's supply chain has achieved high performance in risk avoidance and the participants identified the level of risk in EO's supply chain as low. The participants indicated that risk in EO's supply chain could be caused by two factors occur. The first factor is the failure to submit properties on time. The other factor that could lead to risk in this supply chain is related to fluctuation in demand, which could lead to fluctuation in property prices. Concerning the first factor that highlighted by the interviewees, it was emphasised that risk related to this factor had never been experienced in EO's supply chain. Although the construction industry, as indicated by the interviewees in EO and the supply chain parties, faced shortage of building materials and resources, this problem caused no risk to the supply chain. Interviewees indicated that EO's upstream parties played a dominant role in minimising the effect of this problem and continued supplying EO with the required materials.

Regarding the issue of fluctuation in demand and, hence, in property prices, the interviewees pointed out that increases in the cost of building materials and equipment could have effects on EO's supply chain and cause risk related to the construction cost and, ultimately, property prices. However, the participants

indicated that this risk had not affected EO's supply chain because EO and its upstream parties were aware of this problem and therefore they planned their inventory to cope with it. EO's Projects Manager emphasised that within the period of price increase, EO's upstream parties were able to supply EO at competitive prices compared to the inflated prices in the market. This eventually helped EO to achieve low construction cost. Moreover, the interviewees indicated that market prices rose as material costs rose and this allowed EO to sell its properties at higher prices and to achieve higher turnover, which converted the risk to opportunity.

The interviewees in EO regarded the behaviour exerted by the suppliers during the price crises and during the period of the short supply of building materials to have a major role in hedging against the risk in this supply chain.

The interviewees in EO emphasised that all the firms and competitors in the market faced the problems of shortage of building materials and the increase in prices. This problem forced many of them to suspend their operations and so they were unable to meet the planned execution time. The interviewees regarded this occurrence as due to the lack of effective planning in these firms operations to tackle the issues in advance and to low level of cooperation with the supply chain parties. Therefore, EO's supply chain has high performance in the aspect of risk and it is able to avoid risk, as indicated in the analysis.

Having analysed the supply chain performance in terms of risk and identified the high performance of EO's supply chain in this aspect, the next section will consider the supply chain performance in terms of cost saving.

### **3. Cost Saving**

EO's supply chain performance in the aspect of cost saving was investigated. The participants highlighted occurrence of cost saving in EO's supply chain operations over time with length of the supply chain relationships. In this context, EO's Risk and Finance Manager indicated that the major cost saving took place in the operating cost as EO and its parties continued to gain and use skills and experience along the supply chain relationships, which accordingly improved the quality of the supply chain operations. In addition to the continual gaining and implementation of skills and experience, the manager pointed to implementation of new technologies in the supply chain operations that aimed to reduce operating costs. Emphasising this perception, both EO's Sales Manager and EO's Projects Manager highlighted the cost saving in this supply chain that occurred based on the harmony achieved in this supply chain. This was attributed to avoidance of bullwhip effect occurrence, efficiency in inventory planning and control, effective coordination with the supply chain parties and implementation of new technologies, reducing operating cost. This point of view was stressed by EO's Corporate Services Manager, who emphasised that cost saving had been achieved in the supply chain as a result of the quality of the operations involved in the supply chain. Additionally, the interviewees highlighted the role of the upstream parties in reducing materials costs, which had a positive influence on the supply chain cost. Overall, cost saving as a measure of EO's supply chain performance was emphasised by all the participants as high. This aspect was acknowledged by both the upstream and the downstream parties, who emphasised the occurrence of high cost saving in their supply chain relationship with EO and indicated that this performance had improved over the course of the relationship. Therefore, EO's supply chain

performance was high in relation to saving supply chain cost. Also the upstream suppliers and the downstream suppliers indicated high cost saving in their supply chain.

#### **4. Information Sharing**

Information sharing between EO and the studied supply chain parties was explored as another measure of performance in the supply chain. All the interviewees in EO and in the upstream and downstream parties emphasised the high level of information sharing in this supply chain. All the parties including EO have indicated existence of both formal and informal information sharing in the relationship and highlighted the role of the repeated interactions and the consistency of each party's attitude, which were perceived over the length of the relationship as having a major role in encouraging this information sharing. Therefore, the information sharing in this supply chain is identified as high.

#### **5. Return On Investment (ROI)**

All the interviewees in EO indicated that high return on investment (ROI) was achieved by EO in this supply chain. The upstream parties and the downstream parties stressed the high ROI in their supply chain generated from their relationship with EO. Occurrence of improvement in ROI with the length of the supply chain relationship was emphasised by all the interviewees in EO and its upstream and downstream parties. The participants in EO and in the supply parties pointed to ROI gained by other organisations' supply chains and indicated higher ROI achieved by EO's supply chain for both EO and its parties. Therefore, EO's supply chain performance in the dimension of ROI is identified as high.

## **6. Lead Time**

EO's supply chain performance as measured by lead time was investigated. The participants in EO emphasised that satisfactory lead times existed in the supply chain. Moreover, they pointed to improvement in lead time with the length of the relationship and related this occurrence to development in the understanding with the parties in the supply chain and to perceived coherence between EO and each party. The interviewees in EO's downstream parties attributed this good performance to the continuous interactions with EO. The lead time was emphasised by all the participants in EO and in its supply chain parties to be in line with customers' expectations and often exceeding their expectations, as emphasised by C1E and C2E, the downstream parties responsible for dealing with the final customers of EO products. Highlighting this performance, all the participants in both the downstream parties indicated that the properties constructed by EO were often ready for the consumers within less than their demanded lead time and this gave them peace of mind and enabled them to start using their properties at an earlier time than expected. Therefore, EO's supply chain performance in the lead time performance dimension is high.

For broader view about the performance achieved by EO's supply chain in relation to the trust in each individual relationship, refer to Appendix 2.

### **6.4 DISCUSSION RELATED TO THE RESEARCH QUESTIONS**

The analysed relationship between EO and its supply chain parties showed that trust relationships exist between EO and its upstream and downstream parties. The analyses of the relationships indicate occurrence of the three types of trust, which are the calculus-based trust, the knowledge-based trust and the

transference-based trust in the four supply chain relationships. Based on the theory of trust development in the supply chain relationships, the identified three types of trust in EO's supply chain relationships indicate existence of optimal trust relationships in this supply chain where the transference-based trust implies attainment of the highest level of trust in the relationship. Moreover, the occurrence of a similar level of trust between EO and all its upstream and downstream parties selected for this study clarifies existence of supply chain established on a firm base, as it did not involve any mistrusted party. Therefore, the studied supply chain relationships as a whole represent a transference trust-based trust supply chain relationship.

Referring to the organisation performance, EO's performance was identified as high in all the performance dimensions. Moreover, as indicated in the analysis of EO's performance, improvement in the performance was identified to happen over the course of supply chain relationships.

The analysis of the relationships indicates that improvement in the relationships occurred with repeated interactions between EO and its parties. However, the trust in the relationships was indicated to be high from the beginning of the relationship, as EO and its parties indicated the perception of each trustworthiness dimension throughout the supply chain relationship. Hence, in relation to the theory of stages of trust development, these supply chain relationships indicate that the trust in the relationship could happen at all levels but with difference in the intensity of each level. In other words, these relationships indicate that the trust between the supply chain parties could be calculus-based, knowledge-based and transference-based, but with a difference in the intensity of each kind of trust

based on the trustworthiness attributes related to the formation of each kind of trust. As the analysis shows, the length of the supply chain relationship has dominant effect in the development of the trustworthiness attributes in the relationship. In other words, the length of the supply chain relationships improves the number of trustworthiness attributes related to each trust dimension. The analysed relationships suggest that in participating in a trust relationship, each party could have all three types of trust in the other party, but with bounds to each kind.

The kind of trust in which parties engage in the relationship depends on the willingness of each party. This is clearly identified in the analysis of the relationships between EO and its parties, which shows that the trust between the parties started on the basis of the integrity of each party, for which had a reputation before the interrelationship occurred and then both transference and the knowledge-based trusts developed accordingly, based on the wills of EO and its upstream and downstream parties.

The analysis of the relationship in this case study identifies parallelism in the existence of knowledge-based trust and the transference-based trust, where the parties in a relationship could perceive attributes related to both kind of trust simultaneously without any gap between the perceptions. For instance, a party could be perceived as having goodwill and having consistency and credibility which are trustworthiness attributes related to the benevolence trust dimension and competence trust dimension. Perceiving the trustworthiness attributes of both dimensions simultaneously implies parallelism in perceiving transference-based trust and knowledge based trust. Therefore, based on the analysis of the supply

chain relationships in this case study, it is identifiable that parallelism occurs in the perception of both knowledge-based trust and transference-based trust and the length of the supply chain relationship motivates the process of perceiving additional trustworthiness attributes related to each dimension that strengthen the trust relationship in each kind of trust.

Since one of the main goals and objectives of this research is answering the research questions, the analysis of EO's case study will be utilised here to answer those questions.

**QUESTION 1: *Does the level of trust between supply chain's parties increase in accordance with the length of the supply chain relationship?***

As identified by the analysis of EO's supply chain relationships, the trust in the supply chain relationships had developed over the length of the relationships. the analysis indicated that occurrence of repeated interactions between the supply chain parties had helped them to develop the relationship on basis of knowledge-based trust to develop transference-based trust where each party become an agent for the other and act in the other party's best interest. However, the analysis indicated mutual or exchange of trust happened in the development of trust in the relationship which identifies that besides the length of the supply chain relationship, the development of trust is highly related to the parties' willingness to develop the trust to a further level.

**QUESTION 2: *Does the supply chain performance improve with development of trust in the supply chain relationship?***

Based on the analysis of EO's supply chain performance in relation to the identified trust in EO's relationships, the trust had positively impacted the supply chain performance. Moreover, the analysis indicated that as far as the trust develop in the relationship and reach to transference-based trust the supply chain performance improve in accordance and reach its optimal level. Therefore, based on the analysis of this case study, the development of trust in the supply chain relationships improves the supply chain performance and the transference-based trust has the significant role in the improvement of the supply chain performance.

**QUESTION 3: *Does the organisation performance improve with development of trust in the supply chain relationship?***

The analysis of EO's performance in relation to the identified trust in EO's supply chain relationships indicated that the trust development in EO's supply chain relationships had improved EO's performance. This is supported by the factual data collected by the researcher as presented in Appendix 3. Therefore, based on the analysis of this case study, there is positive relationship between the development of trust in the supply chain relationship and the organisation performance. In other words, the trust improves the organisation performance.

**QUESTION 4: *Does trust availability in the supply chain relationship minimise supply chain risks?***

The analysis of trust and its role in EO's supply chain risk identified that the trust minimises the supply chain risk.

**QUESTION 5: *Does the existence of trust between supply chain parties represent a source of risk in the supply chain?***

The notion of trust as a source of risk is rejected by the analysis of EO's supply chain performance in relation to the identified trust in its supply chain relationships. The analysis of the case study proved the reverse and emphasised that the trust minimises the supply chain risks.

**QUESTION 6: *Does trust in the supply chain relationship strengthen the supply chain relationship and prolong the supply chain relationship?***

The analysis of EO's supply chain relationships identified strong link between the trust in the relationships and the length of the supply chain relationships. As clarified in the analysis of EO's supply chain relationships, the trust develop to higher level over the length of the supply chain relationship. This implies that the trust when get existed between the parties this helps the parties to remain in the relationship and consequently this prolongs the supply chain relationship.

**QUESTION 7: *Does trust between supply chain parties reduces barriers in the processes of information sharing between the parties and lead to better level of information sharing between them?***

Based on the identified trust in EO's supply chain relationships and the information sharing between EO and each party, the analysis has identified that the trust when get exchanged between the parties it provides each party with confidence to exchange supply chain information. The analysis identified that the optimal information sharing occurs between the parties when the trust develop to transference-based trust. Therefore, the trust reduces barriers in the process of information sharing and its development in the relationship triggers the parties to share information with each other.

**QUESTION 8: *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the supply chain performance differently from one industry setting to another?***

To answer this question then the analysis of the three case studies need to be deployed. Therefore, this question will be answered in the overall findings of the thesis.

**QUESTION 9: *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the organisation performance differently from one industry setting to another?***

This question concerns the impact of industry differences on organisation performance. This question will be answered in the overall findings of the thesis through combining the findings of the analyses of the three case studies.

**QUESTION 10: *If trust has an impact on performance, is the impact of trust between supply chain parties territory oriented, so that when it exists in one territory it impacts the supply chain performance and the organisation performance differently from the trust that occurs between supply chain parties in another territory?***

This question considers the relationship between the impact of trust on performance and the territory influence on this impact. To answer this question then the findings of the analyses of the three case studies considered by this thesis are required. Hence, this question will be answered in the overall findings of this thesis.

## **CHAPTER 7**

### **ANALYSES OF CASE STUDY 3 THE QATARI ORGANISATION (QO) SUPPLY CHAIN**

#### **7.1 INTRODUCTION**

This chapter considers the third case study, which is about a Qatari Organisation and its supply chain relationships. The researcher investigated the supply chain relationships for trust between the Qatari Organisation (QO) and four of its major supply chain parties. Similarly to what has been done in the previous two case studies, the trust was explored to identify its impact on QO's supply chain performance and QO performance and therefore QO's performance and its supply chain performance was investigated in accordance.

The chapter starts with brief overview of QO and its supply chain parties. Then it provides analysis of the investigated supply chain relationships for perception of trust with aim to identify the trust level between QO and each party. After that the chapter proceeds to provide analysis regarding the impact of the identified trust on QO's performance and QO's supply chain performance.

#### **7.2 OVERVIEW OF THE QATARI ORGANISATION (QO) AND ITS SUPPLY CHAIN PARTIES**

The Qatari Organisation (QO) is a chemical producing organisation. It is located in the state of Qatar and it is categorised in Qatar as one of Qatar's large organisations. It specialised in producing transformable chemical materials. QO products can be transformed into other products that suit the demand of plastic

products manufacturers. In terms of its domestic productivity it is categorised in Qatar as a major chemical manufacturing organisation.

QO was established to fulfil domestic and international growing demand for chemical materials. The organisation, in order to cope with market demand and to enhance its product quality, focused on adaptation of new technology in its operations. It is well-equipped with modern technology and manufacturing techniques. QO has achieved a major success in its manufacturing specialisation; it has been able to market and sell its products locally and internationally. It achieved an international reputation, becoming recognised as one of the significant producers of transformable chemical materials in the international market.

Based on the research aim of exploring the effect of territory on influence of trust on supply chain performance and organisation performance, domestic supply chain parties with QO were considered for this research. No international party was involved in this study because this research was bounded by cost and time constraints. Accordingly, the researcher concentrated on studying this organisation and two of its major upstream parties and two of its major downstream parties in the state of Qatar.

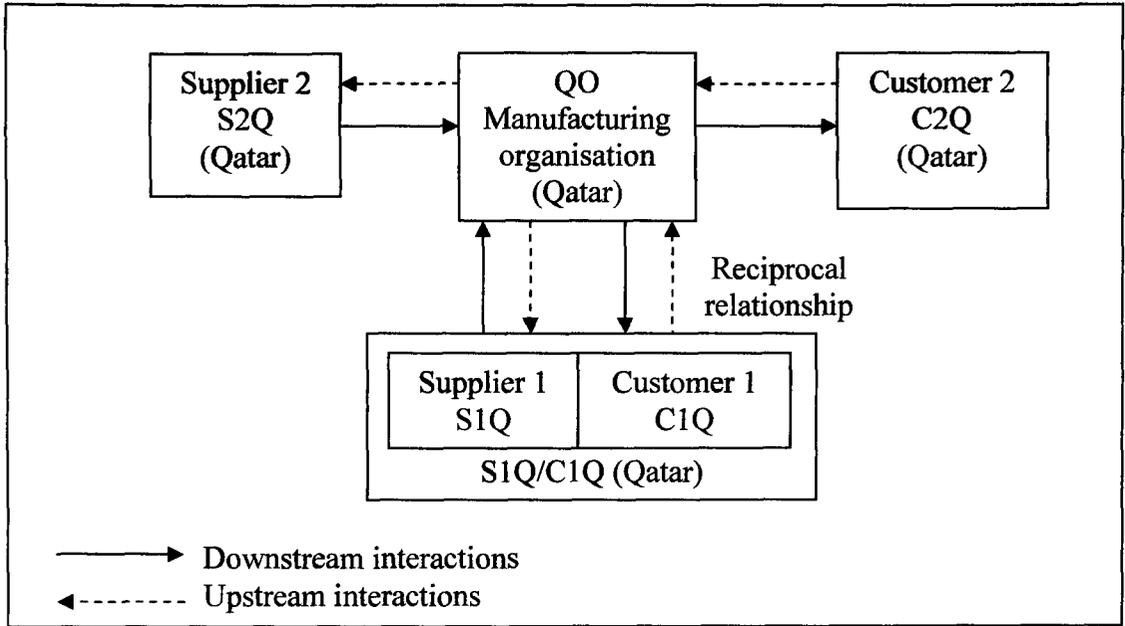
The two upstream parties that were selected in the supply chain relationship with QO are denoted in this research as S1Q and S2Q. According to QO, these upstream parties play major roles in QO's supply chain. In this supply chain, S1Q is responsible for supplying QO with special plastic packaging materials required for its operations and S2Q is responsible for providing QO with the raw materials

necessary for its operations. Organisation size was investigated from QO's perspective and the parties' perspectives of their own organisation size. QO identified its first upstream party, S1Q, as a medium-sized organisation (MO) and its second upstream party, S2Q, as a large organisation (LO). This categorisation was supported by the opinions of the parties concerned.

S1Q, besides its role as an upstream supply chain party, has a major role as a downstream supply chain party in this supply chain, which implies a reciprocal relationship between QO and this party. As a downstream party, this organisation acts as a major customer to QO, as QO supplies this party with its products and C1Q transforms them into various plastic products, including products required by QO in the form of plastic films and packaging materials. In addition to its relationship with QO, C1Q successfully markets its products locally and internationally and has achieved a growing reputation in both markets.

The other major downstream party in QO's supply chain is denoted in this research as C2Q. This downstream party is classified in Qatar as a large organisation (LO). Concerning the nationality of this organisation, it is a Qatari organisation that operates locally and markets its products in the domestic and the international markets. This organisation utilises QO's products as raw materials for its operations, producing multiple plastic products with different production lines.

The supply chain relationships between QO and its parties can be viewed as illustrated in the Figure 7.1.



**Figure 7.1: QO (Manufacturing Organisation) and Its Supply Chain Parties**

Based on Pyke and Johnson's (2003) categorisation of supply chain relationships (chapter 2), QO's relationship with S1Q/C1Q is identified as an ongoing relationship. QO's relationship with S2Q is a partnership and QO has an ongoing relationship with the second downstream party, C2Q.

Having provided overview of QO and its supply chain parties selected for this research, the next section will provide analysis of this case study.

### 7.3 ANALYSIS OF THE CASE STUDY

The analysis of the case study considers the quantitative and the qualitative data maintained from QO and its supply chain parties regarding trust in their relationships and the performance of QO and its supply chain in relation to the trust identified through the analysis. Similarly to the analysis of the first and

second case studies, graphs are utilised to illustrate quantitative results of perceptions of trust over five years of the supply chain relationships and to illustrate the organisation performance and the supply chain performance in relation to the explored trust in the supply chain relationships. On the other hand, the qualitative analysis will be used to provide explanations and clarifications to the maintained quantitative results based on QO and its parties' opinions. The analysis aims to draw correlation between the trust in the supply chain relationships and the explored organisation performance and supply chain performance. This correlation aims to identify the impact that the trust has on each of these performances.

Factual data collated by the researcher from QO and its upstream and downstream supply chain parties will be utilised in the data analysis as indication of the reliability of the collected data. The factual data that represents QO and the selected supply chain parties are shown in Appendix 3.

The analysis starts here with analysis of QO's supply chain relationships with the selected supply chain parties for perception of trust.

The relationships between QO and each of the four parties selected for this study are analysed from QO's and each party's perspective. The analysis has led to identification of the three trust dimensions identified in the literature review in chapter 2 (refer to Appendix 2 for further details). The analysis in this section considers the overall trust between QO and each supply chain party. The analysis begins here with the relationships between QO and its upstream parties.

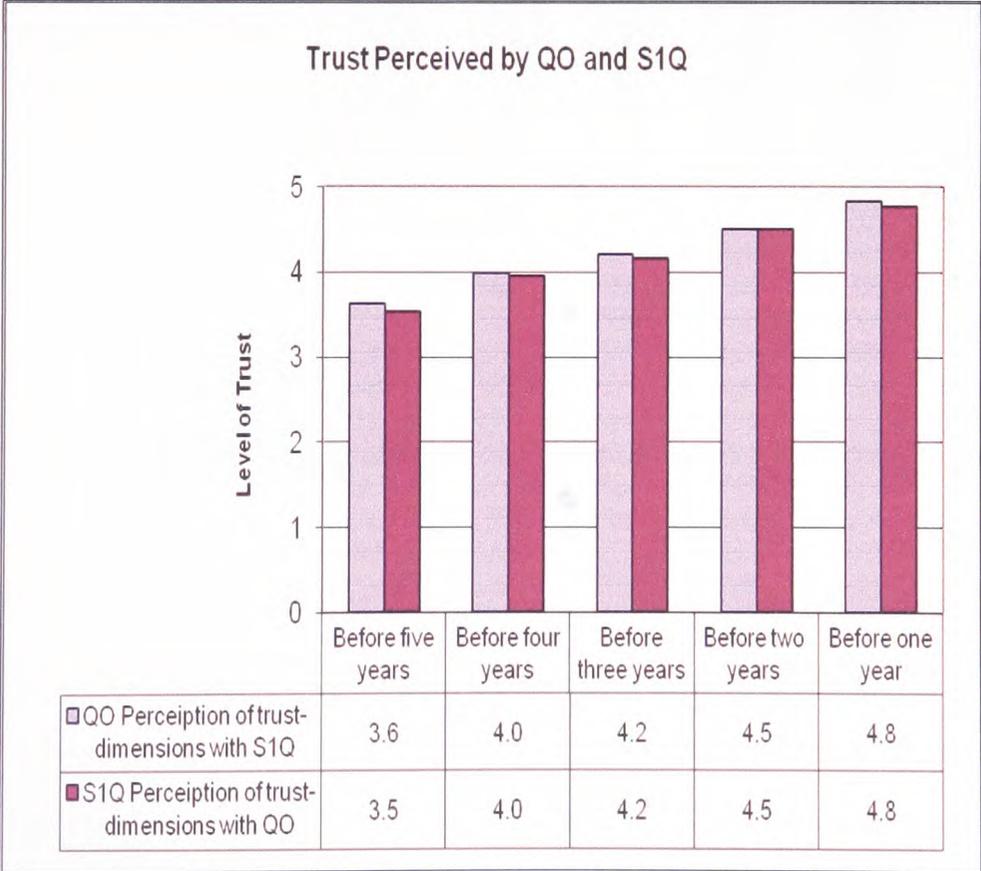
### **7.3.1 Analysis Of Trust In The Supply Chain Relationships Between QO and Its Upstream Parties**

As followed in the previous two case studies, QO's supply chain relationships with the upstream parties were investigated by the researcher for five years of the supply chain relationships from 2001 to 2005. As was done in the analyses of the previous two case studies, instead of naming each year as it is, the years will be described in accordance of the length of the supply chain relationship. In the illustration of the results of the quantitative data maintained from QO and each party, the year 2001 is named as before five years, the year 2002 is denoted as before four years and so on till the year 2005, which is the latest year and it is denoted as before one year. Taking this into consideration, the analysis will begin here with the relationship between QO and the first upstream party considered by this research, which is S1Q.

#### **1. Trust In The Relationship Between QO and S1Q**

As mentioned earlier in the overview of the supply chain parties, S1Q has a reciprocal relationship with QO in this supply chain. In this section, the analysis will consider the upstream relationship between QO and this party. The relationship was investigated from QO's point of view and from S1Q's point of view as well. The analysis has considered the supply chain relationship for perceptions of trustworthiness attributes that constitute the three trust dimensions identified in the literature, which are the integrity trust dimension, the competency trust dimension and the benevolence trust dimension. As mentioned before, the analysis in this section will consider the overall trust in their supply chain relationship. Refer to Appendix 2 for further details about the trust dimensions in QO's supply chain relationship with this party.

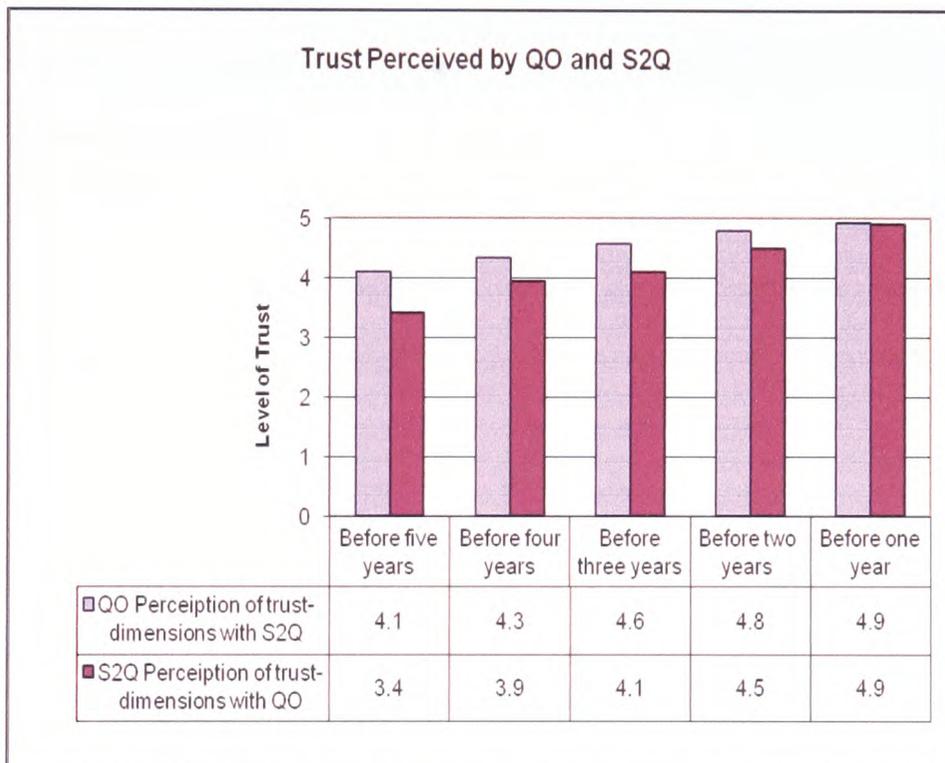
The average analysis of the supply chain relationship between QO and S1Q indicates that both QO and S1Q had perceived the three trust dimensions in their supply chain relationship. In relation to the trust development in the supply chain relationship, the analysis shows that the trust had developed across the three trust dimensions over the length of the supply chain relationship. Foremost, the analysis shows that the three trust dimensions had developed in the supply chain relationship and increased in intensity over the supply chain relationship. Moreover, the analysis indicated mutual trust in this supply chain relationship that incrementally increased with repeated interactions between QO and S1Q (Refer to Appendix 2 for further details). The average analysis results of the overall trust between QO and S1Q are presented in Graph 7.1.



**Graph 7.1: Shows the overall trust-dimensions perceived by QO and S1Q**

## 2. Trust In The Relationship Between QO and S2Q

Similarly to the analysis of the relationship between QO and S1Q, the analysis of the supply chain relationship between QO and S2Q has resulted in identification of the three trust dimensions in their relationship (for more details refer to Appendix 2). The overall trust in this relationship is illustrated in Graph 7.2.



**Graph 7.2: Shows the overall trust-dimensions perceived by QO and S2Q**

During the investigation of the trust in the supply chain relationship, the interviewees in QO and S2Q emphasised perceptions related to the three trust dimensions. The interviewees in QO evidenced higher perceptions of trust in their relationship with S2Q than that perceived by S2Q (see the analysis of the relationship in Appendix 2). Foremost, as indicated in the above graph, mutual

trust existed between QO and this upstream party with higher perception of trust from QO's perspective.

Having analysed the relationships between QO and the considered upstream parties and identified the existence of trust in each relationship, the next section will consider the supply chain relationship between QO and the selected downstream parties for exploration of trust between QO and those parties.

### **7.3.2 Analysis Of Trust In The Supply Chain Relationships Between QO and Its Downstream Parties**

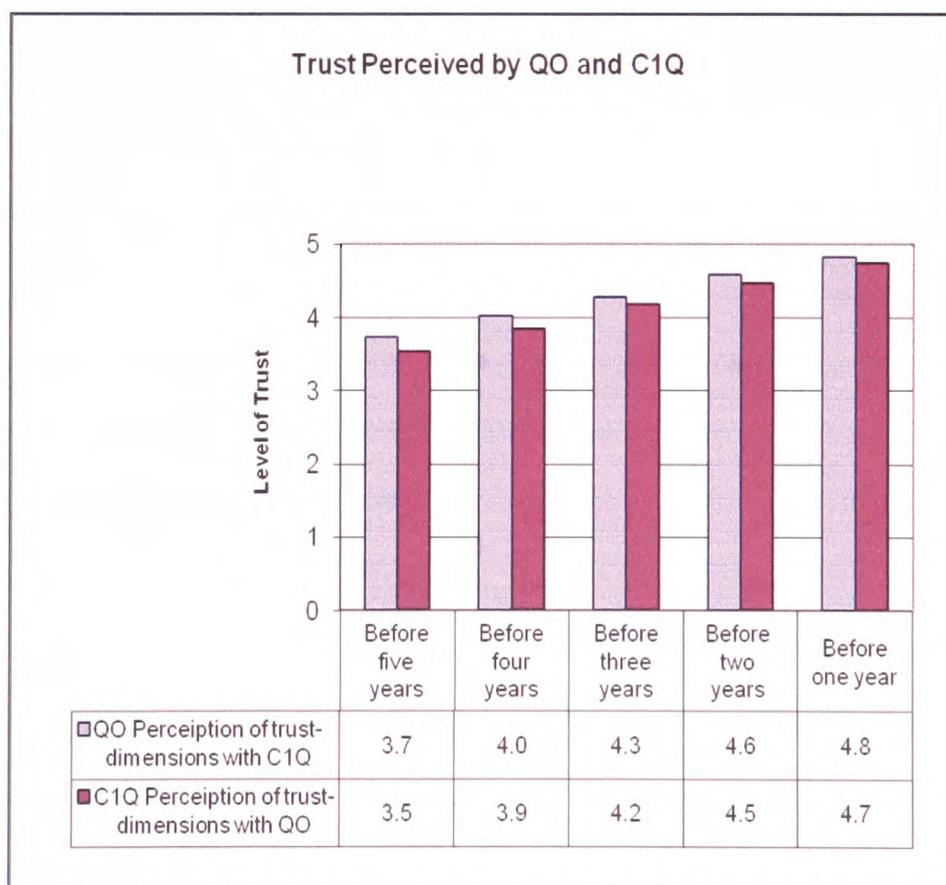
This section considers analysis of QO's relationships with the downstream parties selected for this study. The analysis at this juncture begins with the relationship between QO and the first downstream party considered by this research, which is C1Q.

#### **1. Trust In The Relationship Between QO and C1Q**

As mentioned earlier in the overview of QO's supply chain parties, QO was identified to have reciprocal relationship with S1Q. Besides its upstream relationship with QO it has a downstream relationship. As a matter of analysis, in the downstream relationship this party is denoted as C1Q. The researcher had considered the downstream relationship with this party in order to indicate any difference in the trust when the role of the party changes and the beneficial relationship become reversed.

The analysis of QO's relationship with this party in the downstream has yielded similar results to those of the analysis of the relationship with this party in the

upstream of the chain. The analysis has resulted in the identification of the three trust dimensions in the perceptions of QO and this party (refer to Appendix 2 for further details). Mutual trust is identified between QO and C1Q where the trust had incrementally increased over the supply chain relationship across the three trust dimensions in both parties' perceptions. The interviewees in QO had stressed this development of trust and referred to C1Q's favourable way of interactions and its consistency to the ongoing relationship with this party. The interviewees in C1Q had emphasised similar reasons perceived in the interaction with QO. The overall trust perceived in this supply chain relationship is illustrated in Graph 7.3.

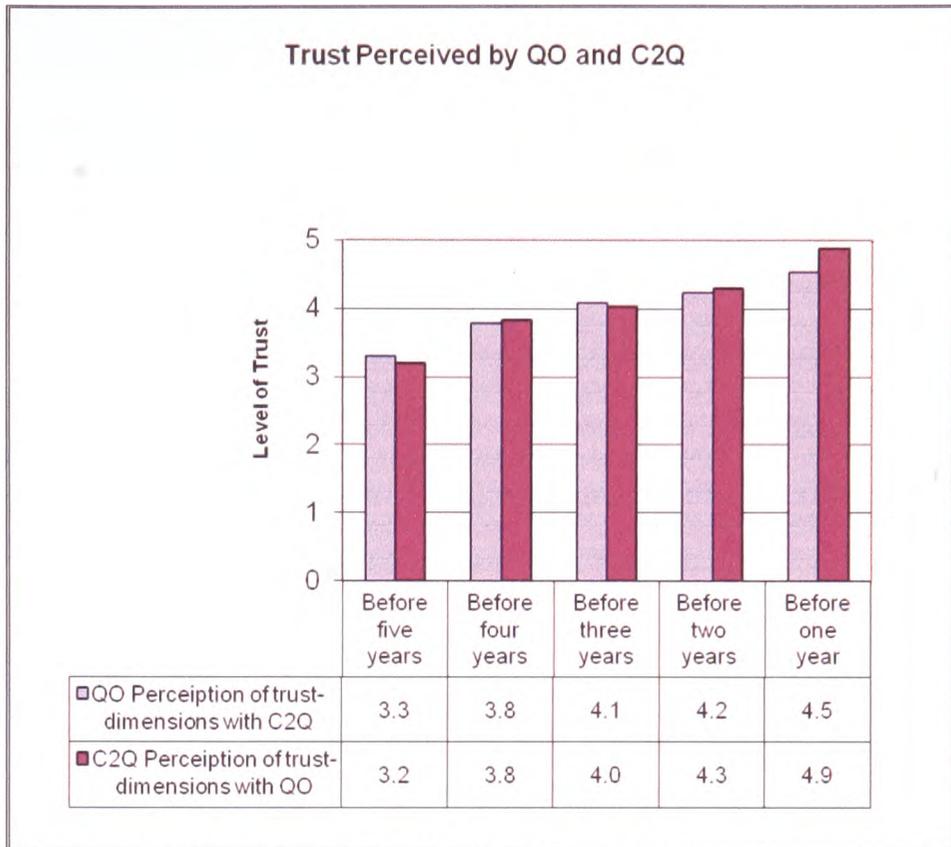


**Graph 7.3: Shows the overall trust-dimensions perceived by QO and C1Q**

The average analysis results of the overall trust between QO and C1Q illustrated in Graph 7.3 are mostly similar to the results indicated in Graph 7.1. This shows that this party had consistent trust relationship with QO regardless the position of this party in the supply chain. The interviewees in QO emphasised the benevolence of this party and expressed confidence in it. The analysis of the relationship between QO and this party identified occurrence of calculus-based trust, knowledge-based trust and transference-based trust between QO and this party (see Appendix 2 for more details).

## **2. Trust In The Relationship Between QO and C2Q**

The relationship between QO and C2Q has been analysed for perceptions of trust dimensions in the supply chain relationship between them. The analysis has revealed that the three trust dimensions were perceived in their relationship from QO's and C2Q's perspectives. The interviewees in QO and C2Q expressed perceptions of trust in the supply chain relationship and evidenced the trust through examples based on QO's and C2Q's past performances in the relationship. The analysis has indicated that the trust had developed in the relationship accordingly with the length of the supply chain relationship. The development had occurred across the three trust dimensions, which identify calculus-based trust, knowledge-based trust and transference-based trust had perceived by QO and C2Q (for further details refer to Appendix 2). Foremost, the analysis identified higher development of the knowledge-based trust and the transference-based trust in the later years of the relationship. The average analysis's results of the overall trust in this supply chain relationship are demonstrated in Graph 7.4.



**Graph 7.4:** Shows the overall trust-dimensions perceived by QO and C2Q

Having analysed the supply chain relationships between QO and its supply chain parties and identified of the overall trust in each supply chain relationship, the next section will provide analysis of EO's performance in regard to the trust identified in QO's supply chain relationships.

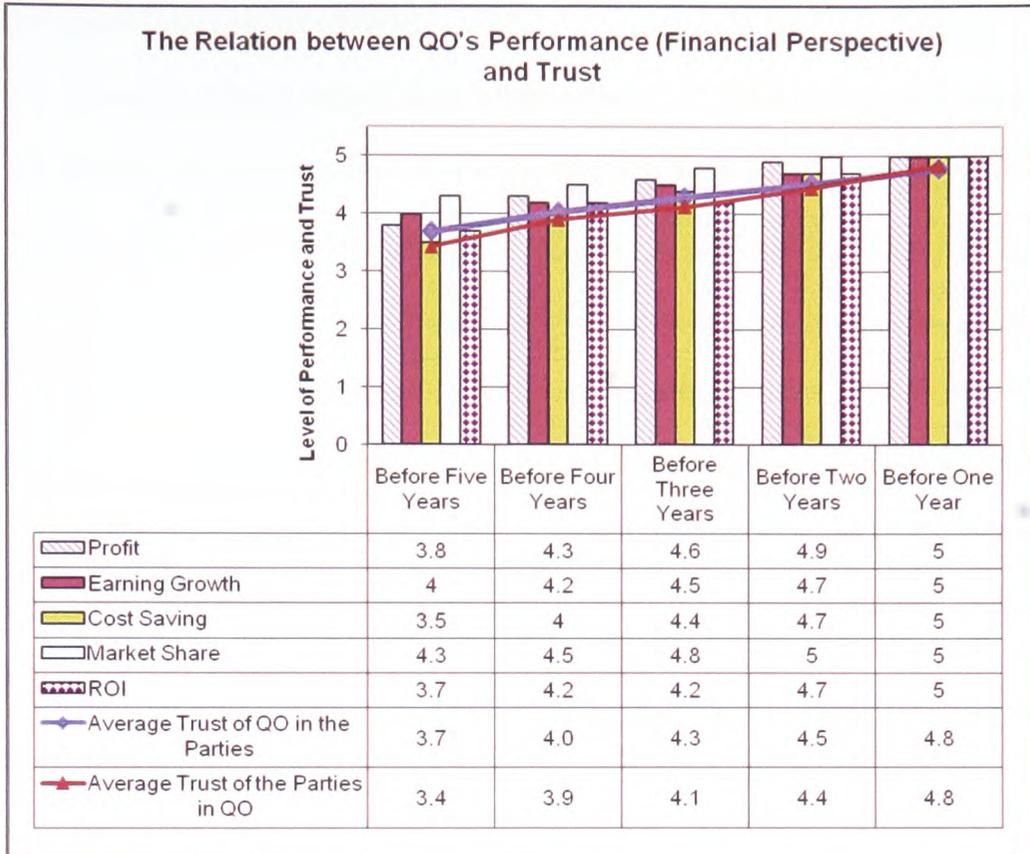
### **7.3.3 Analysis Of QO's Performance In Relation To Trust**

Based on the research aims and objectives highlighted in chapter 1 of this thesis, one of the research main goals is to identify the impact that the trust has on the organisation performance. In adherence to this objective, QO's performance was explored by the researcher for five years in accordance with the investigation of the supply chain relationships. The research data collected

during the data collection stage has been subjected to average analysis and the results are presented in this section. QO's performance will be considered here in terms of the four perspectives of the balanced scorecard, which is the model that was selected for measuring organisation performance in this research. These perspectives, as early clarified, are the financial perspective, the customer perspective, the internal business perspective and the innovation and organisational learning perspective. The analysis here considers QO's performance in each perspective in relation to the trust identified in QO's supply chain relationships. Beginning with the financial perspective, the analysis is commenced as follows:

#### **1. Trust and QO's Performance From Financial Perspective**

The analysis in this section seeks to draw correlation between the identified trust in QO's supply chain relationships and QO's performance in regard to the financial perspective of the balanced scorecard model. As clarified in the literature, the financial perspective reflects the financial performance of the organisation. Beginning with QO's performance in the financial perspective, the average analysis of QO's performance in relation to the trust in QO's supply chain relationships has produced the results highlighted in Graph 7.5.



**Graph 7.5: Shows QO's Financial Performance in relation to the trust in QO's supply chain relationships**

Graph 7.5 shows that QO's performance had improved over the five years of the supply chain relationship concurrently with incremental development of trust in QO's supply chain relationships with the considered supply chain parties. The factual data maintained from QO, as indicated in Appendix 3, support the outcome of this analysis. Therefore, both the analysis of the research data collected through the interviewees' perceptions and the factual data maintained from QO are coherent. The support of the factual data to this research data analysis indicates the reliability of the collected research data from the selected interviewees.

**a) Return On Investment (ROI)**

As mentioned earlier, supply chain relationships and QO's performance were investigated by the researcher for five years of supply chain relationships, from 2001 to 2005. The interviewees in QO reported high performance in QO's ROI, which they claimed had improved with the duration of the supply chain relationship. Based on the analyses of QO's relationships with the considered parties, it is identified that the trust had developed over the length of the relationships. This is clearly indicated in Graph 7.5. Therefore, QO's ROI had improved in accordance with the trust development in the supply chain relationships.

Concerning the reason for this performance, the participants pointed to the trust in the relationships through expressing collaborative relationship between QO and each of the upstream parties and downstream parties in this supply chain. They claimed this collaboration had highly contributed in this performance. In fact the analysis of the relationship between the trust in QO's relationships and QO's ROI indicates that the trust had helped QO to realise the collaborative relationships with its parties and consequently this assisted QO to improve its ROI. Furthermore, the analysis indicates that QO's ROI had improved in accordance with the identified trust development in its supply chain relationships and reached its best ROI performance in the later year of the relationship, which is in the before one year as highlighted by Graph 7.5.

The analysis of trust development in QO's relationships with its parties identified occurrence of higher transference-based trust between QO and each party in this period. Therefore, the analysis indicates that the trust development

in QO's relationships was associated with improvement in QO's ROI and higher performance in QO's ROI occurred when the transference-based trust was highly perceived between QO and its parties. Hence, the transference-based trust is the type of trust responsible for QO's optimal performance in ROI.

#### **b) Earnings Growth**

As indicated in Graph 7.5, QO's performance had improved with the length of the supply chain relationships. Based on the interviewees' opinions, QO had achieved high earnings growth throughout the supply chain relationships. Bearing in mind the five year time frame used in this research to identify the trust in the relationship and investigate the performance accordingly, QO's Procurement and Logistics Manager highlighted an increase in QO's earnings growth for the last five years of the relationship. A similar perception was expressed by all the interviewees in QO. As indicated in Graph 7.5, the trust had developed over the five years of the supply chain relationships and parallelism between the trust development and improvement in QO's earnings growth is illustrated by the graph. Therefore, the development of trust had positively influenced QO's performance in the earnings growth. Moreover, the data analysis shows that the higher improvement in the earnings growth occurred in the later years of the relationships emphasising that the transference-based trust had the higher influence on this performance dimension. Hence, the trust and particularly the transference-based trust had positive impact on QO's performance in terms of the earnings growth.

**c) Profitability**

Graph 7.5 shows that QO had achieved high profits improved over the supply chain relationship. According to the interviewees, QO had realised high profitability during the supply chain relationships with the upstream parties and the downstream parties investigated in this research. In relation to the length of the supply chain relationships and QO's profitability, all the participants indicated that QO's performance in this dimension had improved with the duration of the supply chain relationship. This perception was explained by the interviewees based on the experience the parties had maintained over the course of the relationship and the exchange of experiences among them, which sustained the improvement and increased the supply chain efficiency. Foremost, the analysis indicates that the improvement of QO's profitability had occurred concurrently with the development of trust in QO's supply chain relationships. Hence, the development of trust in QO's relationships had improved QO's profitability.

**d) Cost Saving**

Cost saving as a performance dimension used to measure QO's performance was investigated. As illustrated in Graph 7.5, QO had achieved improvement in the cost saving over the course of the supply chain relationship. This improvement had been asserted by all the interviewees in QO. As indicated in the graph, QO's cost saving had improved in accordance with the development of trust in QO's supply chain relationships. The participants indicated cost saving had increased in line with the development of trust in the supply chain relationships. Therefore, the analysis of QO's performance in the cost saving in relation to the trust emphasises that the trust had major role in the improvement

of QO's cost saving. Additionally, the analysis indicates interlink between trust development in QO's relationships and the improvement identified in QO's cost saving. as indicated in Graph 7.5, higher cost saving achieved by QO when higher trust had developed in QO's supply chain relationships, which involved higher development of transference-based trust. Hence, the transference-based trust is identified as the most influential type of trust in the improvement of QO's cost saving.

**e) Market Share**

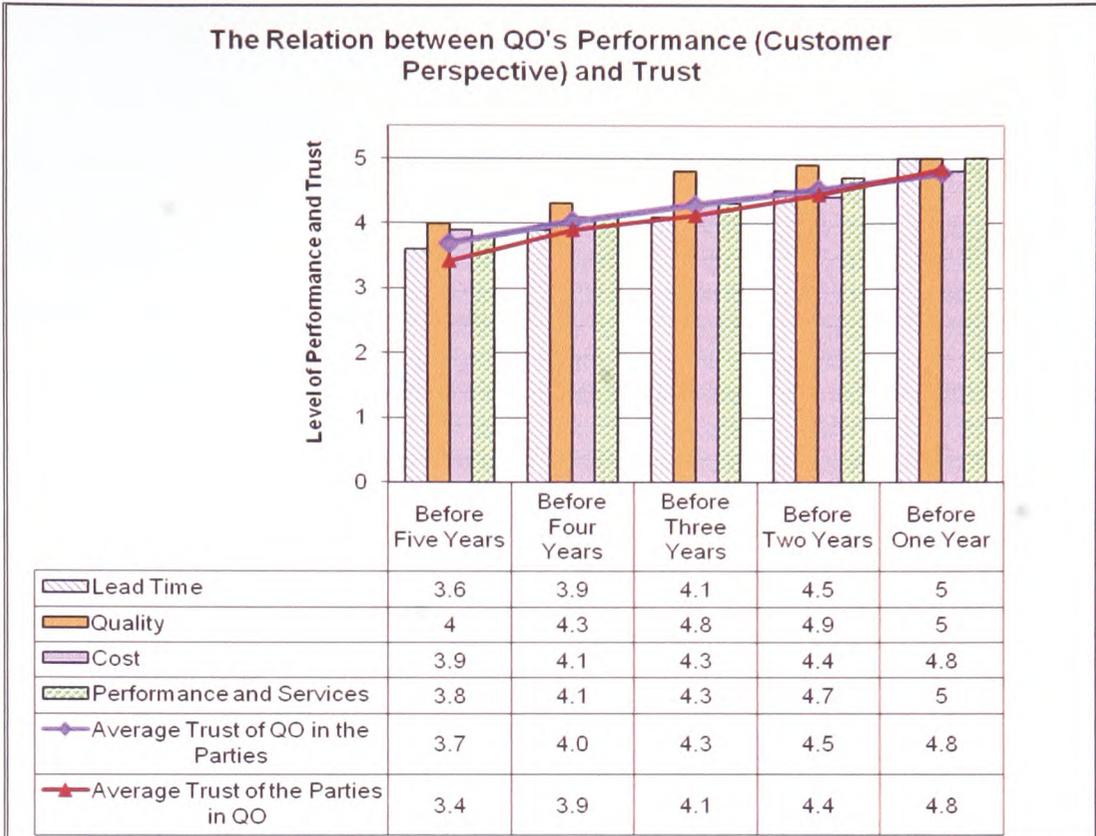
As indicated by Graph 7.5, QO's performance in the market share was high. The interviewees in QO commented on the high performance achieved by QO in this respect and indicated that QO had acquired a high market share in comparison to other organisations in the market. The participants emphasised that QO had achieved this high market share with the duration of the considered supply chain relationships. They reported difficult situations that had been faced by QO in achieving this performance and stressed the supportive role of the supply chain parties in overcoming these situations, which eventually resulted in QO's achievement of this performance in the market. Both the average analysis results indicated in Graph 7.5 and the participants' opinions explicit that the improvement occurred in QO's market share was triggered by development of the identified trust in QO's supply chain relationships. Hence, the development of trust in QO's relationships had positively influenced the performance of QO's market share. The improvement in the market share had happened concurrently with the development of trust and higher market share had been achieved by QO when higher transference-based trust developed in the supply chain relationships.

Having identified positive relationship between the trust and QO's performance from the financial perspective, the following section will consider QO's performance in regard to the second perspective of the balanced scorecard model, which is the customer perspective.

## **2. Trust and QO's Performance From Customer Perspective**

Concerning QO's performance through its customers eyes and opinions, the customer perspective of QO's performance was investigated, using the measures of QO's lead time, QO's product quality, cost that the customer pays, and performance of QO's products and services it provides after sale. Measuring QO's performance in this perspective represents assessment of QO's performance in satisfying its customers. The reviewed literature indicates that this perspective has the capability to reveal QO's reputation in the market. Moreover, this perspective provides a clue about QO's performance in positioning its business capability in front of its customers.

In regard to the trust identified in QO's supply chain relationships, the analysis of QO's performance from the customer perspective aims to identify correlation between the trust in QO's supply chain relationships and QO's performance in satisfying its customers. The results of the average analysis of the research data of QO's performance in relation to the identified trust in QO's supply chain relationships are illustrated in Graph 7.6.



**Graph 7.6: Shows QO's Performance in the customer perspective in relation to the trust in QO's supply chain relationships**

The above graph shows explicit relationship between the trust in QO's supply chain relationship and QO's performance across the measures used in indicating the customer perspective. It shows that QO's performance had improved over the length of the supply chain relationship. The graph shows interlink between the trust development and QO's performance in this perspective. Each of these measures will be reflected on in turn, as follows.

**a) Lead Time**

Graph 7.6 shows that QO's performance in the lead times had improved in accordance with the trust development in the supply chain relationships. QO's lead time was said by the interviewees in QO to have improved over the length of the supply chain relationships. Lately, as stressed by the participants, QO's

lead time was perceived as short and within customer's expectations. This perception was in accordance with the high trust identified in QO's supply chain relationships in the year prior to the investigation. The participants pointed to market research conducted by QO which had proved that compared to other organisations in the market, QO's lead time was a competitive one. This perception was confirmed by the downstream parties selected for this study, C1Q and C2Q. They described QO's lead time as satisfactory and within the range demanded by customers. Therefore, it is identifiable that the improvement in QO's lead time was triggered by the development of trust in QO's supply chain relationships. Moreover, the analysis indicates that the development of the transference-based trust in QO's supply chain relationships had significantly improved QO's lead times, which implies that the transference-based trust was the most significant type of trust in improving QO's performance in the lead time.

#### **b) Quality**

QO's Products' Quality was the other measure used to indicate QO's performance in the customer perspective. In this context, the participants asserted the high quality of QO's products. The quality of QO's products was related by the participants to achievement of excellent quality in QO's operations. The participants indicated that QO's quality had improved with the duration of the supply chain relationship through experiences gained in the manufacturing operations. Moreover, they pointed to knowledge and skills exchange between QO and its supply chain parties on basis of trust as significantly contributed to the improvement of QO's product quality. The participants' asserted that the improvement in QO's products quality had

resulted in recognition of this quality locally and internationally. Moreover, they saw QO's product quality reflected in the increasing demand for its products in the international markets. Furthermore, they draw attention to the appreciation messages and certificates QO had received from international organisations that used QO's products. This perspective was supported by C1Q and C2Q, which are the downstream parties in QO's supply chain. Foremost, the improvement in QO's quality of products had took place in parallel with the development of trust in QO's supply chain relationships. Therefore, the trust development in QO's supply chain relationships had improved QO's product quality.

As indicated in Graph 7.6, higher improvement in QO's product quality had occurred when higher trust perceived by QO and its supply chain parties. As identified by the analysis of trust in QO's supply chain relationships, the development of higher trust in the relationships was associated with higher development of transference-based trust between QO and the parties. Therefore, the transference-based trust was the significant type of trust in the improvement of QO's product quality.

**c) Cost**

The cost of QO's products from the customer perspective was investigated. As indicated in Graph 7.6, the cost of QO's product had improved over the supply chain relationships. The interviewees emphasised that QO, through its participation in the investigated supply chain relationships, was able to improve its production cost. Referring to the latest period of these relationships, the participants asserted that the cost of QO's products had become more

competitive, making them affordable to customers. Moreover, they asserted that the cost of QO's products was low compared to those of other producers of similar products. This perception was emphasised by QO's downstream parties, C1Q and C2Q. Moreover, the participants highlighted improvement in QO's performance in this aspect with the duration of the supply chain relationships. The interviewees reported learning from previous lessons and exchange of knowledge, experience and skills among QO and its upstream and downstream parties as having a major role in achieving improvement in this performance. The analysis of the quantitative and the qualitative data maintained from QO and its parties emphasises that QO's performance in this aspect had improved concurrently with the development of trust in QO's supply chain relationships. This suggests that the trust in QO's relationships had influenced QO's performance in this aspect and the transference-based trust had considerably improved QO's product cost.

#### **d) Performance and Service**

QO's product performance and the after sales services provided by QO were investigated by the researcher to identify QO's performance in this dimension as a part of the customer perspective. As shown in Graph 7.6, QO's product and service performance had improved in accordance with trust development in QO's supply chain relationships. The participants in QO claimed high performance of QO's products on basis of the products' high quality and suitability to the downstream parties' operations. They indicated that QO's product performance was difficult to measure in terms of tangibility, because its products were chemical materials that required certain transformation processes to produce new products from them. However, high performance had been

achieved by QO, as highlighted by the participants, in terms of the shipment delivery, product conditions and safety of the delivered products.

In relation to QO's services, the participants emphasised QO's high performance in terms of its customer services, in that it considered its customers rights and resolved its customers' problems in a manner that ensured their satisfactions. These opinions of QO's performance and services in regard to the customer perspective were emphasised by C1Q and C2Q.

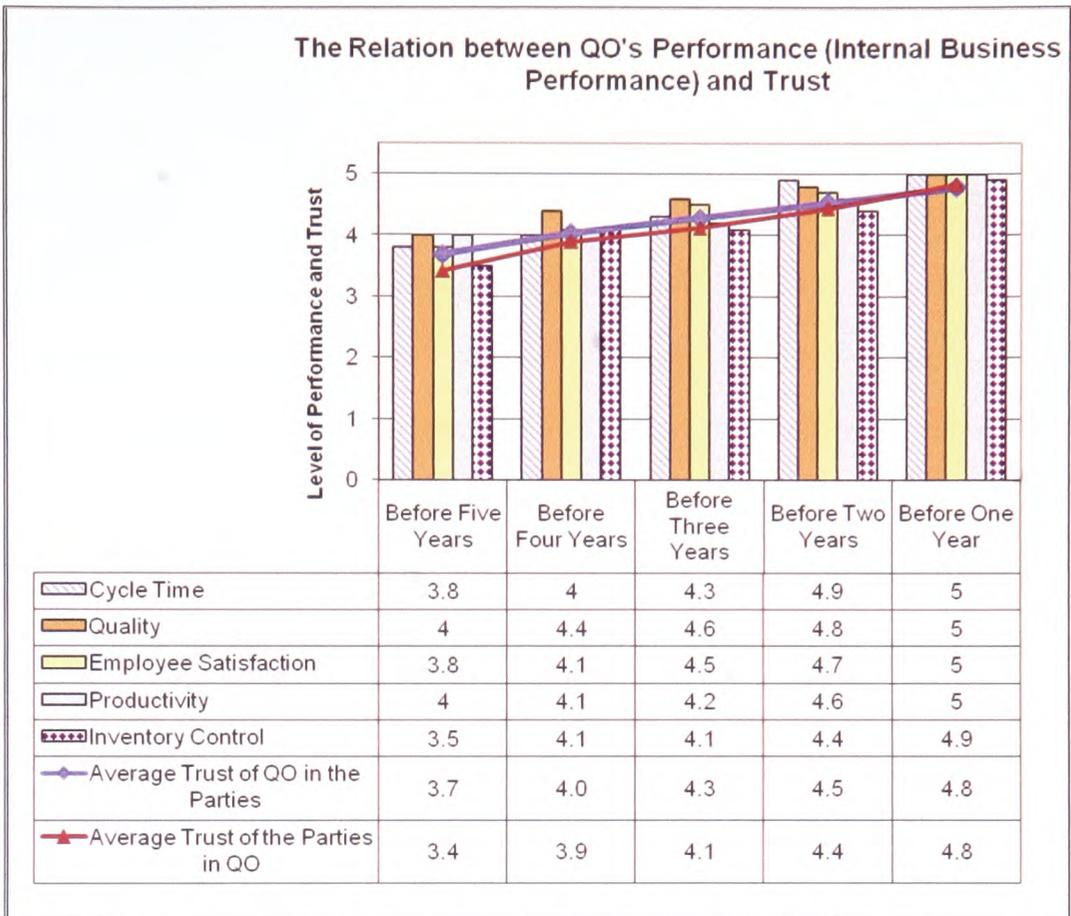
In relation to the trust in QO's supply chain relationships, the participants indicated that QO's performance from this perspective had improved over the length of the supply chain relationships. All the participants emphasised that the best performance was achieved by QO in this respect in the later years of the period of investigation in regard to the supply chain relationships. According to the participants in C1Q and C2Q, QO was performing well in this respect and the participants in these downstream parties emphasised the improvement in this aspect of QO's performance with the duration of the supply chain relationships. Therefore, the development of trust in QO's supply chain relationships had improved QO's product performance and the after sales service it provided to its customers. Additionally, it is identifiable that the transference-based trust had played the major role in this performance improvement.

Having identified positive correlation between the trust in QO's supply chain relationships and QO's performance in regard to the customer perspective, the

next section will consider QO's performance from the third perspective of the balanced scorecard model, which is the internal business performance.

### **3. Trust and QO's Performance From Internal Business Perspective**

QO's internal business performance was investigated through the performance measures identified through the reviewed literature, which are the cycle time in QO's operations, quality involved in QO's operations, QO's employee satisfaction, QO's productivity and QO's inventory control. Through these measures, QO's performance in relation to the trust identified in QO's supply chain relationships has undergone average analysis. The analysis aimed to identify correlation between the trust and QO's performance from this perspective to clarify the relationship between the trust in QO's relationships and QO's internal business performance. The results of the average analysis are illustrated in Graph 7.7.



**Graph 7.7: Shows QO's internal business performance in relation to the trust in QO's supply chain relationships**

**a) Cycle Time**

The interviewees asserted that a satisfactory and reasonably short cycle time was achieved in QO's operations. They identified QO's cycle time in its operations and administrative tasks as brief and effectively coped with the required and planned productivity in QO's operations. In pointing to the cycle time reduction achieved in QO, the participants emphasised that QO's performance in this respect had improved over the course of the supply chain relationships. The participants indicated that as the supply chain relationships progressed, QO and its parties were increasingly able to achieve harmony in the activities of the supply chain, which as a consequence saved QO's time and

enabled it to focus on the improvement of its cycle time. Moreover, the interviewees referred to exchange of experience and skills between QO and its parties, which was perceived as helpful in improving QO's cycle time. Overall, all the participants asserted the improvement of QO's performance in regard to the cycle time and the high performance achieved by QO in this respect, compared to other organisations in the market. Hence, QO's performance in the cycle time dimension is identified as satisfactorily high and improved over the course of the supply chain relationships. Therefore, the trust development in QO's supply chain relationships improved QO's cycle time. Moreover, Graph 7.7 indicates that the high performance achieved by QO in the later years of the supply chain relationships was associated with high performance achieved by QO in the cycle time, which identifies critical role played by the transference-based trust in the improvement of QO's cycle time.

**b) Quality**

QO's internal business quality was investigated to determine its performance in this respect. The participants highlighted improvement in QO's internal business quality and indicated that this improvement had occurred throughout the supply chain relationships, reaching its peak in the latest year investigated. In asserting this aspect of QO's performance, the participants referred to QO's quality certificates, which showed that it to have high internal business quality and to operate in accordance with quality standards set by international quality bodies or organisations. Moreover, the participants pointed to improvement in QO's planning accuracy, cycle count accuracy, percentage of problem-free installations and reduction in waste production in QO's operations. According to the participants, in the last two years of the supply chain relationship QO had

achieved higher performance in this aspect and particularly in the year before this investigation. Therefore, the analysis here indicates that QO's internal business quality performance had improved with the trust development in QO's supply chain relationships over the course of the relationships with the considered supply chain parties. Hence, positive influence was exerted by the development of trust in QO's relationships on the quality of QO's internal business performance.

**c) Employee Satisfaction**

Employee satisfaction was taken as an indication of QO's internal business performance. As indicated in Graph 7.7, QO had achieved high performance increased gradually with the duration of the supply chain relationships and the trust development in the relationships. The interviewees in QO emphasised the high performance achieved by QO in this respect. They noted QO's concern for its employees' satisfaction, manifested in its conducting yearly employee performance appraisals. In this regard, the participants emphasised that these appraisals were very helpful to QO's employees, because this gave them a sense of importance and the appraisals helped QO to identify the achievement of its employees, their abilities and their requirements and so upgrade them. Overall, all the participants emphasised QO's high performance in satisfying its employees. This satisfaction was demonstrated in terms of the employees' salary, employees' facilities, working time and advantages that QO provided for its employees, including a convenient and safe working environment. In regard to the supply chain relationships, the participants emphasised improvement in employee satisfaction in accordance with the improvement achieved in the supply chain relationships. Over the course of the supply chain relationships,

QO was said to have been able to achieve development in its employees' satisfaction. Therefore, QO's performance in the dimension of employee satisfaction is identified as high and improved with the length of the supply chain relationships, which implies that this improvement had happened in this performance in accordance with the trust development in QO's supply chain relationships. Hence, the development of trust had positively impacted QO's performance in the employee satisfaction.

**d) Productivity**

QO's productivity was investigated to measure QO's internal business performance. In this respect, the participants in QO emphasised that QO had achieved a high productivity rate in its business, which had improved over the course of the supply chain relationships. This high performance was indicated by the interviewees as achieved in relation to the quality achieved in executing the internal business tasks. In this context, the participants drew attention to the minimisation of waste and low cycle time as major contributors in this performance. As indicated before and emphasised by the participants, these aspects had improved as the supply chain relationships progressed. Therefore, the trust development in QO's supply chain relationships had enhanced QO's productivity. Moreover, the improvement achieved in QO's productivity with the duration of the supply chain relationships implies improvement occurred with higher development of transference-based trust in the supply chain relationships. As indicated in Graph 7.7, in the last year of the supply chain relationships QO had achieved optimal performance in this respect. Hence, the transference-based trust had major contribution in this performance.

#### **e) Inventory**

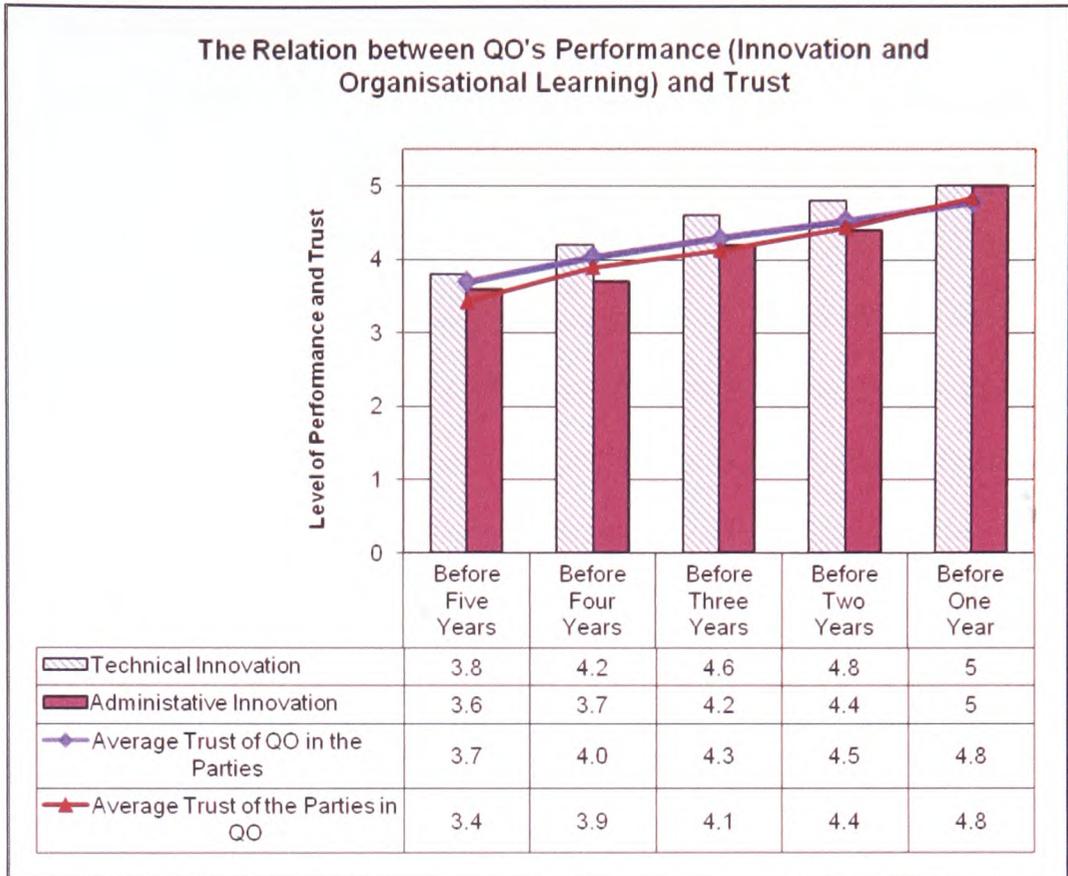
QO's performance in inventory planning and control was explored as an internal measure of business performance. The average analysis's results illustrated in Graph 7.7 indicate that QO's performance in this respect had improved in accordance with the trust development in QO's relationships. The interviewees indicated that high and efficient performance was achieved by QO in its inventory planning and control. The participants indicated that QO adopted the Just In Time (JIT) approach of inventory management. According to the interviewees, QO's performance was achieved on the basis of the high level of co-operation experienced with the studied upstream parties (S1Q and S2Q) and the downstream supply chain parties (C1Q and C2Q). The understanding reached between QO and each of these parties was stressed to have a facilitating role in this achievement. The participants indicated that at the beginning of these supply chain relationships, achievement of this performance was perceived as a matter of difficulty for QO. However, it was indicated that QO had been able to achieve better inventory control and planning with higher accuracy in forecasting the supply and demand over the course of the supply chain relationships. The participants made clear that the development occurred over time in the supply chain relationships, having a major influence on QO's ability to balance supply and demand. This eventually this enabled QO to adopt the JIT approach in managing its inventory. According to the interviewees, during the last year of the supply chain relationships, QO had achieved low inventory cost and been able to achieve optimum efficiency in managing its inventory. Therefore, QO's performance from the inventory perspective is identified as high and improved with the trust development in the supply chain relationships over the course of the supply chain relationships. Hence, the

development of trust in QO's relationships was interlinked with improvement in QO's inventory performance.

Having identified a positive impact of the trust in QO's supply chain relationships on QO's internal performance, the following section will provide analysis of QO's performance in the innovation and organisational learning in relation to the trust in QO's relationships.

#### **4. Trust and QO's Performance From Innovation and Organisational Learning Perspective**

QO's performance from the perspective of innovation and organisational learning was investigated through QO's achievement of technical and administrative innovations. The average analysis of the research data has yielded the results illustrated in the following graph:



**Graph 7.8: Shows QO's performance in the innovation and organisational learning perspective in relation to the trust in QO's supply chain relationships**

**a) Technical Innovation**

Graph 7.8 shows that QO had achieved gradual improvement in the technical innovation. As indicated in the graph, this improvement had happened concurrently with the development of trust in QO's supply chain relationships. The participants highlighted that QO had achieved incremental improvement in realising technical innovation over the period of the supply chain relationships with the considered supply chain parties. QO's technical innovation was illustrated by QO's Procurement and Logistics Manager to take multiple forms, including continual improvement in QO's product quality, implementation of computerised customer service points where customers could raise complaints

or suggestions in regard to delivered products, and development of new chemical products. The other participants confirmed this perception and highlighted QO's high level of technical innovation performance through improvements and developments in QO's infrastructure that allowed QO to achieve speed and reliability in execution of tasks. Therefore, from the perspective of technical innovation, QO had attained high performance and this performance had improved in accordance with the duration of the supply chain relationships and consequently with trust development in the relationships. As indicated in Graph, 6.8, the higher trust development in QO's supply chain relationship was associated with higher level of technical innovation achieved by QO. Consequently, the transference-based trust, which is identified in the literature as the highest level of trust in the supply chain relationship, was responsible for the best performance achieved by QO in this respect.

**b) Administrative Innovation**

QO's administrative performance refers to its functioning in accomplishing administrative tasks. The participants indicated that QO had introduced innovation in its administrative tasks to cope with its business needs in order to enhance the contribution of QO's administrative functioning to QO's operations. In this aspect, QO's Marketing Manager emphasised that high innovation was achieved by QO through continuous learning from the lessons of the organisation past. In other words, it realised improvements in its administrative performance on the basis of the consequences of implemented actions and procedures learnt from the past experience. QO's Technical Customer Services Engineer also emphasised QO's high performance in this aspect, saying:

*“QO has adopted a policy of continuous innovation in its administrative processes and procedures to compete in the market. It outperforms many organisations in this industry, especially in the Qatari Market. It has achieved this performance through sharing helpful experiences and skills with the supply chain parties, besides knowledge and skills gained through its openness to developments in other organisations.”*

All the participants asserted that QO's high performance in administrative innovation had developed over the course of the supply chain relationships. Therefore, QO had achieved this innovation in accordance with the trust development in relations with its supply chain partners.

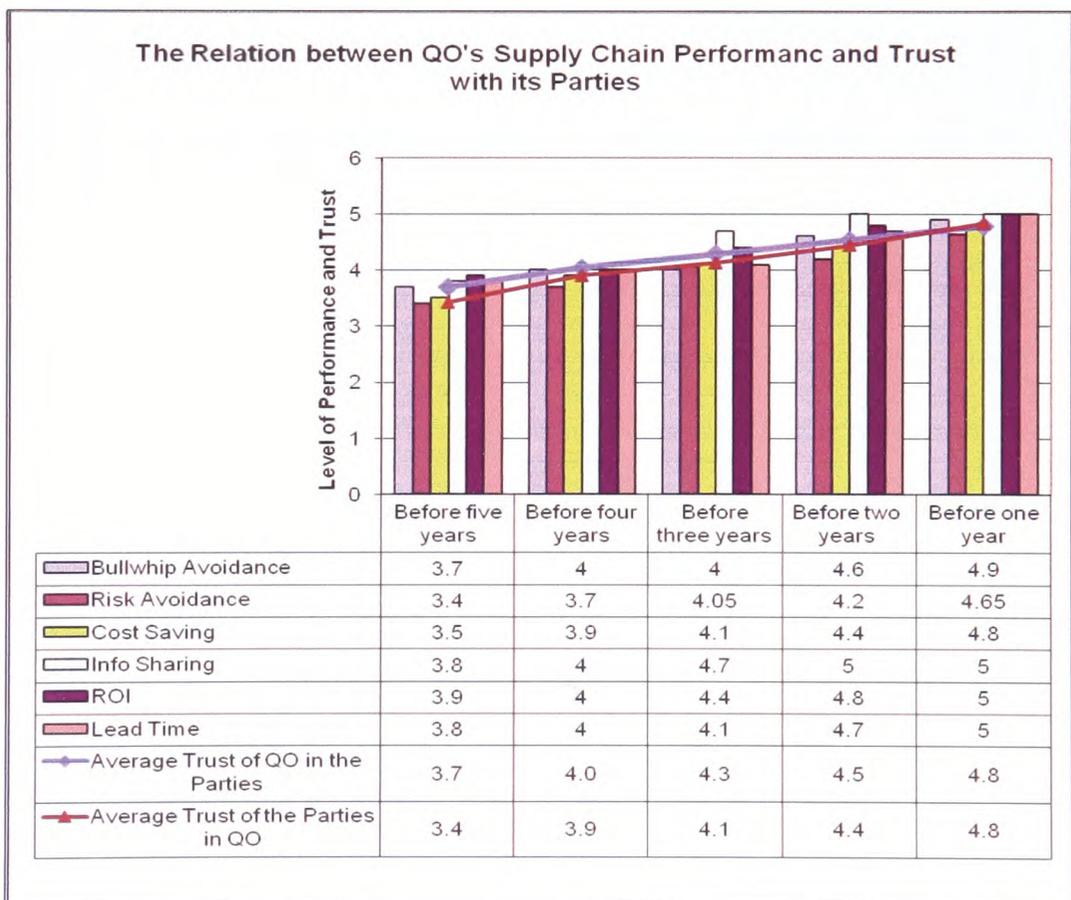
Following this analysis of QO's performance in the light of the studied supply chain relationships, the next section will consider QO's supply chain's performance in relation to the investigated and identified trust in QO's supply chain relationships.

#### **7.3.4 Analysis Of QO's Supply Chain Performance In Relation To Trust**

The analysis in this section aims to ascertain correlation between the identified trust in QO's supply chain relationships and QO's supply chain performance over the five years selected for studying the relationships. The objective of identifying this correlation is instilled in the research goals and objectives, where as stated in chapter 1, one of the main goals of this research is to identify the role of trust in supply chain performance. In order to achieve this objective, this section will analyse supply chain performance in the light of the trust

identified in the studied supply chain relationships between QO and each of the upstream and downstream parties.

Pointing to the data collection process, QO's supply chain relationship was investigated in accordance with the investigation of trust in QO's relationships. The research data has caused to undergo average analysis and the results of the overall supply chain performance in relation to the trust in QO's supply chain relationships are exemplified in Graph 7.9.



**Graph 7.9: Shows QO's overall supply chain performance in regard to the trust in QO's supply chain relationships**

QO's supply chain performance was investigated to allow identification of performance on the basis of the supply chain dimensions and measures illustrated in the research framework. The analysis here commences with the inventory dimension of the supply chain performance, taking into consideration occurrence of the bullwhip effect in the supply chain, as follows:

#### **1. Trust and QO's Supply Chain Inventory (Bullwhip Effect Occurrence)**

QO's supply chain inventory performance was investigated in order to depict this performance in relation to the identified trust in the supply chain relationships. as indicated in Graph 7.9, the average analysis results of the research data indicates that QO's supply chain had achieved incremental improvement in the bullwhip effect avoidance concurrently with the development of trust in QO's supply chain relationships. Concerning QO's opinion of its supply chain performance in this dimension, the participants asserted that the performance of the supply chain in the inventory planning and control was high. This perception was indicated by all the interviewees in the upstream and the downstream parties selected for this study. All the participants emphasised that there had been incremental improvement in this dimension during the course of the supply chain relationships. Concerning the exploration of the extent of to which the bullwhip effect occurred in QO's supply chain, the interviewees in QO emphasised it was very rare. This perception was asserted by the participants in both the upstream and the downstream parties. Therefore, QO's supply chain performance had improved in accordance with the trust development in QO's supply chain relationships, which implies that the development of trust over the course of the supply chain relationships had influenced the improvement of this performance.

The next dimension considered in this research in regard to the trust in QO's supply chain relationships is the supply chain's information sharing.

## **2. Trust and QO's Supply Chain Information Sharing**

The information sharing between QO and the studied upstream and downstream supply chain parties was explored to measure the openness and sharing of information in the supply chain in light of the identified trust between QO and each of the studied supply chain parties. The average analysis's results of the information sharing in QO's supply chain in relation to the identified trust in QO's supply chain relationships are illustrated in Graph 7.9. The graph demonstrates improvement occurred in QO's supply chain information sharing in accordance with trust development in QO's supply chain relationships. The perception of information sharing was investigated first from QO's point of view. The interviewees in QO have asserted the existence of a high level of information sharing between QO and both the upstream parties and the downstream parties selected for this study. According to the participants, this information sharing had occurred and improved over the course of the supply chain relationships. They emphasised that QO frequently exchanged information with the parties concerned, officially and unofficially. They referred to the role of technology in this aspect, as it was been utilised to facilitate information sharing in the supply chain.

Regarding the type of information exchanged between QO and the supply chain parties, the participants referred to information sharing in regard to the customer information necessary to forecast demand, sharing of supply information, information related to new trends in the market, information

related to new technology innovation, information in regard to new market entrants, competitors' information and forecasts of market situations and information on potential markets for product distribution. The participants in both the upstream and downstream parties' expressed a similar perception of information sharing in the supply chain relationships. Furthermore, the participants in the upstream supply chain parties noted the significant role that such information sharing played in inventory planning and control and indicated that the supply chain materials flow was greatly influenced by this information sharing, as it was possible to eliminate uncertainties related to the demand in the supply chain.

The participants within the downstream parties drew attention to the transparency in exchanging information with QO, which had a major effect on the supply chain performance and asserted that a high level of information sharing took place, both officially and unofficially. The interviewees in the downstream parties have highlighted the significance of information they provided in allowing QO and its upstream parties to have advance warning of demand in the supply chain. Concerning innovation in information sharing, all the participants in QO and in the upstream and the downstream supply chain parties' emphasised that continual improvement had occurred in this respect over the course of the supply chain relationships. Implementation of new technology, change in information processing and training to upgrade the capabilities of the employees in the information systems departments were some of the innovations that were asserted as instilled in QO and its supply chain parties to facilitate information flow. Therefore, high information sharing is identified to have occurred in this supply chain and this performance had

improved with the duration of the supply chain relationships, which indicates that this performance had improved with the trust development in QO's supply chain relationships.

Having identified the relationship between the bullwhip effect, the supply chain information sharing and the impact the trust has on their occurrences, the next section will provide analysis of QO's supply chain cost saving in relation to the identified trust between QO and the considered supply chain parties.

### **3. Trust and QO's Supply Chain Cost Saving**

Graph 7.9 shows interrelated relationship between trust development in QO's supply chain relationships and improvement of QO's supply chain cost saving. Cost saving and the supply chain's performance in this aspect were explored from QO's point of view and those of each supply chain party involved in this study. The interviewees in QO identified increasing improvements in cost saving in the supply chain over the course of the supply chain relationships. This improvement was reflected in achievement of minimal waste production, better utilisation of the organisation's facilities and resources and implementation of new technologies bringing lower operating costs. This perception was supported by the interviewees in the upstream and the downstream parties. Cost saving at the time of conducting this research was indicated by the interviewees in QO and in the studied supply chain parties to be high and to have improved relative to previous financial periods. As indicated in the sections on trust in QO's supply chain relationships, trust was identified to have improved with the duration of the supply chain relationships. This improvement of this performance over the course of the supply chain

relationships implies that trust had influenced supply chain performance and resulted in a better cost saving in the supply chain.

Having indicated QO's performance in regard to the cost saving dimension, the next section will consider the return on investment in QO's supply chain in relation to the identified trust in QO's supply chain relationships.

#### **4. Trust and QO's Supply Chain Return On Investment (ROI)**

Return on Investment (ROI) was examined as an indicator of QO's supply chain performance. As indicated in Graph 7.9, the results of the average analysis show improvement occurred in QO's supply chain relationship in accordance with the identified trust development in QO's supply chain relationships. In this regard, the participants asserted that high ROI had been achieved by QO's supply chain and continuous improvement in the supply chain ROI had occurred incrementally over the course of the supply chain relationships. Regarding improvement in this aspect, QO's Procurement and Logistics Manager pointed to QO's supply chain past performance and its current performance and indicated a noticeable improvement in ROI achieved over the course of the supply chain relationships with the considered supply chain parties. This was perceived by all the participants in QO and claimed to be a significant contributor in QO's overall business growth. The interviewees in QO asserted that the supply chain ROI had improved from better to best with experience gained during the course of the supply chain relationships. Pertaining to the perspectives of the supply chain parties, the participants in both the upstream and the downstream parties strongly agreed regarding the high level of performance and pointed out that collaboration with QO had a

strategic role in realising the continual improvement in ROI had been achieved by the supply chain. Emphasising this high performance, the participants compared the high ROI achieved in QO's supply chain with the levels achieved in other organisations' supply chains and ROI achieved in similar industry settings and within the same financial period. Therefore, the supply chain performance in terms of ROI is identified as high in this supply chain and the supply chain has achieved improvement over the duration of the supply chain relationships. Therefore, the trust in QO's relationships had influenced QO's supply chain ROI performance and this performance had improved with the development of the trust in QO's supply chain relationships.

Having identified achievement of high ROI by QO's supply chain and identified that this performance had improved over the length of the supply chain relationships and trust development, the next section will consider QO's supply chain performance from the perspective of the supply chain lead time.

## **5. Trust and QO's Supply Chain Lead Time**

The supply chain lead time was another indicator of supply chain performance. As illustrated in Graph 7.9, QO's supply chain lead time had improved incrementally with the development of trust in QO's supply chain relationships. The interviewees in QO highlighted the short and competitive lead time in the supply chain, which was described as satisfactory. The participants noted that there had been improvement in the supply chain lead time over the course of the studied supply chain relationships. To highlight the extent of this performance, the participants pointed to competitors' lead times and compared QO's supply chain high performance favourably in this respect. The upstream parties

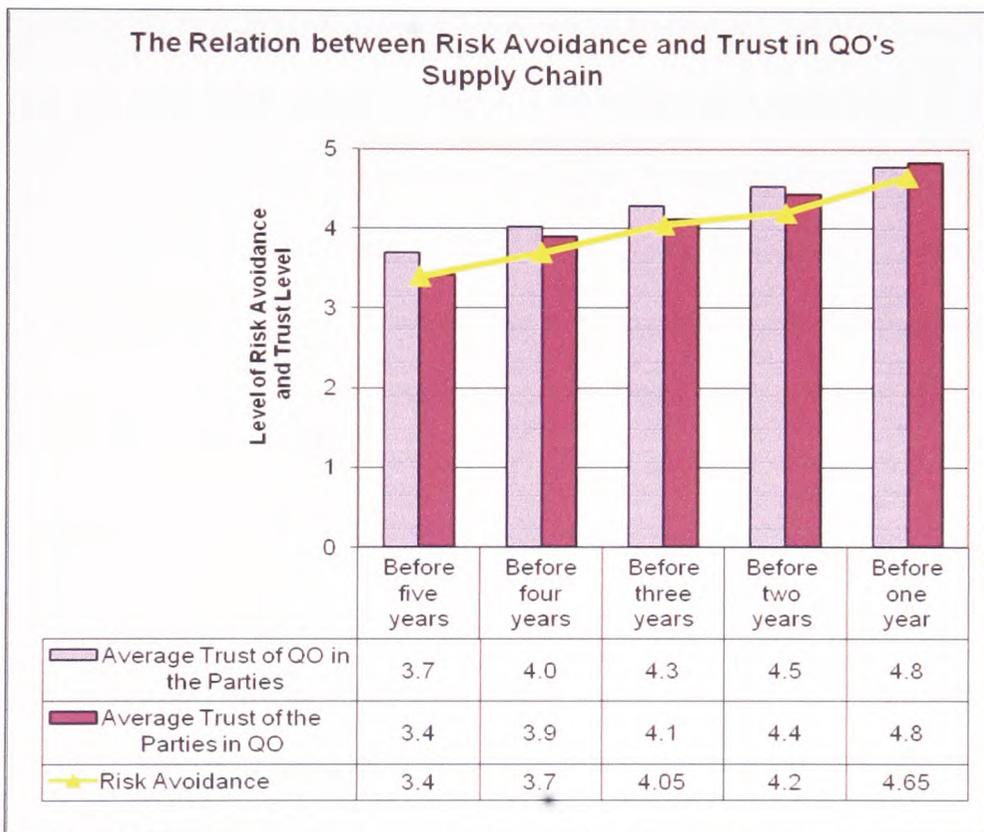
confirmed QO's perception. Meanwhile, the downstream supply chain parties not only expressed satisfaction with the supply chain lead time but also emphasised that it surpassed their expectations.

As indicated in Graph 7.9, the development of trust in QO's supply chain relationships had a direct relationship with QO's supply chain lead time performance. The graph shows that QO's supply chain had improved concurrently with trust development in QO's supply chain relationships. Hence, the development of trust in QO's relationships had triggered QO to achieve high performance in the lead time. Thereby, it is identifiable that the development of trust had positively impacted QO's supply chain lead time performance. Moreover, the short lead time emphasised by the interviewees are well illustrated by Graph 7.9 in the later years of the supply chain relationships. In this context, the graph indicates that higher performance was achieved by QO's supply chain within those years, especially in the year prior to this investigation. As identified by the supply chain relationships analysis, transference-based trust had become the prominent type of trust during this period. Hence, the transference-based trust was the one that significantly contributed to the improvement of QO's supply chain lead time.

The next section considers the supply chain performance in regard to risk avoidance in respect to trust between QO and each of supply chain parties considered by this research.

## 6. Trust and Risk Avoidance In QO's Supply Chain

This sections aims to build correlation between the trust in QO's supply chain relationships and avoidance of risk in QO's supply chain. The risk avoidance was investigated in the four supply chain relationships selected for this study. The average analysis of the research data of QO's supply chain performance in relation to trust in QO's relationships has yielded the results illustrated in the following graph:



**Graph 7.10: Shows the overall risk avoidance achieved in QO's supply chain in relation to the trust in QO's supply chain relationships**

The above graph shows that the overall performance of QO's supply chain in the risk avoidance had gradually improved in accordance with the identified development of trust in QO's supply chain relationships, which implies that the trust development had positively impacted QO's supply chain performance in

this respect. Referring to the qualitative data maintained from QO and its parties, the participants' comments support the average analysis's results illustrated in Graph 7.10. In this regard, the participants asserted that QO had been able to improve its accuracy in forecasting supply and demand in the supply chain as the supply chain relationships progressed. Consequently, uncertainty in demand and uncertainty in supply were rare. According to the participants, the supply chain relationships were very influential in reducing supply chain risk and improving accuracy of supply and demand forecasting. The interviewees in both upstream parties and downstream parties emphasised this, and indicated that risk occurrence in the supply chain was rare and within control. Therefore, QO's supply chain had achieved high performance in regard to risk avoidance and the trust in QO's supply chain relationships is identified to have had a positive influence on this improvement, as the improvement in risk avoidance happened over the course of the supply chain relationships.

Having identified that the trust has a positive impact on QO's supply chain performance, the next section will provide discussion of the research questions in the light of the case study analysis.

#### **7.4 DISCUSSION RELATED TO THE RESEARCH QUESTIONS**

The analyses of QO's relationships with the selected supply chain parties have resulted in identifying transference-based trust in all the considered relationships. The other types of trust, which are calculus-based trust and knowledge-based trust, were identified in these relationships as well. The analyses have led to identification of development of higher trust over the course of the relationships through repeated interactions between QO and the considered supply chain

parties. In this respect, the studied relationships between QO and the upstream and downstream parties are identified as high trust relationships. This research has been conducted to achieve its goals and objectives and one of its goals and objectives is answering the research questions. Each of the research questions will be answered here in light of the analysis of QO's case study.

***QUESTION 1: Does the level of trust between supply chain's parties increase in accordance with the length of the supply chain relationship?***

The analyses have indentified occurrence of trust development with the duration of the supply chain relationships in relation to the identified types of trust; calculus-based trust, knowledge-based trust and transference-based trust. As identified by the analyses of the relationships involved in this case study, the relationship building begins with calculus-based trust and then trustworthiness attributes related to the knowledge-based trust and the trustworthiness attributes related to the transference-based trust develop accordingly, without waiting for the full development of knowledge-based trust in the relationship. Therefore, in regard to the theory of stages of trust development, the analyses of the relationships in this case study emphasise that knowledge-based trust and transference-based trust form in the same stage, instead of in separate stages as indicated in the theory.

***QUESTION 2: Does the supply chain performance improve with development of trust in the supply chain relationship?***

In the light of the identified trust in the relationships, the supply chain performance was identified to undergo improvement in accordance with the development of trust in the supply chain relationships. The analysis of QO's

supply chain performance in relation to trust in QO's relationships resulted in clarifying importance of higher trust development in the supply chain relationship to improve the supply chain performance. Transference-based trust was identified as the one that responsible for higher contribution in the improvement of QO's supply chain performance. Referring to the reviewed literature, transference-based trust represents higher development of trust in supply chain relationship. Hence, the analysis of this case study explicated interrelated relationship between trust development in supply chain relationship and supply chain performance improvement and identified transference-based trust as the significant type of trust that contributed to this improvement.

***QUESTION 3: Does the organisation performance improve with development of trust in the supply chain relationship?***

The analysis has indicated interlink between the trust development and QO's performance. Based on this case study analysis, the trust in the supply chain relationships is identified to have major impact on the organisation performance. In this regard, the analysis has shown a solid relationship between organisation performance and the duration of the supply chain relationships, which suggests that organisation performance increases in accordance with the development of the trust in the supply chain relationships. This was supported by the factual data maintained from QO and its supply chain parties as presented in Appendix 3. Moreover, as indicated in the analyses of both the supply chain relationships and QO's performance, it was recognised that the transference-based trust identified in the supply chain relationships has the major role in the achievement of QO's high performance. This is because transference-based trust implies goodwill intentionality among the parties and this consequently results in their interactions

to coming to be characterised by collaboration to overcome obstacles and problems in the supply chain.

**QUESTION 4: *Does trust availability in the supply chain relationship minimise supply chain risks?***

The analysis of QO's case study indicated that the trust in QO's supply chain relationship has major influence on hedging against risk and consequently realisation of improvement in the supply chain performance. As has been indicated, the supply chain performance in the aspect of risk avoidance was identified as having improved with the development of trust in the supply chain relationships. Therefore, the results of the analysis of this case study assert that supply chain risk could be minimised and brought under control by adopting trust relationships in the supply chain.

**QUESTION 5: *Does the existence of trust between supply chain parties represent a source of risk in the supply chain?***

The analysis of QO's relationships and its supply chain performance indicated that the trust is not a source of risk unless the trust in the relationship became violated. Violation of trust converts the trust relationship into distrust relationship. Since, the trust relationships in QO's supply chain provided evidence of supply chain risk minimisation, distrust relationship could become a source of risk occurrence in the supply chain.

**QUESTION 6: *Does trust in the supply chain relationship strengthen the supply chain relationship and prolong the supply chain relationship?***

The analysis of the supply chain relationships in QO's case study indicates that the trust developed over the course of the supply chain relationships. This implies that the trust in the supply chain relationships strengthen the supply chain relationship and results in prolonging the relationship. Moreover, the analysis indicated that the benefits that had been gained by QO's and its parties from the trust in the supply chain relationship had triggered the parties to exchange mutual trust in the relationship and consequently this prolonged the supply chain relationship between them.

**QUESTION 7: *Does trust between supply chain parties reduces barriers in the processes of information sharing between the parties and lead to better level of information sharing between them?***

The analysis of QO's case study identified interlink between trust development in the supply chain relationships and exchange of information between the parties involved in the relationship. Foremost, the analysis identified occurrence of high information sharing between QO and its parties when the trust developed to its higher level and transference-based trust become dominant in the relationship. This implies that the transference-based trust has significant role in motivating the supply chain parties to exchange supply chain information.

**QUESTION 8: *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the supply chain performance differently from one industry setting to another?***

The answer of this question requires combining the findings of the three case studies. Therefore, this question will be answered in the overall findings of the research.

**QUESTION 9: *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the organisation performance differently from one industry setting to another?***

Similarly to the answer of question 8, this question will be answered in a later part of the research.

**QUESTION 10: *If trust has an impact on performance, is the impact of trust between supply chain parties territory oriented, so that when it exists in one territory it impacts the supply chain performance and the organisation performance differently from the trust that occurs between supply chain parties in another territory?***

This question considers the findings of the analyses of the three case studies. It cannot be answered depending on one case study. Therefore, it will be answered in the overall findings of the research.

## **CHAPTER 8**

# **THE RESEARCH FINDINGS, CONCLUSIONS AND IMPLICATIONS**

### **8.1 INTRODUCTION**

The supply chain relationships in three different territories were analysed in the previous chapters of this thesis for the level of trust in the supply chain relationships to explore the effect that the trust has on the supply chain performance and the organisation performance. This chapter provides discussion of the research questions in the light of the results of the analyses of the three case studies. Then, it provides the research findings through combining the findings generated from the analyses of the three case studies. After that, the chapter proceeds to provide conclusions and debates the conclusions in the context of the literature. Then, it highlights the research theoretical contributions and managerial implications. Finally, the chapter ends with suggestion for future research in the domain of supply chain management.

### **8.2 DISCUSSION OF THE RESERACH QUESTIONS**

This section discusses the research questions that were developed on basis of the reviewed literature, and presented in chapter 3. The findings generated from the analyses of the three case studies will be used in this section to answer the questions developed through the reviewed literature, the research questions will be considered in the light of the analyses results of the three case studies.

## 8.2.1 QUESTION 1

**QUESTION 1:**     *Does the level of trust between supply chain's parties increase in accordance with the length of the supply chain relationship?*

This question investigates the process of building trust in the supply chain relationship and the role of the relationship duration in this process.

The qualitative and the quantitative data analyses of the three case studies identified that the level of trust in the supply chain relationship has higher opportunity to reach to higher level of trust over the length of the supply chain relationship because the length of the period of the relationship assists the parties to have a climate of understanding and it provides them with a chance to know each other better than before. This agrees with Gulati (1995) argument indicted in the reviewed literature.

As clarified in the reviewed literature, Rinehart *et al.* (2004) argued that trust develops when tangible benefits appear to both parties from the business relationship. Although, this was indicated by the results of the analyses, however, the findings indicate that the willingness of the supply chain parties to develop the trust and participate in a higher trust relationship is identified as the determinant of the trust development in the relationship. In other words, trust will not develop in the relationship unless the parties are willing to contribute to this development. Hence, the results of this research clarifies that perception of the tangible benefits from the business relationship is not enough to result in trust development in the relationship but the willingness to maintain the tangible

benefits through adopting and enforcing trust in the relationship is the most important constitute that trigger and determines the trust development between the parties.

Foremost, the results of the analyses indicate that the trust develops in stages but the stages identified through this research contradicts the theory of stages of trust development identified in the research literature review proposed by Lewicki and Bunker (1996). Instead of three stages, the results clarify that the trust building process in the supply chain relationships follows two stages and starts with the calculus-based trust activities and then it will be followed by the development of the knowledge-based trust activities and the benevolence-based trust activities. The results indicate that after the firm existence of calculus-based trust in the relationship, the trust in the relationship improves across the other two trust-dimensions and not follows the concept of the trust development stages indicated in the research literature review. In other words, the trust development follows two stages rather than three where the development of knowledge-based trust acts as facilitator for the development of stability in the calculus-based trust and gives reason for development of transference-based trust. Further debate and clarification on this result will be given in the research findings section of this thesis. Hence, the first question is answered by the research and the trust development stages are clarified through empirical research evidences to be two instead of three.

## 8.2.2 QUESTIONS 2

**QUESTION 2:**     *Does the supply chain performance improve with development of trust in the supply chain relationship?*

Question 2 aims to investigate the role of trust on supply chain performance. It looks at supply chain performance from the perspective of trust development in supply chain relationship. Based on the results of the research analyses, the trust in the considered supply chain relationships in each case study was identified to positively influence the supply chain relationship. Referring to the reviewed literature, this certainly agrees with the arguments of Tetlock (1985) and Kaplinsky *et al.* (2000) who contended that trust among firms is the only way to improve supply chain efficiencies. Also it shows consistency with Sako (1998), and Dyer and Chu (2003) findings. Moreover, the results indicate that the supply chain performance improves in accordance with the trust development in the supply chain relationships and the performance reaches its optimal when transference-based trust become exchanged in the supply chain relationship. This supports Costigan *et al.* (1998) argument where they argued that high mutual trust among members results in higher performance. Hence, the second question is answered by the research and the results of the research data analysis show consistency with the scholars' arguments (Tetlock, 1985, Kaplinsky *et al.*, 2000 and Costigan *et al.* 1998) and with the researchers' findings (Sako, 1998 and Dyer and Chu, 2003).

### 8.2.3 QUESTION 3

**QUESTION 3:**     *Does the organisation performance improve with development of trust in the supply chain relationship?*

Question 3 aims to identify the relationship between trust development in supply chain relationship and its consequences on organisation performance. In the reviewed literature this was supported by Tetlock (1985) who argued that trust improves the decision-making process in the organisation, Creed and Miles (1996) who emphasised that trust reduces control cost, Sako (1998) who found through empirical study that trust improves transaction cost in automobile industry, Wicks *et al.* (1999) who asserted that trust could provide managers with wealth of benefit including cost saving and enhanced organisational capacities, O’Brain (2001) who contended that mistrust results in a high cost in terms of time-meetings, memoranda and justification, and Dyer and Chu (2003) who found through empirical study that trust between buyer and supplier reduces transaction costs and this in turn translate into better profit performance.

Based on the research analyses results, the trust in the relationships, indicated in the three case studies, is identified to improve the organisation performance. The results identified that organisation performance measured through using the balanced score-card model improves relatively with the development of trust in the supply chain relationships. This was supported by the factual data maintained from each organisation and its supply chain parties in the three case studies. Hence, the results of the analyses of the research data support the arguments given by the scholars in the reviewed literature and prove through empirical results that trust improves organisation performance. Additionally, the

results show interlink between the level of trust in the supply chain relationship and the level of improvement in the organisation performance. Thus, this question is answered by the research.

#### **8.2.4 QUESTIONS 4 and 5**

**QUESTION 4:**     *Does trust availability in the supply chain relationship minimise supply chain risks?*

**QUESTION 5:**     *Does the existence of trust between supply chain parties represent a source of risk in the supply chain?*

Questions 4 and 5 are formulated to investigate the role of trust in the aspect of supply chain risks. In relation to the reviewed literature, the trust was viewed through two perspectives; the first considers trust as a valuable asset to minimise risk while the other views trust as a source of risk. The view of trust as minimising risk was supported in the literature by Morgan and Hunt (1994), Guilbert and Tang (1998) and Agarwal and Shanker (2003). On the other hand, the view of trust as a source of risk was supported in the literature by Mayer *et al.* (1995) and McLain and Hackman (1999) and Gallagher, (2001).

Based on the analyses results, the trust in each case study supply chain relationships is identified to minimise the supply chain risk. However, in case of question 5, the results of the research cases analyses indicate that the trust in supply chain relationships is not a source of risk. The results of the data analysis indicate that risk only occur when trust violation happen in the relationship. Concerning this aspect, the results of the quantitative and qualitative data

analyses show that the supply chain parties does not readily intervene in a trust supply chain relationship without knowing each party's intentions and pre-plan expected outcomes from each other. The results show that the parties involves in a trust relationship in a systematic way that starts with experience of relationship with the proposed supply chain party. Therefore, the trust relationship between the supply chain parties is mostly built based on confidence about each party. The results show that the upstream and the downstream parties are both adopting trust on this basis. Moreover, the results show that the supply chain parties involve in the trust relationship to share the supply chain risk. Therefore, the notion of viewing trust as a source of risk in the supply chain relationship is rejected by the results of this research data analyses. Rather, the research proves that trust in supply chain relationship helps the parties to overcome risk through cooperation, especially when transference-based trust become in existence in the supply chain relationship. Therefore, in relation to the two views of trust indicated in the reviewed literature, this research proves through empirical evidences that trust is not a source of risk; instead, its adoption in the supply chain relationship helps the parties to overcome risk.

#### **8.2.5 QUESTION 6**

**QUESTION 6:** *Does trust in the supply chain relationship strengthen the supply chain relationship and prolong the supply chain relationship?*

This question aims to explore the trust effect on the length of the supply chain relationship. In relation to the reviewed literature, the notion that trust prolongs

the duration of the supply chain relationship was supported by Rinehart *et al.* (2004). In this respect, the results of the analyses indicate that the trust develops in accordance with the length of the supply chain relationship. As clarified in answering questions 2 & 3 of this research, the research findings indicate that the trust in the supply chain relationship improves the organisation performance and the supply chain performance. The results of the data analysis clarifies that, as a consequent to performance improvement, this motivates the parties to stay in the relationship, especially when the trust is adopted to minimise risk. The results show that the parties when become able to achieve the goal of involving in the trust relationship, the relationship remains for long till its objective is no longer exist or it become unable to resist the faced risks. The results also indicated that when the trust between the supply chain parties results in risk minimisation the trust level moves to a higher one and the relationship stays for long. Thus, trust in the supply chain relationships when realises risk minimisation it prolongs the supply chain relationship. Hence, based on this research data analyses results, trust in the supply chain relationship prolongs the supply chain relationship when the objectives of adopting trust are maintained by both parties in the relationship. Therefore, this supports Rinehart *et al.* (2004) argument.

#### **8.2.6 QUESTION 7**

**QUESTION 7:** *Does trust between supply chain parties reduce barriers in the processes of information sharing between the parties and lead to better level of information sharing between them?*

This question investigates the impact of the level of trust on information sharing between the supply chain parties. The literature of the research showed many arguments about the influence of trust on the level of exchanging supply chain information and data. Authors including Tomkins (2001), Narayanan and Raman (2004) and Dressler and Muller (2003) have argued that the trust between supply chain parties melts the barriers between the parties and results in transparency in data and information sharing. However, these arguments lack approval and empirical research was indicated as a need to explore the extent of their reality.

This research, through its findings, shows that the trust in the supply chain relationship improves the information sharing between the parties. Foremost, the findings of this research identifies that the trust become effective in increasing information sharing between the supply chain parties when the transference-based trust become in exchange in the relationship. The results show that the parties when adopt the transference-based trust in the supply chain relationship the parties confidently transfer data and information with each other. Therefore, the research shows that the trust in supply chain relationship influence the level of information sharing between the parties and the strength of the influence increase in accordance with the development of trust in the supply chain relationship.

### **8.2.7 QUESTION 8**

**QUESTION 8:**     *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact*

*the supply chain performance differently from one industry setting to another?*

The aim of this question is to contribute to the development of knowledge in the supply chain management through clarifying the effect of difference in types of industry setting on the impact of trust between supply chain parties on supply chain performance.

Concerning the reviewed literature, Sako (1998) and Dyer and Chu (2003) found that trust between buyer and supplier in the automobile industry improves transaction costs. However, they recommended other research to be carried out in different industry setting to compare their findings with the other research findings in order to validate the generalisation of their research findings. This was taken into consideration by this research through considering the investigation of three case studies from three different industry settings.

The research results showed that the impact of trust on supply chain performance is similar among the different industries investigated by this research. In other words, the research findings show that regardless the type of industry setting the trust when develops in a supply chain relationship and become a matter of exchange between the parties it has similar effect on the supply chain performance. The results show that the impact of trust depends on the perceived type of trust between the supply chain parties where among the three case studies analysed by this research the trust is identified to have similar positive effect on the supply chain performance. Therefore, it is proved through evidence that the trust between supply chain parties impact supply chain

performance similarly regardless the differences in types of industry settings. Hence, the results of this research validate the generalisation of the findings of the researches done by Sako and Dyer and Chu.

### 8.2.8 QUESTION 9

**QUESTION 9:** *If trust has an impact on performance, does the trust between parties in a supply chain relationship impact the organisation performance differently from one industry setting to another?*

This question aims to explore the influence that the difference in industrial settings has on the trust influence on the organisation performance. The recommendations given by Sako (1998) and Dyer and Chu (2003) was considered by the researcher in figuring out the effect of trust on organisation performance. In this regard, the research findings showed that the trust in supply chain relationships has similar influence on the organisation performance among the three cases considered by this research, which are related to three different industrial settings. The factual data maintained from each organisation and its supply chain parties in the three case studies supported this finding. Hence, it is identified that the difference in industry settings does not affect the influence that trust has and the existence of trust improves the organisation performance in consequence with the trust in exchange between the parties in the supply chain relationship.

## 8.2.9 QUESTION 10

**QUESTION 10:** *If trust has an impact on performance, is the impact of trust between supply chain parties territory oriented, so that when it exists in one territory it impacts the supply chain performance and the organisation performance differently from the trust that occurs between supply chain parties in another territory?*

This question aims to draw understanding about trust in supply chain relationships and its impact on organisation performance and supply chain performance among different territories. It seeks to identify the role that the territory difference has on the influence that the trust has on the performance. As indicated in the literature, Burchell and Wilkinson (1997) stressed that the territory difference could influence the effect of trust in business relationships on business performance. Also Davies and Prince (2005) suggested that trust in business relationships has dynamic influence on business performance and this influence depends on the territory of the parties in the trust relationship.

Regarding this aspect, the research findings indicated that the trust has similar influence on the supply chain performance and the organisation performance regardless the territory difference. This was supported by the factual data maintained from each organisation and its supply chain parties. The investigated three supply chains were related to three different territories and the results showed that the trust influences the organisation performance and the supply chain performance similarly across the three territories. Foremost, the research findings show that the influence of the trust depends on the developed type of trust in the supply chain relationship, which means that the type of trust is the

one that has the most significant influence on the supply chain performance but not the territory. Therefore, the results of this research data analysis bear refute to Burchell and Wilkinson's assertion and to Davies and Prince's suggestion.

### **8.3 THE RESEARCH FINDINGS**

This section provides the research findings on basis of the results generated from the analyses of the three case studies supported by the factual data maintained from each organisation and its supply chain parties. The research has led to the following findings:

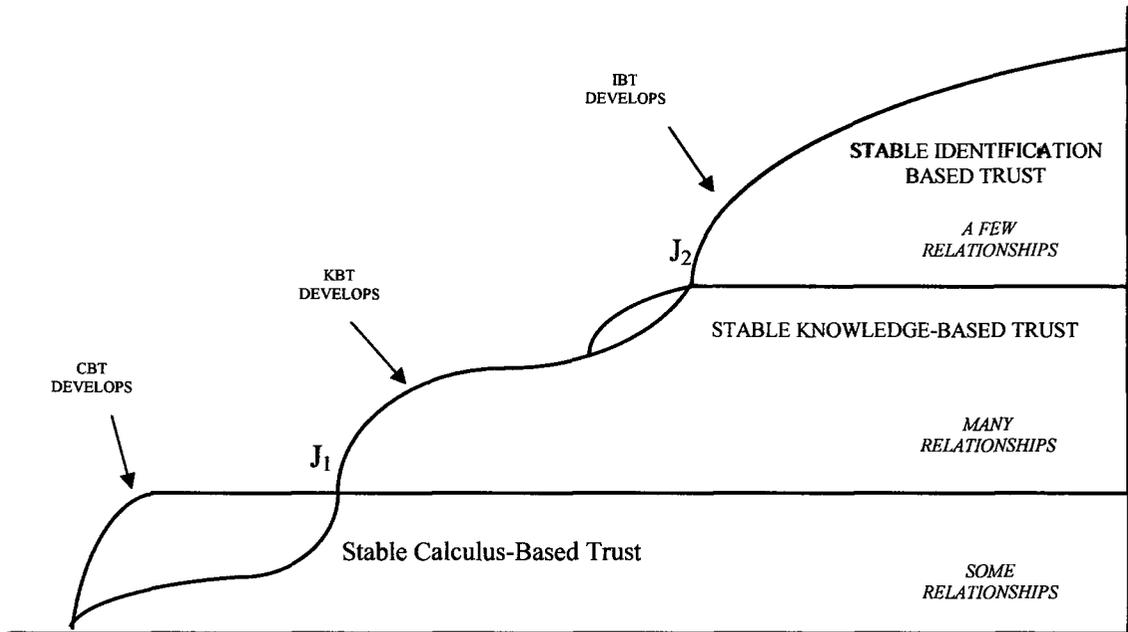
1. Trust in supply chain relationships begins with calculus-based trust activities based on the party's perceived integrity. Calculation of the possible advantages and disadvantages expected from the relationship leads to trust development when the expected advantages are greater. In the literature this finding supports Hunt (1994), Luhmann (1998), Lewicki and Bunker (1996), So and Sculli (2002), Agarwal and Shanker (2003) arguments. It is clearly presented by Rinehart *et al.* (2004) when mentioned that trust develops when tangible benefits appear to both parties from the relationship.
2. The length of the supply chain relationship allows the parties to develop willingness to further develop the trust in the relationship. In the literature, Rinehart *et al.* (2004) pointed to this through indicating that the ongoing relationships could assist tangible benefits to appear to both parties from the relationship. Also it supports Gulati (1995) argument who suggested that the ongoing relationships make parties become less likely to use formal procedures in supply chain agreements.

3. The length of the supply chain relationship alone has minor role in the development of the trust while the willingness of the parties to participate in a higher trust relationship has the decisive role in the trust development. If one of the parties showed no willingness to embed higher trust in the relationship, the length of the relationship has minor effect in motivating that party to develop the willingness. The influential or the stronger party's willingness has the major role in the trust development in the relationship. This was clearly indicated in the analyses of OMO's relationship with C10 where OMO was striving to develop trust and C10 showed no willingness to develop higher trust in the relationship with OMO. The outcome of the analyses of OMO's relationships with its downstream parties (case study 1) clearly emphasise this finding.
4. The trust in supply chain relationship leads to better organisation performance and supply chain performance and the level of improvement in the performance occurs concurrently with trust development among the supply chain parties. Occurrence of transference-based trust between the parties leads each party to act as an agent for the other which support each party position in the market and facilitate transaction among the parties.
5. Development of trust in the supply chain relationship reduces uncertainty in the supply chain and results in avoiding occurrence of highly fluctuating inventories. Consequently, it reduces the bullwhip effect in the supply chain and development of transference-based trust between the parties results in elimination of the bullwhip effect because it melts barriers between the parties and increases transparency that results in higher information sharing in the relationship, which enhances the supply chain ability to avoid the

bullwhip effect. By referring to the literature, this agrees with Kaipia *et al.* (2006) and Hull (2006) arguments.

6. Development of trust in supply chain relationship has a positive effect on risk avoidance in the supply chain and enhances the organisation ability to hedge against risk. This supports the arguments indicated in the literature given by McLain and Huckman (1999), So and Sculli (2002), Rinehart *et al.* (2004). However, it contradicts Sloman (2004) view indicated in the literature, who asserted that trust is a source of risk.
7. The research indicates two stages of trust development in the supply chain relationship instead of three as identified in the reviewed literature. In this respect, the research proves through empirical results that the calculus-based trust initiates the development of the knowledge-based trust and then the knowledge-based trust and the transference-based trust develop at one stage where each type of these two overlaps with the other without third stage of trust development. By referring to the concept of stages of trust development in the supply chain relationship, this concept can be conceptualised in form of two stages instead of three, in which the knowledge-based trust and the transference-based trust develops simultaneously. Through perception of goodwill intentionality the transference-based trust develop in the relationship and the knowledge-based trust verifies the perception of the party's goodwill intentionality in the supply chain relationship. The transference-based trust does not develop only after the full development of the knowledge-based trust but it develops concurrently with the knowledge-based trust. This finding could contend the concept of stages of trust development indicated in the literature review, as it is theorised as indicated

in the Figure 8.1 and the new concept of trust development in the supply chain relationship is illustrated in Figure 8.2.

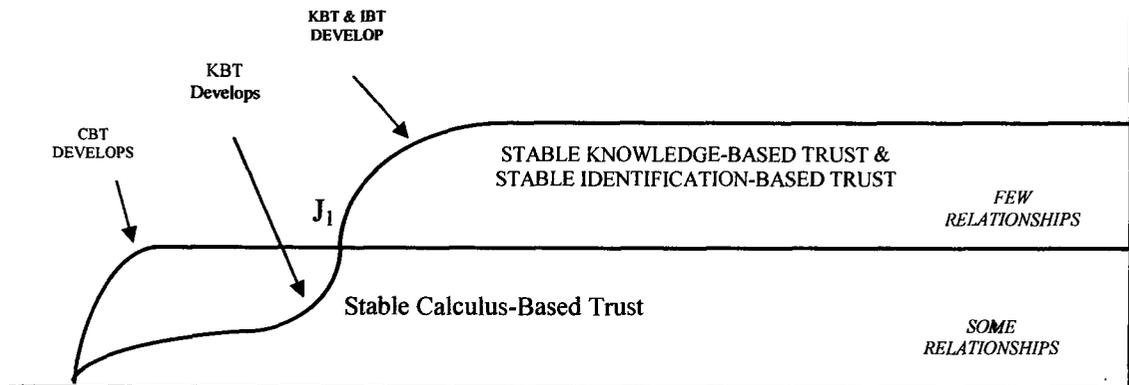


J<sub>1</sub> At this point, some calculus-based trust relationships become knowledge-based trust relationships

J<sub>2</sub> At this juncture, a few knowledge-based trust relationships where positive affect is present go on to become identification-based trust relationships

**Figure 8.1: THE STAGES OF TRUST DEVELOPEMENT (Lewicki and Bunker, 1996)**

Instead of the three stages illustrated in the above figure, this research identified two stages of trust development as indicated in Figure 8.2.



J<sub>1</sub> At this point, the Transference/Identification-based trust develops in accordance with the knowledge-based trust relationships

**Figure 8.2: THE STAGES OF TRUST DEVELOPEMENT** (Modified from Lewicki and Bunker, 1996)

As indicated in the above figure, this research indicates that the calculus-based trust become responsible for the development of knowledge-based trust between the parties. The knowledge-based trust in this stage develops to confirm the calculus-based activities by verifying the trustworthiness of the party. Then, the knowledge-based trust will have the capacity to verify further trustworthiness attributes in the relationship, which are the party's goodwill intentionality and predictability. Based on this verification and the willingness of the parties, the transference/identification-based trust develops. The knowledge-based trust has the verification role in the development of the calculus-based trust and the development of the transference-based trust in the relationship. In other words, the knowledge-based trust represents knowledge gained about the party in the relationship acts as a mediator in the development of the trust in the relationship.

## 8.4 CONCLUSIONS

This section aims to provide conclusions on basis of the research findings. The research findings generated through the results of the qualitative and quantitative analyses supported by the factual evidences maintained from each organisation and its supply chain parties can be used to conclude the followings:

### **Conclusion 1**

**Repeated interactions through calculus-based trust activities assist the parties to develop knowledge about each other, which triggers formation of willingness to develop trust on basis of experience and information gained over the length of the relationship that adjudged the trustworthiness of each other.**

This conclusion shows the reality of trust development in supply chain relationships. It indicates that the supply chain parties if not aware about the importance of the duration needed before moving to the adaptation of trust in the supply chain relationship, this could cause trust relationship from one side, where the other party might not exchange trust and possibly use the trust in the relationship in a mere beneficial form to realise its own expectations without considering the trustor. This could result in win-lose relationship that works positively for the trusted party and works for the trustee in a negative form and eventually could result in trust violation and risk. Hence, the calculus-based trust activities allow each party in the relationship to anticipate the consequences of adopting trust in the relationship. This conclusion is very significant to develop awareness among supply chain parties who are aiming to build trust relationship to be aware that the trust in the relationship needs period

of understanding before the trust becomes exerted by both parties in the relationship. Therefore, the parties need not to expect that the trust will be built in the relationship directly at the start of the relationship or even after a short period from the relationship. Understanding this point allows the parties to take caution and participate in a trust relationship with knowledge of the other party in the relationship. Moreover, this conclusion indicates that the trust to be developed in the relationship then patience is required and the trust will develop on basis of the parties willingness in relation to the trustworthiness attributes perceived from each other.

## **Conclusion 2**

**Length of the relationship does not lead to trust development in the relationship if there is no willingness developed in the relationship to participate in a better trust between the supply chain parties. The development of willingness is directly associated with benefits or advantages gained from the relationship and the trust in the supply chain relationship improves effectively when the parties frequently realise advantages from the relationship.**

This conclusion is significantly points to the importance of the parties' willingness in developing the trust in the supply chain relationship. It draws the parties' attentions toward the expected next level of trust when the trust does not achieve the parties' expectations. This conclusion makes the parties aware that the trust level not necessarily moves to a higher one but it can either move to a lower level or get eliminated from the relationship. Therefore, the parties to get their trust relationship moves to a stronger level the existence of trust in the

relationship needs to be justified and assessed in form of contributions that each of them shows toward the objective of the trust existence and exchange.

This conclusion provides realistic view to the supply chain parties in understanding the behaviour of trust building process in the supply chain relationship. It shows that when the objective of trust become often realised by the supply chain parties then this represents motives to the parties to exchange higher trust in the relationship. This provides in-depth insight about the future of the trust in the supply chain relationship and the expected level of trust based on the outcome of the trust relationship between the supply chain parties. Therefore, the trust adaptation in the supply chain has to be counted on the advantages of this trust in the relationship through the benefits gained from this relationship and the disadvantages caused by it.

This conclusion provides a highlight to the supply chain parties and assists them in the process of forecasting the next level of trust and the behaviour of the advancement of trust level expected in the supply chain relationship.

### **Conclusion 3**

**Adaption of trust in the supply chain relationship minimises risks and helps the relationship to last for a longer period.**

The reviewed literature shows conflict in viewing the benefit of trust in supply chain relationships. Some authors regard it as a source of risk that could possibly deteriorate the supply chain relationship and others regard it as a factor in the relationship that acts toward minimising risk. The research findings

identified through the research data analyses have emphasised that the trust in supply chain relationship has a major role in minimising risk. This conclusion provides the supply chain parties with confidence in adopting trust in the supply chain relationship and eliminates any hesitation that could possibly occur due to misunderstanding of the role of trust in this matter. This critical clarification of the role of trust aims to encourage the supply chain parties in adopting a calculated trust in the supply chain relationship based on experience about each other. The results of the research show that the view of trust as a source of risk could possibly hinder the adaptation of trust in the supply chain relationship and makes the parties feel redundant to trust each other and persuade the relationship to involve distrust instead of trust. Therefore, this conclusion demonstrates to the supply chain parties the importance of trust in minimising risk. Moreover, this conclusion clarifies that the trust in the supply chain relationship prolongs the supply chain relationship. Hence, the parties who are willing to participate in longer supply chain relationship then the trust is the factor to achieve this aspect. Additionally, this conclusion sheds light on the aspect of viewing trust as a source of risk and identifies negative impact of this perception of trust on the quality of the supply chain relationship, which could lead to trust deterioration and possible distrust development in the relationship through suspicious feelings about each party.

#### **Conclusion 4**

**The bullwhip effect can be reduced or eliminated by adopting trust in the supply chain relationship; which leads to information sharing and results in increased level of transparency between the**

**parties in accordance with the level of trust developed in the supply chain relationship.**

The literature review of the research provided in the chapter 2 indicates relationship between level of information sharing and occurrence of the bullwhip effect in the supply chain. As indicated in the conclusion, it draws to the parties' attention the implication of developing stronger trust in the supply chain relationship on the supply chain information sharing. The supply chain information sharing is significant to plan the supply chain requirements and prepare any required preventative measures to tackle possible difficulties and obstacles in the supply chain. Consequently, this conclusion makes the supply chain parties aware about the effect that trust has on the reduction of potential bullwhip effect occurrence in the chain.

#### **Conclusion 5**

**Trust between parties in supply chain positively impacts the organisation performance and the supply chain performance and results in consistent performance improvement commensurate with the trust development in the relationship.**

The research aimed to investigate the impact of trust on organisation performance and supply chain performance. The quality of supply chain relationship and supply chain performance was tackled by Faynes *et al.* (2008) where they found interlinked relationship between the quality of the supply chain relationship and improvement of supply chain performance. This study considered trust between parties as one of the determinants of quality of supply

chain relationship. The literature indicated ambiguities in understanding the role of trust on performance. The evidences provided by this research in regard to the influence of trust on performance have wiped out the dust that were covering the visualisation of the importance of trust in the supply chain relationship to improve each of the organisation performance and the supply chain performance. The findings of this research were supported by the factual data provided by each organisation and its parties in each case study. Certainly the findings of this research agree with the findings maintained by Faynes *et al.* (2008) in regard to the importance of quality supply chain relationship to improve supply chain performance. Therefore, conclusion 6 clarifies this relationship between trust development and performance improvement and allows the supply chain parties to have firm confidence on the significance of exchanging trust to realise higher organisation performance and supply chain performance. This conclusion draws the attention of the supply chain parties to the importance of strengthening the trust relationship between them in considering improvement in both of those performances.

## **Conclusion 6**

**Transference-based trust is the most significant type of trust and when it exists in the relationship it boosts the supply chain performance and significantly improves its competitiveness by enabling it to provide the most advantageous results.**

This conclusion identifies to the supply chain parties the importance of the transference-based trust in the relationship to reach to tremendous level of supply chain performance. As proved by the research, if the parties are in this

level of trust in their supply chain relationship then they work in the supply chain together as one team responsible for the prosperity and distinctive output of the supply chain. Reaching the transference-based trust in the supply chain relationship implies exchange of benevolence and ability to predict each party future action. It allows the parties to become an agent for each other and complement the role of each other. This conclusion implies that the trust level when it is in this level then the transference of responsibility in the supply chain process become more likely, which makes each party responsible about the success of the chain and become motivated through the feeling of responsibility to work harder towards the achievement of the chain goals and objectives. Therefore, this conclusion determines to the supply chain parties the target level of trust they need to realise in the supply chain relationship to gain more competitive advantages of the supply chain performance.

#### **Conclusion 7**

**Territory difference has no effect on the influence that trust has on organisation performance and supply chain performance. The effect of trust is independent of the territory in which the relationship exists but rather it depends on the type of trust developed in the supply chain relationship.**

This conclusion shows that the level of trust is the factor in the supply chain relationships that impact the organisation performance and the supply chain performance. The trust has similar impact on performance when develops in supply chain relationships and among different territories the difference become in how the parties in one territory behave in the supply chain relationship. This

conclusion put emphasis on the trust level in the supply chain relationship rather than the territory in which the supply chain relationship occur to have influence on the organisation performance and the supply chain performance. In other words, when the parties exchange trust in the relationship the performance will be affected accordingly. The territory of the supply chain parties only has influence on the tendency and degree of trust acceptance in the relationship based on the culture background of the parties. The supply chain parties that have distrust culture possibly to face difficulty in exchanging trust and, therefore, the trust building process will be affected in the supply chain relationship. Consequently, this effect is directly impact the relationship and without trust in the relationship the supply chain performance remains at its level and any noticed differences in the performance will be based on efforts put in the supply chain by the supply chain parties. This conclusion shows that the trust when become a factor in the supply chain relationship, the supply chain performance will be affected positively regardless the territory and the culture background of the supply chain parties. Therefore, accepting trust in the supply chain relationship melts the territory barriers and makes the parties behaving toward centred goal, which is putting trust on each other to achieve better supply chain performance.

### **Conclusion 8**

**The effect of Trust does not depend on the industry setting and when it exists between parties in different industrial settings it has similar effect on performance and this effect is directly related to the type of trust developed in the supply chain relationship.**

This conclusion whips out the doubt found in the reviewed literature about the influence of trust on performance in different industrial settings. It reflects the importance of trust in supply chain relationships and indicates that the trust has similar influence on performance regardless the difference in the industrial settings. Also it clarifies that the type of trust developed in the relationship is the determinant of the level of influence that trust could have on performance.

Having drawn out conclusions and discussed them in the context of the research questions, the next section discusses them in the context of operations management and supply chain management knowledge.

## **8.5 CONTRIBUTIONS OF THE RESEARCH**

The research widely tackled the issue of trust in supply chain relationships. It rendered significant contribution to the development of the supply chain knowledge in terms of type of industry and territory difference and trust in supply chain relationships and impact on supply chain performance and organisation performance. To maintain better understanding of the relationship between trust and performance, the research considered trust in a triadic fashion. This section delineates the research theoretical contributions and provides theoretical contributions and managerial implications on basis of the research findings.

### **A. Theoretical Contributions**

The theoretical contributions of the research represent contributions to the development of the supply chain theory. These theoretical contributions are as follows:

1. Relational exchange between supply chain parties has been found possible in the absence of party's reputation but reputation of the party has been found to be a pre-requisite to exchange trust in the supply chain relationship between the supply chain parties.
2. The length of the supply chain relationship has been found to have motivating effect on the trust building process in the supply chain relationships within MO and LOs.
3. The willingness of the supply chain parties has been found to have the major role in developing the trust in the supply chain relationship.
4. The trust in supply chain relationship is found to have positive impact on supply chain performance and organisation performance.
5. The improvements of the supply chain performance and the organisation performance are found to happen in accordance with trust development in the supply chain relationship.
6. The transference-based trust is found to have the significant role in the improvement of the organisation performance and the supply chain performance.
7. The trust in supply chain relationship is found to have similar impact on the supply chain performance and organisation performance whether the supply chain parties are in the upstream or in the downstream of the chain.
8. The territory in which the trust relationship occurs is found to have no effect on the influence that trust has on the organisation performance and the supply chain performance.
9. The type of industrial settings is found to have no impact on the trust's influence on the supply chain performance and the organisation

performance, where it has been identified that the influence of trust remains similar across the different types of industrial settings.

10. The bullwhip effect occurrence in the supply chain and the trust development in the supply chain relationship are found to have comparative behaviour. In other words, the bullwhip effect occurrence reduces with the trust development in the supply chain relationships.
11. The possibility of forecasting the next level of trust in the supply chain relationships has been identified to be influenced by the level of performance achieved through the supply chain relationship in relation to the parties' expectations. It has been identified that the frequent fulfilment of the relationship objective motivates the parties to develop willingness to exchange trust. The trust level in the supply chain relationship moves to a higher or lower level or remains in the same level based on the achievement realised through the trust relationship that constitutes the parties' willingness to develop the trust in the relationship.
12. The research provided judgment through evidence on whether trust in supply chain relationship is a source of risk or minimises risk. It has been found that the trust in the supply chain relationship minimises risk in supply chains and its conceptualisation as source of risk has been discarded on basis of the research empirical evidence.

## **B. Managerial Implications**

The managerial implications provided in this section are based on the research findings that are stated in the previous section and related to the impact of trust in supply chain relationships on organisation

performance and supply chain performance. These implications are presented in this section in form of managerial guidelines. These implications are as follows:

1. MO and LO should adopt trust to improve organisation performance and supply chain performance.
2. MO and LO should realise the importance of the party's reputation in the trust building process and adhere to achievement of high reputation in the market to attain high trust from the downstream parties and the upstream parties as well.
3. MO and LO have to consider the calculus-based trust activities as a period for developing knowledge about the party that they want to develop trust with. This allows that parties to avoid occurrence of trust violation and helps the parties to forecast the benefit from the relationship.
4. The supply chain parties to increase the level of information sharing and reach to transparency in this matter they should exert extra trust in the relationship and assess previous trust relationship based on the achievement in the organisation performance and the supply chain performance and expected outcome of the trust relationship.
5. To minimise risk in supply chain the supply chain parties through trust relationship need to debate clear understanding about the forecasted or expected threats and work through trust relationship as one team responsible about the level of the supply chain performance in regards to the forecasted or expected risk.
6. The supply chain parties in managing the supply chain should bear in mind that the territory of the party has no effect on the influence that

trust has on organisation performance and supply chain performance and, therefore, the parties should concentrate on strengthening the trust relationship to reach to better performances.

7. The supply chain party should not be worried about the industry type and should take the trust in the supply chain relationship into consideration as a factor that significantly influences the supply chain performance.
8. MO and LO are often concerned about huge projects and major organisation and supply chain profits. Therefore, any negative deviation in the supply chain performance expected to lead to massive amount of cost and possible deterioration to the supply chain performance will be expected. Therefore, within market crystallisation era and the tendency to build supply chain relationships based on exchange of beneficial priorities, the supply chain parties have to consider trust in the supply chain relationship to face this difficulty.
9. The market when faced with shortage of resources and price increase the supply chain will be readily effected and in this case it is suggested that the supply chain parties have to adopt a stronger level of trust in their supply chain relationship to gain priorities of resources in the supply chain process and to plan requirement during the era of crises and to overcome any forecasted market recession and price increase.
10. Transference-based trust is the significant type of trust in the supply chain relationship that has the major influence on the supply chain performance and the organisation performance and, therefore, the supply chain parties to gain optimal outcome they should consider the optimal development of this type of trust in the relationship .

11. Nowadays, the world faced economic crisis that has major impact on industries and especially construction industry. In view of current economic crisis and its impact on construction industry in Gulf countries, the research findings indicates that the trust between supply chain parties is required to overcome risk and to drive the economy to a better future. Based on the Emirati case study, which concerned the construction industry, the research proved that trust between supply chain parties can reduce supply chain costs and provides more flexibility to react and stand firm in front of the winds of the economic crisis. Consequently, as proved by this research through its findings this will assist the core organisation and its parties to act and stay better than an organisation that has no trust with its supply chain parties. Based on the research findings, this certainly has major advantages to help the organisation and its supply chain parties to moderate the faced economic crisis and if possible to overcome it in the near future.

## **8.6 SUGGESTIONS FOR FUTURE RESEARCH**

Since, this research aimed to investigate the impact of trust in supply chain relationship on organisation performance and supply chain performance; it was mainly concerned about the role of trust rather than the trust building process in the supply chain relationship. Although, this research considered the development of trust in the supply chain relationships along the length of the relationship, the study of the territory impact on the trust building process was beyond the scope of this research and, therefore, the culture influence on trust is highlighted in the research literature review but not tackled by the research.

This research does not investigated the influence of culture on the trust building process in the supply chain relationship rather it investigated relationships between parties that already exchange trust. The trust building process could be related to the culture of the organisation and could be influenced by the national culture of the territory. Therefore, it is recommended that other research needed to investigate the impact of the national culture and the organisational culture in regard to the organisation's territory on trust building process. Moreover, this research has studied each organisation and its related supply chain parties within the same country. Other research could investigate the core organisation in one country and the supply chain parties in different countries. Furthermore, based on the difficulty faced by the researcher in conducting survey questionnaire to collect data for the research, it is suggested that when trust is considered in a triadic fashion then the case studies is the reliable methodology for such research.

## **GLOSSARY**

<b>BEA</b>	<b>Bullwhip Effect Avoidance</b>
<b>C1E</b>	<b>The first downstream supply chain party in the Emirati supply chain case study</b>
<b>C1O</b>	<b>The first downstream supply chain party in the Omani supply chain case study</b>
<b>C1Q</b>	<b>The first downstream supply chain party in the Qatari supply chain case study</b>
<b>C2E</b>	<b>The second downstream supply chain party in the Emirati supply chain case study</b>
<b>C2O</b>	<b>The second downstream supply chain party in the Omani supply chain case study</b>
<b>C2Q</b>	<b>The second downstream supply chain party in the Qatari supply chain case study</b>
<b>CS</b>	<b>Cost Saving</b>
<b>EO</b>	<b>Emirati organisation in the case study of the Emirati supply chains' parties</b>
<b>LT</b>	<b>Lead Time</b>
<b>LO</b>	<b>Large Sized Organisation</b>
<b>MO</b>	<b>Medium Sized Organisation</b>
<b>MLO</b>	<b>Medium-to-Large Sized Organisations</b>
<b>OMO</b>	<b>Omani organisation in the case study of the Omani supply chains' parties</b>
<b>QO</b>	<b>Qatari organisation in the case study of the Qatari supply chains' parties</b>
<b>ROI</b>	<b>Return on Investment</b>
<b>S1E</b>	<b>The first upstream supply chain party in the Emirati supply chain case study</b>
<b>S1O</b>	<b>The first upstream supply chain party in the Omani supply chain case study</b>
<b>S1Q</b>	<b>The first upstream supply chain party in the Qatari supply chain case study</b>
<b>S2E</b>	<b>The second upstream supply chain party in the Emirati supply chain case study</b>
<b>S2O</b>	<b>The second upstream supply chain party in the Omani supply chain case study</b>
<b>S2Q</b>	<b>The second upstream supply chain party in the Qatari supply chain case study</b>
<b>SMO</b>	<b>Small-to-Medium Sized Organisations</b>

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# APPENDIX 1

## APPENDIX 1.1 SEMI-STRUCTURE INTERVIEW QUESTIONNAIRE

### A SPECIFIED CORE ORGANISATION WITH SUPPLY CHAIN PARTY Part One

- 1- Organisation Name .....
- 2- Designation (position) of respondent.....
- 

#### Part A: Organization Performance

Please state country currency -----

#### 1. What is the appropriate annual turnover of your organisation?

- (a) Below 10 million. (b) 11-20 million. (c) 21-30 million. (d) 31- 50 million. (e) 51 – 100 million.  
(f) 101-200 million. (g) 201-500 million. (h) Above 500 million.

#### 2. How many People in total are employed in your organisation?

- (a) Less than 50. (b) 50-250. (c) 251-500. (d) 501-1000. (e) 1001-2000. (f) Above 2000

**Note:** rate the organisation with respect to competitors in the items below (where 1 represents 'Worse in industry'... 5 represents 'Excellent in industry').

# 1. ORGANISATION PERFORMANCE

## A. Business Performance

<b>a. Industry leadership</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>b. Future outlook</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>c. Profit</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>d. Earning growth</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>e. Cost saving</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>f. Overall response to competition</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>g. Market share</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>h. Return on investment</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>i. Success rate in new product / service launches</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>j. Overall business performance and success</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

## B. Customer Perspective

<b>a. Lead time</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>b. Quality of the product or service</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>c. Cost</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>d. Performance and service</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

## C. Internal Business Performance

<b>a. Cycle Time</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>b. Quality</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>c. Employee satisfaction</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>d. Productivity</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>e. Inventory Control</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

## D. Innovation and Organizational Learning

<b>a. Technical innovation</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>b. Administrative innovation</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

## 2. SUPPLY CHAIN PERFORMANCE

### A. Inventory (bullwhip effect)

#### a. Level of bullwhip effect avoidance

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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### B. Risk

#### a. Risk Avoidance

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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#### b. Level of convenience of risk occurrence

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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### C. Cost Saving

#### a. Level of cost saving

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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### D. Information Sharing

#### a. Level of information sharing

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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### E. Return on Investment (ROI)

#### a. Level of ROI

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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### F. Lead Time

#### a. Effectiveness of the supply chain Lead time

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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**Part B:**

**I. Business Relationship with the First Major Customer**

The questionnaire looks at business- to- business relationships and considers the firm's relationship with the current major customer.

**Section A: About your major customer**

**1. Size of this major customer:**

(a) Small firm (1-49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with customer 1 ----- (in years)**

1 = Strongly Disagree, 2 = Disagree, 3 = moderately agree, 4 = Agree , 5= Strongly Agree

**Section B: Integrity of customer 1**

<b>1. Do you believe this major customer has been Honest in dealing with you</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>2. Do you believe this major customer deals with you with equity/fairness</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>3. Do you believe this major customer has been credible with you</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>4. Do you believe this major customer worth your confidence</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>5. Do you believe this major customer is committed to you</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**Section C: Competency of customer 1**

<b>1. Do you belief this customer has the right skill required for your business</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you belief this major customer has the right proficiency required for your business</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you belief that this customer is reliable</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you belief that this customer deals with you with consistency</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you belief that this customer freely exchange information with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section D: Benevolence of customer 1**

<b>1. Do you belief that this customer has made sacrifices for you in the past</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you belief that this customer cares for your welfare</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you belief that this major customer has good intention towards you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you belief that you can predict this major customer behaviour</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you belief that this major customer has been contributing to the success of your business more than expected</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section E: Risk**

**1. This customer helped us in minimising risk**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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**2. Do you belief this customer is a source of risk**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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**Section F: Exchange of information with customer 1**

**1. The customer keeps you informed about events that affect or may affect you**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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**2. The customer provides you with a lot of feedback**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
----------------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------

**3. The customer often gives you information beyond what is required by your formal agreement(s)**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
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**4. You expect the customer to provide you with information that may be of help**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
----------------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------

**5. The customer often exchange information informally**

Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
----------------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------

## Section G: Supply chain performance with Customer 1

**Note:** rate the organisation with respect to competitors in the items below (where 1 represents 'Worse in industry'... 5 represents 'Excellent in industry').

### A. Inventory (bullwhip effect)

#### a. Level of bullwhip effect avoidance

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### B. Risk

#### a. Risk Avoidance

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

#### b. Level of convenience of risk occurrence

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### C. Cost Saving

#### a. Level of cost saving

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### D. Information Sharing

#### a. Level information sharing

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### E. Return on Investment (ROI)

#### a. Level of ROI

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### F. Lead Time

#### a. Effectiveness of the supply chain Lead time

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

**II. Business Relationship with the Second Major Customer**

**Section A: About your major customer**

**1. Size of this major customer:**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with customer 2 ----- (in years)**

1 = Strongly Disagree, 2 = Disagree, 3 = moderately agree, 4 = Agree , 5= Strongly Agree

**Section B: Integrity of customer 2**

<b>1. Do you belief this major customer has been Honest in dealing with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you belief this major customer deals with you with equity/fairness</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you belief this major customer has been credible with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you belief this major customer worth your confidence</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you belief this major customer is committed to you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section C: Competency of customer 2**

<b>1. Do you believe this customer has the right skill required for your business</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe this major customer has the right proficiency required for your business</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this customer is reliable</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that this customer deals with you with consistency</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this customer freely exchange information with you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section D: Benevolence of customer 2**

<b>1. Do you believe that this customer has made sacrifices for you in the past</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this customer cares for your welfare</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this major customer has good intention towards you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that you can predict this major customer behaviour</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this major customer has been contributing to the success of your business more than expected</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section E: Risk**

<b>1. This customer helped you in minimising risk</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this customer is a source of risk</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section F: Exchange of information with customer 2**

<b>1. The customer keeps you informed about events that affect or may affect you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. The customer provides you with a lot of feedback</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. The customer often gives you information beyond what is required by your formal agreement(s)</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. You expect the customer to provide you with information that may be of help ,</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. The customer often exchange information informally</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section G: Supply chain performance with Customer 2**

**Note:** rate the organisation with respect to competitors in the items below (where 1 represents 'Worse in industry' ... 5 represents 'Excellent in industry').

**A. Inventory (bullwhip effect)**

<b>a. Level of bullwhip effect avoidance</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**B. Risk**

<b>a. Risk Avoidance</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>b. Level of convenience of risk occurrence</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**C. Cost Saving**

<b>a. Level of cost saving</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**D. Information Sharing**

**a. Level of information sharing**

Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**E. Return on Investment (ROI)**

**a. Level of ROI**

Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**F. Lead Time**

**a. Effectiveness of the supply chain Lead time**

Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**Part C: Business Relationships with Major Suppliers**

**I. Business Relationships with the First Supplier (Supplier 1)**

The questionnaire looks at business- to- business relationships. When completing the questionnaire, please consider your firm’s relationship with your current major supplier and respond accordingly.

**Section A: About your major supplier**

**1. Size of your major supplier 1:**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with this major supplier ----- (in years)**

**Section B: Integrity of supplier 1**

<b>1. Do you believe this major supplier has been Honest in dealing with you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe this major supplier deals with you with equity/fairness</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe this major supplier has been credible with you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe this major supplier worth your confidence</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe this major supplier is committed to you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section C: Competency of supplier 1**

<b>1. Do you believe that this supplier has the right skill required for your business</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this supplier has the right proficiency required for your business.</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this supplier is reliable</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that this supplier deals with you with consistency</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this supplier freely exchange information with you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section D: Benevolence of supplier 1**

<b>1. Do you believe that this supplier has made sacrifices for you in the past</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this supplier cares for your welfare</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this major supplier has good intention towards you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that you can predict this major supplier behaviour</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this major supplier has been contributing to the success of your business more than expected</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section E: Risk**

<b>1. This supplier helped you in minimising risk</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe this supplier is a source of risk</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section F: Exchange of information with supplier 1**

<b>1. The supplier keeps you informed about events that affect or may affect you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. The supplier provides you with a lot of feedback</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. The supplier often gives you information beyond what is required by your formal agreement(s)</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. You expect the supplier to provide you with information that may be of help</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. The supplier often exchange information informally</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

## Section G: Supply chain performance with Supplier 1

**Note:** rate the organisation with respect to competitors in the items below (where 1 represents 'Worse in industry'... 5 represents 'Excellent in industry').

### A. Inventory (bullwhip effect)

#### a. Level of bullwhip effect avoidance

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### B. Risk

#### a. Risk Avoidance

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

#### b. Level of convenience of risk occurrence

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### C. Cost Saving

#### a. Level of cost saving

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### D. Information Sharing

#### a. Level of information sharing

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### E. Return on Investment (ROI)

#### a. Level of ROI

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### F. Lead Time

#### a. Effectiveness of the supply chain Lead time

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

**II. Business Relationships with the Second Supplier (Supplier 2)**

The questionnaire looks at business- to- business relationships. When completing the questionnaire, please consider your firm’s relationship with your current major supplier and respond accordingly.

**Section A: About your major supplier**

**1. Size of your major supplier 2:**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with this major supplier ----- (in years)**

**Section B: Integrity of supplier 2**

<b>1. Do you belief this major supplier has been Honest in dealing with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you belief this major supplier deals with you with equity/fairness</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you belief this major supplier has been credible with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you belief this major supplier worth your confidence</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you belief this major supplier is committed to you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section C: Competency of supplier 2**

<b>1. Do you believe that this supplier has the right skill required for your business</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this supplier has the right proficiency required for your business.</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this supplier is reliable</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that this supplier deals with you with consistency</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this supplier freely exchange information with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section D: Benevolence of supplier 2**

<b>1. Do you believe that this supplier has made sacrifices for you in the past</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this supplier cares for your welfare</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this major supplier has good intention towards you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that you can predict this major supplier behaviour</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this major supplier has been contributing to the success of your business more than expected</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section E: Risk**

<b>1. This supplier helped you in minimising risk</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>2. Do you belief this supplier is a source of risk</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**Section F: Exchange of information with supplier 1**

<b>1. The supplier keeps you informed about events that affect or may affect you</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>2. The supplier provides you with a lot of feedback</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>3. The supplier often gives you information beyond what is required by your formal agreement(s)</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>4. You expect the supplier to provide you with information that may be of help</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>5. The supplier often exchange information informally</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**Section G: Supply chain performance with Supplier 2**

**Note:** rate the organisation with respect to competitors in the items below (where 1 represents ‘Worse in industry’... 5 represents ‘Excellent in industry’).

**A. Inventory (bullwhip effect)**

<b>a. Level of bullwhip effect avoidance</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**B. Risk**

<b>a. Risk Avoidance</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>b. Level of convenience of risk occurrence</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**C. Cost Saving**

<b>a. Level of cost saving</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**D. Information Sharing**

<b>a. Level of information sharing</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**E. Return on Investment (ROI)**

<b>a. Level of ROI</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**F. Lead Time**

<b>a. Effectiveness of the supply chain Lead time</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**APPENDIX 1.1**  
**SEMI-STRUCTURED INTERVIEW QUESTIONNAIRE**  
**SUPPLY CHAIN PARTY WITH A SPECIFIED CORE**  
**ORGANISATION**  
**Part Two**

1- Organisation Name .....The Supply Chain Party Name.....

2-Designation (position) of respondent.....

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**Part A: Organization Performance**

The country currency -----

**1. What is the appropriate annual turnover of your organisation?**

(a) Below 10 million. (b) 11-20 million. (c) 21-30 million. (d) 31- 50 million. (e) 51 – 100 million.

(f) 101-200 million. (g) 201-500 million. (h) Above 500 million.

**2. How many People in total are employed in your organisation?**

(a) Less than 50. (b) 50-250. (c) 251-500. (d) 501-1000. (e) 1001-2000. (f) Above 2000

**Note:** rate of the organisation with respect to competitors in the items (where 1 represents ‘worse in industry’ ... 5 represents ‘Excellence in industry’).

# 1. ORGANISATION PERFORMANCE

## A. Business Performance

<b>a. Industry leadership</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>b. Future outlook</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>c. Profit</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>d. Earning growth</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>e. Cost saving</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>f. Overall response to competition</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>g. Market share</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>h. Return on investment</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>i. Success rate in new product launches</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>j. Overall business performance and success</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

## B. Customer Perspective

<b>a. Lead time</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>b. Quality of the product or service</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>c. Cost</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>d. Performance and service</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

## C. Internal Business Performance

<b>a. Cycle time</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>b. Quality</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>c. Employee satisfaction</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>d. Productivity</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>e. Inventory Control</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

## D. Innovation and Organizational Learning

<b>a. Technical innovation</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>b. Administrative innovation</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

## 2. SUPPLY CHAIN PERFORMANCE

### A. Inventory (bullwhip effect)

#### a. Level of bullwhip effect avoidance

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### B. Risk

#### a. Risk avoidance

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

#### b. Level of convenience of risk occurrence

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### C. Cost Saving

#### a. Level of cost saving

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### D. Information Sharing

#### a. Level of information sharing

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### E. Return on Investment (ROI)

#### a. Level of ROI

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

### F. Lead Time

#### a. Effectiveness of the supply chain Lead time

Before 1 year	Before 2 years	Before 3 years	Before 4 years	Before 5 years
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

**Part B:**

**I. Business Relationship with the specified Core Organisation**

**Section A: Length of relationship with the Core Organisation ----- (in years)**

1 = Strongly Disagree, 2 = Disagree, 3 = moderately agree, 4 = Agree , 5= Strongly Agree

**Section B: Integrity of the core organisation**

<b>1. Do you believe this core organisation has been Honest in dealing with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe this core organisation deals with you with equity/fairness</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe this core organisation has been credible with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe this core organisation worth your confidence</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe this core organisation is committed to you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section C: Competency of the core organisation**

<b>1. Do you believe this core organisation has the right skill required for your business</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe this core organisation has the right proficiency required for your business</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this core organisation is reliable</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that this core organisation deals with you with consistency</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this core organisation freely exchange information with you</b>				
Before 1year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section D: Benevolence of the core organisation**

<b>1. Do you believe that this core organisation has made sacrifices for you in the past</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe that this core organisation cares for your welfare</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. Do you believe that this core organisation has good intention towards you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. Do you believe that you can predict this core organisation behaviour</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. Do you believe that this core organisation has been contributing to the success of your business more than expected</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section E: Risk**

<b>1. This core organisation helped you in minimising risk</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. Do you believe this core organisation is a source of risk</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section F: Exchange of information with your core organization**

<b>1. The core organization keeps you informed about events that affect or may affect you</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>2. The core organization provides you with a lot of feedback</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>3. The core organization often gives you information beyond what is required by your formal agreement(s)</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>4. You expect the core organization to provide you with information that may be of help</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5
<b>5. The core organisation often exchange information informally</b>				
Before 1 year 1 2 3 4 5	Before 2 years 1 2 3 4 5	Before 3 years 1 2 3 4 5	Before 4 years 1 2 3 4 5	Before 5 years 1 2 3 4 5

**Section G: SUPPLY CHAIN PERFORMANCE WITH CORE ORGANISATION**

**A. Inventory (bullwhip effect)**

<b>a. Level of bullwhip effect avoidance</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**B. Risk**

<b>a. Risk Avoidance</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
<b>b. Level of convenience of risk occurrence</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**C. Cost Saving**

<b>a. Level of cost saving</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**D. Information Sharing**

<b>a. Level of information sharing</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**E. Return on Investment (ROI)**

<b>a. Level of ROI</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**F. Lead Time**

<b>a. Effectiveness of the supply chain Lead time</b>																								
Before 1 year					Before 2 years					Before 3 years					Before 4 years					Before 5 years				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

## APPENDIX 1.2

### SURVEY QUESTIONNAIRE (PART 1)

1. Name of respondent (optional).....
2. Designation (position) of respondent.....

#### Part A: Organisation Performance

Please state country currency -----

**1- What is the appropriate annual turnover of your company? Please tick (✓) one of the following bands.**

(a) Below 1 million. (b) 1-2 million. (c) 3- 4 million. (d) 5- 6 million. (e) 7 – 8 million.

(f) 9-10 million. (g) 10-11 million. (h) Above 12 million.

**2- How many People in total are employed in your company?**

(a) Less than 50. (b) 50-250. (c) 251-500. (d) 501-1000. (e) 1001-2000. (f) Above 2000.

Please rate your organisation with respect to competitors in the items below (where 1 represents 'worse in industry', ..., 5 represents 'best in industry').

	<b>Business Performance</b>	<b>Worse</b>				<b>Best</b>
a.	Industry leadership	1	2	3	4	5
b.	Future Outlook	1	2	3	4	5
c.	Profit	1	2	3	4	5
d.	Earning Growth	1	2	3	4	5
e.	Movement of Share price	1	2	3	4	5
f.	Cost saving	1	2	3	4	5
g.	Overall response to competition	1	2	3	4	5
h.	Market Share	1	2	3	4	5
i.	Return on investment	1	2	3	4	5
j.	Success rate in new product launches	1	2	3	4	5
k.	Overall business performance and success	1	2	3	4	5

	<b>Customer Perspective</b>	<b>Worse</b>				<b>Best</b>
a.	Lead Time	1	2	3	4	5
b.	Quality of the product or service	1	2	3	4	5
c.	Cost	1	2	3	4	5
d.	Performance and service	1	2	3	4	5

	<b>Internal Business Performance</b>	<b>Worse</b>				<b>Best</b>
a.	Cycle Time	1	2	3	4	5
b.	Quality	1	2	3	4	5
c.	Employee Satisfaction	1	2	3	4	5
d.	Productivity	1	2	3	4	5

	<b>Innovation and organizational Learning</b>	<b>Worse</b>				<b>Best</b>
a.	Technical innovation	1	2	3	4	5
b.	Administrative innovation	1	2	3	4	5

**Part B: Business Relationship with Customer1 (Organisation x)**

The questionnaire looks at business- to- business relationships. When completing the questionnaire, please consider your firm’s relationship with customer1 and respond accordingly.

**Section A: About customer1**

**1. Size of customer1: (Please tick)**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with customer1 ----- (in years)**

**Section B: Integrity of customer1**

	<b>Strongly agree</b>			<b>Strongly disagree</b>	
1. Customer1 has been Honest in dealing with us	1	2	3	4	5
2. Customer1 deals with equity with us.	1	2	3	4	5
3. Customer1 has been credible with us.	1	2	3	4	5
4. Customer1 has been frank with us.	1	2	3	4	5
5. Customer1 has been knowledgeable about our product(s).	1	2	3	4	5
6. Customer1 understands the ups and downs in our business position.	1	2	3	4	5
7. Customer1 freely exchange information with us.	1	2	3	4	5
8. Customer1 is committed to us.	1	2	3	4	5

**Section C: Competency of customer1**

	<b>Strongly agree</b>			<b>Strongly disagree</b>	
1. Customer1 has the right skill required for our business.	1	2	3	4	5
2. Customer1 has the right proficiency required for our business.	1	2	3	4	5
3. We believe that customer1 is reliable	1	2	3	4	5
4. Customer1 dealing with consistency behaviour with us.	1	2	3	4	5



**Section B: Integrity of customer2**

	Strongly agree			Strongly disagree	
1. Customer2 has been Honest in dealing with us	1	2	3	4	5
2. Customer2 deals with equity with us.	1	2	3	4	5
3. Customer2 has been credible with us.	1	2	3	4	5
4. Customer2 has been frank with us.	1	2	3	4	5
5. Customer2 has been knowledgeable about our product(s).	1	2	3	4	5
6. Customer2 understands the ups and downs in our business position.	1	2	3	4	5
7. Customer2 freely exchange information with us.	1	2	3	4	5
8. Customer2 is committed to us.	1	2	3	4	5

**Section C: Competency of customer2**

	Strongly agree			Strongly disagree	
1. Customer2 has the right skill required for our business.	1	2	3	4	5
2. Customer2 has the right proficiency required for our business.	1	2	3	4	5
3. We believe that customer2 is reliable	1	2	3	4	5
4. Customer2 dealing with consistency behaviour with us.	1	2	3	4	5

**Section D: Benevolence of customer2**

	Strongly agree			Strongly disagree	
1. Customer2 has made sacrifices for us in the past.	1	2	3	4	5
2. Customer2 cares for our welfare.	1	2	3	4	5
3. In times of delivery problems, customer2 has been very understanding.	1	2	3	4	5

**Section E: Number of customers and suppliers**

Please indicate the total number of current customers and suppliers (please tick):

- |           |                     |          |           |           |            |
|-----------|---------------------|----------|-----------|-----------|------------|
| Customer  | (a) 1-5<br>(f) 101+ | (b) 6-10 | (c) 11-25 | (d) 26-50 | (e) 51-100 |
| Suppliers | (a) 1-5<br>(f) 101+ | (b) 6-10 | (c) 11-25 | (d) 26-50 | (e) 51-100 |

Please feel free to add any comments about the business and social relationship with customer2 in the last page provided with this questionnaire.

**Part D: Business Relationships with Supplier 1 (Organisation L)**

The questionnaire looks at business- to- business relationships. When completing the questionnaire, please consider your firm’s relationship with supplier1 and respond accordingly.

**Section A: About supplier1**

**1. Size of supplier1: (Please tick)**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with supplier1----- (in years)**

**Section B: Integrity of supplier1**

	Strongly agree			Strongly disagree	
1. Supplier1 has been Honest in dealing with us	1	2	3	4	5
2. Supplier1 deals with equity with us.	1	2	3	4	5
3. Supplier1 has been credible with us.	1	2	3	4	5
4. Supplier1 has been frank with us.	1	2	3	4	5
5. Supplier1 has been knowledgeable about its product(s).	1	2	3	4	5
6. Supplier1 freely exchange information with us.	1	2	3	4	5
7. Supplier1 is committed to us.	1	2	3	4	5

**Section C: Competency of supplier1**

	Strongly agree			Strongly disagree	
1. Supplier1 has the right skill required for our business.	1	2	3	4	5
2. Supplier1 has the right proficiency required for our business.	1	2	3	4	5
3. We believe that supplier1 is reliable.	1	2	3	4	5
4. Supplier1 shows consistent behaviour in dealing with us.	1	2	3	4	5

**Section D: Benevolence of supplier1**

	Strongly agree			Strongly disagree	
1. Supplier1 cares for us.	1	2	3	4	5
2. We feel that supplier1 has been on our side throughout our dealings.	1	2	3	4	5
3. In times of delivery urgency requirement, supplier1 has been very helpful.	1	2	3	4	5

Please feel free to add any comments about the business and social relationship with supplier1 in the last page provided with this questionnaire.

**Part E: Business Relationships with Supplier 2 (Organisation M)**

The questionnaire looks at business- to- business relationships. When completing the questionnaire, please consider your firm’s relationship with supplier2 and respond accordingly.

**Section A: About supplier2**

**1. Size of supplier2: (Please tick)**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with supplier2----- (in years)**

**Section B: Integrity of supplier2**

	Strongly agree			Strongly disagree	
1. Supplier2 has been Honest in dealing with us	1	2	3	4	5
2. Supplier2 deals with equity with us.	1	2	3	4	5
3. Supplier2 has been credible with us.	1	2	3	4	5
4. Supplier2 has been frank with us.	1	2	3	4	5
5. Supplier2 has been knowledgeable about its product(s).	1	2	3	4	5
6. Supplier2 freely exchange information with us.	1	2	3	4	5
7. Supplier2 is committed to us.	1	2	3	4	5

**Section C: Competency of supplier2**

	Strongly agree			Strongly disagree	
1. Supplier2 has the right skill required for our business.	1	2	3	4	5
2. Supplier2 has the right proficiency required for our business.	1	2	3	4	5
3. We believe that supplier2 is reliable.	1	2	3	4	5
4. Supplier2 shows consistent behaviour in dealing with us.	1	2	3	4	5

**Section D: Benevolence of supplier2**

	Strongly agree			Strongly disagree	
1. Supplier2 cares for us.	1	2	3	4	5
2. We feel that supplier2 has been on our side throughout our dealings.	1	2	3	4	5
3. In times of delivery urgency requirement, supplier2 has been very helpful.	1	2	3	4	5

Please feel free to add any comments about the business and social relationship with supplier2 in the last page provided with this questionnaire.

## APPENDIX 1.2

### SURVEY QUESTIONNAIRE (PART 2)

1-Name of respondent (optional).....

2- Designation (position) of respondent.....

#### **Part A: Organisation Performance**

Please state country currency -----

**1- What is the appropriate annual turnover of your company? Please tick (✓) one of the following bands.**

(a) Below 1 million. (b) 1-2 million. (c) 3- 4 million. (d) 5- 6 million. (e) 7 – 8 million.

(f) 9-10 million. (g) 10-11 million. (h) Above 12 million.

**2- How many People in total are employed in your company?**

(a) Less than 50. (b) 50-250. (c) 251-500. (d) 501-1000. (e) 1001-2000. (f) Above 2000.

**Please rate your organisation with respect to competitors in the items below  
(where 1 represents 'worse in industry', ..., 5 represents 'best in industry').**

	<b>Business Performance</b>	<b>Worse</b>				<b>Best</b>
a.	Industry leadership	1	2	3	4	5
b.	Future Outlook	1	2	3	4	5
c.	Profit	1	2	3	4	5
d.	Earning Growth	1	2	3	4	5
e.	Movement of Share price	1	2	3	4	5
f.	Cost saving	1	2	3	4	5
g.	Overall response to competition	1	2	3	4	5
h.	Market Share	1	2	3	4	5
i.	Return on investment	1	2	3	4	5
j.	Success rate in new product launches	1	2	3	4	5
k.	Overall business performance and success	1	2	3	4	5

	<b>Customer Perspective</b>	<b>Worse</b>				<b>Best</b>
a.	Lead Time	1	2	3	4	5
b.	Quality of the product or service	1	2	3	4	5
c.	Cost	1	2	3	4	5
d.	Performance and service	1	2	3	4	5

	<b>Internal Business Performance</b>	<b>Worse</b>				<b>Best</b>
a.	Cycle Time	1	2	3	4	5
b.	Quality	1	2	3	4	5
c.	Employee Satisfaction	1	2	3	4	5
d.	Productivity	1	2	3	4	5

<b>Innovation and organizational Learning</b>		<b>Worse</b>			<b>Best</b>	
a.	Technical innovation	1	2	3	4	5
b.	Administrative innovation	1	2	3	4	5

**Part B: Business Relationship with (Organisation x)**

The questionnaire looks at business- to- business relationships. When completing the questionnaire, please consider your firm’s relationship with organisation x and respond accordingly.

**Section A: About organisation x**

**1. Size of organisation x: (Please tick)**

(a) Small firm (1- 49 employees). (b) Medium firm (50-249 employees). (c) Large firm (250 or more employees).

**2. Length of relationship with organisation x ----- (in years)**

**Section B: Integrity of organisation x**

	<b>Strongly agree</b>			<b>Strongly disagree</b>	
1. Organisation x has been Honest in dealing with us	1	2	3	4	5
2. Organisation x deals with equity with us.	1	2	3	4	5
3. Organisation x has been credible with us.	1	2	3	4	5
4. Organisation x has been frank with us.	1	2	3	4	5
5. Organisation x has been knowledgeable about our product(s).	1	2	3	4	5
6. Organisation x understands the ups and downs in our business position.	1	2	3	4	5
7. Organisation x freely exchange information with us.	1	2	3	4	5
8. Organisation x is committed to us.	1	2	3	4	5

**Section C: Competency of organisation x**

	<b>Strongly agree</b>			<b>Strongly disagree</b>	
1. Organisation x has the right skill required for our business.	1	2	3	4	5
2. Organisation x has the right proficiency required for our business.	1	2	3	4	5
3. We believe that organisation x is reliable	1	2	3	4	5
4. Organisation x dealing with consistency behaviour with us.	1	2	3	4	5



## **APPENDIX 1.3**

### **Interviewees Positions**

#### **OMO Interviewees Positions**

- 1- Logistics Manager
- 2- Logistics Supervisor
- 3- Operations Manager
- 4- Operations Supervisor
- 5- Chief Accountant
- 6- Marketing Manager
- 7- Customer Services Supervisor
- 8- Logistics Personnel (Three)

#### **C10 Interviewees Positions**

- 1- Operations Manager
- 2- Operations Engineer
- 3- Field Manager
- 4- Operations Supervisor
- 5- Logistics Supervisor
- 6- Operations Personnel (Two)
- 7- Logistics Personnel (Three)

#### **C20 Interviewees Positions**

- 1- Technical Director
- 2- Field Manager
- 3- Operations Manager
- 4- Operations Supervisor
- 5- Quality Engineer
- 6- Facilities Manager
- 7- Operations Personnel (Four)

#### **S10 Interviewees Positions**

- 1- Business Development Manager
- 2- Logistics Manager
- 3- Logistics Supervisor
- 4- Production Personnel
- 5- Operations Personnel (Two)
- 6- Customer Services Personnel
- 7- Finance And Support Services Manager
- 8- Support Services Supervisor
- 9- Administration Supervisor

#### **S20 Interviewees Position**

- 1- Marketing Manager
- 2- Marketing Personnel
- 3- Operations Manager
- 4- Customer Relations Manager
- 5- Customer Relations Supervisor
- 6- Finance And Accounts Manager
- 7- Customer Services Personnel (Two)

- 8- Operations Personnel (Two)

### **EO Interviewees Positions**

- 1- Finance and Risk Manager
- 2- Development Manager
- 3- Sales Manager
- 4- Corporate Services Manager
- 5- Retail Manager
- 6- Property Manager
- 7- Projects Manager
- 8- Sales Personnel
- 9- Project Management personnel
- 10- Corporate Services personnel

### **C1E Interviewees Positions**

- 1- Operations Manager
- 2- Customer Services Manager
- 3- Real Estate Finance Supervisor
- 4- Institutional Relationship Supervisor
- 5- Retail Product and Marketing Manager
- 6- Administration Manager
- 7- Operations Supervisor
- 8- Operations Personnel (Two)
- 9- Retail Product Personnel

### **C2E Interviewees Positions**

- 1- Operations Manager
- 2- Operations Officer
- 3- Head of Operations
- 4- Operations Personnel (Three)
- 5- Business Development Manager
- 6- Business Development Personnel
- 7- Finance and Support Officer
- 8- Personnel and Administration Officer

### **S1E Interviewees Positions**

- 1- Construction Manager
- 2- Commercial Manager
- 3- Administration Manager
- 4- Plant Manager
- 5- Project Manager
- 6- Strategy Manager
- 7- Plant Supervisor
- 8- Plant Operations Personnel (Three)

### **S2E Interviewees Positions**

- 1- Operations Manager
- 2- Operations Supervisor
- 3- Operations Personnel (Two)
- 4- Business Relations Manager
- 5- Customer Services Manager

- 6- Customer Services Personnel (Two)
- 7- Investment and Marketing Manager
- 8- Sales Manager

### **QO Interviewees Positions**

- 1- Marketing Manager
- 2- Technical Customer Services Engineer
- 3- Procurement And Logistics Manager
- 4- Procurement And Logistics Personnel (Two)
- 5- Marketing Personnel
- 6- Customer Services Personnel
- 7- Warehouse Operations Supervisor
- 8- Warehouse Operations Personnel (Two)

### **C1Q/S1Q Interviewees Positions**

- 1- Technical Manager
- 2- Logistics Supervisor
- 3- Logistics Personnel (Three)
- 4- Administration And Public Relations Supervisor
- 5- Quality Control Personnel (Two)
- 6- Warehouse Operations Supervisor
- 7- Warehouse Operations Personnel

### **C2Q Interviewees Positions**

- 1- Production And Procurement Manager
- 2- Production And Procurement Supervisor
- 3- Production And Procurement Personnel (Five)
- 4- Finance And Administration Manager
- 5- Finance And Administration Personnel (Two)

### **S2Q Interviewees Positions**

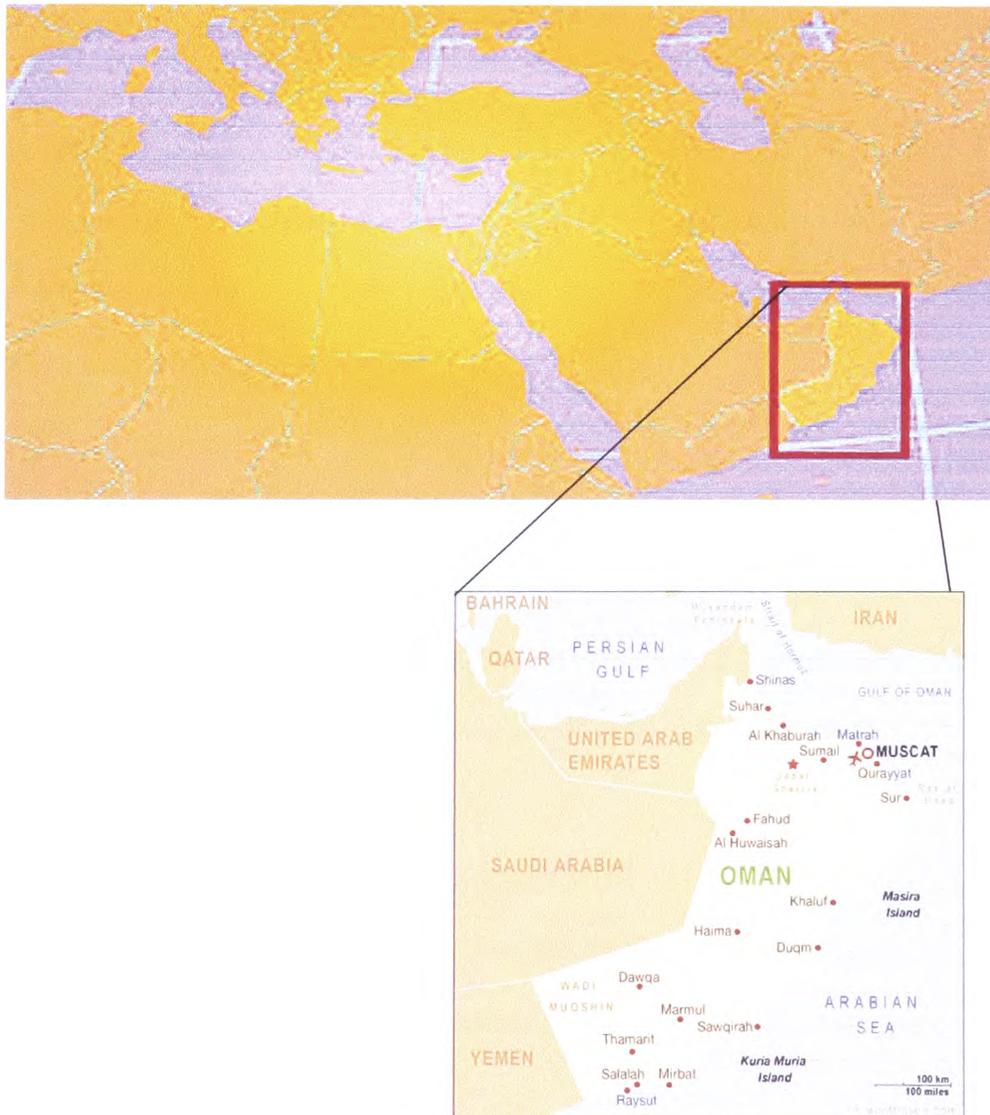
- 1- Material And Procurement Manager
- 2- Material and Procurement Supervisor
- 3- Material and Procurement Personnel (Four)
- 4- Warehouse Operations Supervisor
- 5- Administration Manager
- 6- Administration Supervisor
- 7- Business Development Manager

## APPENDIX 1.4

# TERRITORIES AND RELATED ORGANISATIONS SELECTED FOR STUDY

### A. Oman

Oman is the first territory selected for study of supply chain relationship. Oman is one of the Middle-East oil-rich countries. The location of Oman in the world map is illustrated in the following map:



## **Profiles of Selected Organisations for Study in Oman**

### **1. OMO Profile**

OMO is one of the leading organisations in the oilfield services sector. It is a multinational organisation that provides drilling and integrated well services. It aims to provide quality well-services with effective cost and competitive price. OMO is an ISO 9001:2000 certified organisation that strives to deliver services and solutions with consistent quality as per internationally recognized standards through documented and controlled processes. It operates worldwide and employs more than 5000 people. In Oman it is recognised as one of the large organisations in the oilfield sector.

In providing its services OMO follow high standards of health, safety and environmental protection. To compete effectively worldwide, OMO has located its assets strategically to be able to mobilise drilling rigs, equipment and provide other services to any part of the world.

OMO provides its services to major and minor oilfield organisations. OMO's ethic of work and its competence, reliability and high standards of work performance have resulted in recognising it as most successful quality oilfield services provider and this consequently resulted in long-term renewal of most of its contracts.

OMO has developed a good understanding of the different needs of the various operators in the oil and gas industry, and has built excellent working relationships with key industrial players, including governments, bankers and other global oil and gas related organisations.

In addition to its own diverse skills, OMO also draws on the skills of Industrial specialists, especially in managing field operations, capital financing, human resources development, information technology and environmental protection.

OMO is a multi-services providers and its core business is well testing, mud logging, nitrogen & pumping services, drilling fluids, wire-line services, coiled tubing, drilling and work-over services, and completion services. To ensure the integrity of the equipment, support oilfield operations and maintain the quality of assets, OMO has invested in establishing large workshops, attached to its operations in different locations in the world where full logistics and operational support are provided in all the workshops.

## **2. C1O Profile**

C1O is an oil exploration and production organisation in Oman. Through explorations activities, C1O discovers oil fields and develops them into productive assets by drilling wells and constructing and operating various hydrocarbon treatment and transport facilities. It depends on contractors such as OMO to provide it with services and well drilling. C1O is recognised in Oman as a large organisation and it employs more than 4000 people.

## **3. C2O Profile**

C2O is an oil exploration and production in Oman. It owns exploration concessions and production oil-wells. C2O employs more than 900 people and recognised in Oman as a Medium-to-Large size Organisation (MLO). C2O values its employees as the force that responsible for generating success and bright future to its business. In its supply chain

relationship it seeks to develop partnership with its suppliers through its integrity, competency and reliability.

C2O exploration and production operations are located onshore in Oman and it has no offshore operations. In its operations it strives through major efforts to cope with new technology development, administrative and technical innovation and keen to provide its employees with high level of training and education. C2O during its operations continuously realise higher level of production associated with increase in revenue. It expands its operations in Oman through strategic acquisition of oilfield.

#### **4. S1O Profile**

S1O is one of the suppliers of oilfield equipments in Oman and often work as subcontractor to other organisations. In terms of organisation size, S1O is identified in Oman as a (MLO) and it employs more than 300 people. It owns and operates a large workshop in Muscat (the capital of Oman) that provides machining and fabrication of specialized equipment used in the oil and drilling industry.

The core business of S1O is manufacturing and fabricating specialized thread connections for cutting threads for tubulars used in oil wells. In addition to that it provides repairs, maintenance and manufacturing of various items required for oil industry as required by its customers.

## **5. S2O Profile**

S2O is an oil and gas services organisation that provides to other oilfield services organisations or to main oilfield organisations in Oman. It aims to offer high-tech and innovative oil and gas services. It employs more than 2000 people and recognised in Oman as a Large Size Organisation (LO). S2O has extensive experience in upstream and downstream oil and gas services that includes providing consultation, machineries, seismic-surveys, technical services, drilling related materials, and most of services required by oil industry as requested by its customers.

S2O is one of the successful organisations in Oman and aims to provide its services with high quality and cost effective to realise partnership with its customers. The organisation is constantly adopting new technology in its business to minimise cost and provide its services with competitive prices to its customers.

## **B. United Arab Emirates (UAE)**

UAE is a well developed country located in the Middle-East. It is an oil rich country and one of the world countries that undergoes fast development in the properties market and real-estates. The location of UAE in the map is highlighted in the previous map for Oman and it is more specified in the following map:



### **Profiles of Selected Organisations for Study in UAE**

#### **1. EO Profile**

EO is one of the leading properties organisations in UAE. It establishes new homes and commercial buildings for a private and commercial use and sells them to their new owners. It is identified in UAE as a large organisation. It has an outstanding team comprised of more than 600 people that is prepared to plan thoroughly, think more creatively and work with dedication to create complete advantages to EO. It deploys integrated approach to customer service and property development. It is customer focused organisation and give a lot of attention to customer services through training its staff on subjects related to customer services improvement.

## **2. C1E Profile**

C1E is a large finance organisation employs more than 2000 people and specialised in providing home finance in accordance to Islamic law. It provides real estate mortgages to individuals and organisations for the purchase of commercial, residential and industrial properties, apart from acquisition, lease, rent, and development of real estate. Based on Islamic law or Shariah, C1E act as a middleman between the properties developers and the final customer where it act as a buyer of the properties from the developers with certain price and resell the property to the final customer with a profit based on specified new price for the property that made known to the customer before signing the mortgage agreement. C1E follows this process in order to specify certain price to the customer that needs to be paid through instalments for certain period of time without taking interest from the customer. It offers medium to long-term financing solutions for residential and commercial properties and real estate finance is its core business. It sells the properties on behalves of the developers and offers complete solutions for major real estate developers.

## **3. C2E Profile**

C2E is a large and leading home finance organisation in UAE. It provides mortgage financing in accordance with Islamic principles. C2E offers value added financing options to suit all categories of home buyers and end-users. It positioned itself in the market as the leading brand and first choice partner for home finance product. It is one of the successful home financing organisations in UAE and it follows focused leadership to achieve future business success. It employs more than 2000 people and put efforts through its employees to achieve innovative and competitive products and excellent services.

#### **4. S1E Profile**

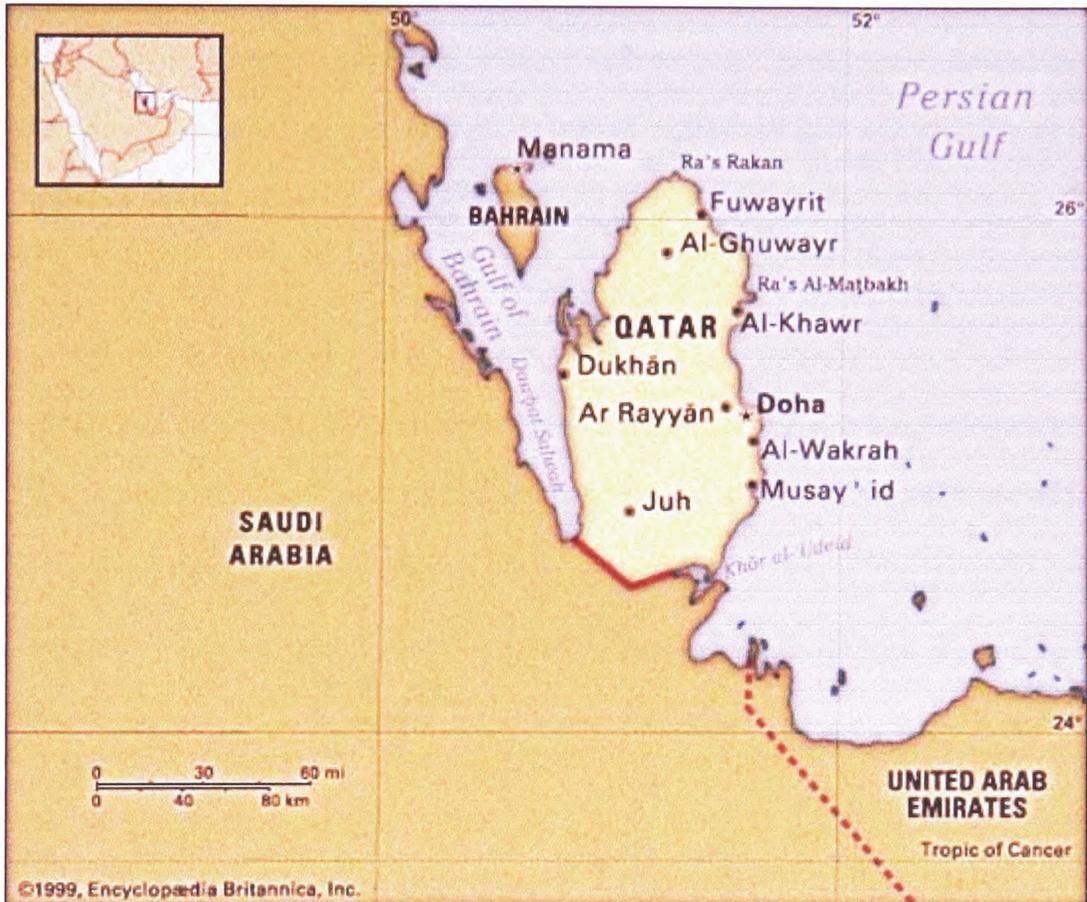
S1E is a leader in the UAE Construction Industry and considered as one of the top construction organisations in the UAE. Its core business is properties construction and works as a contractor and subcontractor to major properties development in UAE. Besides its construction activity it provides building materials and equipments to its major customers. It employs more than 3000 people, certified to ISO 9001:2000 and always strives to improve its business performance and relationships.

#### **5. S2E Profile**

S2E is a large construction organisation that provides construction services to major properties developers in UAE. It employs more than 3,000 people and has well established reputation in UAE construction market. Beside its construction activities it provides its customers with architectural, design and engineering services through its strong alliances with related organisations. S2E values its customers and always strive to build partnership with its major customers.

### C. Qatar

Qatar is one of the oil rich and developed countries in the world. The location of Qatar is highlighted in relation to the location of Oman and UAE in the previous maps. The following map illustrates Qatar location:



### Profiles of Selected Organisations for Study in Qatar

#### 1. QO Profile

QO is a multinational organisation and classified as a large organisation in Qatar that employs more than 900 people. QO produces transferable chemical materials to be utilised in plastic and associated industry. It is certified to ISO 9001:2000 quality

standard and its Quality Management System work in compliance with the requirements of this standard. It exports its products worldwide and through its high quality and reliability its reputation becomes well established in the global market. It implements continuous improvement in its operations and management systems to realise market leadership. It values its supply chain relationships and it makes every effort to build strong relationships with its upstream and downstream parties. QO it continuously measure its performance because it recognised as a supporting way that leads it to achieve excellence of performance.

## **2. S1Q/C1Q Profile**

S1Q/C1Q is one of the well established organisations in Qatar. It employs more than 250 people and adopts new technology in its operations. It produces packaging materials in form of plastic films and bags. It sells the majority of its products in the local market and markets the other balance of its products worldwide and especially Europe.

## **3. C2Q Profile**

C2Q is one of the leading organisations in Qatar and classified as a Medium-to-Large size Organisation. Its core business is manufacturing, exporting and supplying plastic products in form of plastic pipes and associated plastic products. C2Q is equipped with the latest state of the art machinery, technology and experienced personnel covering a wide range of skills in the field of plastics and their applications. It produces high quality products in compliance to major and international standards. C2Q through commitment to quality based products and commendable performance has attained high business reputation in Qatar and abroad.

#### **4. S2Q Profile**

S2Q is an oil and gas exploration and production organisation. It is a large organisation in Qatar that employs more than 2000 people. S2Q gas products are utilised by other organisations such as QO to produce transformable chemical materials. S2Q in its relationship with its customers is committed to provide high quality products that satisfy its customers. It understands the importance of business relationships and work toward building partnership with its downstream supply chain parties.

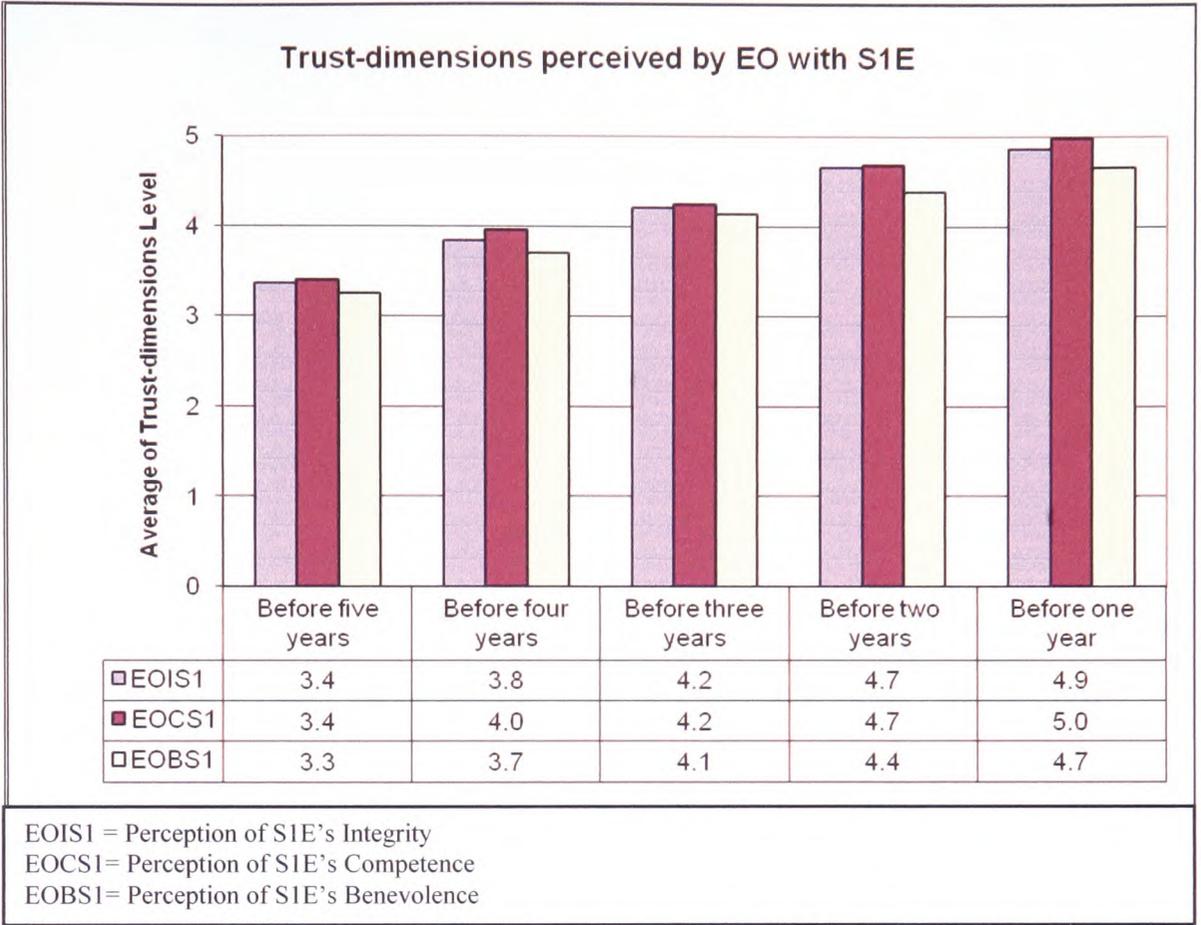
## **APPENDIX 2**

### **A2.1 DETAILED ANALYSIS OF EO'S SUPPLY CHAIN RELATIONSHIPS AND PERFORMANCE**

#### **I. Analysis Of Trust In The Supply Chain Relationships Between EO and Its Upstream Parties**

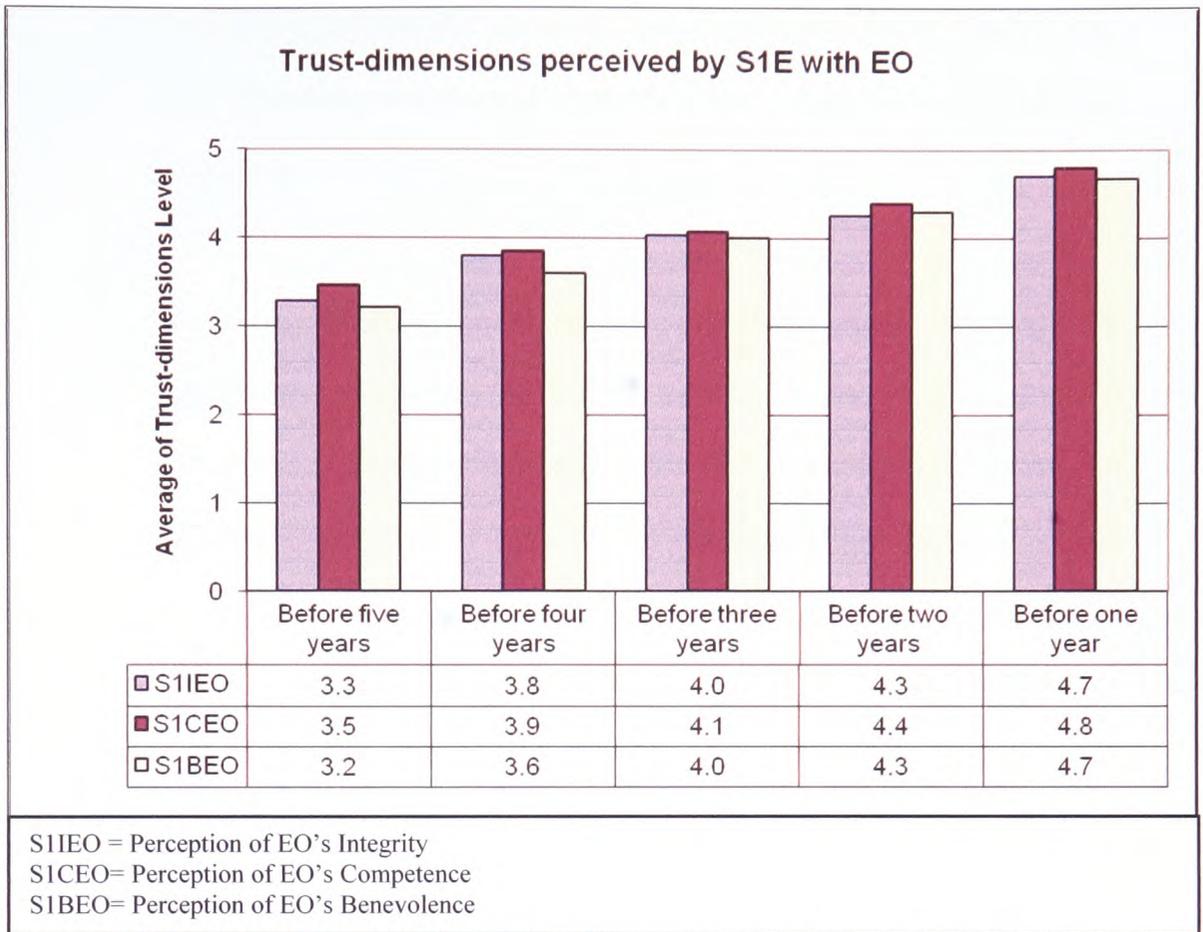
##### **1. Trust In The Relationship Between EO and S1E**

The analysis here starts with the relationship between EO and the first upstream party considered by this research, which is S1E. The results of the average analysis of this relationship are presented in graph E.1 for EO's perception of S1E's trustworthiness attributes and in graph E.2 for S1E's perceptions of EO's trustworthiness attributes.



**Graph E.1: Shows the trust dimensions perceived by EO in its supply chain relationship with S1E**

Concerning the relationship from S1E's perspective, the analysis of the research data maintained from this upstream party has yielded the results indicated in graph E.2.



**Graph E.2: Shows the trust dimensions perceived by S1E in the supply chain relationship with EO**

**A. Integrity Between EO and S1E**

**1. EO/ S1E**

At the beginning of the supply chain relationship's investigation, the relationship between EO and S1E was investigated for perception of trustworthiness attributes responsible for the formation of the integrity trust dimension. The interviewees in EO indicated that S1E interacts with honesty in this supply chain relationship. According to EO's Development Manager, this honesty has been perceived by EO throughout its interactions with this upstream party. In this context, EO's Projects Manager emphasised this perception. The other interviewees in EO indicated that the continuous interaction with this upstream party was the criterion for this perception.

Clarifying this perception, the interviewees in EO emphasised that S1E had been interacting with frankness, openness and it had been truthful in this relationship.

Moreover, the interviewees in EO expressed strong belief in the organisation's credibility and fairness. In this context, EO's Finance and Risk Manager indicated that S1E's fairness was perceived through its sufficient explanation of what EO needed to pay and the products and services it would receive in return. EO's Retail Manager expressed a similar point of view and referred to S1E's fairness in this supply chain relationship in terms of the prices it charged for the products and the services it provided. The interviewees in EO showed confidence in S1E's fairness.

In regard to S1E's credibility, the interviewees in EO emphasised this perception and pointed to S1E's honesty and fairness as the major reasons for signifying this perception. According to EO's Development Manager, the attributes that S1E's showed in this relationship had resulted in a perception of confidence in interacting with S1E. In addition, the interviewees in EO stressed S1E's commitment to this supply chain relationship and emphasised that was perceived based on S1E's continual fulfilment of its promises and obligations. Hence, the interviewees' perceptions of the relationship with S1E in this supply chain emphasise that EO perceives S1E as acting with integrity. The attributes responsible for this trust dimension are well presented in EO's perception of its relationship with S1E as a major supply chain party. Therefore, EO perceives calculus-based trust in its relationship with S1E.

Having analysed the integrity perception of S1E from EO's point of view, the next section will consider the perception of this trustworthiness dimension from S1E's point of view.

## **2. S1E/ EO**

Based on the interviewees' perception of their relationship with EO, S1E believed in EO's honesty and this honesty was perceived throughout the supply chain relationship. Additionally, S1E's Commercial Manager accentuated that through previous experience and continuous supply chain relationship with EO, EO had been perceived to interact with fairness. According to S1E's Plant Manager, EO's fairness was perceived through the fair lead time it demanded, which took account of S1E's operations capability and through its responsiveness to unintended problems in the supply chain caused by S1E. S1E's Construction Manager emphasised this perception and indicated that EO has acted with fairness and honesty throughout the supply chain relationship.

Additionally, the interviewees in S1E highlighted EO's credibility and stressed the perception of this attribute throughout the supply chain relationship. However, S1E's Strategy Manager indicated that EO's credibility was perceived only after repeated interactions with this organisation. In this respect, S1E's Strategy Manager emphasised that mistrust had existed at the start of the supply chain relationship, when paperwork and conditions were used to ensure EO's reliability in fulfilling its obligations. However, EO showed thorough commitment in this

relationship, which resulted in a perception of its credibility as a solidarity in the supply chain relationship. All the interviewees in S1E agreed in perceiving EO's credibility and commitment in this supply chain relationship. The interviewees showed confidence in interacting with this organisation.

In general, the interviewees in S1E highlighted and emphasised perceptions of the attributes responsible for the perception of EO's integrity. Therefore, S1E perceived EO's integrity in this supply chain relationship. Returning to the analysis of EO's perception of S1E's integrity, above, it is clear that both S1E and EO perceive each other's integrity in this supply chain relationship. Therefore, calculus-based trust occurs between EO and this upstream party.

## **B. Competency Between EO and S1E**

### **1. EO/S1E**

The perception of S1E's competency in the relationship was investigated from EO's point of view. The interviewees in EO indicated that S1E had the required expertise for EO's supply chain. In this regard, EO's Development Manager indicated that S1E had shown superior expertise in its business, which always satisfied EO's supply chain. EO's Projects Manager emphasised the perception of S1E's expertise in this relationship and has belief in such expertise. According to EO's Sales Administrator, S1E's expertise had a major impact on EO's project management, as it gave confidence to EO in this process. Concerning the perception of this attribute in S1E's relationship, EO's Finance and Risk Manager emphasised that, the

perception of S1E's expertise allowed the risks related to construction operations to be spread to a considerable extent, which ensured the success of EO's investment.

In addition, the interviewees highlighted perceptions of S1E's ability in this supply chain relationship. In this regard, the interviewees mentioned that S1E had the resources, capital and combination of diversity and size that suited EO's investment in this supply chain. Moreover, the interviewees noted that S1E in its supply chain interactions, had proved the extent of its consolidated knowledge and experience. S1E's ability in this supply chain was highlighted as a guarantee by the interviewees in EO. In this respect, EO's Retail Manager indicated that S1E's ability was initially expected to be perceived in this relationship through its position and reputation in the market and in the course of their supply chain interactions it had lived up to this reputation.

Moreover, the interviewees highlighted S1E's consistency in this supply chain. They attributed this perception to past experiences with this upstream party. All the interviewees stressed this perception and considered its recognition in this relationship to be related to the high standard of behaviour S1E had always shown in its interactions with EO.

The perceived attributes in this relationship with S1E indicate that EO perceived this upstream party's competency. However, this perception was based only on EO's perception of S1E's attributes. To identify the extent of EO's competency in this supply chain relationship, then S1E's perception

will be considered. Based on the perceived competency by both parties, as mentioned earlier, existence of knowledge-based trust in this relationship will be determined. Therefore, the next section considers the analysis of the relationship for perception of EO's competency from S1E's point of view.

## **2. S1E/EO**

The relationship was investigated from S1E's point of view to identify perceptions of attributes related to EO's competency in this supply chain. Concerning the perception of EO's expertise in this supply chain relationship, the interviewees in S1E emphasised this perception and indicated that EO is an expert organisation in the field of real-estate. According to the interviewees, EO's expertise is tangible and was manifested in its achievement in the market. In this respect, S1E's Construction Manager indicated that EO's expertise as a real-estate organisation was required in terms of capital planning and investment development, to ensure the profitability of the supply chain process. The interviewees in S1E emphasised that in this relationship, S1E perceived EO as an expert organisation with the required expertise for the supply chain.

In terms of EO's ability in this supply chain, the interviewees in S1E indicated that EO had become a major housing, commercial buildings and tours tenure. In this context, S1E's Commercial Manager emphasised EO's ability and pointed to EO's land ownership, money capital, resources, and its capability to generate profits from its investments, which ensured the fulfilment of its legal financial responsibility to S1E. The interviewees in S1E revealed strong faith in EO's ability in this supply chain.

Moreover, the interviewees indicated that this supply chain party was reliable. This reliability was perceived in the relationship based on EO's steadfast attitude in considering its obligations toward S1E. S1E's Strategy Manager clarified the perception of EO's ability in this supply chain by stating that

***“Based on our business strategies we don't join a supply chain relationship with a supply chain party unless we have confidence in the other party's ability. Based on our business strategy, the most important conditions that we request are that the other party should be able to fulfil its financial obligations toward S1E and owns official permits required by S1E to commence its operations. Moreover, we look to build long-term relationships with our parties and therefore we tend to join a relationship with parties that have the ability to realise this business strategy and EO is one of these parties who have been perceived to have the required ability for our business. ”***

EO's ability was highlighted by all the interviewees in S1E.

Besides that, the interviewees in S1E emphasised perception of EO's consistency in this relationship. According to S1E's Project Manager, EO's projects normally take years to complete and during the period of each project, EO's had been consistent in its supply chain relationship. The interviewees in S1E made a connection between the perceptions of EO's reliability and its constancy in this supply chain. In this respect, S1E's Plant

Supervisor emphasised that the perception of EO's reliability in this supply chain relationship was based on the perception of its consistency and as a consequence this organisation was considered as a dependable party in this supply chain. EO was perceived as a consistent supply chain party by all the interviewees in S1E.

The attributes related to EO's competency were perceived by the interviewees in S1E. Therefore, the competency of EO was well perceived by S1E in this supply chain relationship. Hence, by referring to the competency of S1E perceived by EO, as indicated in the above section, both parties perceive the competency of each other in this supply chain relationship. Therefore, knowledge-based trust is identified in the supply chain relationship between EO and S1E.

### **C. Benevolence Between EO and S1E**

#### **1. EO/ S1E**

The perception of benevolence in the supply chain relationship was initially investigated from EO's point of view. In this supply chain relationship, the interviewees in EO indicated that S1E has shown good intentionality, which convinced EO to interact with confidence with this upstream party. According to EO's Finance and Risk Manager, S1E's goodwill intentionality was perceived in this supply chain relationship based on the efforts it made to develop the relationship and based on its consideration of EO's requirements in this supply chain. Furthermore, the Manager pointed to S1E's efforts during frequent occurrence of raw materials shortage in the market, regarding availability of steel and cement required for EO's

projects. During these supply difficulties the upstream party stood with EO and prioritised its supply chain fulfilment, helping EO to avoid risk that could be caused by those shortages. This perception was stressed by EO's Development Manager, who pointed to the profiteering by many suppliers that took place, regarding the price of these materials, due to the high demand in the market. S1E had high stocks of these materials and it could have done as other suppliers did, but it preferred to strengthen its relationship with EO by supplying these materials at prices similar to those prevailing before the shortage. Moreover, EO's Retail Manager indicated that S1E's goodwill intentionality was perceived in this supply chain relationship in S1E's efforts to supply EO with high quality products and the advice and suggestions it provided to EO, that contributed to the improvement of EO's operations. EO's Corporate Services Manager highlighted S1E's goodwill intentionality and pointed to this by stating that

***“Intentionality of goodwill is required in this supply chain relationship because of the capital invested in the project and the lasting effect of the relationship in the quality of the established project. Moreover, the goodwill intentionality is required to achieve time and cost harmonisation with the project stages. The party that has ill will in the relationship will only harm itself. S1E in our relationship has sets of goals to achieve and it has been friendly and concerned about our achievement in the supply chain. S1E has been supportive and generous, as it has provided us with favours outside our official supply chain relationship.”***

As indicated in the Corporate Services Manager, the perception of S1E's goodwill intentionality was perceived in this relationship through

continuous supply chain interactions. The perception of goodwill intentionality was perceived by all the interviewees in EO.

In terms of S1E's predictability in this supply chain relationship, the interviewees in EO emphasised this perception and indicated that the predictability of S1E was illustrated in its past performance. In this regard, EO Project Manager indicated that this upstream party had stood with EO regardless of the latter's business upturns or downturns. Similarly, EO's Development Manager emphasised S1E's loyalty to EO in the tough circumstances EO had faced in the past. All the interviewees in EO indicated their perception of S1E's predictability and stressed this aspect of the relationship. The interviewees referred to practical experience, including fluctuations in EO's business fortunes, when S1E showed favour in the supply chain and proved that it stood by EO.

The analysis indicates that EO perceived the trustworthiness attributes related to S1E's benevolence in this supply chain relationship. Therefore, EO perceived S1E as a benevolent upstream supply chain party. This analysis of the relationship represents EO's point of view of S1E's benevolence, which represents one party's perception of the relationship. To understand S1E's perception of EO's benevolence in this relationship, the next section considers the analysis of the relationship from S1E's point of view in order to determine whether or not transference-based trust exists in this supply chain relationship.

## **2. S1E/EO**

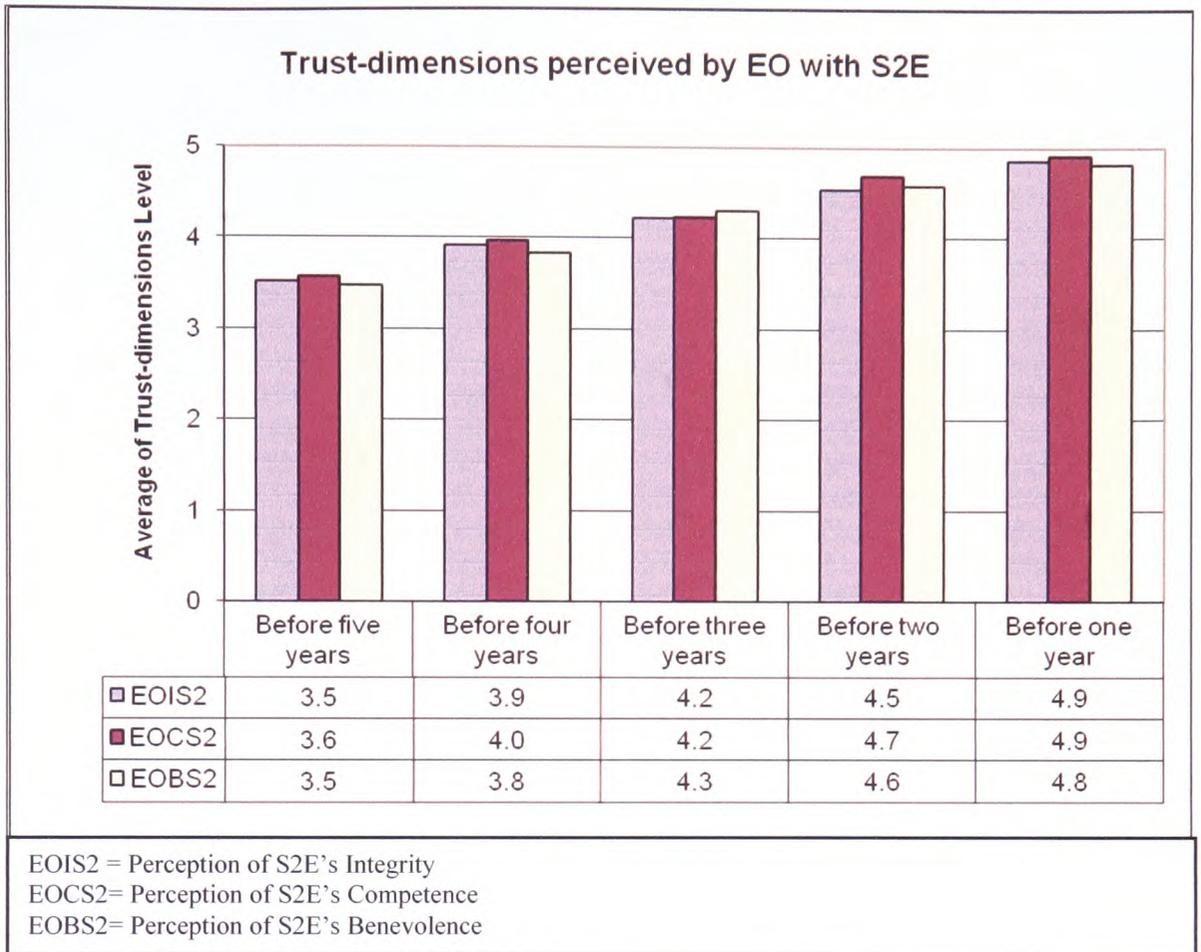
The perception of EO's benevolence was investigated from S1E's point of view. In this context, the interviewees in S1E indicated their perception of EO's goodwill intentionality. The interviewees attributed this perception to EO's past way of behaving in this relationship. In this respect, S1E's Construction Manager highlighted EO's goodwill intentionality by mentioning that EO had been generous in its fulfilment of its financial obligations to S1E. Moreover, the goodwill intentionality of EO was emphasised by S1E's Commercial Manager who indicated that EO had been concerned about S1E's resources and equipment deployed in the operations of this supply chain. The perception of EO's consideration of S1E's resources and equipment was stressed by all interviewees in S1E. In general, all the interviewees in S1E emphasised the perception of EO's goodwill intentionality in this supply chain relationship.

The interviewees also pointed to EO's predictability in the perception of its goodwill intentionality. They held this perception on the basis of EO's previous reputation in this supply chain relationship. In this regard, S1E's Plant Manager described EO as a predictable supply chain party. S1E's Project Manager highlighted this perception in terms of effective coordination with EO in this supply chain and EO's past behaviour in regard to circumstances that were of major concern to S1E. One way or another, all the interviewees stressed the perception of EO's predictability in this relationship.

The analysis shows that the perception of EO's benevolence was apparent in the interviewees' perceptions of attributes responsible for its formation in this relationship. This emphasises the perception of EO's benevolence in this supply chain relationship. Recalling EO's point of view on this relationship, as indicated in the previous section, it is clear that both parties perceived this dimension of trust in this supply chain relationship. Therefore, transference-based trust can be identified in the relationship between EO and S1E.

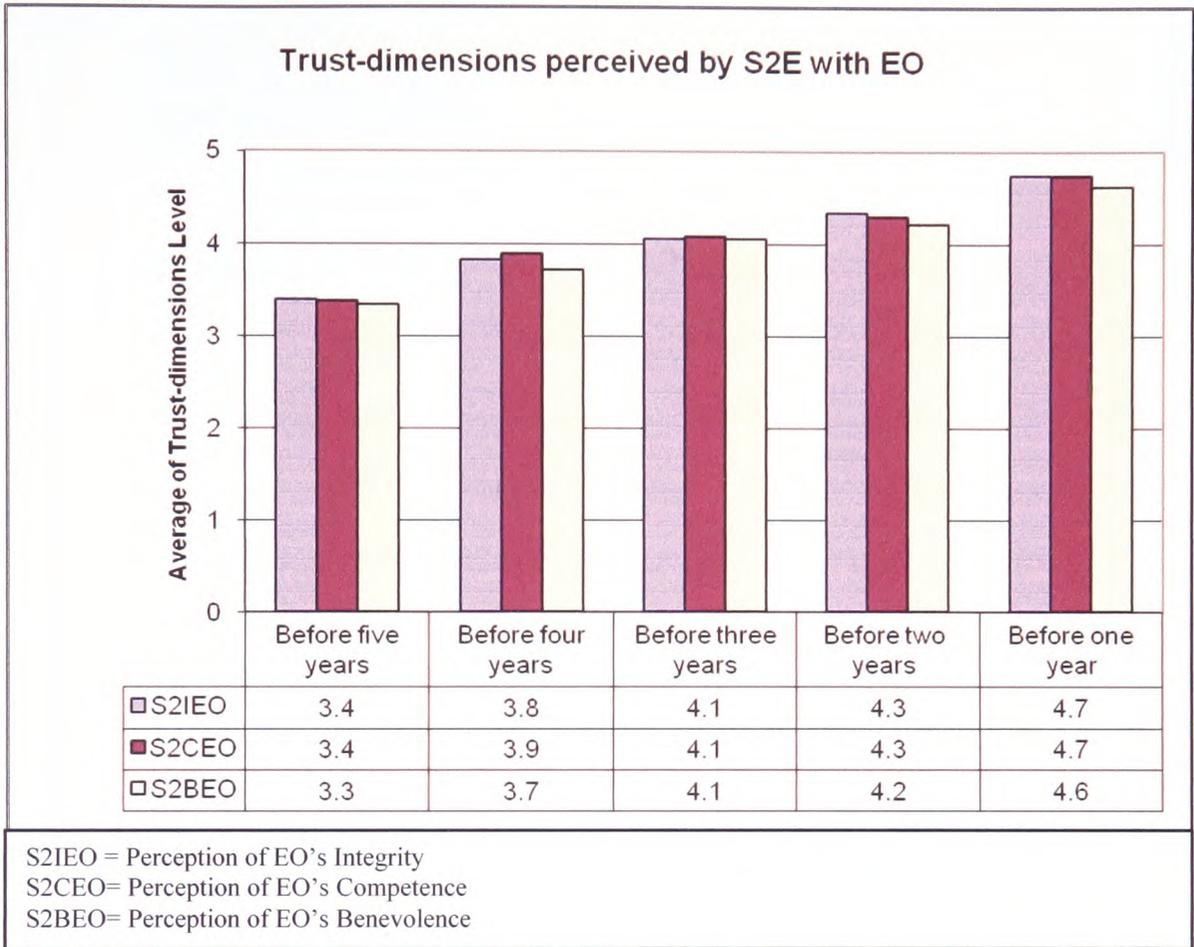
## **2. Trust In The Relationship Between EO And S2E**

The analysis of the trust perceptions in the relationship between EO and S2E are indicated in graph E.3 and graph E.4.



**Graph E.3: Shows the trust dimensions perceived by EO in the supply chain relationship with S2E**

Considering the relationship from S2E's point of view, the average analysis of the research data indicates that S2E in this supply chain relationship perceived the three trust dimensions in its relationship with EO. The results of S2E's perceptions of EO's trust dimensions are illustrated as below in graph E.4.



**Graph E.4: Shows the trust dimensions perceived by S2E in the relationship with EO**

**A. Integrity Between EO and S2E**

**1. EO/S2E**

The supply chain relationship between EO and its second upstream party, S2E was investigated for perception of calculus-based trust in this relationship. In this context, the interviewees in EO highlighted perceptions of S2O's attributes related to its integrity in this relationship. The interviewees in EO indicated that S2E was perceived as an honest upstream party. According to EO's Finance and Risk Manager, EO was confident of

S2E's honesty and interacted with this party in accordance with this perception. EO's Development Manager emphasised this perception and clarified that S2E's honesty effected its confidence in its ability in this supply chain.

Additionally, the interviewees in EO emphasised perceptions of this party's fairness. EO's Projects Manager indicated the perception of S2E's fairness in this relationship based on S2E's past performance and pointed out that EO had no doubt of this party's fairness. The interviewees determined perceptions of this party's fairness in terms of the prices it asked for its products, product quality, and its responsiveness to EO's requests. Moreover, the interviewees highlighted the upstream party's fairness in terms of the forthright attitude it showed in its supply chain relationship, according to EO's Sales Manager, S2E is not a multifaceted party.

The interviewees in EO also indicated a belief in S2E's credibility in this supply chain relationship. In relation to this point of view, EO's Retail Manager emphasised that S2E was credible in this supply chain relationship and that this credibility helped EO to be seen as a credible organisation in fulfilling its obligations toward its downstream parties. Other interviewees also stressed the perception of S2E's credibility in this supply chain relationship.

In relation to S2E's commitment in this supply chain relationship, all the interviewees indicated that S2E through repeated interactions, and through its attitude had proved itself to be a committed party in this relationship. In

this context, EO's Corporate Services Manager indicated that S2E's commitment was perceived based on its diligent efforts in satisfying EO in this supply chain. The interviewees in EO emphasised feelings of confidence in dealing with S2E and they attributed this confidence to previous experiences in the supply chain relationship with this upstream party. Hence, in this supply chain relationship, EO perceived the trustworthiness attributes responsible for perceiving S2E's integrity.

Having analysed the supply chain relationship for integrity perception from EO's point of view, the coming section will analyse this supply chain relationship for the same trust dimension from S2E's point of view. Based on this analysis, determination of the existence of calculus-based trust between EO and this upstream party will be highlighted.

## **2. S2E/EO**

The perception of EO's integrity in this supply chain from S2E's perspective was investigated to explore existence of calculus-based trust between the parties. The interviewees in S2E highlighted the importance of this supply chain relationship to S2E's business. They emphasised perceptions of EO honesty and attributed this perception to EO's continuous exertion to work with honest business ethics in its supply chain interactions. In addition to the perception of EO's honesty, the interviewees also stressed EO's fairness. In this respect, S2E's Operations Manager indicated that EO's fairness was directly related to EO's manner of fulfilling its obligations toward S2E. S2E's Operations Supervisor highlighted this perception and pointed out that EO's unremitting fair attitude shown in the

relationship was a major contribution in the perception of EO's fairness. In relation to EO's credibility, all the interviewees in S2E emphasised that EO was credible in this supply chain relationship, a view supported by the feeling of confidence in dealings with EO.

EO's commitment in this supply chain relationship was emphasised by the interviewees. In this attitude, S2E's Business Relations Manager indicated that EO has been committed to the development of this relationship. In this perception the Business Relations Manager pointed to satisfaction with EO's gratification of its obligations to S2E. Moreover, the commitment of EO in this supply chain relationship was highlighted by S2E's Customer Services Manager, in relation to EO's awareness of its responsibility in this supply chain and its active role in the relationship and allegiance to S2E. The integrity trustworthiness attributes were highlighted by all the interviewees in S2E and clarified based on the interviewees' perceptions. Therefore, EO's integrity was perceived in its relationship with S2E. Hence, by referring to the analysis of the perception of S2E's integrity in this supply chain relationship and the analysis of EO's integrity perceived by S2E as indicated in this section, it is obvious that each party perceived the integrity of the other and therefore calculus-based trust existed between EO and its second upstream party, S2E.

## **B. Competency Between EO and S2E**

### **1. EO/S2E**

The investigation of the relationship between EO and its second upstream party for perception of competency was initially considered from EO's

points of view. In this context, the interviewees in EO have emphasised perceptions of S2E expertise in this supply chain relationship. In this regard, EO's Development Manager, while expressing this perception, pointed to the difficulties faced by the construction industry related to shortage of raw materials required for EO business and explained that S2E, based on its expertise, had managed to overcome supply chain deficiencies that could affect EO's activities. EO's Property Manager emphasised S2E's expertise in terms of its supply availability and ability to forecast market demand and adjusting its resources accordingly to achieve harmony in its supplies and satisfy its partners in the supply chain. The perception of S2E's expertise in this supply chain was stressed by all the interviewees in EO.

Besides this, the interviewees highlighted perceptions of S2E's ability in this supply chain. In this context, EO's Corporate Services Manager indicated that the construction industry is highly dependent on raw materials, human resources, and technology and to a certain extent, S2E had proved sound ability in this supply chain in regard to the availability of these requirements. The interviewees in EO referred to problems had occurred in the market regarding prices of raw materials, which had risen to three times what they were before 2001. In this regard, the interviewees emphasised S2E's ability to meditate the price problem and take action, when it proved its ability to look for international producers instead of depending on local ones. This ability was perceived to be significant because it lowered the effect of the price problem on EO's supply chain, compared to its effect on other supply chains in the market. Generally, the interviewees in EO expressed perceptions of S2E's ability in this supply

chain in terms of resources it owned and pointed to the transportation fleets and earth-moving equipments to be the most significant ability that it possessed in contributing to EO's supply chain. Moreover, the interviewees indicated that this upstream party has the ability to coordinate with sub-suppliers to comply with the requirements of the supply chain relationship with EO.

In addition, the interviewees in EO emphasised perceptions of S2E's reliability in this supply chain. Concerning this attribute, EO's Projects Manager indicated that S2E had been reliable in this supply chain, as reflected in its continuous realisation of its obligation in the supply chain in accordance with the planned and demanded supply. All the interviewees in EO indicated the perception of S2E's reliability and emphasised its constancy in this relationship.

The analysis of the relationship identifies the perception of attributes responsible for perception of S2E's competency in this supply chain. Therefore, this obviously identifies that EO perceives S2E as a competent upstream party in this supply chain relationship.

After we have analysed the relationship for perception of S2E's competency, the following section will consider analysis of this relationship for perception of EO's competency from S2E's point of view.

## **2. S2E/EO**

S2E's point of view of the supply chain relationship with EO was explored to identify the extent of perception of EO's competency in this supply chain relationship. The interviewees in S2E considered EO as an organisation that has extensive expertise in this supply chain relationship. In this respect, S2E's Operations Manager pointed to EO's expertise through its reputation in real-estate investment, and its experience in this field. Moreover, the Operations Manager considered this party's expertise to be reflected in the attitude it showed in the supply chain when market uncertainty occurred and the changes it made to cope with market events. According to S2E's Operations Supervisors, EO's expertise was perceived in the manner in which it marketed its products and the turnover it generated, which underpinned the supply chain operations. S2E's Business Relations Manager identified EO's expertise in terms of its wise relationship with S2E, which involved incentives in its deals that motivated S2E to outperform other suppliers to satisfy EO's requirements. S2E's Customer Services Manager highlighted the perception of EO's expertise in this supply chain relationship in terms of its qualified human resources, knowledge and the technology it deployed in its supply chain relationship. All the interviewees in S2E stressed the perception of EO's expertise in this supply chain.

In addition to EO's expertise, the interviewees emphasised the perception of EO's ability and considered it to have extensive ability that suited the supply chain requirements. The investment and Marketing Manager in S2E indicated that EO had the required ability in regard to S2E's investment in

this supply chain. EO's financial ability to pay S2E and to develop the supply chain operations to a better extent was highlighted by S2E's Sales Manager. S2E's Sales Manger stressed the perception of EO's ability in this supply chain and referred to EO's marketing strategy and its ability to develop profit in the face of rising construction costs. EO's ability was stressed by all the interviewees in S2E.

In addition to the perception of EO's ability, perception of EO's reliability was been indicated by the interviewees. The interviewees emphasised this perception in terms of EO's constancy in this supply chain. In this context, S2E's Operations Manager indicated that EO's reliability was perceived in this relationship based on its consistent favourable acts in this supply chain. Moreover, S2E's Business Relations Manager emphasised the perception of EO's reliability based on its perceived constant attitude in this supply chain. S2E's Customer Services Manager indicated that EO's had shown solidarity and had been reliable throughout the supply chain relationship. The perception of EO's consistency was strongly asserted by the interviewees in the perception of its reliability.

The analysis of the perceptions of the interviewees in E2S clearly identifies their perceptions of attributes related to EO's competency in this relationship. Therefore, EO's competency was perceived by S2E in this supply chain relationship. Considering the analysis of the relationship for the perception of this trust dimension from the perspectives of both parties, as indicated in the previous section, EO's perceived this trust dimension in its supply chain relationship with S2E. Their mutual perceptions indicate the

existence of knowledge-based trust between EO and S2E in this supply chain relationship.

### **C. Benevolence Between EO and S2E**

#### **1. EO/S2E**

The perception of benevolence in the supply chain relationship between EO and S2E was investigated first from the perspective of EO. Based on this investigation, the interviewees in EO indicated perception of S2E's goodwill intentionality in this supply chain relationship. This perception was highlighted from different points of view and the interviewees emphasised this with reference to S2E's past actions and reactions in the supply chain. In this context, EO's Finance and Risk Manager indicated that S2E had been actively working with EO to ensure risk minimisation in the supply chain. On this point, the Manager emphasised S2E's positive interaction in the supply chain during difficult situations faced by EO, which revealed S2E's goodwill intentionality. EO's Development Manager highlighted this perception in terms of S2E's helpfulness in this relationship, which had proved valuable to EO. EO's Sales Manager mentioned S2E's generosity in this supply chain as the cause for this perception. Generally, this perception was highlighted in many different views and emphasised by all the interviewees in EO.

In regard to the perception of S2E's predictability, the interviewees in EO emphasised the perception of this trustworthiness attribute in this relationship. Concerning this attribute, EO's Development Manager pointed to the long experience with S2E as a reason for this perception, saying that

S2E was well known to EO and therefore it predicted its actions on this basis. EO's Corporate Services Manager referred to S2E's fitness in the supply chain roles and identified this perception based on previous experiences with this party, leading to development of confidence that this party would not behave in a way that disrupted the supply chain's collaborative atmosphere. All the interviewees in EO indicated perceptions of S2E's predictability in this supply chain relationship.

The analysis of the relationship indicates perceptions of attributes that indicate S2E's benevolence in this supply chain. Therefore, EO perceived S2E's benevolence in this relationship. The next section will consider the analysis of the relationship from S2E's point of view for perception of EO's benevolence, which will enable determination of the extent of the transference-based trust existence between EO and this upstream party.

## **2. S2E/EO**

S2E's perception of benevolence related to its relationship with EO was investigated from S2E's point of view. The interviewees in S2E indicated perception of goodwill intentionality in the relationship with EO. In this context, S2E's Operations Manager clarified this perception in terms of good relations with EO. The Operations Manager indicated that EO had been interacting with S2E as a friend, caring and showing a sense of concern that aimed to improve S2E's effectiveness in the relationship. This perception was stressed by S2E's Operations Supervisor. Furthermore, S2E's Business Relations Manager highlighted the perception of EO's goodwill intentionality in this supply chain relationship through its selection

of S2E to be its upstream party although other parties were available in the market. Moreover, S2E's Customer Services Manager explained this perception in terms of EO's good interaction behaviour in this supply chain relationship, which involved a sense of responsibility and consideration of its upstream party's benefits in this relationship. The overall view of the interviewees' perceptions of this supply chain relationship indicated perception of this trustworthiness attribute.

In relation to EO's predictability, the interviewees in S2E referred to knowing this party through information obtained based on repeated interactions with EO in this supply chain relationship. In this respect, S2E's Business Relations Manager specified that the openness and frankness of EO in the relationship had a major contribution in gaining knowledge related to forecasting EO's actions in this supply chain. S2E's Customer Services Manager indicated that the past behaviour of EO in this relationship could be used to forecast its future behaviour and, therefore, its predictability was based on what had been perceived in the past. In relation to EO's predictability, this manager indicated that EO had stood by S2E in this supply chain relationship and it was perceived to have shown a similarly supportive attitude throughout the relationship. In general, the overall views of the interviewees in S2E stressed the perception of EO's predictability in this relationship.

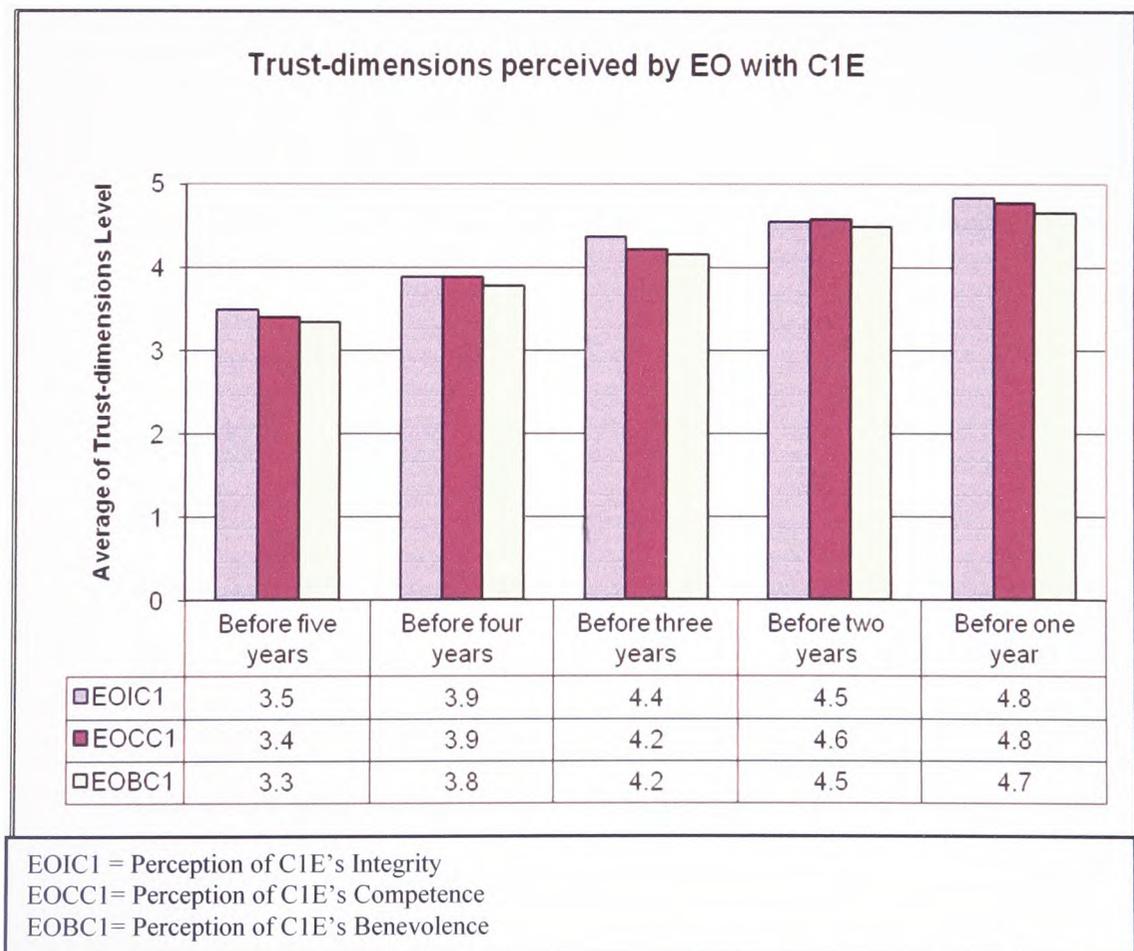
The perception of S2E's benevolence was obvious in the perceptions of the interviewees and therefore S2E in this supply chain relationship views EO as a benevolent organisation. Referring to the analysis of the relationship

from both parties points of view it is clear that both parties perceive each other's benevolence and therefore transference-based trust exists in this supply chain relationship between EO and S2E.

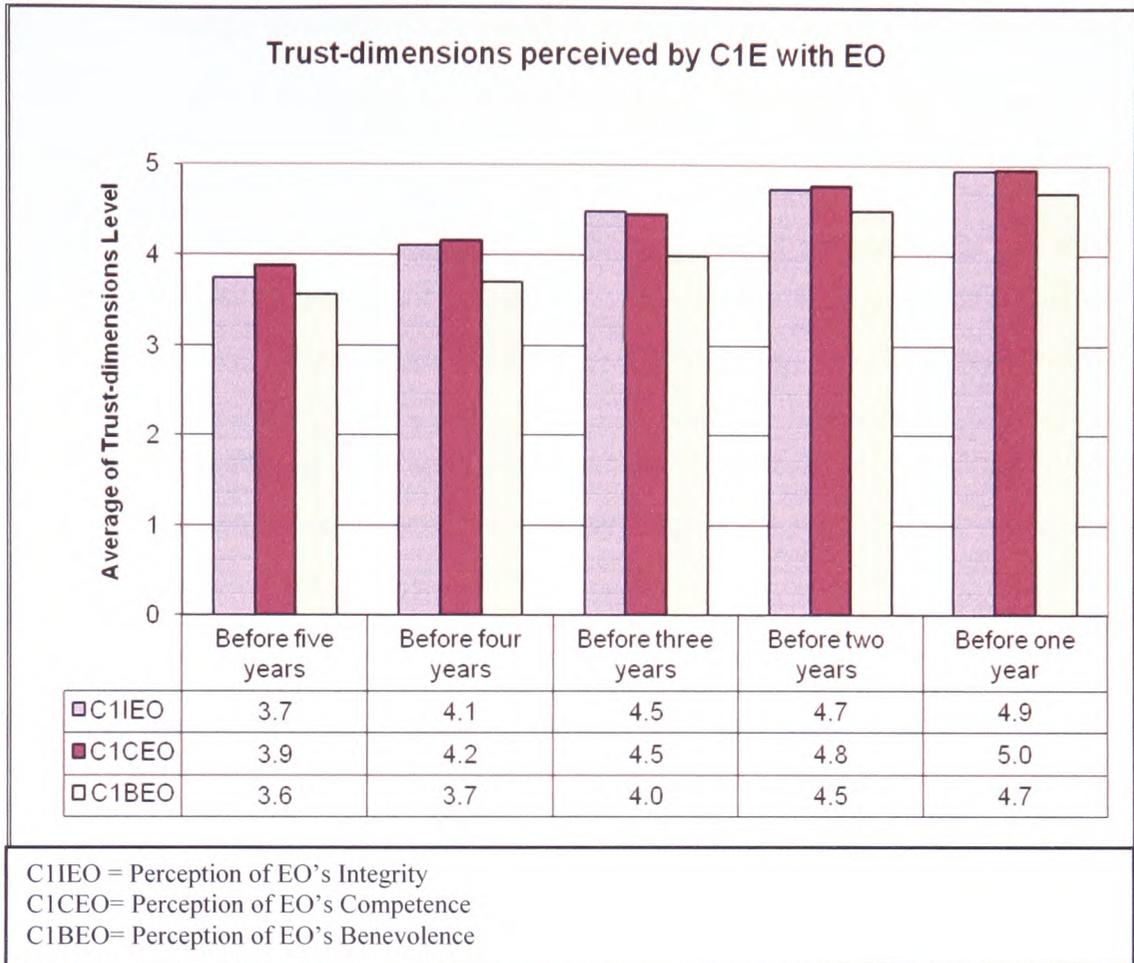
## II. Analysis Of Trust In The Supply Chain Relationship Between EO and Its Downstream Parties

### 1. Trust In The Relationship Between EO And C1E

The analysis's results of the relationship with the first downstream party selected for this study are illustrated in Graph E.5 for EO's point of view and in Graph E.6 for C1E's point of view.



**Graph E.5: Shows the trust dimensions perceived by EO in the supply chain relationship with C1E**



**Graph E.6: Shows the trust dimensions perceived by C1E in the supply chain relationship with EO**

**A. Integrity Between EO and C1E**

**1. EO/C1E**

EO in its supply chain relationship with the first downstream party selected for this study indicated a valued supply chain relationship. In this aspect, the interviewees in EO highlighted the significant beneficial contribution of C1E in this supply chain relationship. In relation to the perception of C1E's integrity the relationship, the interviewees emphasised perceptions of attributes related to this trust dimension. EO's Finance and Risk Manager expressed their perceptions of C1E's honesty and indicated the importance

of this attribute to EO's business. The honesty of C1E was viewed by this manager as a safety belt which it protected EO's supply chain from fraud related to downstream party double-dealing. According to this manager,

***“This downstream party has the opportunity to market and sell EO's products to final customers at prices higher than those set by EO for C1E's own benefit. If this party committed this behaviour then it could result in low demand for EO's products and could represent an opportunity for competitors to take advantage of this situation and promote their products as competitive price suppliers. However, C1E has been honest and its honesty resulted in avoidance of such behaviour and therefore protected EO's supply chain from unquestionable risk that could deteriorate the supply chain.”***

EO's Development Manager stressed the perception of C1E's honesty in this supply chain. EO's Sales Manager drew attention to the perception of C1E's honesty as manifested its frankness in its dealings with consumers. In this regard, EO's Corporate Services Manager pointed to C1E's forthrightness as to what it could achieve to ensure that the dealing conditions and pay were competitive and the financial scheme it provided for consumers would provide longer term security in this supply chain. EO's Retail Manager pointed to regular meetings between C1E and EO, in which the former explained how the business was doing, what the problems are and what the actual financial results were compared to the planned ones. C1E's honesty was said by the interviewees to have been evident since the commencement of this supply chain relationship and it was perceived by all the interviewees in EO.

Because they perceived C1E's honesty, the interviewees referred to C1E as a credible party in this supply chain. The interviewees indicated that this perception was perceived in parallel to the perception of C1E's honesty and all the interviewees emphasised the perception of C1E's credibility throughout the relationship. C1E's fairness in this supply chain relationship was perceived, as according to the interviewees, from different perspectives related to the supply chain relationship. In this respect, EO's Property Manager indicated that C1E's dealt equitably in this supply chain. EO's Projects Manager highlighted C1E's fairness in terms of the financial turnover it generated from its interactions with the consumers and the fair attitude it showed in fulfilling EO's worth. All the interviewees in EO emphasised C1E's fairness in this supply chain.

In addition to this, all the interviewees in EO emphasised confidence in interacting with this downstream supply chain party. The interviewees pointed out that C1E's commitment in this supply chain relationship was the cause of this perception. C1E's commitment was emphasised by the interviewees in terms of its allegiance, loyalty and continual fulfilment of its promises and obligations in the relationship. In this context EO's Projects Manager stated that

***“C1E's has been allegiant, loyal and working toward stabilising improvement in the supply chain. It has been enthusiastic to achieve results that optimally satisfy EO. It keeps its promises and has a sense of responsibility to fulfil its obligations that encourage the supply chain to develop to a further higher level.”***

All the interviewees illustrated how C1E's commitment was perceived in this supply chain relationship. The perception of C1E's commitment in addition to the perceptions of the other attributes related to the integrity trust dimension indicates that C1E's integrity was perceived in this supply chain relationship. This analysis is based on EO's point of view towards C1E's integrity, which only provides one party's perception of the supply chain relationship. To find out whether or not C1E perceived this trust dimension in this relationship, the next section will consider the analysis of the relationship for this perception from C1E's point of view.

## 2. C1E/EO

The relationship was investigated from C1E's point of view for perception of EO's integrity in this supply chain relationship. In C1E, the interviewees highlighted the perception of EO's honesty in this relationship. C1E's Operations Manager stressed this perception and pointed to EO's frankness in describing its product quality, cost and prices, which enabled C1E to have confidence in promoting EO's products. C1E Customer Services Manager emphasised the perception of EO's honesty based on its straightforwardness and candour in relation to its products and the deals it offered. Moreover, C1E's Real Estate Finance Supervisor stated that

***“Investment in real-estate is not just buying buildings at the right time but also about using the most advantageous forms of capital and maintaining cash flow that ensures the success of the investment. Therefore, honesty especially from seller side is needed in this supply chain because the product involves bulk of finance where the buyer needs warrantee to ensure its long lasting and its compromises to the conditions of the***

***dealings. Based on this EO has been honest in this supply chain and we considered its honesty underpins C1E's operations."***

EO's honesty was indicated by all the interviewees and emphasised as a perception in this supply chain.

The perception of EO's honesty included perceptions of its fairness in this supply chain relationship. From this point of view, C1E Operations Manager indicated that EO had shown awareness of its responsibility in this supply chain and it had fulfilled its obligations toward C1E in a very fair manner. Moreover, C1E Operations Manager emphasised this perception of fairness through EO's interactions with other downstream parties, in that it had shown no bias in its supply chain relationships. C1E's Customer Services Manager stressed the perception of EO's fairness in this supply chain relationship and considered that its manner of interaction had been fair enough and coincided with the supply chain requirements. Moreover, C1E's Real Estate Finance Supervisor indicated that the fairness of EO was perceived through its adoption of open communication in the chain process, which gave C1E a fair opportunity to influence decisions in this supply chain. The perception of EO's fairness was indicated by all the interviewees in C1E and emphasised to be perceived throughout the relationship.

The interviewees also asserted confidence in interactions with EO in this supply chain, and they asserted this perception to EO's credibility. C1E's Retail Product and Marketing Manager, in describing EO's credibility, indicated that EO was realistic in its expression and believable throughout

this supply chain. C1E's Administration Manager emphasised EO's credibility by stating that

***“EO has been projecting enthusiasm and friendliness that exudes trust and has been appreciated by C1E in this supply chain.”***

The perception of EO's credibility was emphasised by all the interviewees in EO.

In relation to the perception of EO's commitment in this supply chain relationship, C1E's Retail Product and Marketing Manager highlighted this perception in terms of EO's persistence in cooperating with C1E even at times when other opportunities were available, when EO could have sold its products directly without the need for C1E to get involved. Even during these times, however, EO persisted in having transactions executed through C1E, in where properties had already been assigned to C1E to market and finance. C1E's Operations Supervisor stressed the perception of EO's commitment in this supply chain relationship. C1E's Institutional Relationship Supervisor suggested that EO's approach in this supply chain was to abide by the principles of relationship as the basis for its commitment. One way or another, the whole interviewees indicated the perception of EO's commitment in this supply chain relationship.

As indicated in this analysis, the interviewees in C1E indicated and emphasised perceptions of trustworthiness attributes that reflected EO's integrity in this supply chain relationship. Hence, by taking account of the analysis of the relationship from EO's point of view, it is obvious that both

parties perceived each other's integrity. Therefore, this results in identifying the existence of calculus-based trust between EO and C1E in this supply chain relationship.

## **B. Competency Between EO and C1E**

### **1. EO/C1E**

In relation to perceptions of trustworthiness attributes related to identification of competency trust dimension, the interviewees in EO emphasised their perception of C1E's expertise in the supply chain relationship. According to EO's Finance and Risk Manager, C1E possessed the expertise required for marketing and delivering EO's products to the final consumer. In this respect, the manager highlighted that this expertise was rooted in EO's specialisation in providing financial packages in the form of loans and mortgages to consumers based on secure dealings to ensure prosperity in the supply relationship. EO's Development Manager pointed to C1E's reputation to reflect on its expertise in this supply chain. Additionally, EO's Sales Manager attributed the perception of C1E's expertise in this supply chain relationship to its knowledge and skills related to understanding consumers' needs and its advice to EO in relation to designs, decor and other engineering and planning aspects based on C1E's extensive knowledge of consumers' preferences. The sales manager emphasised that C1E's expertise was in evidence all through this supply chain and it had major advantages in speeding up supply chain turnover by stimulating transactions in the chain. Overall, all the interviewees emphasised the perception of C1E's expertise throughout the relationship.

In addition, the interviewees pointed to perception of C1E's ability. EO's Property Manager illustrated the perception of C1E's ability in terms of its skills and resources, which allowed it to perform with excellence to achieve the supply chain goals and strategic objectives. EO's Projects Manager illuminated the importance of C1E's ability in this supply chain relationship, noting that EO's corporate strategy dependent on its downstream party being able to convey EO's properties to the consumer, with the added advantages of ensuring the satisfaction and convenience of consumers through affordable terms and conditions. EO's Finance and Risk Manager stressed this perception and considered C1E's financial ability and expertise to facilitate and secure the delivery of EO's products to the consumers as the most effective factor in attaining prosperity in this supply chain. In one way or another, C1E's ability was emphasised by all the interviewees in EO.

In fact, the interviewees reflected on perception of C1E's consistency in emphasising C1E's ability. In this regard, EO's Sales Manger indicated that C1E's consistency in its interaction in this supply chain was mostly related to its ability. EO's Corporate Services Manager emphasised that C1E's ability in this supply chain was the driving force in the perception of its consistency and, hence, of its reliability. C1E's Projects Manager related the perception of C1E's consistency to its uniformity in the way in which it conducted its dealings in this supply chain and the steadfast importance it attached to alleviating any consumer concerns. EO's Property Manager stressed the perception of C1E's consistency in this supply chain and highlighted the importance of this consistency in developing C1E's reputation. According to this manager, C1E's consistency was perceived in

accordance with the repeated dealings accomplished by this downstream party and the consistent conduct it maintained throughout the relationship. In general, all the interviewees indicated certain perceptions of C1E's consistency and reliability in this supply chain relationship.

The overall perceptions of the trustworthiness attributes emphasised by the interviewees in this supply chain relationship reflect a perception of C1E's competency. Therefore, EO in this supply chain relationship perceives C1E as a competent supply chain party. However, so far the analysis only reflects on the perceptions of trustworthiness attributes from EO's point of view. To reveal the perception from both parties' points of view the next section will analyse the perception of this trust dimension from C1E's perspective, in order to comprehend the existence and exchange of knowledge-based trust between EO and C1E in this supply chain relationship.

## **2. C1E/EO**

The perceptions of trustworthiness attributes related to EO's competency were investigated by the researcher from C1E's point of view. The interviewees in C1E highlighted perceptions of EO's expertise. In this regard, C1E's Operations Manager referred to EO's skill in forecasting the market trend and the often precise forecasting of the demand in the market and its incessant improvement in the way it exhibited properties, including high technology installations and attractive locations that realise the dreams of C1E's costumers. C1E's Customer Services Manager highlighted EO's expertise based on its experience in segmenting the market and developing its properties in a way that satisfies the targeted segment. Moreover, the

perception of EO's expertise was clarified by C1E's Customer Services Manager in terms of EO's adequate resources and its experience in selecting its upstream parties and the strategy it follows to respond to competition in the market. C1E's Retail Product and Marketing Manager highlighted the perception of EO's expertise by stating that

***“EO has the ability and expertise to integrate knowledge and skills on real-estate with knowledge and skills on market need to tackle existing destitution in the market whereby it converts destitution into luxury.”***

As could be anticipated from the interviewees' perceptions, EO's ability was perceived in this relationship, in correspondence with the perception of EO's expertise.

Moreover, the interviewees in C1E stressed the perception of EO's consistency based on EO's past performance in the relationship and the steady attitude it maintained in its interactions in this supply chain relationship. In this regard, C1E's Operations Manager indicated that EO consistently acted and reacted with firm values and a considerate team spirit, by which it earned C1E's respect in this relationship. C1E's Customer Services Manager highlighted perception of EO's consistency in the fashion that EO's had followed and put into operation in establishing its products, whereby it had positioned itself as a luxury properties provider. The perception of EO's consistency was highlighted from different perspectives and in general all the interviewees in C1E agreed on the perception of EO's consistency in this supply chain relationship.

In addition to the perception of EO's consistency, the interviewees in C1E emphasised perceptions of EO's reliability. They all emphasised that the perception of EO's consistency was the major attribute that resulted in the perception of its reliability. The interviewees indicated that EO's consistency in this relationship led to development of expectations related to EO's future actions and through constant fulfilment of these expectations, the perception of EO's reliability was developed. This indicates the importance of the length of the relationship in developing such a perception.

The analysis of C1E's relationship with EO clarifies perceptions of trustworthiness attributes relevant to the perception of EO's competency. Therefore, EO was perceived as a competent organisation in this supply chain relationship. By referring to the analysis of the supply chain relationship from EO's point of view, as previously presented, it is obvious that both parties perceive the competency trust dimension in this relationship. Consequently, knowledge-based trust is in existence between EO and C1E in this relationship.

## **a) Benevolence Between EO and C1E**

### **1. EO/C1E**

Perceptions of trustworthiness attributes responsible for anticipating C1E's benevolence were traced through investigating perceptions of C1E's goodwill intentionality and its predictability in this supply chain relationship. The interviewees in EO stressed the perception of these trustworthiness attributes in this relationship. In this regard, EO's Finance and Risk Manager clarified the perception of C1E's goodwill intentionality

from the perspective of C1E's efforts to assist EO to outperform competition. According to EO's Development Manager, C1E has always shown a desire to underpin EO's business development. EO's Sales Manager indicated the perception of C1E's goodwill intentionality in this relationship through its concern of EO's privacy in relation to dealings executed by EO and in relation to privacy of information related to EO's sales, operations and strategic planning, that is of significant value to EO's business. Moreover, the sales manager pointed to the extraordinary concern shown by C1E, which revealed its high support for EO to achieve prosperity in this relationship. The sales manager highlighted C1E's cultivation and expression of its goodwill intentionality through the contributions it had made for the sake of EO's well-being in this supply chain. Perceptions connected with C1E's goodwill intentionality were clarified by all the interviewees in EO and the interviewees stressed goodwill intentionality as a common perception in this relationship.

In relation to C1E's predictability, all the interviewees emphasised this perception through points of view that clarify the development of this trustworthiness attribute in this supply chain relationship. In this context, EO's Property manager indicated a link between the perception of C1E's predictability and the perception of its goodwill intentionality. This link was explained in terms of C1E's past performance in the relationship and the consistency it had shown in supporting and satisfying EO's business in this relationship. EO's Projects Manager expressed gratitude for C1E's role in this supply chain and indicated that C1E had been a role model in this relationship and that its predictability was based on what it had achieved in

the past and its attachment to EO in its supply chain interactions. The Project Manager pointed to the exchange of expertise, information, skills and knowledge related to the supply chain business, which aimed to strengthen the tie of the relationship and achieve the utmost benefit from this supply chain relationship. Generally, all interviewees indicated perceptions of C1E's predictability in this supply chain based on the perceived goodwill intentionality.

The analysis of the relationship from EO's point of view emphasises the perception of C1E's benevolence in this relationship, it is now necessary to identify the overall perception of this trust dimension in the relationship require analysis of the relationship from C1E's point of view. The next section considers this perspective in order to identify whether the transference-based trust exists or not in this relationship.

## **2. C1E/EO**

The relationship was investigated from C1E's perspective in relation to perception of the benevolence trust dimension. The interviewees in C1E have emphasised perceptions related to EO's goodwill intentionality. In indicating this perception, C1E Operations Manager pointed to EO's choice of C1E to be its downstream party as a measure of this perception of goodwill intentionality. According to this participant, many organisations had the ability to become alternatives to C1E in this supply chain, but EO's choice of C1E to be one of its downstream parties identified goodwill intentionality from EO to support C1E by involving it in sharing the benefits in this supply chain. From another point of view, C1E's Customer Services

Manager emphasised the perception of EO's goodwill intentionality based on its co-operation in mitigating conflicts with consumers related to settlement of mortgages and financial obligations. This could have effects on EO's business, but EO did it to save C1E's reputation regarding its high customer satisfaction and care for customers' reputations. In another aspect, C1E's Operations Supervisor emphasised the perception of EO's goodwill intentionality by stating that

***“EO has deployed major efforts in this relationship that stream into facilitating C1E's role. An example of these efforts could be considered in EO's implementation of a computer network at its own expense that has greatly contributed to the development of the data exchange process and speeded it up in a manner that satisfies C1E and enhances its reliability in front of the consumers.”***

EO's improvement of the data exchange process with C1E was highly appreciated by the interviewees. From another point of view, C1E's Real Estate Finance Supervisor stressed the perception of EO's goodwill intentionality in this relationship by indicating that EO had pushed the movement of the transactions from high to highest by bearing the cost of new projects development in order to achieve prosperity, to be shared with its supply chain parties, including C1E. A similar point of view has been stressed by C1E's Administration Manager from another aspect when he pointed out that EO had the ability to take over C1E's role and create its own agent to market and offer financial packages to its customers, but it did not do so because it aimed to distribute risk related to customers' fulfilment of their obligations and also to share income with its downstream parties including C1E. Generally, in expression of this perception, some of the

interviewees pointed to the attitude that EO displayed in this relationship. Others highlighted this perception in terms of EO's friendliness and caring for C1E's welfare, in the sense that EO has been the incubator and the agitator of C1E's participation in this relationship through its continuous delegation to C1E of the roles of marketing and offering finance packages to final customers/consumers. Overall, all the participants in C1E had indicated perceptions of EO's goodwill intentionality in this relationship.

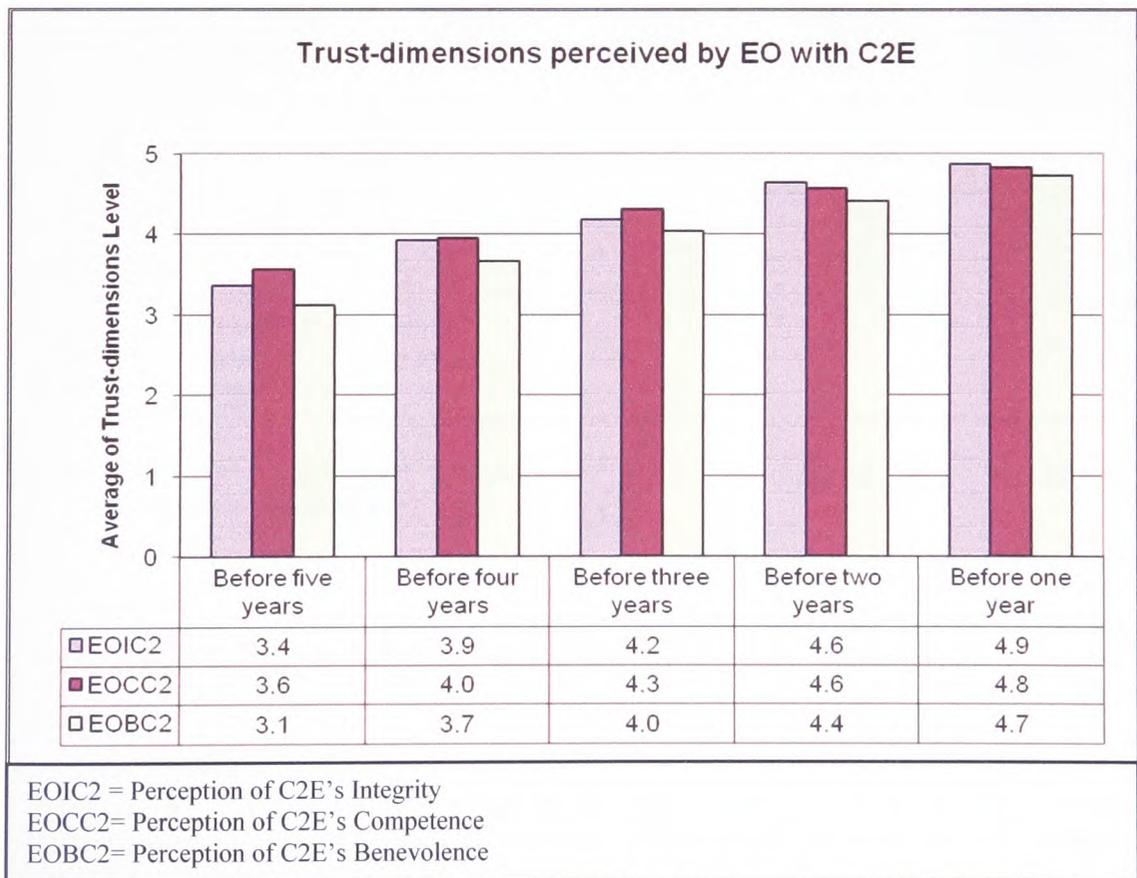
In respect to EO's predictability, all the interviewees in C1E emphasised this perception from different perspectives. They pointed to the solidarity of the relationship with EO enabling prediction of EO's actions supportive of C1E whenever such actions were needed. Clarifying this aspect, both C1E's Operations Manager and Operations Supervisor referred to EO's previous actions in regard to problems faced by C1E in this relationship and the compassionate actions taken by EO to resolve the issues. Moreover, they pointed to official and unofficial interactions in this relationship in which both EO and C1E exchanged details of significance to the supply chain. C1E's Retail Product and Marketing Manager related the perception of EO's predictability to the solid events of meetings and open discussion that took place with EO in this relationship. In certain respects, perceptions of EO's predictability were prominent among the interviewees.

As previously stated, the analysis of this relationship represents a tool for understanding the exchange of trust in the relationship between C1E and EO. Considering the perceptions of the interviewees in C1E, the analysis indicates that the trustworthiness attributes related to determination of EO's

benevolence were perceived by the participants and this identifies EO as a benevolent organisation. In the same way, by referring to the analysis of the relationship from EO’s point of view, C1E has been identified as a benevolent downstream party. Hence, both EO and C1E perceive the benevolence trust dimension in this relationship and therefore transference-based trust is identified to be in existence in this relationship.

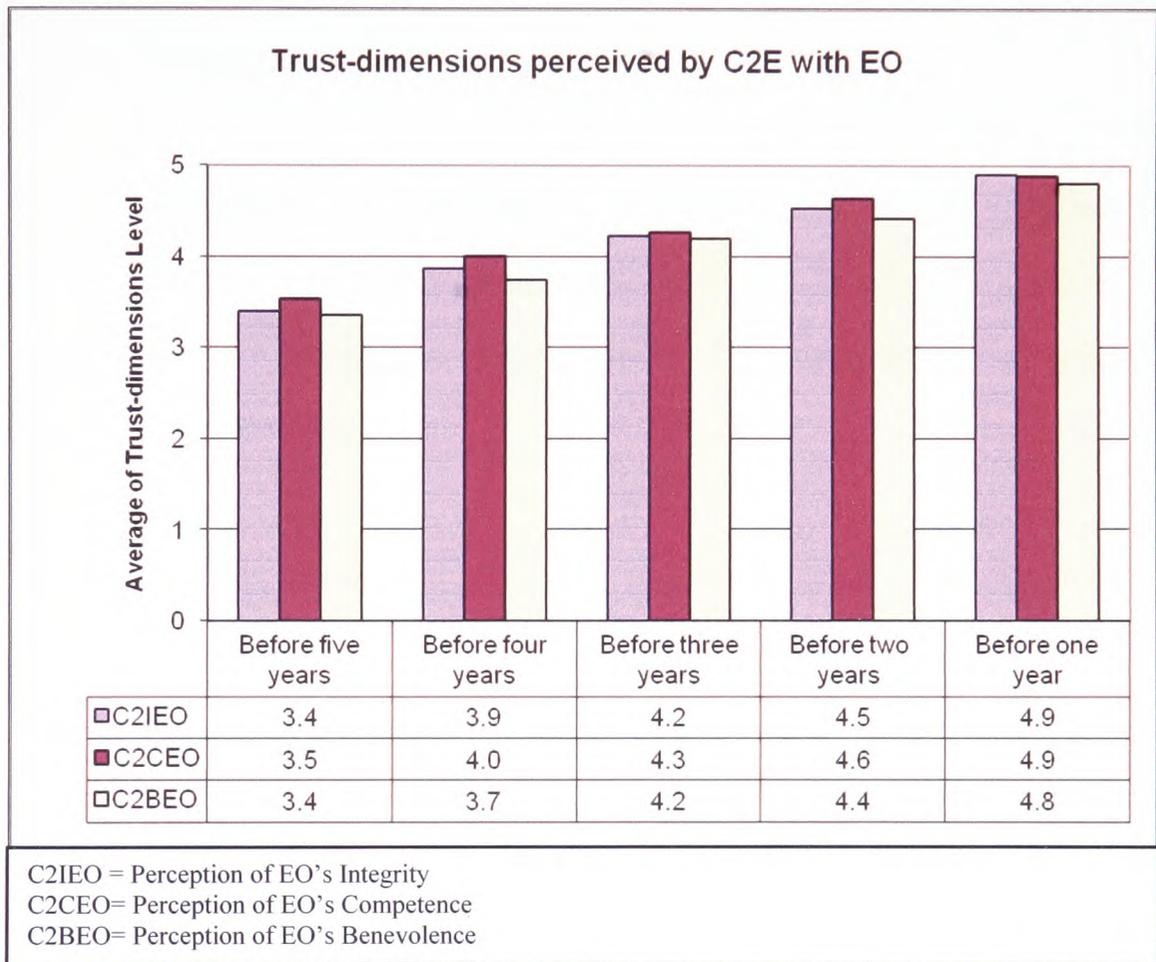
## 2. Trust In The Relationship Between EO And C2E

The relationship with C2E represents the fourth relationship considered in EO’s supply chain. The analysis’s results of research data for EO’s point of view of C2E’s relationship are illustrated in Graph E.7.



**Graph E.7: Shows EO’s perceptions of trust dimensions in the relationship with C2E**

Concerning determination of the trust in exchange in this relationship, the analysis of C2E’s perceptions of EO’s trust dimensions has yielded the results illustrated in Graph E.8.



**Graph E.8: Shows the trust diemnsions perceived by C2E in the supply chain relationship with EO**

## **A. Integrity Between EO and C2E**

### **1. EO/C2E**

In regard to the integrity trust dimension between EO and this downstream party, the interviewees in EO claimed to perceive this quality in their relationship. In this context, EO’s Finance and Risk Manager indicated that

C2E had been honest throughout this supply chain relationship. The same perception was highlighted by EO's development manager and EO's Sales Manager. EO's Corporate Services Manager pointed to C2E's honourable dealings in this supply chain relationship as the reason for this perception. In general, all the interviewees in EO emphasised the perception of C2E's honesty in this supply chain relationship.

In addition to this perception, the interviewees in EO highlighted perceptions of C2E's fairness. In this respect, EO's Property Manager noted that such a perception was a cornerstone of this supply chain relationship. He commented,

***“The relationship with C2E as an organisation responsible for marketing and facilitating the sale of EO’s properties is highly in need of C2E’s fairness. In this relationship, the fairness of C2E ensures EO’s fair liability in this supply chain and the loyalty of the consumers to EO’s products. So far, C2E has been interacting fairly with the aim of realising prosperity and contributing to EO’s long-term relationship.”***

EO's Projects Manager stressed this perception and indicated that C2E conducted itself with consideration of EO's concerns and had the image of being fair through its fair treatment throughout the supply chain relationship. Furthermore, EO's Development Manager stressed this perception and illustrated the perception of C2E's fairness in terms of its manner of interaction, whereby it allowed for expression of EO's views, which led to the inference that it held EO in high regard this relationship.

Generally, all the interviewees in EO emphasised perceptions of C2E fairness.

In regard to C2E's credibility, the perception of this trustworthiness attribute was emphasised by all the interviewees in EO. In this context, EO's Sales Manager referred to the perceptions of C2E's honesty and fairness as the basis for this perception. EO's Retail Manager stressed the perception of C2E's credibility and indicated that C2E was a convincing downstream party that had the reputation to help both EO and EO's product consumers to develop a solid relationship that enhanced EO's position in the market. In this respect, EO's Projects Manager emphasised C2E's credibility and declared that C2E was caring and had positioned itself as being credible throughout the supply chain interactions.

The interviewees in EO also indicated perception of C2E's commitment in the expression of its credibility. In regard to the perception of C2E's commitment, EO's Corporate Services Manager described C2E's as a downstream party committed to excellence, showing respect in its dealings and being respectful in this relationship. In general, all the interviewees in EO stressed the perception of C2E's commitment to this relationship. From this perspective, the interviewees expressed confidence in C2E in this supply chain.

The analysis of EO's perception of C2E's integrity reflects perceptions of attributes that emphasise the perception of this trust dimension. Hence, C2E's integrity is perceived by EO in this supply chain relationship. The

next section considers the analysis of the relationship for C2E's perception of EO's integrity in this supply chain relationship.

## **2. C2E/EO**

The relationship between EO and C2E was investigated from both parties' perspectives. The interviewees in C2E indicated that EO was honest and interacted in a way that involved openness and it had been frank all the way through the relationship. C2E's Operations Manager clarified this perception by indicating that EO's behaviour in its transactions was straightforward and decent. Reflecting a similar perception, C2E's Operations Officer highlighted EO's honesty, highlighting the importance of this honesty in the real estate dealings and commenting that EO's honesty in regard to conformity to planning and buildings regulations gave peace of mind to C2E's customers who were investors in EO's products. C2E's Business Development Manager also emphasised the perception of EO's honesty in this supply chain relationship. In this regard, this manager pointed to EO's frankness about its product quality and its honesty in executing relevant transactions related to transferring the ownership of properties to the new owners. Moreover, C2E's Finance and Support Officer indicated that EO's honesty in this supply chain relationship had been expressed in the manner in which it fulfilled its financial obligations, whereby it had been supportive and courteous in facilitating C2E's role in the supply chain relationship. Taken as a whole, all the interviewees in C2E emphasised the perception of EO's honesty in this supply chain, throughout the relationship.

The interviewees in C2E also indicated perceptions of EO's credibility related to perception of its fairness in this supply chain relationship. In this context, C2E's Operations Manger indicated that EO had gained itself an image of being credible by interacting in a fair manner that earned C2E's gratitude. C2E's Business Development Manager described EO as a respectful and considerate organisation, pointing to its credibility. C2E's Personnel and Administration Officer pointed to EO's authentic commitment to ethical behaviour, morality and fair treatment, in expressing the perception of EO's credibility. Generally, all the interviewees gave clear expression of their perceptions of EO's credibility and fairness.

In addition to that, the interviewees expressed perception of EO's commitment because of EO's compassionate way of dealing in this supply chain. In this regard, C2E's Finance and Support Officer indicated that the commitment of EO to this relationship was perceived as a profound consequence of EO's generosity and its unceasing efforts to addressing consumers' issues. All the interviewees in EO addressed the perception of this trustworthiness attribute. Thus, the trustworthiness attributes responsible for the determination of the integrity trust dimension are perceived by C2E in its relationship with EO. Combining both EO's perception of C2E's integrity analysed before and C2E's perception as indicated here, it is obvious that both parties perceive the integrity trust dimension. Therefore, calculus-based trust exists in this supply chain relationship and is perceived by both parties.

## **B. Competency Between EO and C2E**

### **1. EO/C2E**

Concerning the investigation for trustworthiness attributes related to C2E's competency, the interviewees in EO clarified perceptions of C2E's expertise related to its specialisation in the financial field, know-how in promoting EO's products and ability to attract customers' attention. The interviewees in EO emphasised perceptions of C2E's expertise through perceptions of its ability in this chain. Concerning this point of view, EO's Finance and Risk Manager emphasised this perception by declaring that

*“C2E has the ability to build a comprehensive view of the consumer concerns and draw, based upon this view a solid pathway that attracts the consumers' attention and speeds up transactions based on offering financial packages that predominantly suit the targeted segment in the chain.”*

C2E's ability was identified mainly through C2E's fulfilment of its role in this supply chain. In this respect, EO's Projects Manager emphasised the perception of C2E's ability by mentioning that

*“C2E's ability was expected before committing to this relationship because C2E as a downstream party to EO has to be able to participate in financing purchases carried out by consumers and C2E proved this ability right through the supply chain interactions in accordance with the supply chain requirements.”*

EO's Sales Manager emphasised C2E's ability based on the selling schemes it offers to potential customers and the enthusiasm it had shown in settling problems related to consumers' debt recovery whenever they occurred. In

similar ways, all the interviewees in EO has emphasised perceptions of C2E's ability in this supply chain relationship.

Perceptions of C2E's consistency and reliability were well presented by the interviewees in EO. Pointing to C2E's consistency, EO's Retail Manager stated that

***“C2E has been working hand to hand with EO without reluctance to deliver the best from the supply chain relationship activities and to raise the supply chain's competitive force based on achieving targeted aims that enhance EO and its parties' positions in the market.”***

EO's Sales Manager expressed C2E's consistency in terms of regularity it had shown in maintaining a high output rate and carrying out its tasks adequately. Generally, all the participants emphasised the perception of C2E's consistency in this supply chain.

In relation to C2E's reliability, the interviewees relied on the perception of C2E's consistency to emphasise this perception in the supply chain. This perception is clear in C2E's Retail Manager statement mentioned before, which expresses C2E's reliability in terms of its consistent dependability in this relationship.

The analysis of the relationship from EO's perspective indicates that EO perceived C2E's competence. Therefore, from EO's point of view C2E is a competent downstream party in this supply chain. However, this perception is not enough to determine the knowledge-based trust in this relationship.

Hence, the relationship will be analysed from C2E's point of view in regard to perceptions of trustworthiness attributes related to EO's competency in this relationship. The following section will present this analysis.

## 2. C2E/EO

The interviewees in C2E highlighted perceptions of trustworthiness attributes that represent the perception of EO's competency. As an example of the participants' points of view, C2E's Operations Manager indicated that

***“EO has the image of being expert in the field of real-estate and this image has been translated into reputation as it has been optimally demonstrated in this supply chain relationship.”***

EO's expertise, as indicated by C2E's Operations Manager, is responsible for EO's reputation in the market, which means that this expertise is sound and recognised by other organisations and customers. C2E's Business Development Manager highlighted this perception by stating that

***Property marketers such as C2E need steady levels of demand. By depending on EO's expertise through EO's well qualified designers, engineers, management and workforce, EO has been able to distinguish its properties from its competitors and it has been possible for C2E to direct its efforts to promote EO's properties as distinctive properties in the market, which greatly contributed to maintain steady levels of demand required by C2E in this supply chain.***

EO's expertise, as a perception stressed by C2E's Finance and Support Officer, enabled C2E to demonstrate added value in the financial offers it provided, based on EO's reputation and the property quality and location,

which aimed at building an image that securing a deal with C2E means realising the consumers' dream. Overall, all the interviewees in C2E emphasised the perception of EO's expertise in this relationship and described EO as an expert organisation. The perception of EO's ability was present in the perceptions of its expertise. EO's ability as indicated by the interviewees was perceived in this supply chain relationship through EO's achievement in the field of real-estate. According to C2E's Operations Manager

***“The most important aspect of EO's ability in this supply chain has been perceived through establishing luxurious private and commercial properties that uplift the real-estate industry and create opportunities to further the competitive edge in this industry.”***

C2E's Business Development Manager stressed the perception of EO's ability as it has been indicated by the operations manager. Most of the interviewees in C2E considered EO's resources, experience, skills and deployment of technology as indicative of the perception of EO's ability in this supply chain relationship. In this aspect, C2E's Personnel and Administration Officer emphasised the perception of EO's ability in its wise utilisation of its human and financial resources, by which it has been able to change the common domestic view of this industry and develop a new scene in the real estate business. Generally, EO's ability in this supply chain was stressed by all the interviewees in C2E and it was emphasised to be the backbone of the supply chain.

In addition to the perceptions of the mentioned trustworthiness attributes, the relationship was investigated for perceptions of EO's consistency. In this respect, the interviewees in C2E pointed to the length of the relationship with EO. In this context, EO's consistency was viewed by the interviewees as a matter of sustainability and persistence motivated by desire to achieve. In this sense, the interviewees emphasised that EO was reliable and its consistency in this relationship attested to this quality. In regard to this perception, C2E Operations Manager gave an important illustration, when he noted that C2E puts into actions promotion of EO's properties long before the completion of the projects and in the promotion activities often mentioned the expected completion date for each project. EO had met C2E's expectations, which showed it to be trustworthy in front of its customers. Based on EO's consistency in meeting C2E's expectations in this respect, EO had shown itself to be a reliable organisation worthy of confidence. In another aspect, C2E's Business Development Manager considered EO's reliability through its consistency in fulfilling the financial obligations related to the supply chain transactions. C2E's Operations Officer asserted the perception of EO's reliability in this supply chain to its consistent behaviour in the relationship, especially in its strong-willed behaviour that it had shown in establishing high quality properties erected on firm foundations that ensure the long life of the properties and the satisfaction of the end users. All interviewees emphasised perceptions of EO's reliability and their overall view indicates that EO has an image of reliability.

As has been clarified here, the analysis of the relationship for C2E's perceptions indicates that the trustworthiness attributes relevant to the

perception of EO's competency were perceived in this relationship. Now, by recalling EO's perception of C2E's competency identified in the analysis of the relationship presented in the above section, it is obvious that EO and C2E both perceive the competency trust dimension in the relationship between them. Therefore, this identifies existence of knowledge-based trust between EO and its second downstream party, C2E, in this supply chain.

## **C. Benevolence Between EO and C2E**

### **1. EO/C2E**

The relationship with EO's second downstream party was investigated for perception of the benevolence trust dimension. Considering this trust dimension, the interviewees in EO indicated perceptions related to the trustworthiness attributes responsible for perception of C2E's benevolence. Concerning the perceptions of goodwill intentionality, EO's Finance and Risk Manager highlighted this perception in terms of C2E's proactive interactions with EO to achieve results wanted by EO, based on EO's business plans. According to this manager, during times of business problems related to bottlenecks in the supply chain, C2E showed concern for EO's prosperity and always deployed its resources in a manner that indicated its great efforts to achieve prosperity and enable EO to overcome the problem. Moreover, C2E's goodwill intentionality was expressed by EO's Sales Manager through the intensive and active marketing programmes it engaged in, in which it prioritised EO's business prosperity and concerned it as its own prosperity. Furthermore, EO's Corporate Services Manager indicated the perception of C2E's goodwill intentionality through its helpfulness towards EO in many respects that mattered to EO's business, including provision of support in the aspects of financial planning,

feedback regarding consumer concerns, and provision of information regarding potential consumers, which allowed EO to design and allocate its resources to develop properties to suit these consumers based on their financial ability and their own disclosed interest in real estate, whether private or commercial. According to this manager, such help greatly underpinned EO business and sharpened its view in forecasting the future trend of the market. In one form or another, C2E's goodwill intentionality was emphasised by the interviewees as a perception in this relationship.

C2E's predictability was also perceived in this relationship. In clarifying this perception, the interviewees referred to C2E's past endeavours and accordingly built an image that manifested C2E's predictability. Highlighting this perception, the interviewees emphasised C2E's predictability based on open communication with them. Furthermore, the interviewees referred to the length of the relationship to demonstrate that C2E was a well-known to EO and based on this familiarity with C2E, the interviewees emphasised EO's ability to anticipate this party's future actions based on its past performance in the relationship. According to the interviewees, the repeated interaction with C2E and its consistency in the relationship enabled EO to collect information and build knowledge related to this party's functioning which made C2E a predictable party. Anticipation this party's future behaviour, the interviewees emphasised that it would act in EO's best interest and would contribute positively to the improvement of the relationship. All the interviewees agreed in expressing the perception of C2E's predictability in this relationship.

The analysis of the interviewees' perceptions of the relationship with C2E indicates perceptions of the trustworthiness attributes associated with the benevolence trust dimension, which indicates that C2E was perceived as a benevolent party in this relationship. C2E's point of view on the relationship is analysed the following section.

## **2. C2E/EO**

C2E's perceptions of the relationship represent the other view of the relationship between EO and C2E. The interviewees in C2E emphasised perceptions of EO's benevolence through perceptions of EO's goodwill intentionality and EO's predictability. Goodwill intentionality was highlighted by the interviewees as an attribute of the relationship based on EO's compassionate dealings and manner of displaying concern for C2E's business and desire for its profitability in this chain. In this context, C2E's Operations Manager indicated that EO in this relationship has the power to accompany C2E based on whatever it decides to be suitable for its business. However, EO did not take on arbitrary attitude in its manner of interactions. Instead involved C2E in its strategy formulation and allowed it to participate in its project management through giving its opinions and discussing matters based on C2E's experience that could be of help to the supply chain prosperity. Appreciation of and gratitude fro EO's wise comportment and manner of interaction in this relationship, were expressed, as evidence of EO's goodwill intentionality toward C2E. From a practical point of view, C2E's Business Development Manager pointed to the perception of EO's goodwill intentionality by citing an instance when EO was contacted by some buyers with a view to making a private deal without the involvement

of C2E. This would have been advantageous to EO, as it would gain a quick return with profit without affecting its position in the supply chain. However, it refused to do so and transferred the consumers to C2E, based on the relationship agreement, so the latter could complete the deals and earn its commission on the transactions. C2E's Business Development Manager regarded this behaviour as an example of EO's goodwill intentionality in this relationship. Moreover, C2E's Finance and Support Officer mentioned that

***“C2E's is indebted to EO in this relationship. EO has been dealing with an excellent attitude in uncountable situations that show its goodwill intentionality and force C2E to express its gratitude to EO through exchanging a similar attitude with the aim in mission to realise EO's contentment.”***

The Finance and Support Officer emphasised how the perception of EO's goodwill intentionality affected C2E's goodwill intentionality, which was a response to the perception of EO's goodwill intentionality in the relationship. This clearly shows that the display of trustworthiness attribute could influence the other party to behave in a like manner and in this way contributes in the trust building process in the relationship. Returning back to the perceptions of EO's goodwill in this specific supply chain relationship, the overall views given by the interviewees in C2E stressed the perception of EO's goodwill intentionality toward C2E.

Regarding the other trustworthiness attribute, which is predictability of EO, the interviewees highlighted perceptions of EO's predictability through

EO's consistent attitude, which they identified as a model that was characterised by trueheartedness in this relationship. In this regard, C2E's Operations Manager stated that

***“C2E has benefited from the relationship with EO and indeed EO's conducts has become widely known to C2E where confidence on EO means that C2E understands EO's behaviour, thereby its predictability is possible.”***

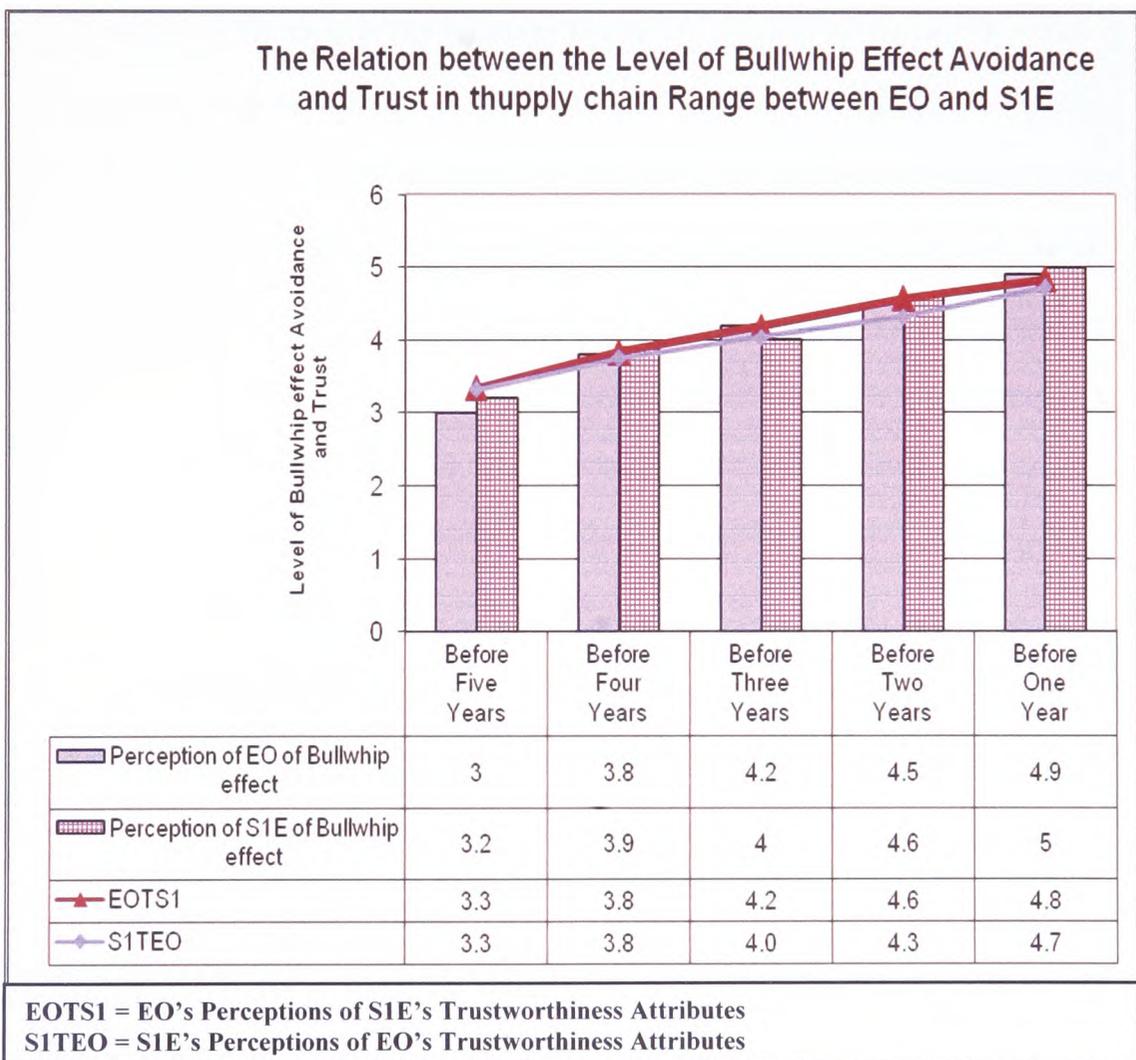
EO's Predictability was also highlighted by C2E's Operations Officer with reference to the honourable attitudes shown previously. This participant asserted the perception of EO's predictability in this relationship to the previous tolerance and support it had practised in this relationship. In similar perspectives, all the interviewees emphasised the perception of EO's predictability as an essential attribute in this relationship.

The analysis identifies that the trustworthiness attributes related to EO's benevolence were evidently perceived by C2E. Therefore, EO's benevolence has been perceived by C2E in this relationship. Now, by recalling the analysis of the relationship from EO's point of view, it is obvious that both parties felt the benevolence trust dimension in this relationship. Hence, transference-based trust becomes identifiable in this relationship and, therefore, transference-based trust exists between EO and C2E.

### III. Analysis Of EO's Supply Chain Performance In Relation To Trust

#### 1. Trust Between EO and Each Supply Chain Party and Bullwhip Effect Avoidance

The analysis begins with the first range in the supply chain by considering the trust in the relationship between EO and S1E and the bullwhip effect in this range. The average analysis of the research data has come out with the results illustrated in graph E.9.

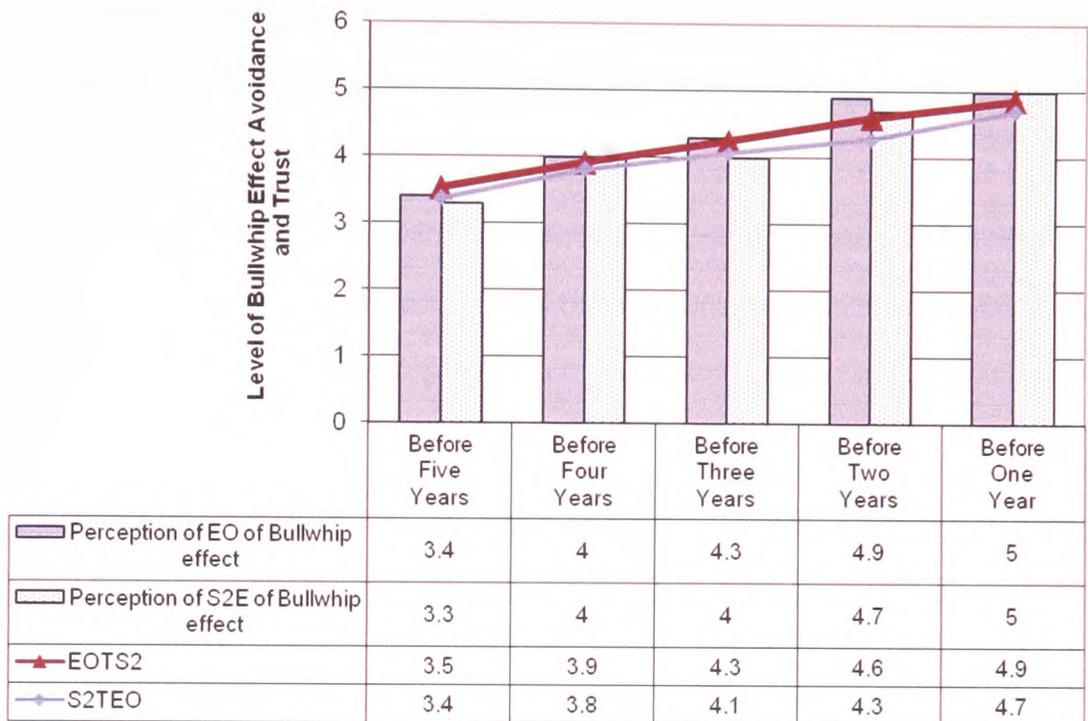


**Graph E.9: Shows the relation between the bullwhip effect avoidance and trust in the relationship between EO and S1E**

Graph E.9 indicates that the bullwhip effect avoidance in the first range of the supply chain between EO and S1E was avoided in accordance with the trust perceived by EO and S1E. The graph shows that the bullwhip avoidance in this range was consistent with the trust development over the five years of the supply chain relationship. As indicated in the graph, the bullwhip effect was frequently occur in the before five years, when the trust between the parties was low. When the trust developed to higher level in the before four years the bullwhip effect had become more avoidable. Moreover, in this year the average values of the trust in the relationship and the average values of the bullwhip effect avoidance are almost similar. This harmony in the values implies that the bullwhip effect avoidance happened in accordance with the trust development. Similar consistency in the level of trust and the bullwhip avoidance indicated by the graph in the before three years. Then in the before two years the graph shows that the bullwhip effect has become minimal and the supply chain was less effected by the bullwhip effect. The level of trust in the relationship in this year was developed to higher level than in the previous year and consequent improvement had occurred in the bullwhip effect avoidance in this year. Accordingly, in the before one year the trust reached to a higher level than that in the previous four years and the bullwhip effect in this year was perceived as rare or eliminated from in this range of the supply chain.

Considering the relationship between EO and the second upstream party, which is S2E, the results of the analysis of the bullwhip effect in relation to the trust in this supply chain relationship is illustrated in graph E.10.

The Relation between the Level of Bullwhip Effect Avoidance and Trust in the Supply Chain Range between EO and S2E



EOTS2 = EO's Perceptions of S2E's Trustworthiness Attributes  
 S2TEO = S2E's Perceptions of EO's Trustworthiness Attributes

**Graph E.10: Shows the relation between the bullwhip effect avoidance and the trust in the supply chain relationship between EO and S2E**

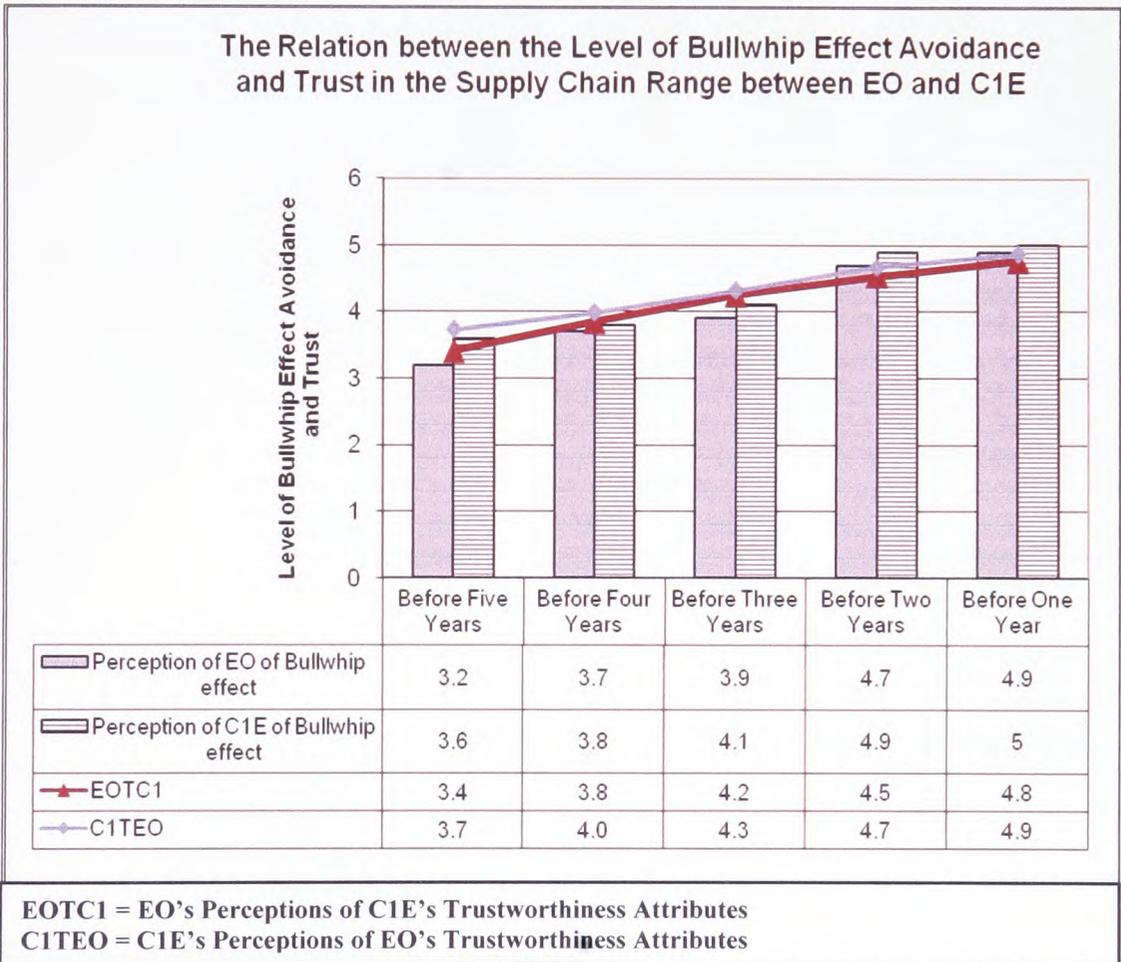
The above graph shows similar relationship between the trust and the bullwhip effect avoidance to that identified in the analysis of the performance in case of the relationship between EO and S1E. However, in this range of the supply chain, the results indicated in the above graph shows that the bullwhip effect was avoided or eliminated in the before one year. Whereas in the before two years the bullwhip effect was perceived to rarely occur as indicated from both EO's point of view and S2E point of view. By going backward along the relationship, decrease in the trust development become visible to be associated

with less avoidance of the bullwhip effect in the supply chain. Foremost, the trust in the before one year was perceived very high from EO's point of view with average perception value of 4.9 from 5.0 and S2E's perceived high trust from EO in this year with average perception value of 4.7 and this high trust resulted in elimination of the bullwhip effect in the supply chain.

Concerning EO's supply chain performance in the third range of the supply chain, this range involves the relationship between EO and C1E, the results of the bullwhip effect avoidance in this range in relation to the trust in the supply chain relationship are illustrated in the graph E.11. Referring to the graph, it is obvious that the graph shows similar relationship between the trust and the bullwhip effect avoidance to that identified in the first and second ranges of the supply chain.

The graph shows that in the before five years the trust was perceived with an average perception value of 3.4 compared to 3.7 in the perception of C1E. Similarly, EO indicated lower avoidance of the bullwhip effect occurred in this year with average value of 3.2 to that perceived by C1E, which has an average value of 3.6. This implies that EO in this year had exerted efforts in its interactions that resulted in the perception of its trustworthiness attributes and consequently helped C1E to avoid the bullwhip effect, which resulted in higher perceptions from C1E's point of view of both the trust and the bullwhip effect avoidance. In the before four years, the graph indicates that both EO and C1E perceived the trust almost similarly in the relationship. In this year the performance of the supply chain in the bullwhip effect avoidance was perceived as similarly by both parties. In the following years consistency in the

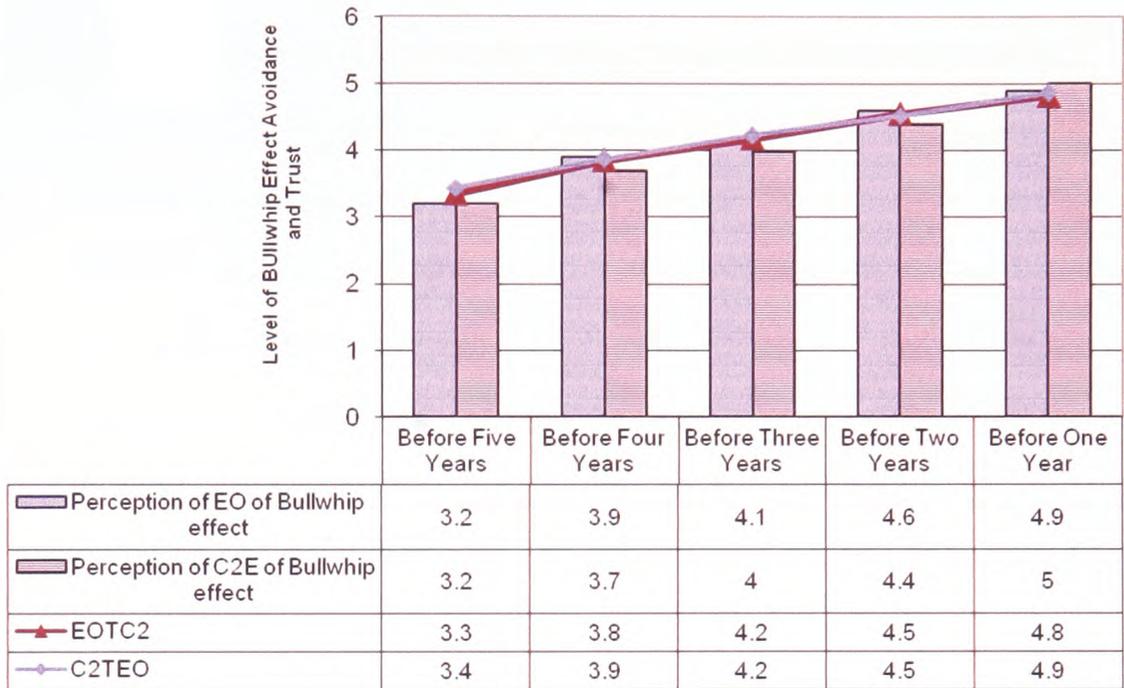
development of the trust in the relationship happened in both EO's and C1E's perceptions. As a consequence, the perception of the bullwhip effect avoidance in this supply chain range is indicated by the graph as improved in the before three years, before two years and before one year consistently with the trust development (see graph E.11 below).



**Graph E.11: Shows the relationship between the bullwhip effect avoidance and the trust in the supply chain relationship between EO and C1E**

Comparable results also yielded by the analysis in regard to the bullwhip effect in the supply chain relationship between EO and C2E. The results of this analysis are indicated in graph E.12.

The Relation between the Level of Bullwhip Effect Avoidance and Trust in the Supply Chain Range between EO and C2E



EOTC2 = EO's Perceptions of C2E's Trustworthiness Attributes  
 C2TEO = C2E's Perceptions of EO's Trustworthiness Attributes

**Graph E.12: Shows the relationship between the bullwhip effect avoidance and the trust in the supply chain relationship between EO and C2E**

Therefore, the analysis of this case study indicates that the trust in EO's supply chain relationships has the ability to eliminate the bullwhip effect occurrence and the development of the trust in the relationship increases the avoidance level of the bullwhip effect in the supply chain.

The literature review has indicated that the bullwhip effect occurrence in the supply chain happens due to lack of information sharing between the supply chain parties. Having analysed the level of bullwhip effect avoidance in EO's supply chain in relation to the trust and identified correlation between the trust and EO's supply chain performance in this aspect, the next section will consider

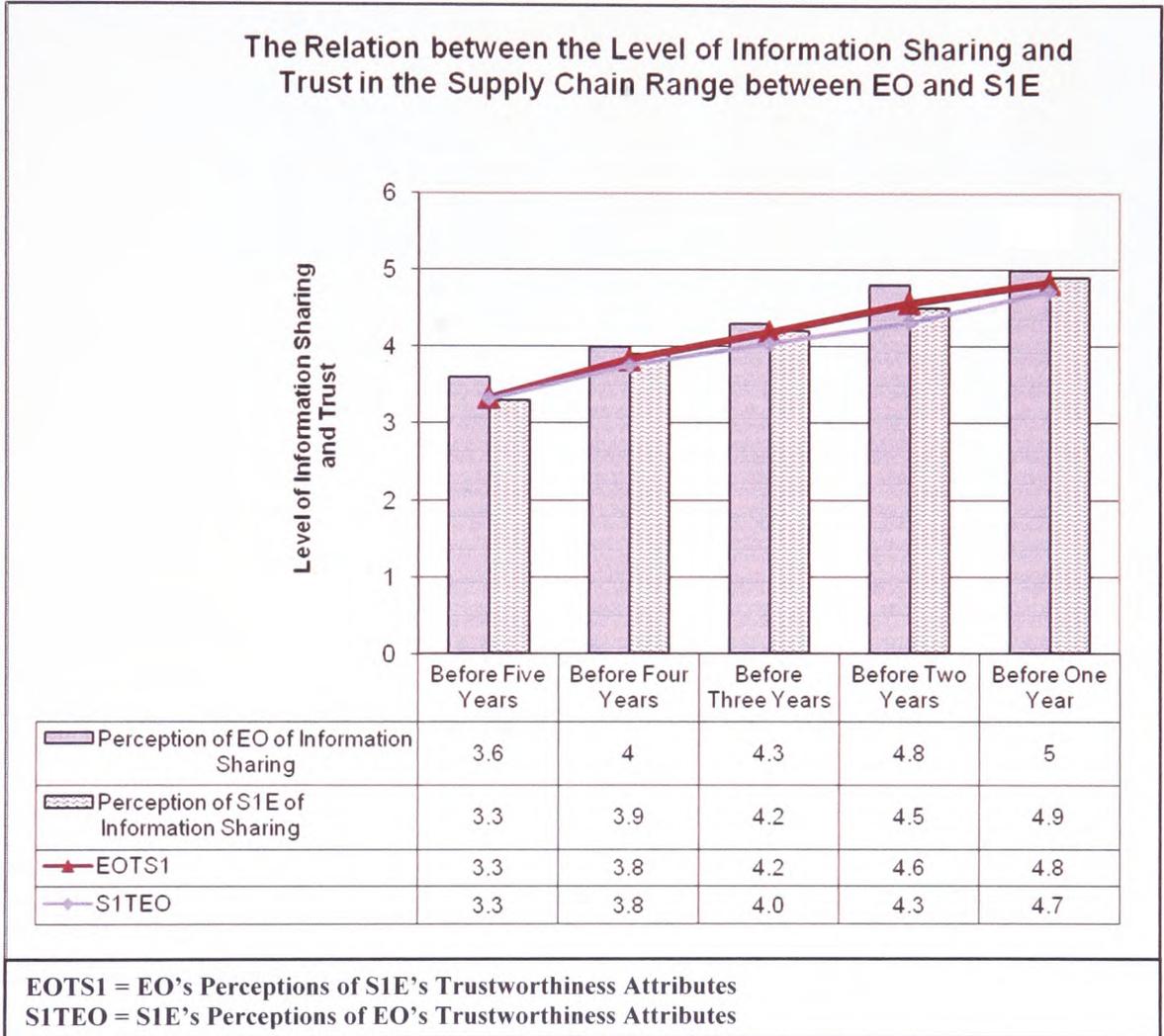
occurrence of information sharing between EO and the considered supply chain parties in this supply chain relationship.

## **2. Trust Between EO and Its Supply Chain Parties and Information Sharing**

Considering the importance of the information sharing in the occurrence of the bullwhip effect highlighted in the literature review, the trust in the previous section is identified to improve the level of the bullwhip effect avoidance in EO's supply chain. This section considers the analysis of the information sharing in EO's supply chain in light of the trust to identify correlation between the trust and the level of the supply chain information sharing. The level of information sharing in EO's supply chain relationships was investigated by the researcher for the five years in each relationship.

Commencing the analysis of EO's supply chain performance in the first range of the supply chain, which includes the supply chain relationship between EO and S1E, the average analysis of the information sharing in relation to the trust has produced the results illustrated in graph E.13. As indicated in the graph, the information sharing was gradually improved in this supply chain relationship with the development of trust over the five years of the relationship. Moreover, the graph indicates that the information sharing was highly perceived from EO's point of view over the five years, which implies that S1E had exchanged supply chain information in accordance with EO's expectations. Nevertheless, S1E's perceptions of the information sharing in this relationship were very close to that perceived by EO, which identifies that both EO and S1E had exchanged information sharing in accordance with the trust developed in their relationship. Therefore, this identifies that the development of trust in this relationship has a

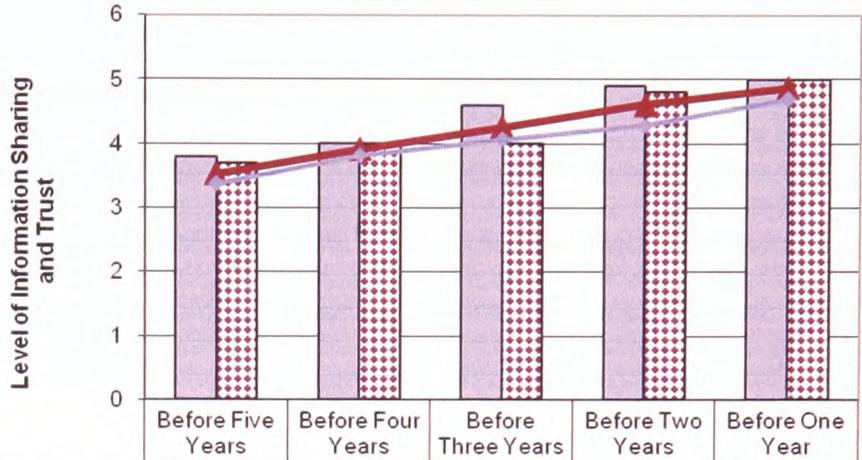
major influence on improving information between EO and S1E (see graph E.13 below).



**Graph E.13: Shows the level of information sharing in relation to the trust in the supply chain range between EO and S1E**

Considering information sharing in the second range of the supply chain, which involves the relationship between EO and S2E, the analysis of the information sharing in respect to the trust in the relationship has yielded the results indicated in graph E.14.

**The Relation between the Level of Information Sharing and Trust  
in the Supply Chain Range between EO and S2E**



Perception of EO of Information Sharing	3.8	4	4.6	4.9	5
Perception of S2E of Information Sharing	3.7	4	4	4.8	5
EOTS2	3.5	3.9	4.3	4.6	4.9
S2TEO	3.4	3.8	4.1	4.3	4.7

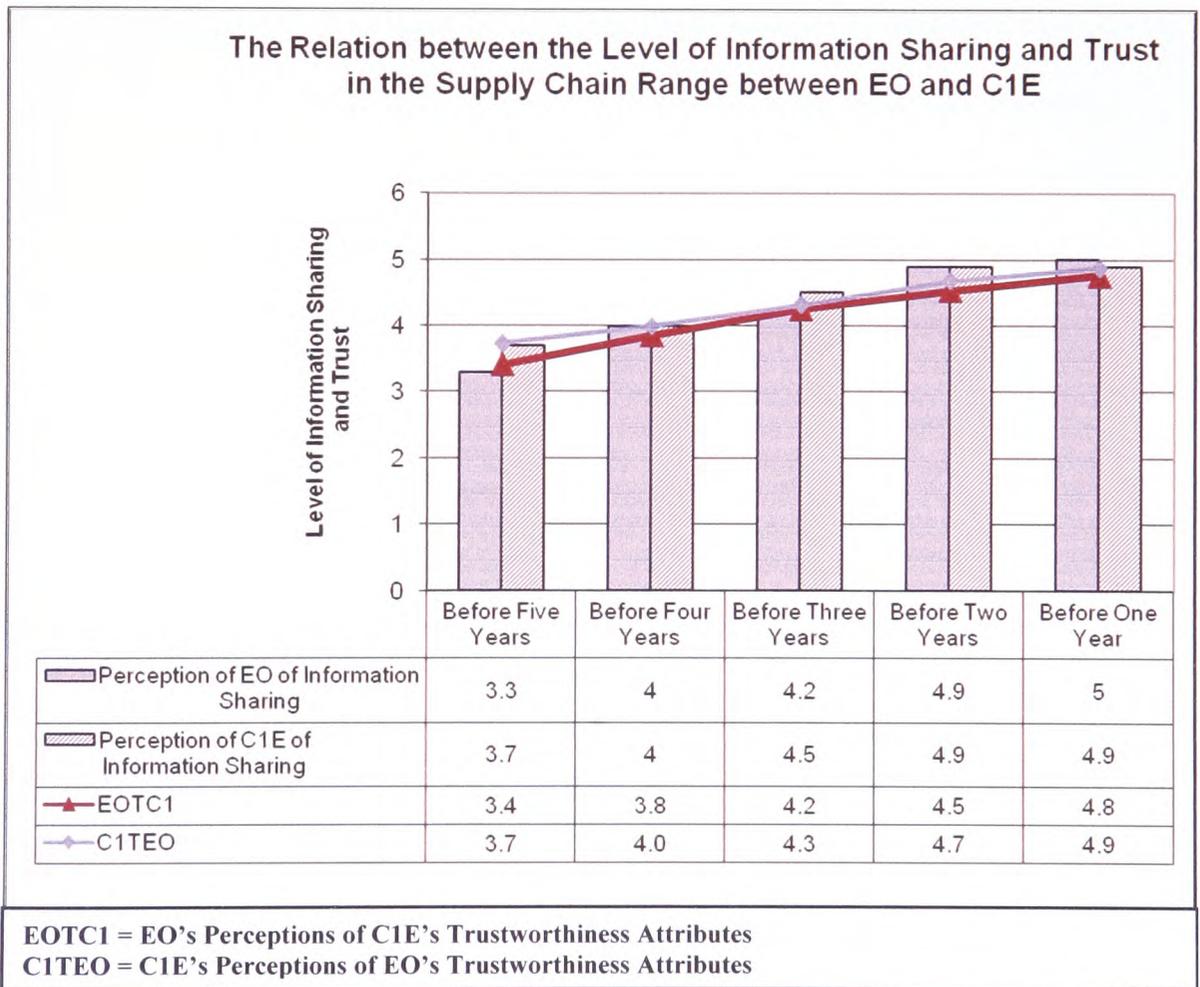
EOTS2 = EO's Perceptions of S2E's Trustworthiness Attributes  
 S2TEO = S2E's Perceptions of EO's Trustworthiness Attributes

**Graph E.14: Shows the level of information sharing in relation to the trust in the supply chain range between EO and S2E**

Graph E.14, above illustrated, shows that the information sharing between EO and S2E had improved along the five years of the supply chain relationship. Foremost, the graph indicates that the improvement in the information sharing occurred in accordance with the trust development in the supply chain relationship, which means that the trust in the relationship acted as a motivator to share the supply chain information. This is clear in the before one year, when both parties had reached to optimal level of information sharing when the trust in the relationship was optimally. Therefore, the trust between EO and this upstream party had triggered both parties to share the supply chain information

based on confidence through accumulative knowledge gained about each party over the length of the supply chain relationship.

Concerning information sharing in the third range of the supply chain, the results of the average analysis of the research data in regard to the relationship between EO and C1E indicate concurrent relationship between the trust and the information sharing. The results of this analysis are illustrated in graph E.15.



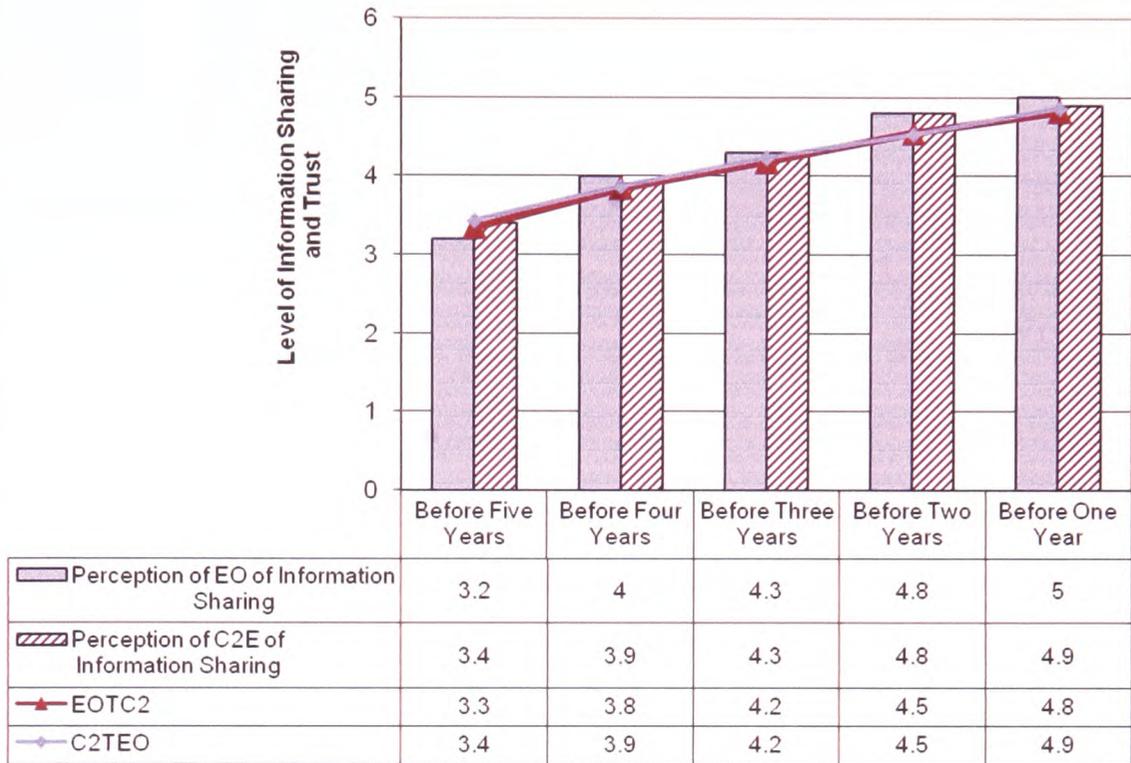
**Graph E.15: Shows the level of information sharing in relation to the trust in the supply chain range between EO and C1E**

Graph E.15 indicates that EO and C1E were less exchanging information in the before five years of the relationship when the trust was moderate in level. The

following years embedded gradual development of the trust in the relationship and consequent improvement happened in each year in the information sharing in this relationship. This shows consistency with the results identified in the previous ranges of this supply chain in regard to the influence the trust has on improving the level of information sharing in the supply chain.

Regarding the information sharing in the fourth range of the chain and the trust between EO and C2E in this range, the results of the data analysis indicate that the trust had influenced the information sharing between the parties and gradual development of the trust in the relationship resulted in consistent gradual improvement in the supply chain information sharing. Moreover, the results indicate higher information sharing had occurred between EO and C2E in the before one year, which involved higher trust level than the previous years of the relationship. The results of the average analysis are highlighted in graph E.16.

The Relation between the Level of Information Sharing and Trust in the Supply Chain Range between EO and C2E



EOTC2 = EO’s Perceptions of C2E’s Trustworthiness Attributes  
 C2TEO = C2E’s Perceptions of EO’s Trustworthiness Attributes

**Graph E.16: Shows the level of information sharing in relation to the trust in the supply chain range between EO and C2E**

In relation to the improvement in the bullwhip effect avoidance identified in the previous section, the analysis of the information sharing between EO and the studied supply chain parties indicates coherence in the manner of the trust influence on the bullwhip effect avoidance. This implies that the trust in EO’s supply chain relationships had encouraged EO and the parties to share supply chain information and consequently avoid occurrence of the bullwhip effect in the supply chain.

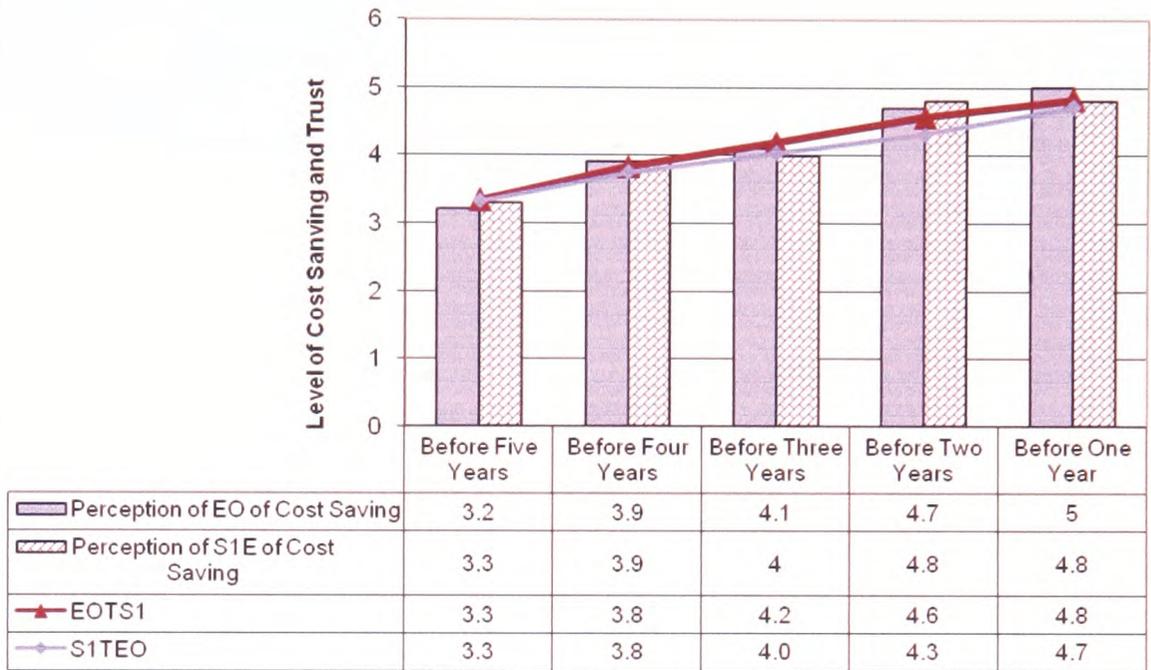
After correlation between the trust in EO's supply chain relationships and the information sharing in the chain is identified, the next section will provide analysis of the impact of the trust identified in EO's relationships on EO's supply chain cost saving.

### **3. Trust Between EO and Its Supply Chain Parties and Cost Saving**

This section aims to compare the trust between EO and its supply chain parties and the level of cost saving perceived in the supply chain. The aim of this comparison is to analyse the influence the trust has on this aspect of the supply chain with an objective to draw correlation between the cost saving and the trust level in the supply chain relationships. The analysis here considers each range of the four ranges of EO's supply chain and analyse the cost saving achieved in each individual range in respect to the trust identified between EO and the party in that range. This aims to provide in-depth understanding of the role of trust on the supply chain cost saving. The analysis in this section begins with the supply chain relationship between EO and S1E, which represents the first range of EO's supply chain.

The results of the average analysis of the cost saving achieved by EO's supply chain in respect to the identified trust between EO and S1E are shown in graph E.17.

**The Relation between the Level of Cost Saving and Trust in the Supply Chain Range between EO and S1E**

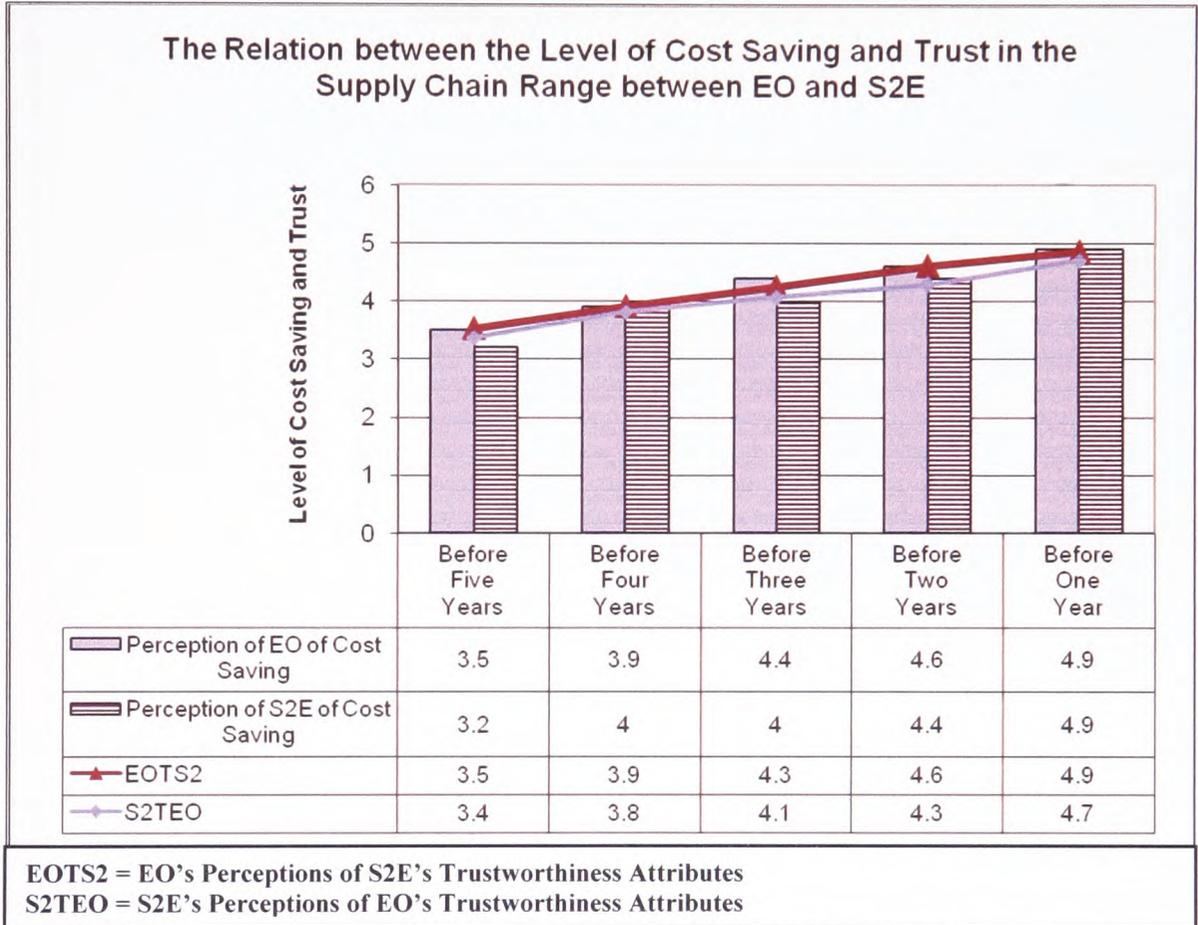


EOTS1 = EO's Perceptions of S1E's Trustworthiness Attributes  
 S1TEO = S1E's Perceptions of EO's Trustworthiness Attributes

**Graph E.17: Shows level of cost saving in the supply chain range between EO and S1E in relation to the trust in the supply chain relationship**

The above graph identifies concurrent relationship between the development of trust over the length of the relationship and the improvement in the cost saving achieved by EO's supply chain. As highlighted in the graph, in the before five years of the supply chain relationship the cost saving achieved in EO's supply chain was lower than the cost saving achieved in the later years of the relationship. In accordance, the trust in the relationship in the before five years was perceived in a similar average value to the perception of the cost saving and in the following years the trust development was associated with consistent

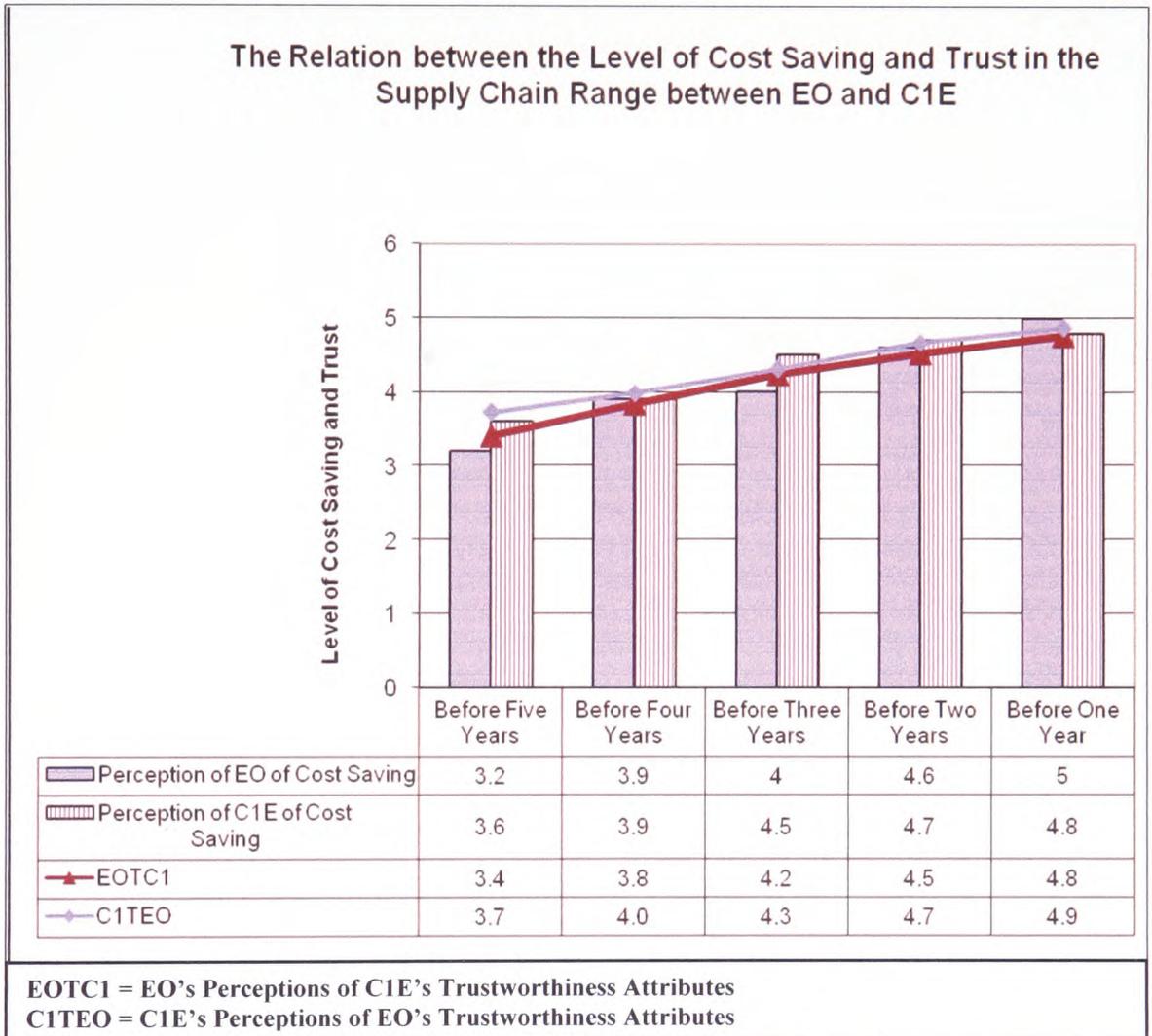
improvement in the supply chain cost saving. Comparable results are produced by the average analysis in relation to the trust in the relationship between EO and S2E as indicated in graph E.18.



**Graph E.18: Shows the level of cost saving in the supply chain range between EO and S2E in relation to the trust in the supply chain relationship**

Concerning the cost saving in the third range of EO's supply chain in relation to the trust identified between EO and C1E, the analysis has yielded the results illustrated in graph E.19. The results in this graph shows concurrent relationship between the development of trust in the relationship and the occurrence of cost saving in the supply chain. This identified relationship

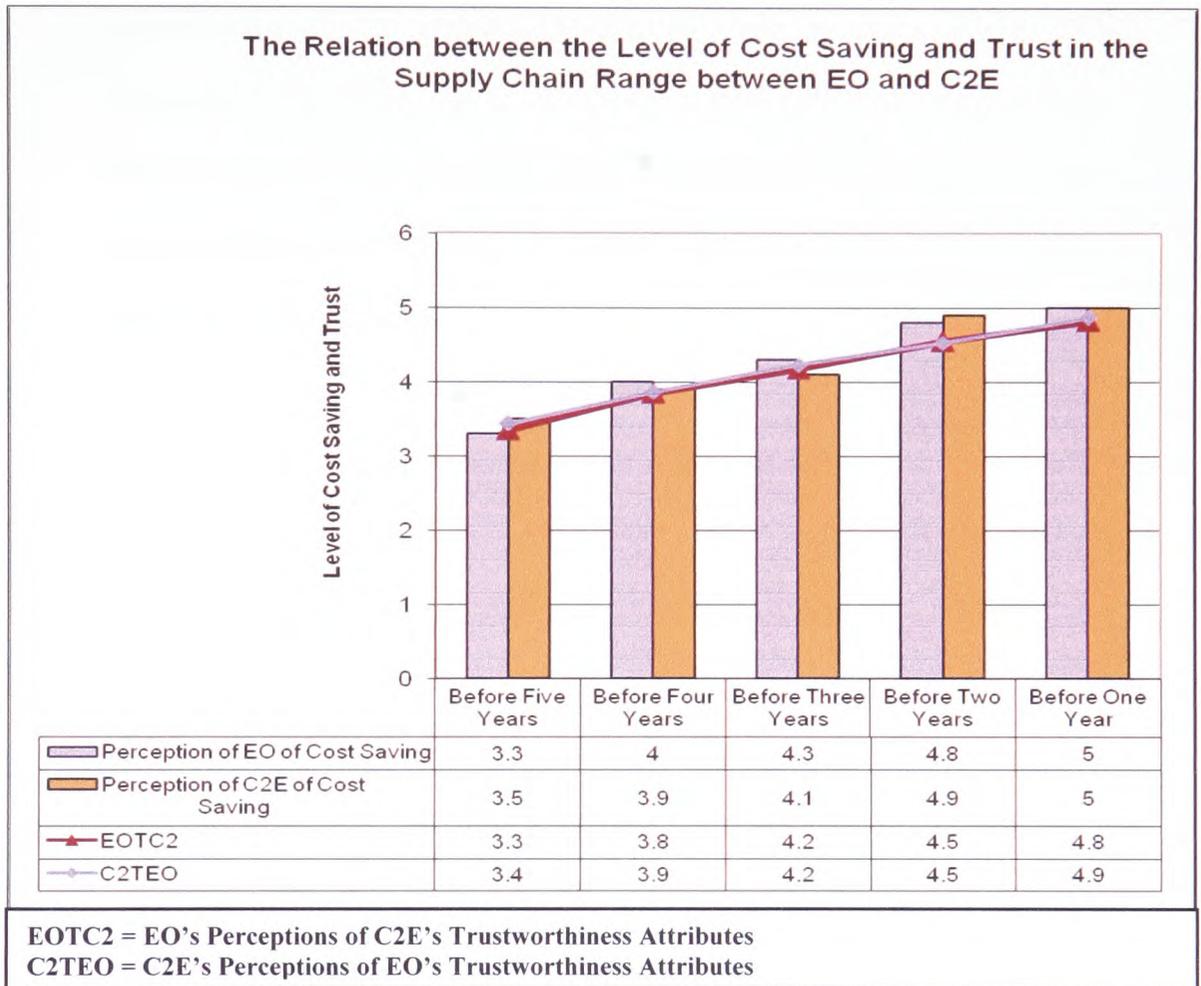
between the trust and the cost saving is similar to that identified in the analyses of the first and second ranges of EO's supply chain (see graph E.19).



**Graph E.19: Shows the level of cost saving in the supply chain range between EO and C1E in relation to the trust in the relationship**

The fourth range of EO's supply chain considers the relationship between EO and C2E. EO's supply chain cost saving in this range was investigated to explore the influence that the trust has on this dimension of EO's supply chain performance. The analysis of EO's supply chain performance in the cost saving

in respect to the trust in this supply chain relationship has produced the results shown in graph E.20.



**Graph E.20: Shows the level of cost saving in the supply chain range between EO and C2E in relation to the trust in the**

As shown in the above graph, the trust and the cost saving in the fourth range of the supply chain were perceived in almost proportional relationship over the five years of the relationship. Therefore, the trust in EO's supply chain relationships positively influenced the supply chain cost saving and the development of trust in EO's supply chain was accompanied by acquiescent improvement in the supply chain cost saving. Thereby, the analysis of this case

study indicates that the trust in supply chain relationship improves supply chain cost saving.

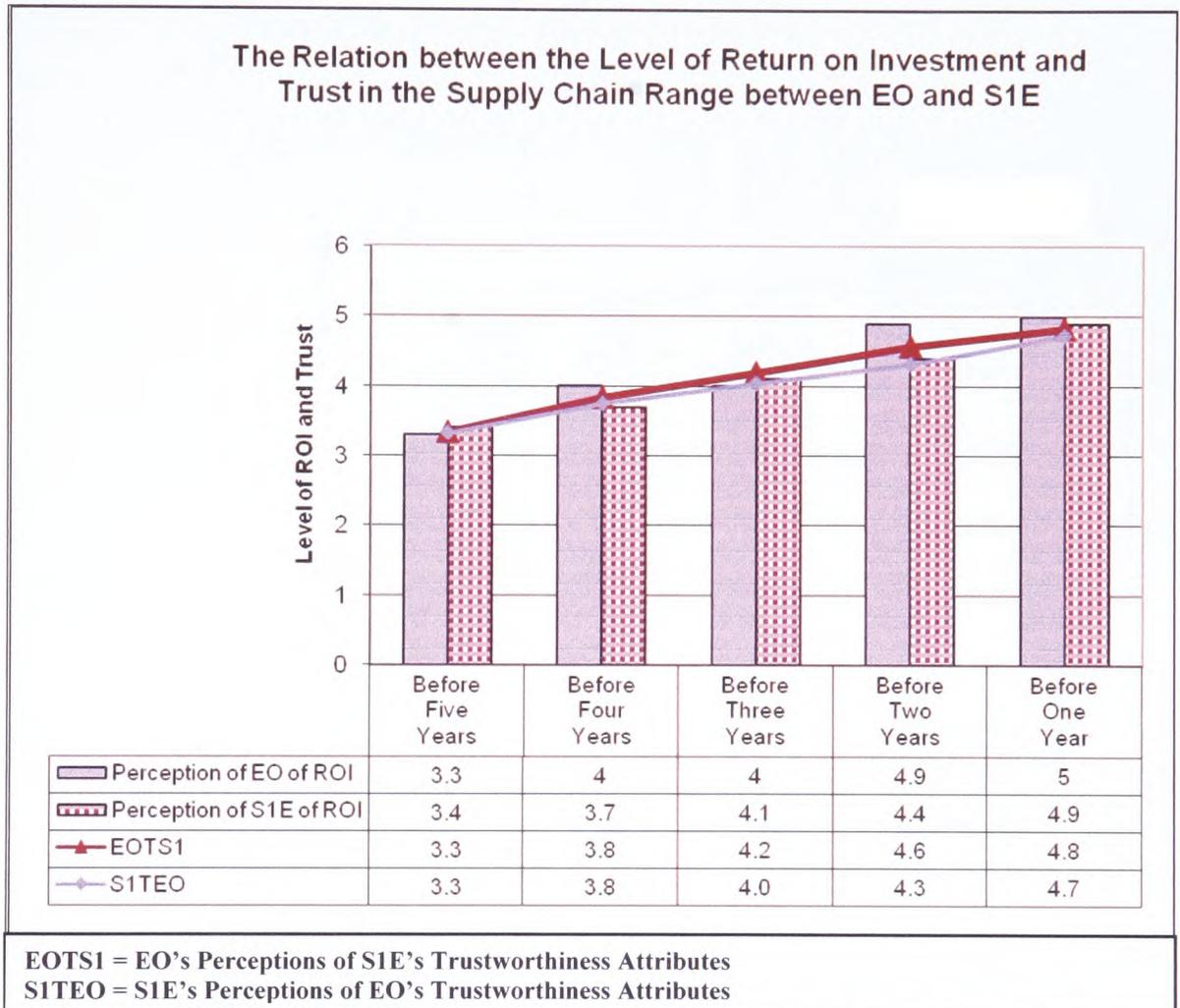
Having analysed the relation between the trust in EO's supply chain relationships and EO's supply chain cost saving and identified correlation between the trust and the supply chain performance in this aspect, the next section will consider EO's supply chain ROI in regard to the trust in EO's supply chain relationships.

#### **4. Trust Between EO And Its Supply Chain Parties And ROI**

This section aims to compare the trust between EO and the considered supply chain parties and the level of ROI perceived in this supply chain. Then it draws correlation between ROI and the trust level perceived in the supply chain relationship. The analysis starts with the relationship between EO and S1E. The results of the average analysis of EO's supply chain ROI in regard to the trust in this supply chain relationship are highlighted in graph E.21.

The graph, as indicated in the following page, indicates that the trust between EO and S1E in the before five years was low in comparison to the trust developed in the before four years. Referring to the achieved ROI in these two years, EO's supply chain was able to achieve higher ROI in the before four years than that achieved in the before five years, which implies consistency of improvement happened with the level of trust in the two years of the relationship. Similarly, in the before three years and the years after, EO's supply chain had achieved gradual improvement in the supply chain ROI and the improvement occurred in accordance with the trust development in the supply

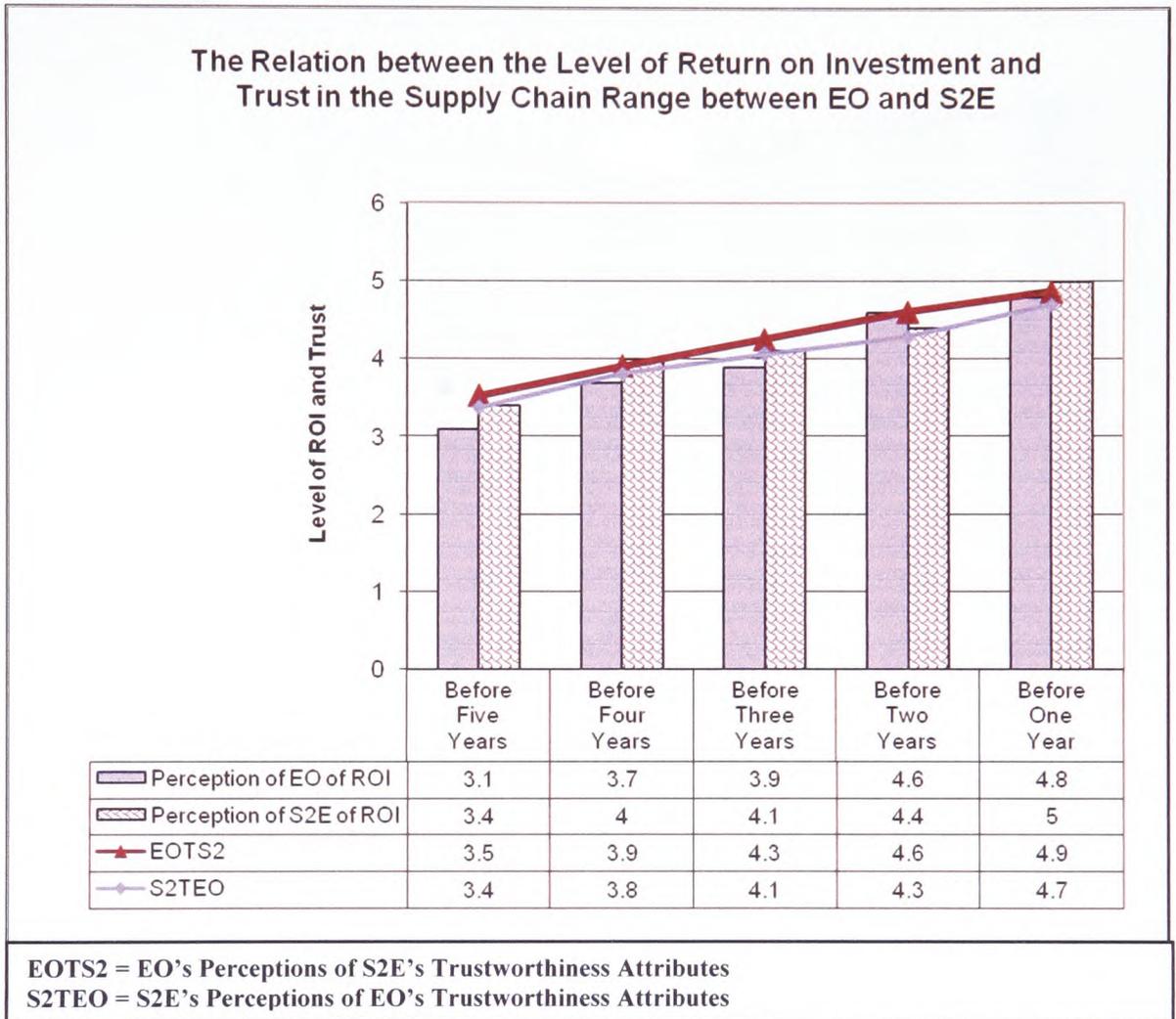
chain relationship. In the before one year, which is the later year of the supply chain relationship, the graph indicates optimal ROI achieved by EO's supply chain consequent to the high trust between EO and S1E in this year (see graph E.21).



**Graph E.21: Shows the level of ROI in the supply chain range between EO and S1E in relation to the trust in the supply chain relationship**

Considering the supply chain performance in the second range, the analysis of the research data of EO's supply chain ROI in relation to the trust between EO and S2E indicates similar correlation to that identified in the first range between the trust and the level of ROI achievement in the supply chain. The results of

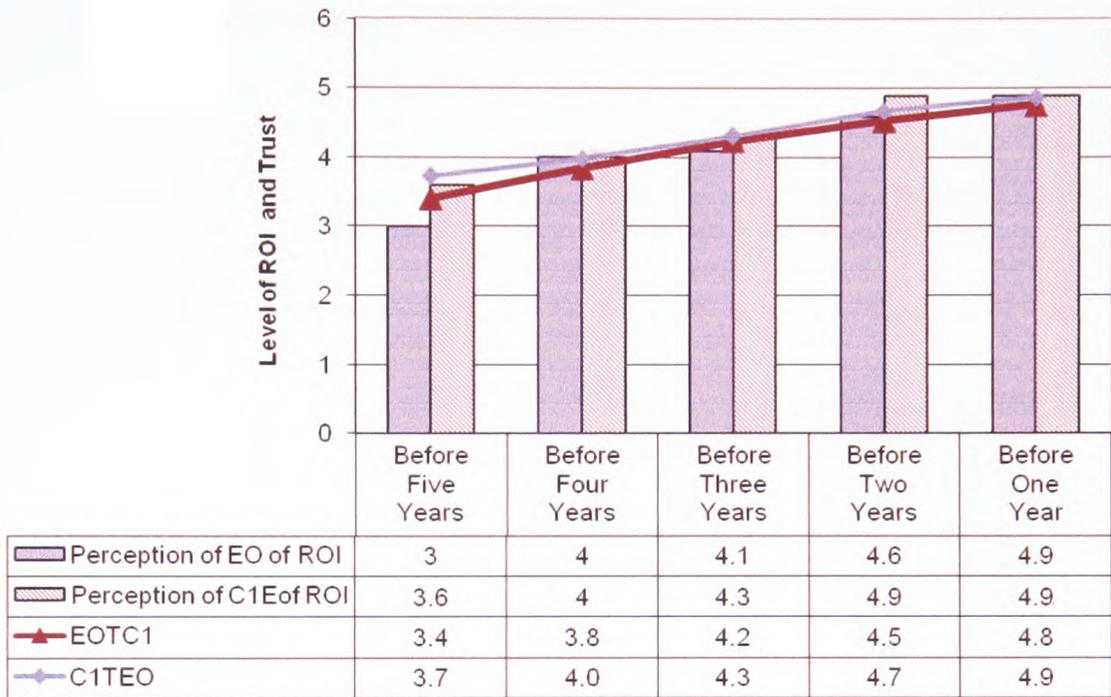
the average analysis of the supply chain ROI in respect to the trust between EO and S2E are illustrated in Graph E.22.



**Graph E.22: Shows the level of ROI in the supply chain range between EO and S2E in relation to the trust in the supply chain relationship**

Regarding EO's supply chain ROI achievement in relation to the trust in the supply chain between EO and C1E, the results of the analysis of the level of supply chain ROI and the trust in the relationship over five years of the supply chain relationship are illustrated in graph E.23.

The Relation between the Level of Return of Investment and Trust in the Supply Chain Range between EO and C1E

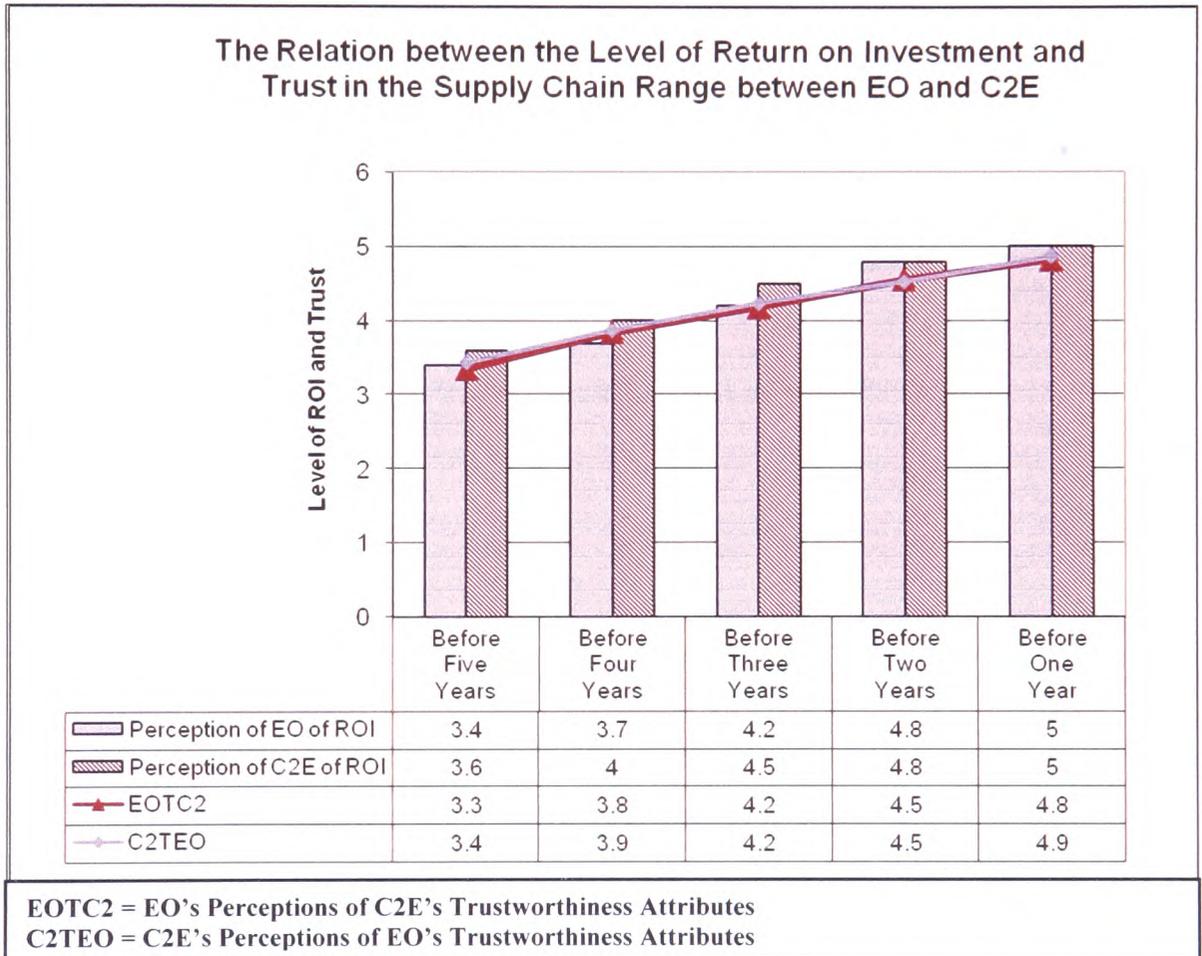


EOTC1 = EO's Perceptions of C1E's Trustworthiness Attributes  
 C1TEO = C1E's Perceptions of EO's Trustworthiness Attributes

**Graph E.23: Shows the level of ROI in the supply chain range between EO and C1E in relation to the trust in the supply chain relationship**

The above graph indicates that the trust between EO and this downstream party had developed over the five years. In each year of the trust development, the graph shows consistent increase in the supply chain ROI. In the before one year, the trust in this year was perceived highly by both EO and C1E and high supply chain ROI was achieved as a consequence to this trust. Hence, the results of this analysis shows similar relationship between the trust development and the improvement of EO's supply chain ROI identified in the first range and the second range of this supply chain.

Considering the fourth range of EO's supply chain, which involves the relationship between EO and C2E, the average analysis of EO's supply chain ROI in this range in relation to the trust in this relationship has bestowed the results highlighted in graph E.24 as below.



**Graph E.24: Shows the level of ROI in the supply chain range between EO and C2E in relation to the trust in the supply chain relationship.**

Graph E.24 identifies correlation between the trust in EO's relationship with C2E and the supply chain ROI achieved through this relationship. As indicated by the graph, the supply chain ROI was improved incrementally with the gradual development of the trust in the supply chain relationship. The graph shows that in the before one year the relationship had involved high level of

trust and EO's supply chain achieved optimal ROI in this year. Therefore, the trust in this supply chain relationship influenced the supply chain ROI in this range and its development had yielded concurrent improvement in the ROI.

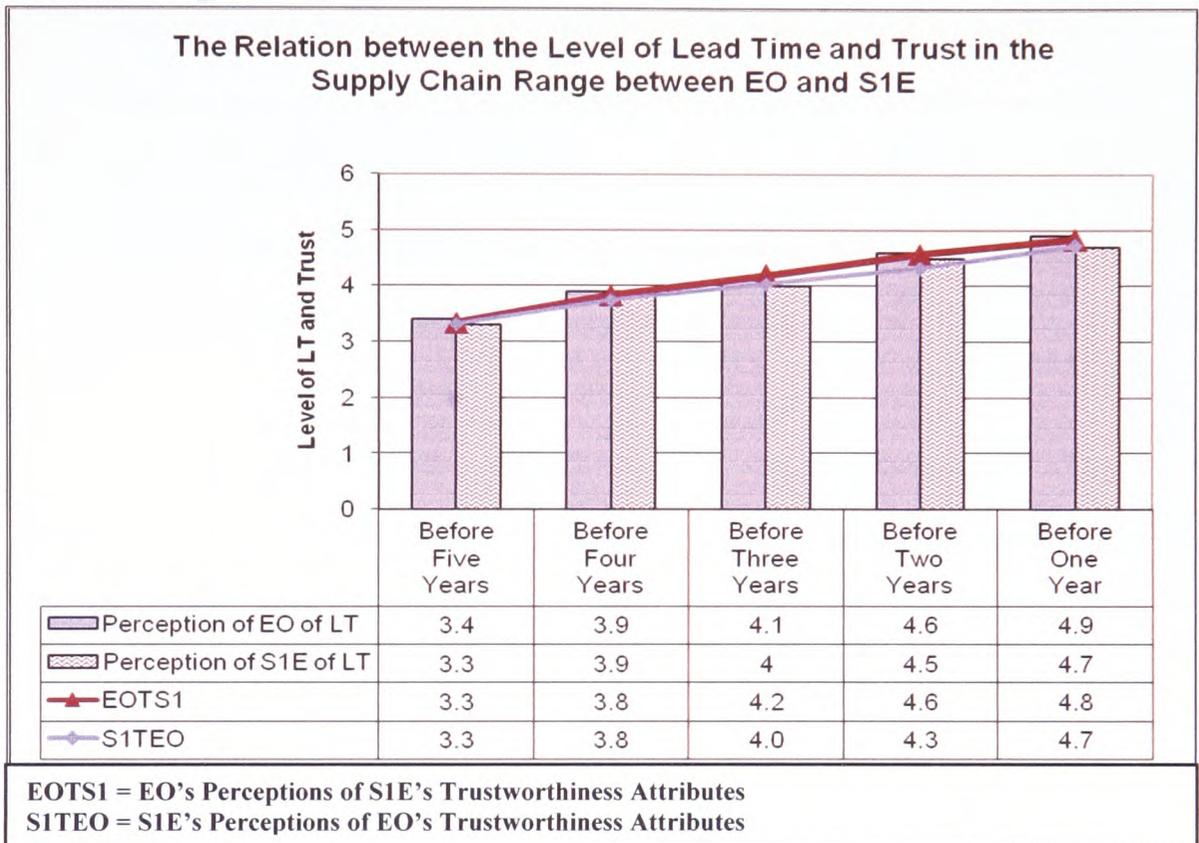
After having analysed the relationship between EO's supply chain ROI in relation to the trust in EO's supply chain relationships and identified correlation between the trust and the achievement of EO's supply chain ROI, the following section provides analysis of EO's supply chain performance in the lead time in regard to the trust in EO's supply chain relationships.

#### **5. Trust Between EO And Its Supply Chain Parties And Lead Time (LT)**

The analysis in this section aims to compare the trust between EO and the considered four supply chain parties with the supply chain lead time perceived in the supply chain over the five years used in investigating the relationship and the performance. The objective of this analysis indwells in identifying the role of trust on this dimension of the supply chain performance. In this section, the supply chain lead time and the trust level will be analysed in each individual range to find any difference in the relation between the trust and the supply chain performance. This approach of analysis allows the researcher to draw realistic correlation between the lead time and the trust level perceived in the supply chain relationship where it will be able to specify the contribution of each range to the overall supply chain lead time.

The analysis here begins with the supply chain relationship between EO and S1E. The supply chain performance in this range was investigated from both parties' perceptions. The supply chain lead time in relation to the trust in the

relationship has subjected to average analysis and the results are illustrated in graph E.25.

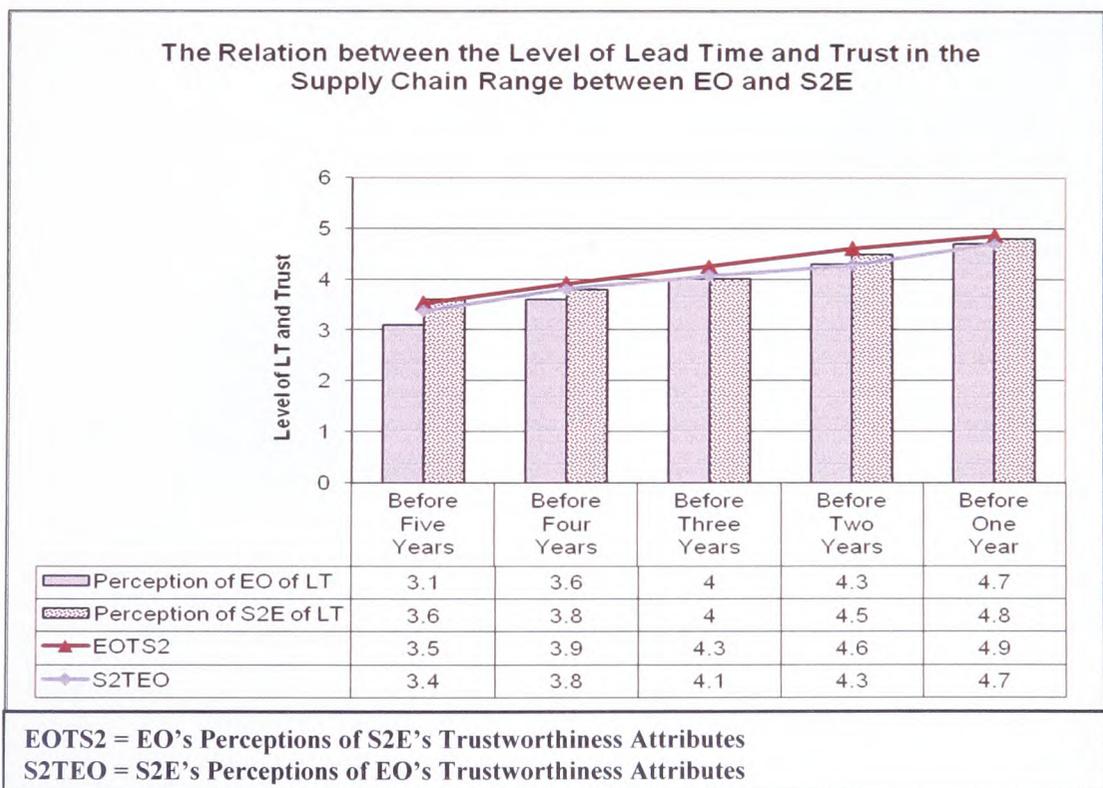


**Graph E.25: Shows the level of the supply chain lead time in the supply chain range between EO and S1E in relation to the trust in the relationship**

The results of the analysis, as indicated in the above graph, show strong correlation between the trust in the relationship and the level of lead time achieved in each year of the relationship. In the before five years, the graph shows that the trust between EO and S1E was perceived with an average value of 3.3. In this specific year the lead time achieved by the supply chain was perceived in accordance with the trust level existed in the relationship where EO's had perceived the supply chain lead time with an average value of 3.4 and S1E had perceived the lead time of the supply chain in coherence with the perceived trust with an average value of 3.3. In the latter year, both EO and S1E

had indicated perception of improvement in the supply chain lead time and the lead time was perceived with an average value of 3.9. This improvement in the lead time was accompanied with development of the trust in the supply chain, where the average value of the trust in this year is indicated by the graph to have an average value of 3.8. From the before three years until the before one year the trust development was continued to occur in the supply chain relationship and as a consequent improvement in the lead time had concurrently happened along these three years of the supply chain relationship.

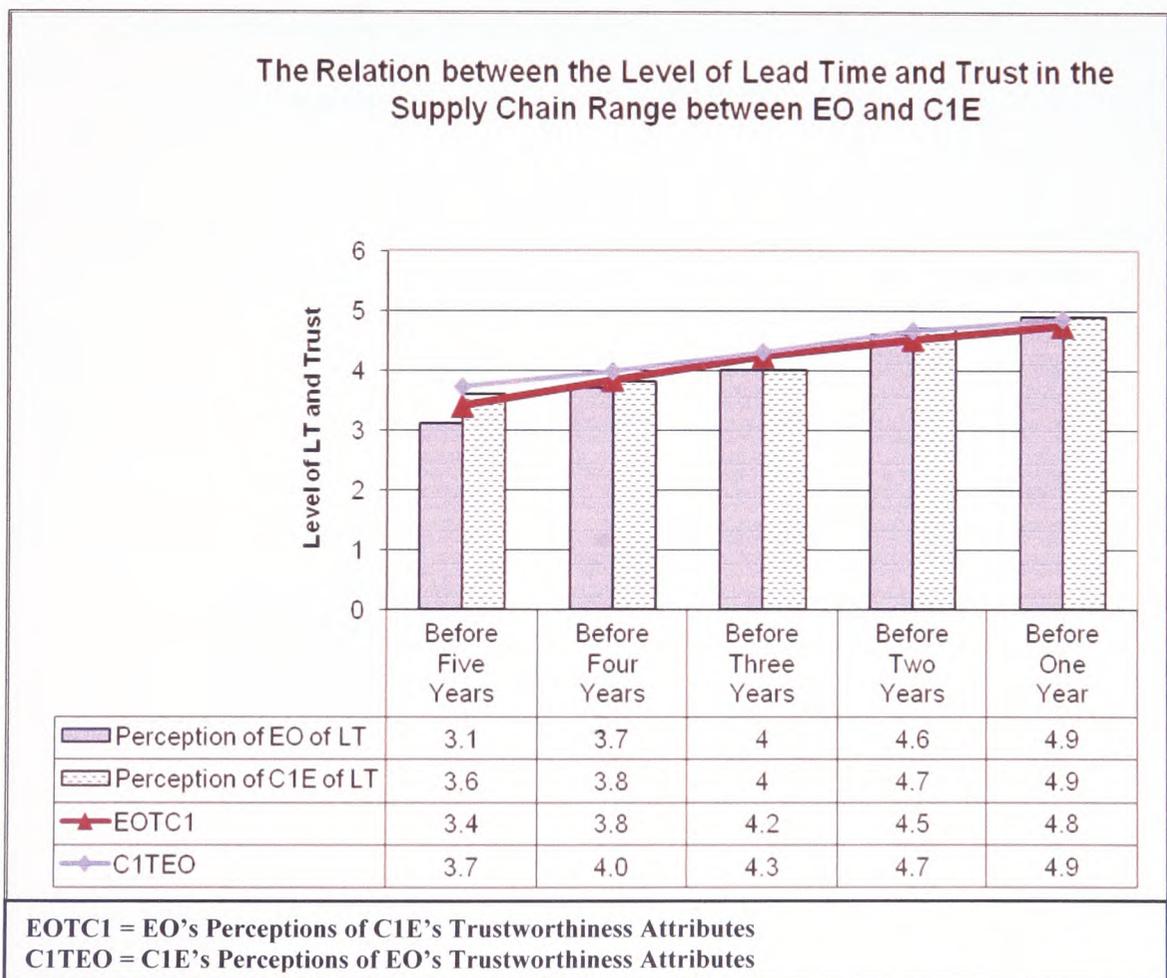
Pertaining to the relationship between EO and the second upstream party, which is S2E, the analysis of the research data of the supply chain lead time in relation to the trust in this relationship has produced the results highlighted in graph E.26.



**Graph E.26: Shows the level of the supply chain lead time in the supply chain range between EO and S2E in relation to the trust in the relationship**

Graph E.26 indicates similar trend between the lead time and the trust to that identified in the relationship between EO and S1E. This implies that the trust in the relationships between EO and the considered upstream parties has a positive effect on improving EO's supply chain lead time.

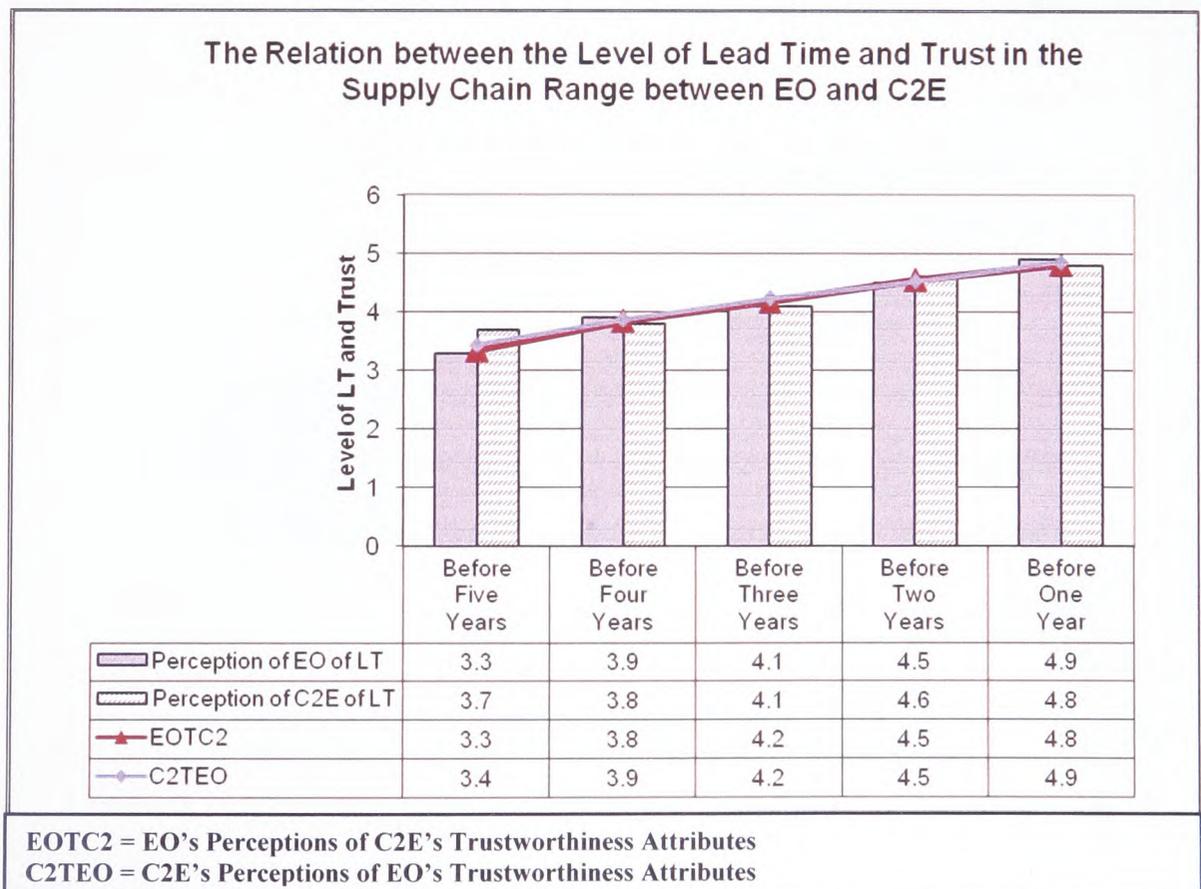
Concerning the lead time achieved in the third range of the supply chain, the analysis of the lead time achieved over the five years in relation to the trust in the relationship has gave the results illustrated in Graph E.27.



**Graph E.27: Shows the level of the supply chain lead time in the supply chain range between EO and C1E in relation to the trust in the relationship**

The above graph shows that the lead time achieved by EO and C1E in this supply chain was consistent with the trust level in the supply chain relationship. The graph indicates high level of lead time effectiveness had been achieved by the supply chain in the before one year, which involved high level of trust than in the previous years. This implies that the lead time had improved over the supply chain relationship with increments relative to the trust development in the relationship.

Similar relationship between the trust and the lead time is indicated by the results of the analysis of the research data of the fourth range of the chain. The results of this analysis are highlighted in Graph E.28 as below.



**Graph E.28: Shows the level of the supply chain lead time in the supply chain range between EO and C2E in relation to the trust in the relationship**

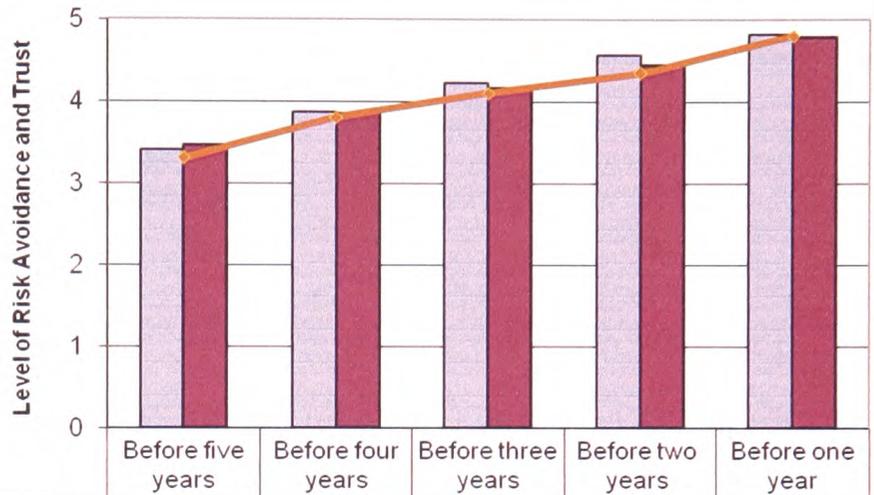
As indicated in graph E.28, the effectiveness of the lead times, which means achievement of shorter lead times in the supply chain, had been parallel to the trust development in the supply chain relationship. Hence, the analyses of the four ranges of EO's supply chain have identified correlation between the trust development and the occurrence of improvement in the supply chain lead time. In other words, the analysis identifies existence of consistency and adherence between the supply chain lead time and the trust level in each supply chain relationship. More effective and efficient lead time was achieved when the trust level in the supply chain relationship was high. Therefore, the trust in EO's supply chain relationships helped EO's supply chain to achieve effective lead time, which implies that the trust had positively impacted EO's supply chain lead time.

The next section provides analysis of the supply chain performance in regard to risk avoidance in relation to the trust in EO's supply chain relationships.

## **6. Trust Between EO and Its Supply Chain Parties and Risk Avoidance**

This section aims to provide analysis of the impact the trust has on EO's supply chain risk. The risk occurrence in EO's supply chain was investigated to identify the relationship between the risk occurrence and the trust in EO's supply chain relationships. The results of the research data analysis are illustrated in graph E.29.

### The Relation between Risk Avoidance and Trust in EO's Supply Chain



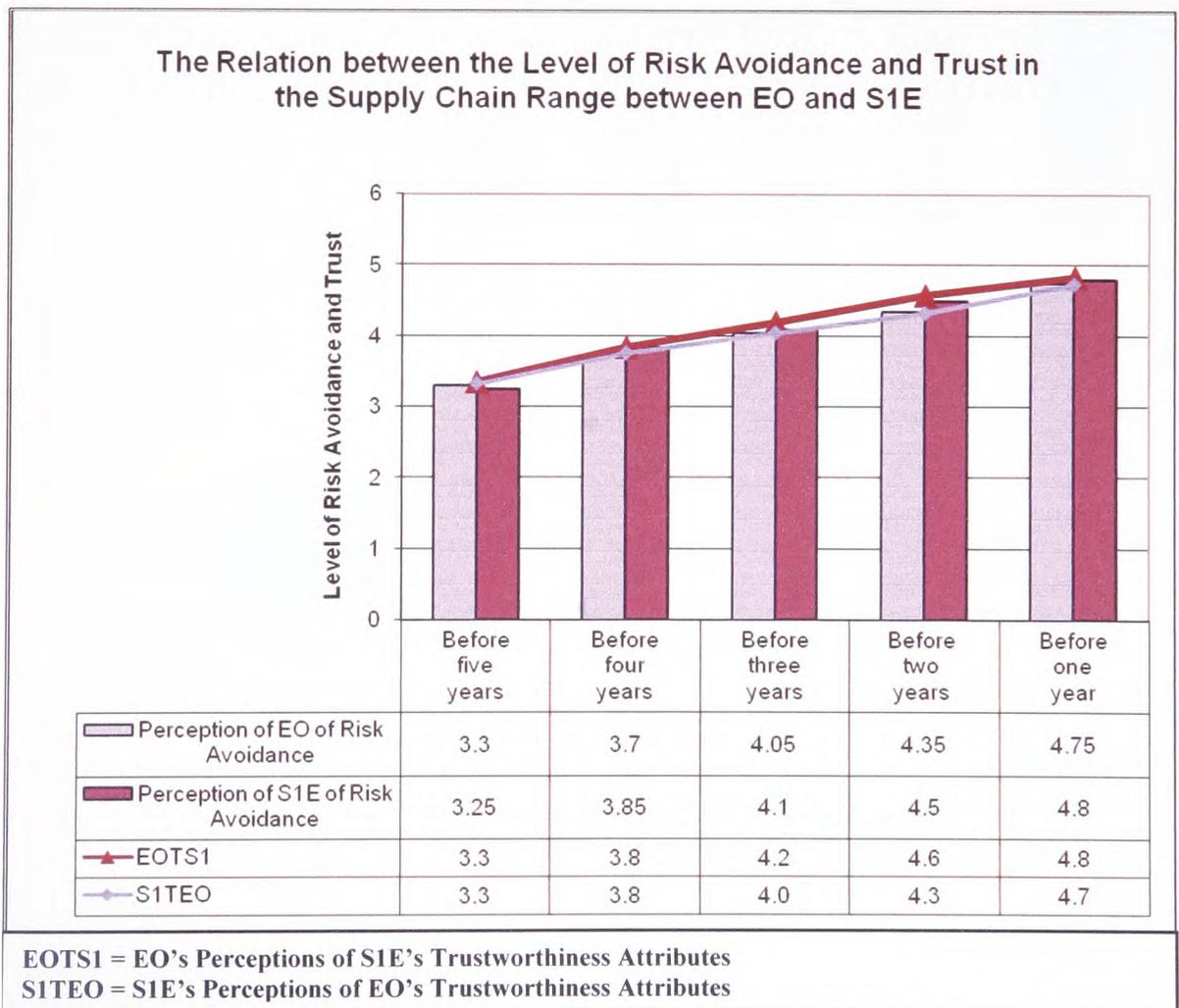
<span style="display: inline-block; width: 15px; height: 10px; background-color: #d8bfd8; border: 1px solid black;"></span> Average Trust of EO in the Parties	3.4	3.9	4.2	4.6	4.8
<span style="display: inline-block; width: 15px; height: 10px; background-color: #800000; border: 1px solid black;"></span> Average Trust of the Parties in EO	3.5	3.9	4.2	4.5	4.8
<span style="display: inline-block; width: 15px; border-bottom: 1px solid orange; border-left: 1px solid orange; border-right: 1px solid orange;"></span> Risk Avoidance	3.3	3.8	4.1	4.35	4.8

**Graph E.29: Shows the relation between risk avoidance achieved by EO' supply chain and trust in EO's supply chain relationships**

As indicated in graph E.29, the risk avoidance achieved by EO's supply chain had improved with the development of trust in EO's supply chain relationships. The graph shows correlation between the trust and the risk avoidance, in which the supply chain performance in the avoidance of trust had improved from before the five years and the risk avoidance had become highly perceived in EO's supply chain in the before one year. As highlighted in the above graph, this perception occurred concurrently with the perceived trust in the supply chain relationship.

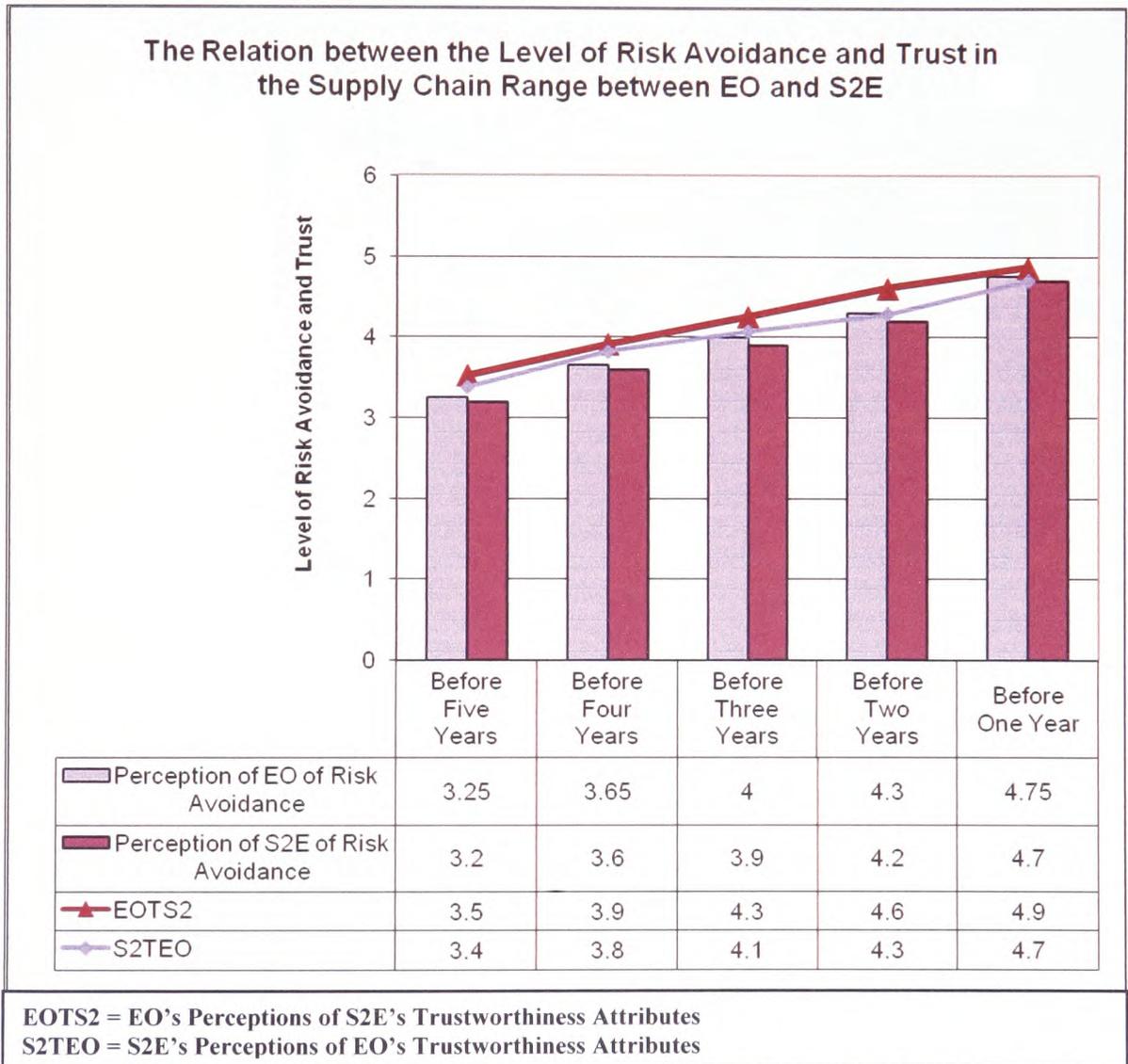
The overall risk avoidance achieved by EO's supply chain in relation to the trust in the EO's supply chain relationships is illustrated in graph E.29. For further understanding of the role of trust on the supply chain performance, analysis of the supply chain performance in each supply chain range will provide clear understanding of the overall performance of the supply chain in relation to the trust in each supply chain relationship.

Concerning the first range of EO's supply chain, the level of risk in the supply chain in relation to the trust between EO and S1E is highlighted in the following graph:



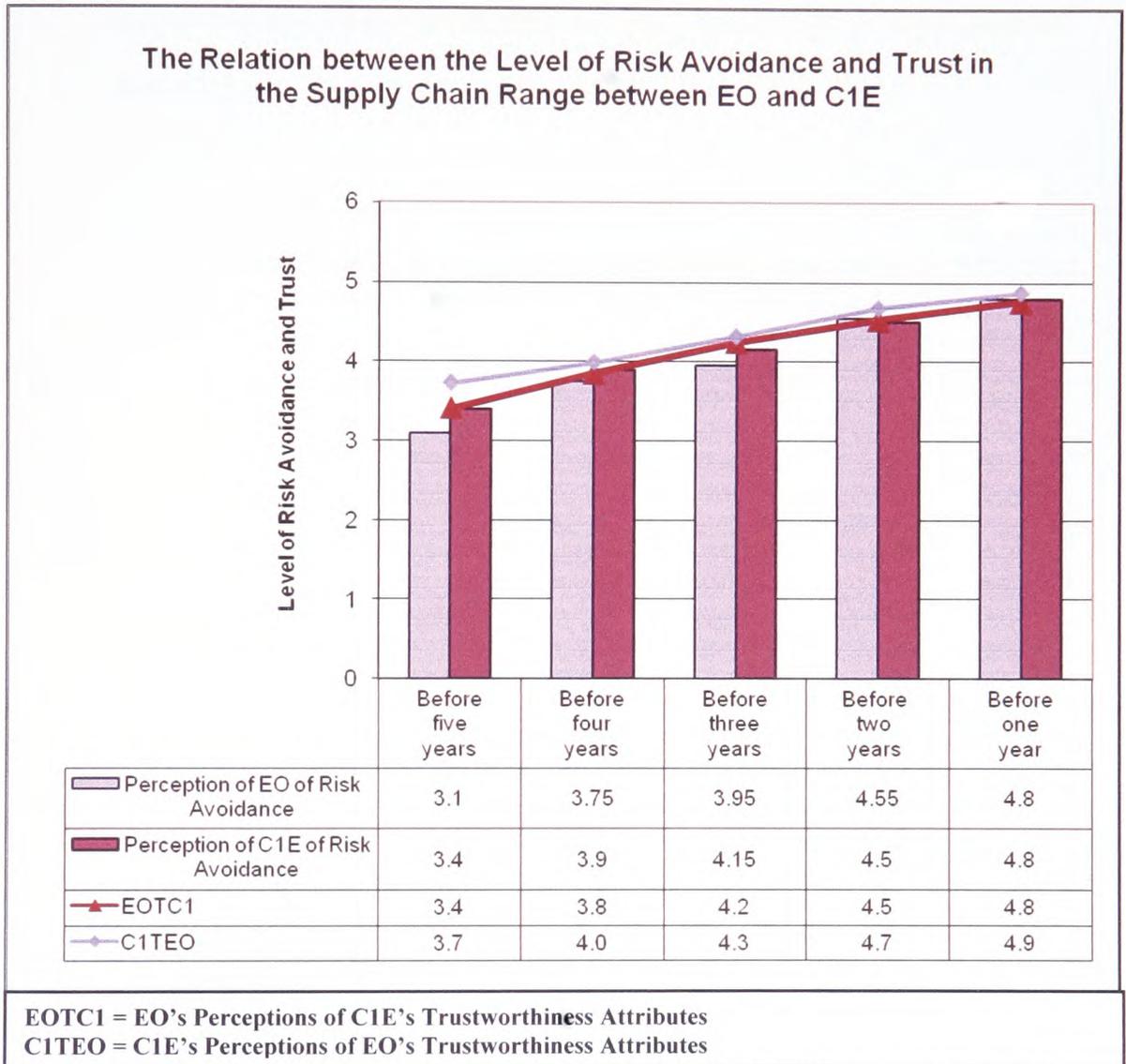
**Graph E.30: Shows the relation between the level of risk avoidance in the supply chain range between EO and S1E and the trust in the relationship**

As highlighted in graph E.30, the risk had become avoidable in this supply chain over the length of the supply chain relationship in accordance with the gradual development of the trust in the relationship. Similar correlation is indicated in the results of the analysis of the relationship between EO and S2E as indicated in graph E.31.



**Graph E.31: Shows the relation between the level of risk avoidance in the supply chain range between EO and S2E and the trust in the relationship**

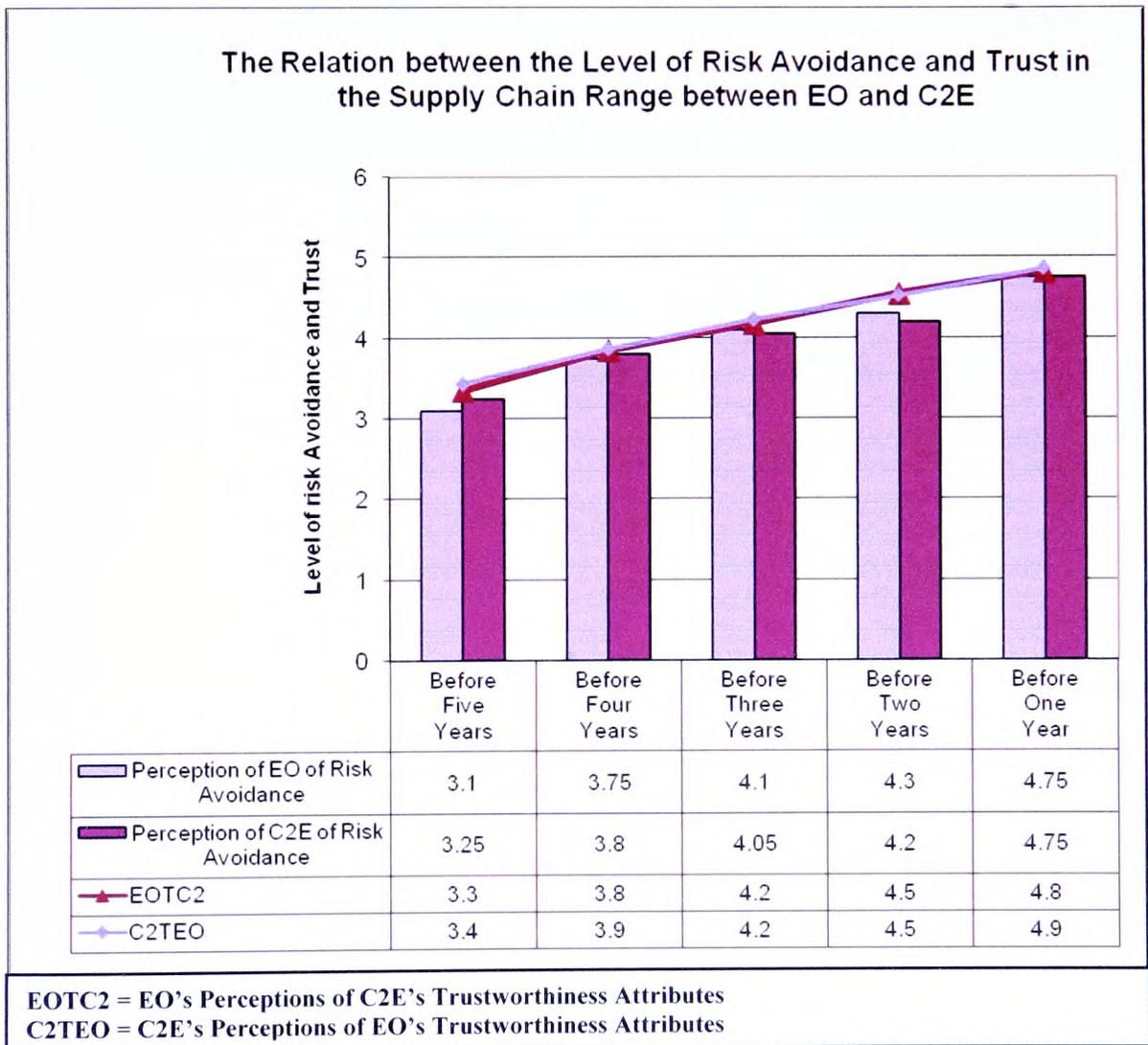
Considering the risk occurrence and avoidance in the relationships between EO and the downstream parties, the level of risk avoidance in relation to the trust in the supply chain relationship between EO and C1E is highlighted in graph E.32.



**Graph E.32: Shows the relation between the level of risk avoidance in the supply chain range between EO and C1E and the trust in the relationship**

As illustrated in the above graph, when the trust was perceived with average value of 3.4 from the EO's perspective the risk was perceived to be avoided with a value of 3.1. The development of trust in the before four years was associated with improvement in the risk avoidance. The continuation of the trust

development in the before three years to the before one year, as indicated in the graph, was associated with consequent improvement in the risk avoidance, where the risk was perceived minimal in the before one year. Alike relationship between the trust and the risk avoidance has been identified by the average analysis's results of the relationship between EO and C2E as highlighted in graph E.33.



**Graph E.33: Shows the relation between the level of risk avoidance in the supply chain range between EO and C2E and the trust in the relationship**

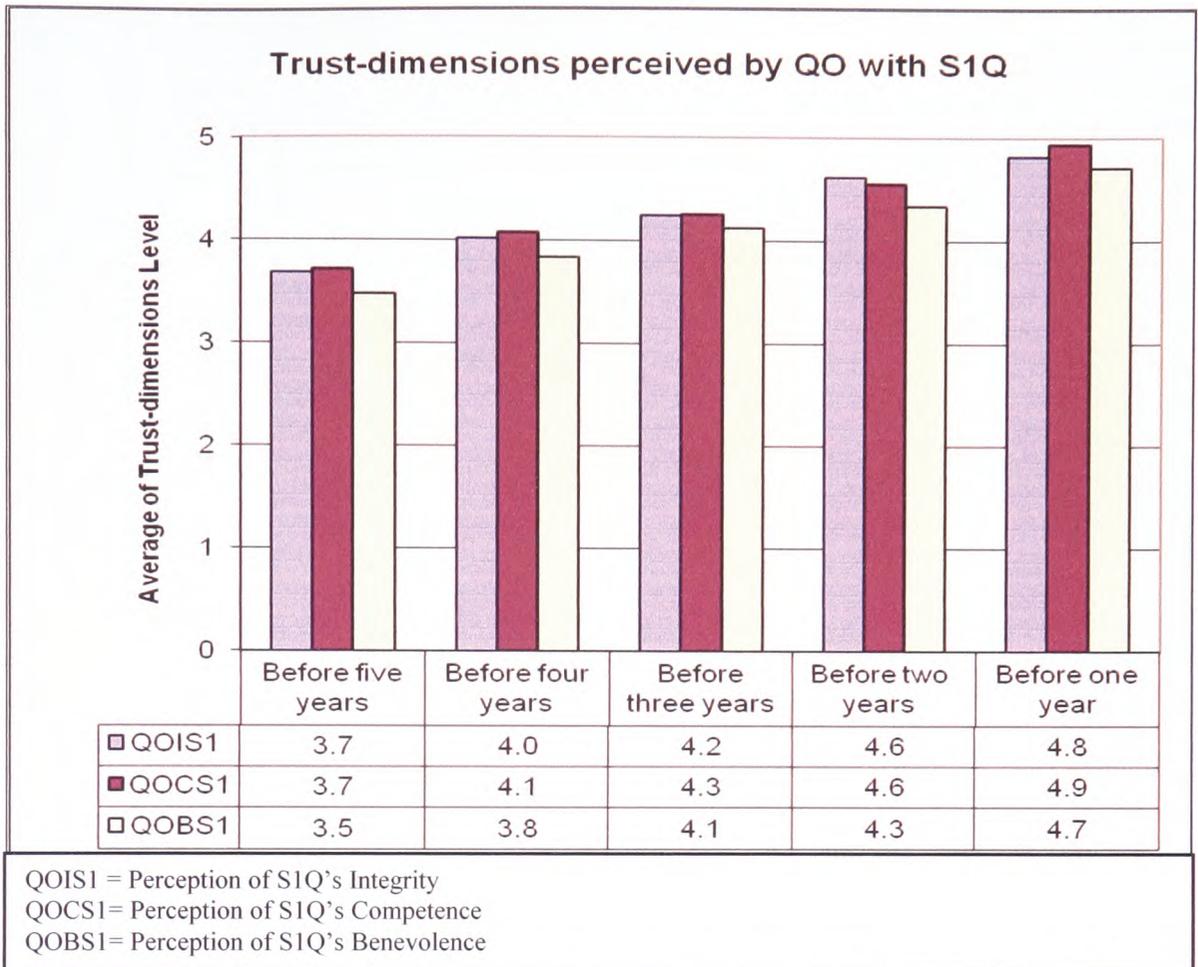
The analysis of EO's supply chain performance in this aspect indicates that the trust in EO's supply chain relationships had resulted in risk avoidance where the development of trust in the relationship was associated with the supply chain enhancement in avoiding risk. Therefore, the analysis of this case study identifies that the trust in the supply chain relationships assists the supply chain to achieve better risk avoidance.

## **A2.2 DETAILED ANALYSIS OF QO'S SUPPLY CHAIN RELATIONSHIPS AND PERFORMANCE**

### **I. Analysis Of Trust In The Supply Chain Relationships Between QO and Its Upstream Supply Chain Parties**

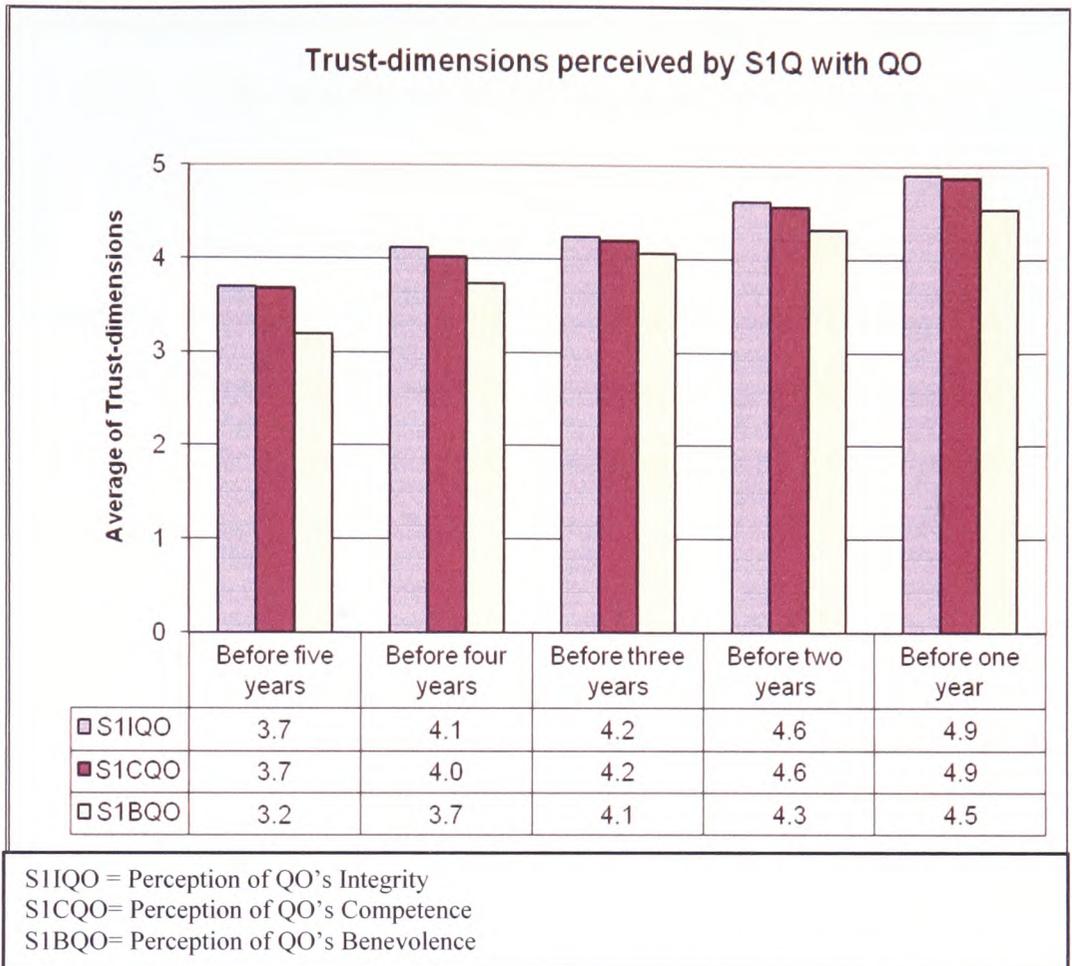
#### **1- Analysis Of Trust In QO's Supply Chain Relationship With S1Q**

Starting from the organisation perspectives of the trust in the supply chain relationship, the results maintained from the average analysis of QO's perceptions of S1Q's trust dimensions are illustrated in graph Q.1.



**Graph Q.1: Shows the trust-dimensions perceived by QO in the relationship with S1Q**

Concerning the perception of trust from the upstream party, the analysis of S1Q's point of view of QO's relationship has yielded the results showed in graph Q.2 below.



**Graph Q.2: Shows the trust-dimensions perceived by S1Q in the relationship with QO**

### **A. Integrity Between QO and S1Q**

During the investigation of the relationship with S1Q, the interviewees in QO had highlighted perceptions of trustworthiness attributes related to S1Q's integrity. In this respect, the interviewees expressed perceptions of S1Q's honesty and indicated that this perception was perceived throughout the relationship. Highlighting this perception, QO's Marketing Manager indicated that S1Q's honesty was perceived at the beginning of the relationship through its openness, frankness and honourable attitude it dealt with. Moreover, this participant indicated that QO had attached to this attribute throughout this relationship, which resulted in the conversion of this perception into a model representing S1Q's relationship as an honest party. QO's Procurement and Logistics

Manager expressed a similar perception of S1Q's honesty and referred to its perception as a rule of thumb. All the interviewees in QO emphasised S1Q's honesty as a perception in this supply chain relationship. In addition, they also stressed the perception of S1Q's fairness. The interviewees highlighted the perception of this attribute through the perception of S1Q's honesty. QO's Marketing Manager had expressed emphasised this trustworthiness attribute as a perception in S1Q's approach of interactions. QO's Procurement and Logistics Manager referred to S1Q's fairness as the reason for its honesty by stating:

***“S1Q has been fairly representing its capabilities without overweening and through this it has always been meeting its promises and proves its reputation as an honest party. This fairness had assisted S1Q to avoid incidences of over-demand that could expose it to difficulties and failure in meeting its promises.”***

Similar perception was highlighted by QO's Procurement and Logistics Supervisor. While QO's Warehouse Operations Supervisor viewed to S1Q's fairness in its products prices, quality, and the manner it followed in supplying its products to QO and the assistance it provided to QO's personnel in discharging and locating supplied products in QO's warehouse. Overall, all the interviewees in QO stressed the perception of S1Q's fairness in this supply chain relationship.

Moreover, the interviewees emphasised perceptions of S1Q's commitment to QO's supply chain relationship. The interviewees pointed to S1Q's commitment through the attention it gave to QO's supply chain, which displayed its loyalty to this relationship. Also the interviewees emphasised this perception by indicating that S1Q's had kept its promises and fulfilled them as promised. All interviewees stressed the perception of

S1Q's commitment. In addition, they indicated that S1Q was credible upstream party throughout its supply chain relationship with QO. This credibility was emphasised through S1Q's honesty and loyalty to this relationship, in which the participants showed confidence in S1Q. In one way or another, S1Q's credibility was stressed by all the interviewees as a perception throughout the relationship. Concerning the development of these perceptions in the relationship, the interviewees indicated that the perceptions of these trustworthiness attributes were developed in this supply chain relationship through continuous dealings and interactions with S1Q. Therefore, QO in this supply chain relationship had perceived the trustworthiness attributes related to S1Q's integrity and these perceptions had developed in this relationship in incremental manner over the length of the supply chain relationship.

The relationship was investigated by the researcher from S1Q's point of view for the perception of trustworthiness attributes related to QO's integrity. In this respect, the interviewees in S1Q highlighted perceptions of QO's honesty and indicated that this perception was perceived as a reputation in QO's relationship. In this context, S1Q's Logistics Supervisor indicated that the frankness that QO followed in describing its product had a major contribution in this perception. S1Q's Administration and Public Relations Supervisor expressed perception through S1Q's honesty in fulfilling its promises and obligations. In one form or another, the collected research data indicates that all the interviewees in S1Q had stressed the perception of QO's honesty in this supply chain relationship. Additionally, they emphasised perceptions related to QO's fairness. S1Q's Logistics Supervisor showed this perception by stating:

***“QO has been fairly negotiating prices related to the purchase of S1Q's products and engaged with S1Q with fair agreements on basis of regular provision of fair enough clarification and details of demanded products.”***

Based on this statement, QO's fairness was related to the features of orders it placed in the supply chain. Considering this perception, S1Q's warehouse operations supervisor has stated that

***“QO's fairness has been perceived in this relationship through its clear details of its orders and through the convention of suggesting delivery that suits S1Q's capabilities with respect to S1Q's production capacity.”***

Therefore, the fairness of QO in this supply chain was mostly related to its behaviour in the agreements with S1Q. Generally, the perception of QO's fairness was stressed by all the interviewees in S1Q.

Regarding QO's commitment in this relationship, the participants had emphasised the perception of this trustworthiness attribute through QO's continual contribution to this supply chain relationship. In this perception the where the interviewees pointed out that QO had been a dedicated party to this relationship. In addition, they indicated confidence in QO and indicated this confidence through QO's credibility. In relation to the development of QO's credibility, the interviewees indicated that QO's credibility had developed through the perceptions of QO's honesty, fairness and commitment in this relationship. Moreover, they referred to the repeated interactions with QO as the motivator for the development of these perceptions. QO's credibility was stressed by all the interviewees as an attribute in this relationship. Hence, both QO and S1Q perceived each other's integrity in this relationship. Thereby, the integrity trust dimension was in exchange in this supply chain relationship, which emphasises that the calculus-based trust had existed between QO and S1Q.

The next section analyse the relationship between QO and S1Q for perceptions of trustworthiness attributes responsible for the competency trust dimension.

### **B. Competency between QO and S1Q**

QO's perspective of the supply chain relationship with S1Q was investigated through the interviewees' perceptions of S1Q's attributes. Based on the participants' perceptions, they emphasised the ability of S1Q in this supply chain relationship, as it was able to produce products as required by QO. Also this perception was indicated through its ability to fulfil QO's demands. According to QO's Marketing Manager, S1Q's had fulfilled QO's demand with superior ability and demonstrated its ability to supply its products with lower prices than its competitors in the market. QO's Procurement and Logistics Manager and QO's Warehouse Operations Supervisor both had highlighted S1Q's ability through its manufacturing capabilities and the quality of its products. In this aspect these participants indicated that S1Q was QO with high quality products. Moreover, S1Q's ability to satisfy QO was highlighted as a major ability that was appreciated by QO. Moreover, the interviewees expressed S1Q's ability through its expertise. QO's Technical Customer Services Engineer emphasised S1Q's ability through the expertise it had showed and practiced in its industrial field. This participant indicated that S1Q was able to deploy its expertise in a manner that ensures QO's satisfaction. QO's Procurement and Logistics Manager stressed S1Q's ability through its high product quality that it had supplied to QO with competitive market prices. According to this participant,

***“The combination of these two features; high product quality at competitive prices, has captured QO's attention and developed and sustained preference for S1Q's products.”***

The perception of S1Q's ability in this supply chain was emphasised by all the interviewees and stressed to be perceived throughout the relationship. Concerning the importance of these perceptions to the relationship, all the participants emphasised that the perceptions of S1Q's ability and expertise were the reasons for commencing this supply chain relationship. In addition, the participants emphasised perception of S1Q's consistency in this relationship. S1Q's consistency was determined through its attachments to its promises and obligations in this relationship. Moreover, they viewed this attachment as a catalyst that resulted in the development of this perception in this relationship. All the participants emphasised that this perception had developed in the relationship over the length of the relationship through repeated interactions with S1Q. Furthermore, QO's Marketing Manager identified S1Q as a reliable upstream party through S1Q's addiction to its consistency in this relationship. QO's Procurement and Logistics Manager stressed the perception of S1Q's reliability through the perception of its addiction to its consistency by stating:

***“S1Q, through its ability and consistency it has developed a sense of attachment to this relationship that led QO to have faith in this party being dependable and realistically judging it as a reliable party in this supply chain.”***

Concerning the perception of S1Q's reliability, QO's Warehouse Operations Supervisor stressed this as a perception in the relationship by indicating that S1Q had been reliable in fulfilling its tasks in accordance with QO's demanded specifications and lead times. The perception of S1Q's reliability through this aspect was expressed by the remaining interviewees in QO. Therefore, the

development of confidence in S1Q's reliability was recognised on the basis of its perceived consistency.

The highlighted trustworthiness attributes perceived by the participants emphasise perception of S1Q's competency in this relationship. Hence, the analysis of the relationship from QO's point of view identified S1Q as a competent party in this supply chain relationship. As previously indicated, this analysis was conducted on basis of QO's perceptions of the relationship. In order to identify the overall competency in this relationship, the relationship will be analysed from S1Q's point of view, as considered in the following section.

## 1. S1Q/QO

The relationship was investigated from S1Q's perspective for tracing trustworthiness attributes related to QO's competency. During this investigation, the interviewees in S1Q emphasised perceptions of QO's ability in this supply chain. This ability was mostly related to QO's fulfilment of its financial obligations and its ability to continue the relationship through continual demand and consume of S1Q's products. In this respect, S1Q's Logistics Supervisor indicated that

***“S1Q is a profitable organisation and therefore QO's ability to fulfil its financial obligation is the determinant of the continuation of the relationship and this ability has been proven by QO all through this relationship.”***

In addition, S1Q's Technical Manager emphasised QO's ability through persistence it had showed to provide necessary feedbacks that were helpful to

S1Q and assisted it to improve its outputs and rectify reported deviation in its production lines. In general, all the interviewees stressed the perception of QO's ability through its financial ability and the continual fulfilment of its obligations in this supply chain relationship. Moreover, the interviewees emphasised perception of QO's expertise. This perception was related to QO's experience, knowledge and skills that it had displayed in its interactions in this relationship. In addition, they emphasised QO's consistency in this supply chain relationship. In this respect, S1Q's Logistics Manager had stressed this perception through QO's consistent likely behaviour in this relationship. S1Q's Warehouse Operations Supervisor emphasised the perception of QO's consistency in this relationship through its consistent supportive behaviour it displayed in the relationship. This attribute was perceived effectively in regard to QO's fulfilment of its obligations, provision of necessary feedback and the manner that it had interacted with, which were in accordance with S1Q's best interest. Based on the perception of QO's consistency, all the participants emphasised that QO was a trustworthy party and stressed confidence in it. In relation to QO's reliability, all the interviewees in S1Q emphasised this perception through the perception of its consistency and stressed that it had dependable in this supply chain relationship.

The perceptions revealed by the interviewees in S1Q emphasise that S1Q had perceived QO's competency in this relationship. By considering the analysis of the relationship from QO's point of view showed in the previous section, the analyses of the relationship from both parties' perspectives identifies exchange of this trust dimension between QO and S1Q. Therefore, this relationship had involved mutual knowledge-based trust.

## **C. Benevolence Between QO and S1Q**

### **1. QO/ S1Q**

The relationship was initially investigated by the researcher from QO's point of view. In this investigation the researcher has begun with exploration for perception of S1Q's goodwill intentionality toward QO. The participants in QO emphasised the perception of S1Q's goodwill intentionality and clarified this perception on basis of S1Q's pleasant past behaviour. Concerning this perception, QO's Marketing Manager stressed S1Q's goodwill intentionality in this supply chain relationship through its continual consideration of QO's rights and through the increased support it had provided to QO's business at times of need. QO's Procurement and Logistics Manager stressed S1Q's goodwill intentionality through its supportive behaviour it displayed consideration and sense of responsibility towards QO's supply chain. In clarifying this perception this participant had indicated that S1Q had adopted caution in keeping QO's information and advocated its privacy. The interviewees indicated that S1Q had translated the sense of morality in its interactions.

Moreover, QO's Warehouse Operations Supervisor emphasised the perception of S1Q's goodwill intentionality through the assistance that it provided to QO in regard to arrangement of QO's arranging warehouse accommodation and through competitive prices it had offered to QO in supplying its products. Additionally, this participant indicated that S1Q's had acquired international recognition on basis of its products quality and it had created monopoly in its market, which allowed it to had power on its customers in regard to its products' prices but it had never took advantage of QO's relationship in this aspect. Instead it remained supplying its products to QO with not just

competitive prices but with low prices with added values that optimally satisfy QO.

QO's Technical Customer Services Engineer highlighted the perception of S1Q's goodwill intentionality in this supply chain relationship through its initiative investigation programs that it had conducted to ensure QO is satisfaction of the supplied products. Likewise, QO's personnel highlighted the perception of S1Q's goodwill intentionality through its fair treatment throughout the supply chain relationship.

Regarding the development of this perception in this relationship, all the participants emphasised that this perception was developed through S1Q's consistency in the attachment it showed QO's relationship, which it was displayed through its pleasant behaviour with persistence to keep and improve the relationship with QO.

Concerning the other trustworthiness attribute responsible for formation of S1Q's benevolence, which is S1Q's predictability, the interviewees in QO emphasised the perception of this attribute in S1Q's interactions. The participants highlighted this perception through S1Q's goodwill intentionality. They indicated that the goodwill intentionality allowed them to predict S1Q's actions to be in QO's best interests. The participants put emphasis on this perception on basis of S1Q's past performance in the supply chain and the consistency perceived in its behaviour. In relation to the development of this perception in this relationship, they stressed that this perception had developed in the relationship over the length of the supply chain relationship for variety of

reasons including S1Q's repeated attitude of interactions that emits its collaboration with QO, S1Q's increased concern about QO's satisfaction, its supportive contribution at moments of difficulties faced by QO and its direct involvement in mitigating issues related to QO's supply chain.

Through the reflected perceptions of S1Q's goodwill intentionality and predictability, the participants conveyed confidence in the perception of S1Q's benevolence in this supply chain relationship. Hence, from QO's point of view, S1Q was a benevolent upstream party in this supply chain relationship. Now, after the relationship has become analysed from QO's point of view, the analysis in the next section will concern QO's benevolence from S1Q's point of view through perceptions of trustworthiness attributes responsible for constituting this trust dimension.

## **2. SQ/QO**

The perception of QO's benevolence was investigated from the perspective of S1Q to determine this party's feelings of QO's relationship. The collected research data indicates that the participants in S1Q had emphasised the perception of QO's goodwill intentionality and stressed its predictability. Concerning the perception of QO's goodwill intentionality, the participants highlighted this perception through QO's commitment in the fulfilment of its financial obligations. Foremost, the participants indicated that QO had supported S1Q financially and assisted it to achieve business development. In this support, QO provided cash to S1Q in advance and then S1Q was allowed to repay the loan in exchange with certain quantities of products with the normal price it set for its products. According to the participants, this was based on the confidence in S1Q and its ability to achieve in

accordance with QO's expectations. Through this support, the participants in S1Q showed gratitude to QO's attitude in this supply chain, and stressed its goodwill intentionality. Moreover, the participants emphasised QO's goodwill intentionality through its friendly behaviour, as it showed continual concern about S1Q's achievement and had provided S1Q with valuable feedback through sense of motivation and represented itself as catalyst in S1Q's development. In this context, S1Q's Logistics Supervisor indicated that S1Q owed a favour to QO's participation in its development, and to the motives it provided that enhanced S1Q's capability in front of the market challenges. The participant added that QO's support and concerns were beyond loyalty to S1Q and emitted sense of partnership by the attained appreciation to QO's respectful relationship.

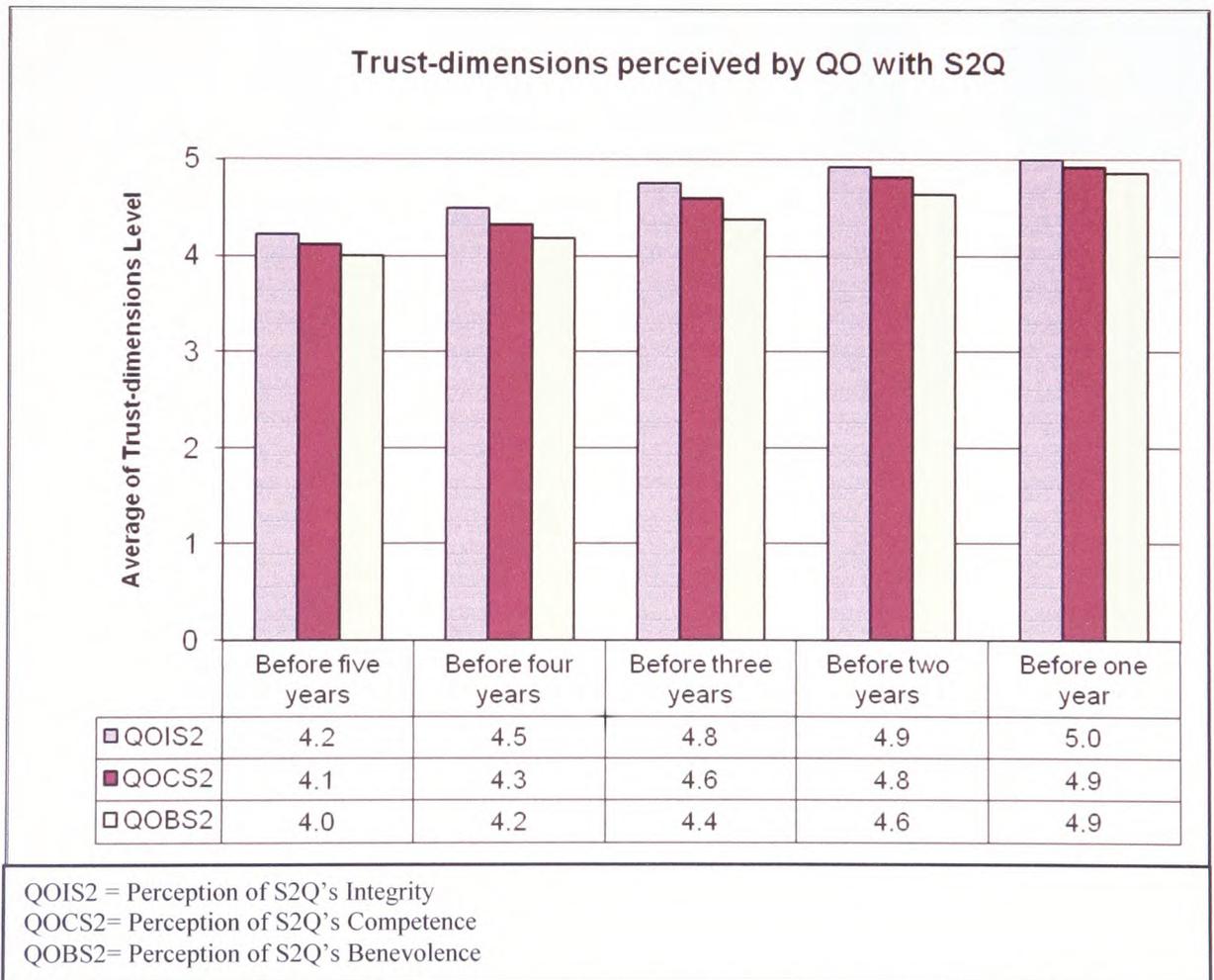
In regard to the perception of QO's predictability, the participants have emphasised this perception through QO's past behaviour. They indicated that it had worked in win-win supply chain relationship. Furthermore, the participants emphasised that QO's perception of goodwill intentionality had proved supportive halt to S1Q to predict its future actions in this relationship. Likewise, as highlighted by the participants, this perception developed in the relationship as expectation based on confidence in QO's goodwill intentionality in its future actions and interactions.

The participants, by emphasising the perceptions of QO's goodwill intentionality and predictability, they emphasised the perception of QO's benevolence in this supply chain relationship. Referring to the analysis of the relationship from QO's point of view and combining the perceptions generated from the analyses of the relationship from both parties' perspectives, it become identifiable that each of QO

and S1Q perceived benevolence in this relationship and, therefore, transference-based trust existed between QO and this upstream party.

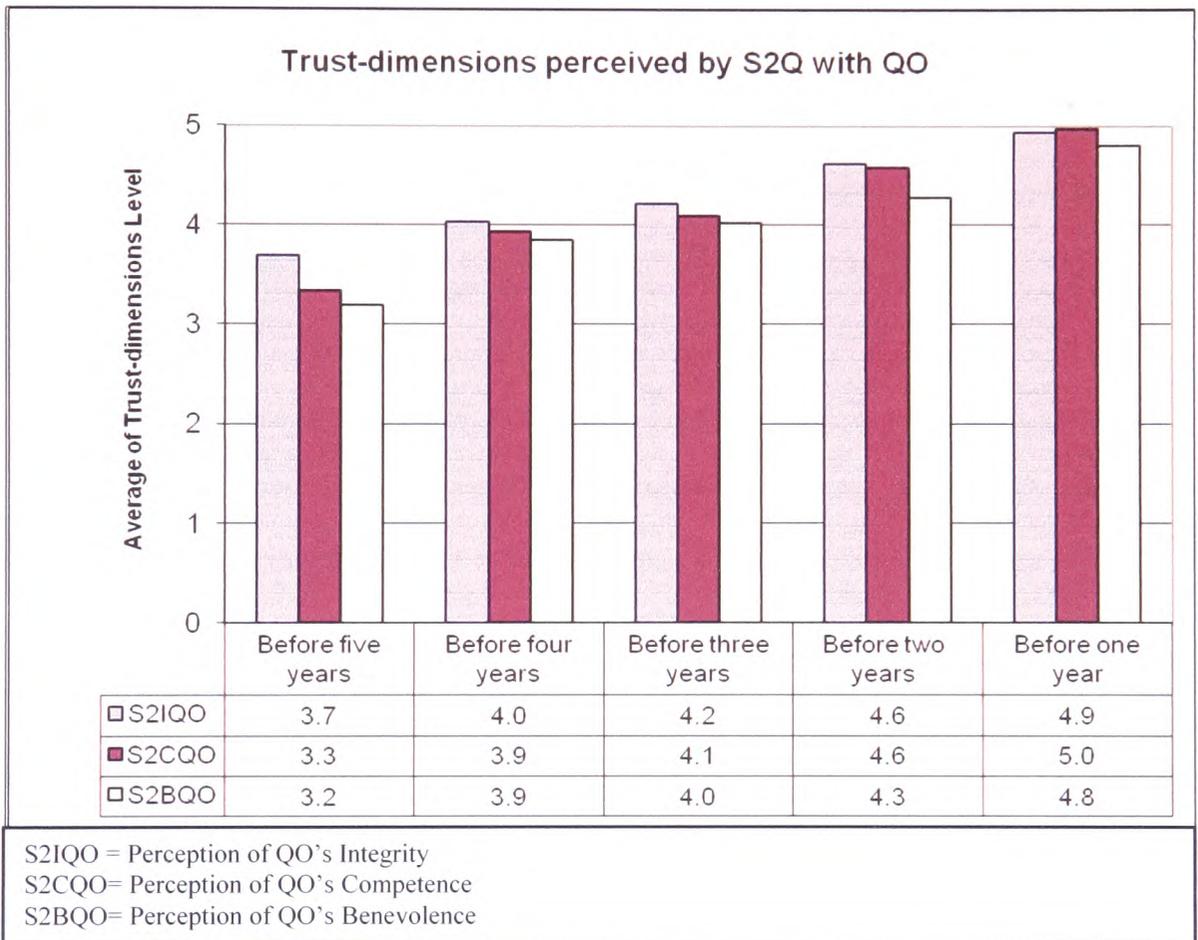
## 2. Trust In The Supply Chain Relationship Between QO and S2Q

Regarding the relationship between QO and the second upstream supply chain party, the research data that was maintained from QO has been subjected to average analysis and the results of this analysis in regard to the perceptions of S2Q's trust dimensions are illustrated in graph Q.3.



**Graph Q.3: Shows the trust-dimensions perceived by QO in the relationship with S2Q**

Concerning the perception of QO's trust dimensions in this supply chain relationship, the perceptions of the trust dimensions from S2Q's perspectives had showed slight difference than that identified in QO's perspectives of S2Q's trust dimensions. In this respect, S2Q revealed less perception of QO's trust dimensions in this relationship, as illustrated in the graph Q.4.



**Graph Q.4: Shows the trust-dimensions perceived by S2Q in the relationship with QO**

## A. Integrity Between QO and S2Q

### 1. QO/S2Q

The relationship between QO and S2Q represents the relationship with the second upstream supply chain party considered with QO. The investigation of the relationship from QO's point of view was initially considered for

exploration of perception of S2Q's honesty. The interviewees in QO have emphasised this perception in the relationship. Concerning the development of this perception in the relationship, they indicated that this perception was initiated through S2Q's reputation as an honest upstream party and through the participation of continuous relationship with this party this perception had become an image representing S2Q's interactions. Most of the interviewees in QO including the Marketing Manager, QO's Customer Services Engineer, Procurement and Logistics Manager, Procurement and Logistics Supervisor, and the Warehouse Operations Supervisor had stressed similar perception of the development of S2Q's honesty in this relationship. While, the interviewed QO's personnel highlighted the perception of S2Q's honesty and indicated it as a model attributed on basis of S2Q's repeated interactions. However, they were unable to comment on the development of this perception because when they joined QO the perception was already infused as a model in the relationship. Nevertheless, all the interviewees emphasised the perception of S2Q's honesty in this relationship.

The other attribute considered for investigation in this relationship was S2Q's fairness. The interviewees in QO indicated the perception of S2Q's fairness through the fair attitude it dealt with in its interactions with QO. Also this perception was highlighted through its demonstrated consideration of QO's suggestions in regard to the specifications of the products that QO had requested. In this regard, QO's Procurement and Logistics Manager indicated that S2Q had fairly negotiated agreements with QO regarding significant aspects such as S2Q's product prices, quantities, and prices of additional

purification of S2Q's products that had aimed to reduce impurities in the inputs of QO's operations.

The perception of S2Q's fairness was expressed by QO's Technical Customers Services Engineer. In addition, QO's Warehouse Operations Supervisor emphasised the perception of S2Q's fairness through its fair behaviour it displayed in delivering the products and the technical advices it provided that were of help to QO's warehouse operations. Overall, all the interviewees in QO emphasised S2Q's fairness in this supply chain. Besides the perception of S2Q's fairness, they emphasised perceptions of S2Q's commitment in this supply chain relationship. In this respect, S2Q's Marketing Manager indicated S2Q's commitment in the light of its past behaviour where it had been keeping its promises and demonstrated responsibility in fulfilling its obligations. QO's Technical Customer Services Engineer had emphasised the perception of S2Q's commitment in this relationship through its likely fair behaviour in responding to problems related to QO's concerns on the basis of the agreement with it. In this respect, QO's Procurement and Logistics Manager highlighted this perception through the persistence that S2Q's showed to develop this relationship. According to this participant, S2Q was committed to excellence in satisfying QO's needs and it had improved its processes and the quality of its operations in accordance with QO's feedback and in respect to issues that were addressed by QO during the relationship. Generally, all the interviewees in QO stressed the perception of S2Q's commitment in this supply chain relationship. Moreover, they emphasised confidence in S2Q on basis of its past behaviour of interaction. The interviewees also indicated that S2Q were interacting with an

image of being credible upstream party in this supply chain. S2Q's credibility was highlighted through its commitment in this relationship.

QO's Marketing Manager and QO's Technical Customer Services Engineer emphasised S2Q's credibility through its frankness and its attachment to what it had promised to supply, especially, in the quality of its products. QO's Procurement and Logistics Manager indicated that S2Q was able to hide information related to its products and it could have supplied degraded or lower quality products but it had never committed a breach to its promises. Moreover, S2Q's credibility was emphasised by QO's Warehouse Operations Supervisor through its continual meeting of its promises and continual fulfilment of its obligations in this relationship. All interviewees in QO stressed this perception as a determinant of S2Q's credibility in this relationship. The overall views of the interviewees emphasised that S2Q was credible upstream party in this supply chain.

Therefore, the analysis of the relationship indicates that QO had confidence in S2Q's integrity. In order to determine the exchange of this trust dimension in the relationship, the relationship will be analysed from S2Q's point of view, as in the following section.

## **2. S2Q/QO**

To determine the overall exchange of integrity in the relationship between S2Q and QO, the relationship was investigated from S2Q's perspective. In regard to QO's honesty, the participants indicated that this trustworthiness attribute was perceived in QO's relationship. In this respect, S2Q's Material and Procurement

Manager indicated that QO had been honest throughout this supply chain relationship. S2Q's Material and Procurement Supervisor and S2Q's Material and Procurement Personnel emphasised similar perception of S2Q's honesty. While S2Q's Warehouse Operations Supervisor highlighted the perception of QO's honesty by stating:

***“QO has been strikingly honest because it has been harmonising its promises with its actions. Whatever it has been promising it was fulfilling to its best extent.”***

In expressing QO's honesty, both S2Q's Administrating Manager and S2Q's Business Development Manager had highlighted QO's honest through its frank opinions and its openness in this relationship. S2Q's Administration Supervisor indicated the perception of QO's honesty was instilled in its reputation that had developed through its past behaviour. All the participants in S2Q emphasised the perception of QO's honesty in this supply chain relationship and indicated development of this perception over the length of the supply chain relationship. They stressed this development had occurred through the repeated interactions with QO on basis of perceiving QO's past performance in the relationship.

The interviewees also stressed perceptions of QO's fairness through its displayed fair negotiation of prices in its past agreement with S2Q and they emphasised that QO had treated S2Q with fairness and justice throughout this supply chain relationship. On basis of perceptions of QO's honesty and fairness, the interviewees drew perceptions of QO's credibility. In this context, S2Q's Material and Procurement Manager and S2Q's Business Development Manager both of them expressed the perception of QO's credibility through its honesty

and fairness. Also, S2Q's Material and Procurement Supervisor and S2Q's Warehouse Operations Supervisor indicated QO's credibility through its attachment to value business ethics perceived in its past interactions in this relationship. Overall, all interviewees had stressed QO's credibility as a perception in this supply chain relationship.

In respect to perceptions of QO's commitment, the participants emphasised QO's commitment through confidence in QO as a dependable party in this relationship. QO's commitment to this relationship was highlighted through its past behaviour and accentuated through its continued connection to S2Q. Nevertheless, the interviewees indicated that QO had proved its commitment to S2Q in this relationship through incentives it had provided to communicate its appreciations of S2Q's relationship. Generally, all the interviewees had stressed that QO was strongly committed to S2Q in this supply chain relationship.

The perceptions of the trustworthiness attributes related to QO's integrity indicate that QO's integrity was well-recognized by S2Q. Therefore, by referring to the analysis of the relationship from QO's point of view, shown in the previous section, it is obvious that both S2Q and QO had perceived each other's integrity in this supply chain relationship. Therefore, the calculus-based trust was in existence in the relationship between QO and S2Q.

## **B. Competency Between QO and S2Q**

### **1. QO/S2Q**

In considering the investigation of higher trust between QO and S2Q, the relationship between QO and S2Q was investigated for perception of

competency trust dimension. Considering QO's perspective of the relationship, the interviewees in QO emphasised the perception of S2Q ability in this relationship. This ability was stressed through S2Q's capabilities and its expertise on basis of S2Q's past achievement of QO's satisfaction and QO's demands fulfilment. In this respect, QO's Procurement and Logistics Manager highlighted this perception through S2Q's resources and its ability to supply QO's with demanded quantities to be used as inputs in QO's operations. Moreover, this participant emphasised S2Q's ability through its expertise, in which where it was able to utilise its expertise in a manner that suits QO's operations. Based on this participant's opinion, S2Q's had the required expertise for this supply chain and S2Q had employed its expertise in a conduct that matches QO's interests. QO's Marketing Manager emphasised S2Q's ability on basis of its skills and indicated that it was able to improve its manufacturing processes in a way that ensured innovation of high quality products. Regarding S2Q's expertise, this participant emphasised this perception through S2Q's ability to achieve cost reduction in its operations and, consequently, it was able to yield its products with competitive prices to QO. This perception was highlighted by QO's Technical Customer Services Engineer and QO's personnel. Hence, S2Q's ability and expertise trustworthiness attributes were stressed by all the interviewees in QO.

The researcher had further investigated the relationship for perceptions of other trustworthiness attributes related to the competency trust dimension. In this investigation the interviewees emphasised the perceptions of S2Q's consistency and reliability. Concerning the perception of S2Q's consistency, they highlighted this perception through S2Q's constant behaviour in the relationship

in fulfilling its tasks in relation to QO's demands. Moreover, they stressed S2Q's consistency through its firm behaviour it had showed to push ahead the relationship and its steady behaviour of interactions that we involve likely high class attitude. QO's Procurement and Logistics Manager highlighted S2Q's consistency through stable manner it demonstrated in resolving issues related to the supply chain. This participant indicated that S2Q was consistently able to keep the pressure at a tolerable level that gave rise to felicitous environment and reinforced the development of the relationship. The other trustworthiness attribute, which is S2Q's reliability, was emphasised as a perception in this supply chain relationship generated through S2Q's consistency. All the participants in QO advocated this perception as directly related to S2Q's perceived consistency. In this context, the interviewees highlighted the development of this perception over the length of the supply chain relationship through repeated interactions with S2Q, in which S2Q was found dependable and acted in QO's best interest. Moreover, the interviewees indicated that S2Q's reliability was sustained through S2Q's consistency and developed as a standard in the relationship and built on sufficiently strong foundation of morality. Based on this perceived reliability, the interviewees indicated that QO had interacted with S2Q in a coalition that disseminated convenience in planning and controlling the supply chain processes. In general, all the participants emphasised definite beliefs in S2Q's reliability as an upstream party in this supply chain relationship.

Based on the perceived trustworthiness attributes that were revealed by the participants, it is obvious that QO had admired well-built perception of S2Q's competency in this relationship. Therefore, the analysis of research data has

shown this perception from QO's point of view. To determine the overall exchange of this trust dimension in this relationship, the research data maintained from S2Q will be analysed to clarify the perception of QO's competency. This analysis is highlighted in the following section.

## **2. S2Q/QO**

To realise identification of the trust level in the relationship between QO and S2Q, the relationship was investigated from S2Q's point of view for perceptions of trustworthiness attributes related to QO's competency. This investigation aimed to test whether this party perceived trustworthiness attributes that cognate to what have been identified in the perception of QO. During this investigation, the interviewees in S2Q emphasised the perception of QO's ability in this supply chain relationship. The perception of QO's ability was demonstrated in terms of QO's financial ability that it demonstrated in the fulfilment of its obligations and its ability to transform S2Q's products into demandable commercial products. The participants had stressed that QO's ability to fulfil its financial obligations had major role in the continuation of the relationship. QO's ability and expertise were interlinked in the interviewees' perceptions, where QO's ability to produce transformable products from S2Q's outputs was highlighted through QO's expertise that it showed when it utilised its qualified human resources and technologies to produce demandable products required by other industries. In regard to this perception, all the participants in QO had advocated QO's ability and expertise along the continuation of the supply chain relationship. In this respect, S2Q's Material and Procurement Manager indicated that

***“The relationship with QO is based on QO’s ability to fulfil its obligations. It is useless if S2Q is supplying this organisation with its products and receive nothing in return. Whatever are the circumstances, there is no point to continue a relationship with a party that is unable to fulfil its obligations. Starting from this point of view, QO has been a model organisation in fulfilling its obligations and it has been interacting with S2Q in a manner that motivated S2Q to improve the relationship with this organisation.”***

In regard to the perception of QO’s expertise, S2Q’s Material and Procurement Manager highlighted this perception through QO’s ability to produce multiple products based on the utilisation of S2Q’s products. S2Q’s Material and Procurement Supervisor expressed QO’s expertise through its national and international distribution techniques, as it had considered all the circumstances in its distribution approach. According to this participant’s comments, QO’s expertise in this aspect had always been inspiring S2Q because it raised demands for S2Q’s products and resulted in expansion of S2Q’s operations. Accordingly, it enhanced S2Q’s position in the market. S2Q’s Warehouse Operations Supervisor stressed QO’s expertise in this relationship through the skills it showed in improving its warehouse accommodation and its experiences that resulted in appropriate inventory control. This participant has stressed the perception of QO’s expertise throughout this supply chain relationship. Each one of the interviewees had described the perception of QO’s expertise and generally all the interviewees in S2Q had stressed the perception of QO’s expertise in this supply chain relationship.

The participants also emphasised perceptions of QO’s consistency in this relationship. QO’s consistency was indicated in form of actions that it displayed

in the supply chain relationship, where it had always been interacting with similar attitudes and in accordance with S2Q's expectations. Regarding the constitution of this perception in this relationship, the participants emphasised the development of this perception in the relationship through repeated interactions with QO.

The research investigated further perceptions of QO's trustworthiness attributes in this relationship and the interviewees stressed perception of QO's reliability. The participants demonstrated the perception of QO's reliability through its commitment to this relationship and its consistent performance in achieving S2Q's expectations. In this context, S2Q's Material and Procurement Manager had stressed QO's reliability by stating that

***“QO has been reliable customer and it has never violated this perception and therefore S2Q has strong confidence in this party's reliability in this supply chain.”***

All the interviewees highlighted QO's reliability on basis of its reputation, its accountable attitude in the fulfilment of its obligations, its consideration of S2Q relationship, its ability to cope with evolving circumstances in the market, its role in the contribution to the improvement of the supply chain processes and its ability to act in accordance with S2Q's expectations in the supply chain.

Based on this analysis it is obvious that the trustworthiness attributes related to QO's competence were instilled in S2Q's perceptions. Moreover, the analysis identifies that S2Q had confidence in QO's competency in this relationship.

Hence, by considering the result identified in analysing the relationship from QO's point of view, highlighted in the previous section, the analyses of the research data from the perspectives of both parties identify that QO and S2Q perceived each other's competency and therefore knowledge-based trust is identified in this relationship.

### **C. Benevolence Between QO and S2Q**

#### **1. QO/S2Q**

The investigation of the relationship between QO and S2Q was initially conducted from QO's point of view. During this investigation, the interviewees indicated perceptions related to S2Q's goodwill intentionality. Each participant had emphasised S2Q's goodwill intentionality towards QO. QO's Marketing Manager emphasised perception of S2Q's goodwill intentionality through S2Q's consideration and care that it had displayed and through its concern of QO's satisfaction and its permit of open communications with QO to follow up issues related to its operations and concerns related to S2Q's products quality and eventually QO's satisfaction. From another perspective, QO's Technical Customer Services Engineer emphasised S2Q's goodwill intentionality through continual efforts it showed to upgrade its operational and administrative processes in a way that smoothen the flow of feedback and deem facile to QO to fulfil its obligations with S2Q and saves QO's time. QO's Procurement and Logistics Manager had stressed S2Q's goodwill intentionality through its past behaviours where it had stood by QO during difficult situations. From another aspect, QO's Warehouse Operations Supervisor emphasised the perception of S2Q's goodwill intentionality in this relationship through concerns it showed in regard to delivery status and safety of QO's personnel through its continual

provision of instructions that provided guide to QO's personnel to take necessary precautions and ensured their safety.

The participants emphasised that S2Q had interacted with pleasant attitudes and had recognised S2Q as a party that worked to realise beyond expectations. Foremost, the participants in QO emphasised certainty in S2Q's goodwill intentionality in the supply chain relationship and this perception was determined as a base to anticipate S2Q's future actions. Considering this perception, all the participants stressed confidence in anticipating S2Q to interact in a supportive behaviour as it had always been before. Therefore, the participants emphasised perceptions of the trustworthiness attributes responsible for determination of S2Q's benevolence in this relationship. Hence, from QO's point of view S2Q was perceived as benevolent upstream party in this supply chain.

Until now the analysis has considered the relationship from QO's point of view. The analysis of the relationship from S2Q's point of view is highlighted in the following section.

## **2. S2Q/QO**

The perceptions of QO's goodwill intentionality and QO's predictability were investigated by the researcher from S2Q's perspectives. The interviewees in S2Q emphasised these trustworthiness attributes in QO's attitude of interactions. The participants highlighted QO's goodwill intentionality through its high cooperation with S2Q. In this respect, the participants indicated that QO had interacted in a cooperative manner that involved respect to S2Q's

relationship and solidarity with S2Q. S2Q's Material and Procurement Manager has stressed QO's goodwill intentionality through QO's commitment to S2Q by mentioning that

***“QO has been accustomed to S2Q's products and showed no intention to violate the confidence that it has built in this relationship. Rather it has been enhancing its belonging to the relationship with its honest loyalty and sense of collaboration that have firmly enough established to sustain its identity as a party that works in a partnership with S2Q during the whole time of the relationship.”***

From another perspective, S2Q's Material and Procurement Supervisor has emphasised QO's goodwill intentionality through the transparency that it had adopted in its interactions. According to this participant, QO had often involved S2Q in its business matters and exchanged expertise with S2Q and it had worked with consideration of S2Q's interests. Overall, all the participants emphasised the perception of QO's goodwill intentionality in this supply chain relationship. In relation to the exposure of this perception in the relationship, the participants emphasised that QO's predictability had developed on basis of QO's consistent behaviour and attitudes that it had demonstrated in this relationship. All the participants highlighted this opinion through the perception of QO's goodwill intentionality and its past performance in the relationship. In this context, the participants stressed that QO could be anticipated to take no advantages of S2Q and in moments of S2Q's vulnerability to risk it the participants should confidence that QO will assist S2Q to overcome the risky situation. This perception was indicated with certainty from all the interviewees. S2Q's Material and Procurement Manager and S2Q's Business Development Manager, both of them showed that QO had helped S2Q during previous risky

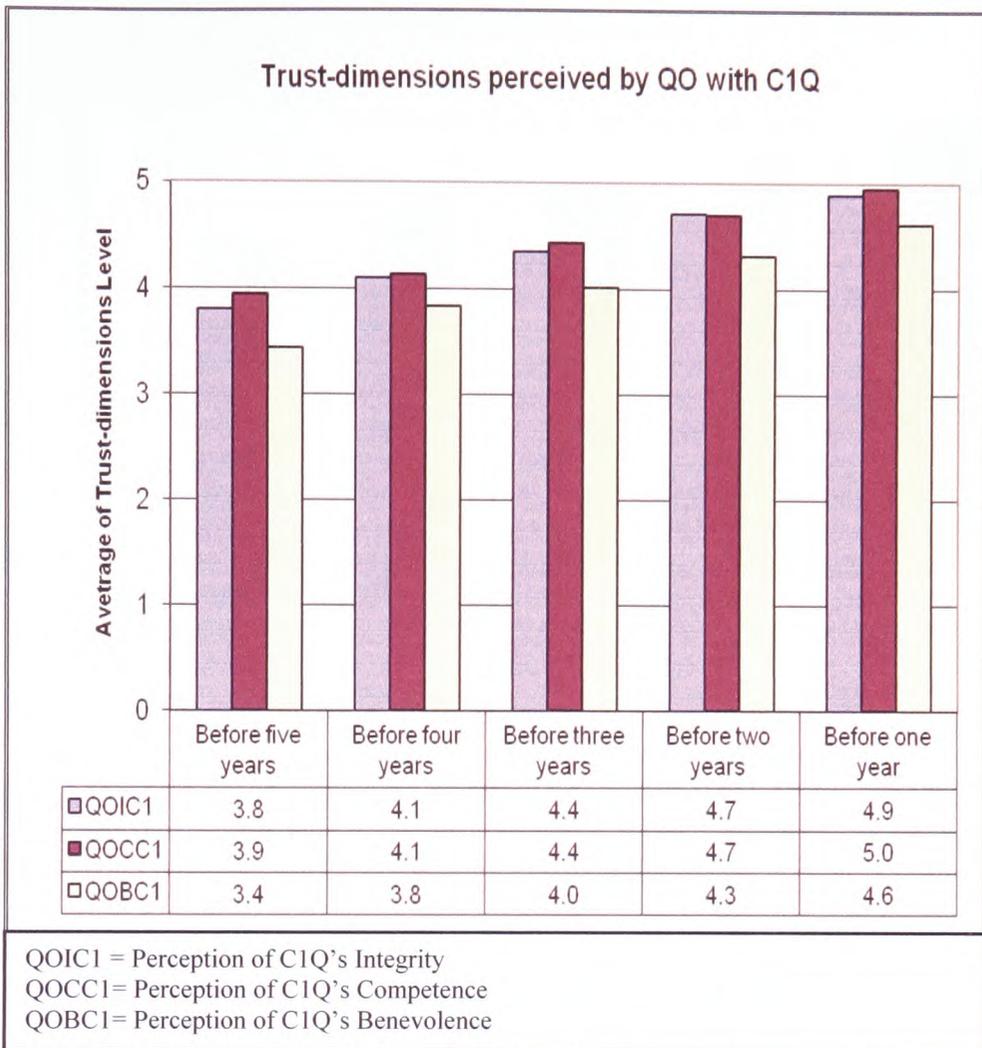
situations happened to S2Q concerning its products distribution and market recession, wherein QO had improved its operations to underpin S2Q through following thorough distribution strategy and exerted efforts to increase its productivity to mitigate the effect on S2Q's business. S2Q's Warehouse Operations Supervisor had emphasised the perception of QO's predictability through the perception of its honesty and its attachment to S2Q relationship. In one form or another, all the participants had emphasised the perception of QO's predictability with high certainty on its adherence to S2Q.

As indicated in this analysis, the interviewees in S2Q had emphasised the perceptions of QO predictability and goodwill intentionality, which are the trustworthiness attributes that constitute the benevolence trust dimension. Therefore, QO was perceived as a benevolent supply chain party in this supply chain relationship. By considering the analysis of the relationship from both parties' perspectives, the analyses reveal that both parties had perceived each other's benevolence in this relationship. Hence, transference-based trust is identified between QO and this upstream party. Therefore, the third type of trust had existed in this relationship and both parties had dedication to each other.

## **II. Analysis Of Trust In The Supply Chain Relationships Between QO and Its Downstream Supply Chain Parties**

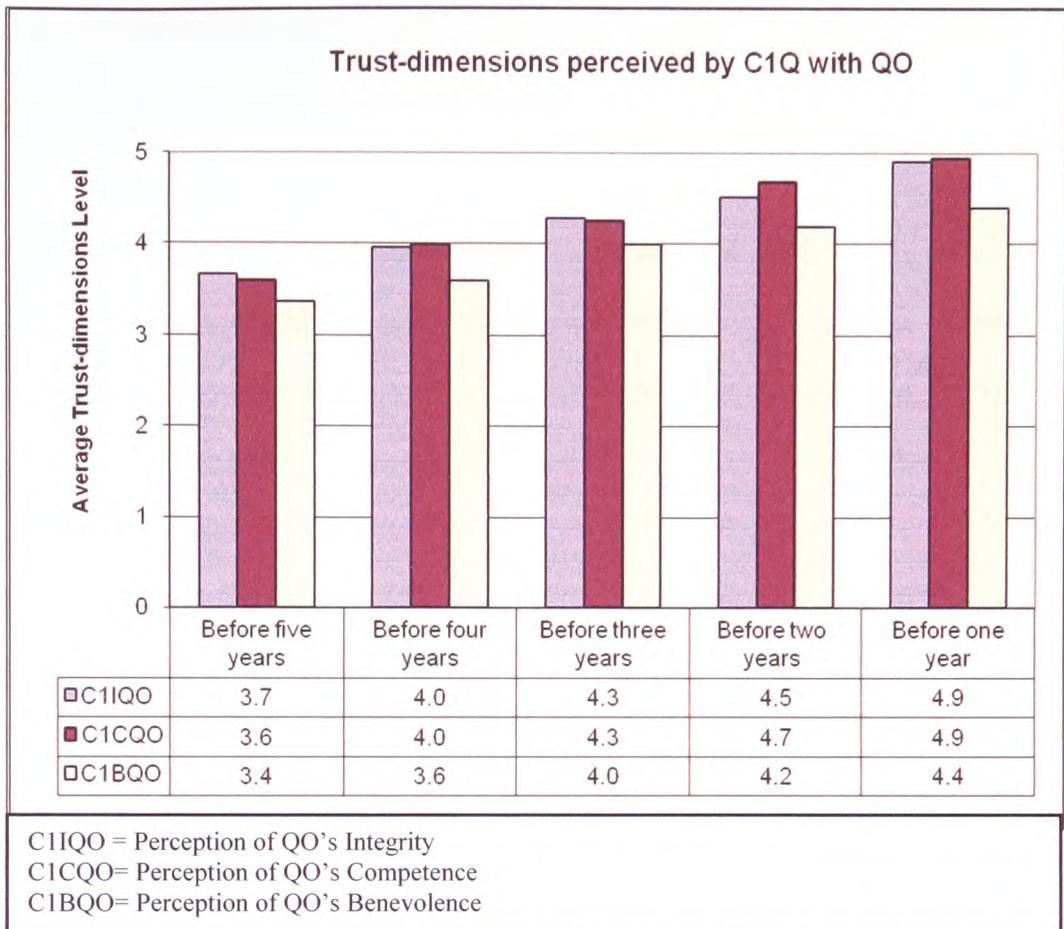
### **1. Trust In The Supply Chain Relationship Between QO and C1Q**

QO's perceptions of the trust dimensions in the relationship with C1Q were investigated and the average analysis of these perceptions has yielded the results illustrated in graph Q.5.



**Graph Q.5: Shows the trust-dimensions perceived by QO in the relationship with C1Q**

In relation to C1Q's perceptions of QO's trust dimensions the analysis has produced the results highlighted in graph Q.6 as illustrated below.



**Graph Q.6: Shows the trust-dimensions perceived by C1Q in the relationship with QO**

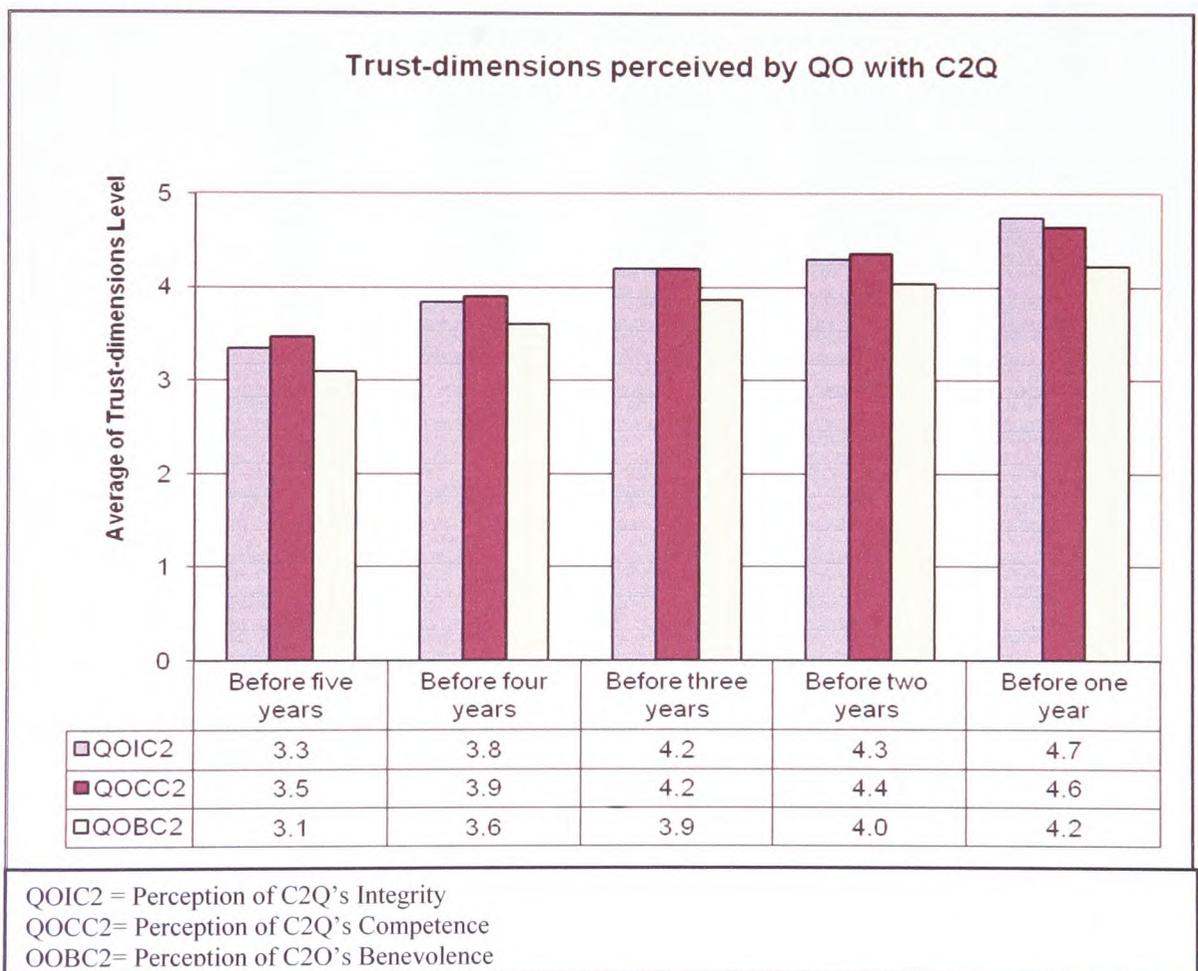
### 1. QO/C1Q & C1Q/QO

The relationship between QO and this organisation as a downstream party was investigated. Based on the relationship investigation, the participants in QO had showed no mentionable difference in the perception of this party's trustworthiness attributes as a downstream party than its relationship as an upstream party. Likewise, the participants in C1Q stressed the same perceptions of QO's trustworthiness attributes to that emphasised in the relationship when this party was interacting as an upstream supply chain party. Therefore, as indicated in the analysis of the relationship between QO and S1Q, the relationship between QO and S1Q had involved perceptions of the integrity

trust dimension from QO's and C1Q's perspectives and the calculus-based trust had existed in this supply chain relationship.

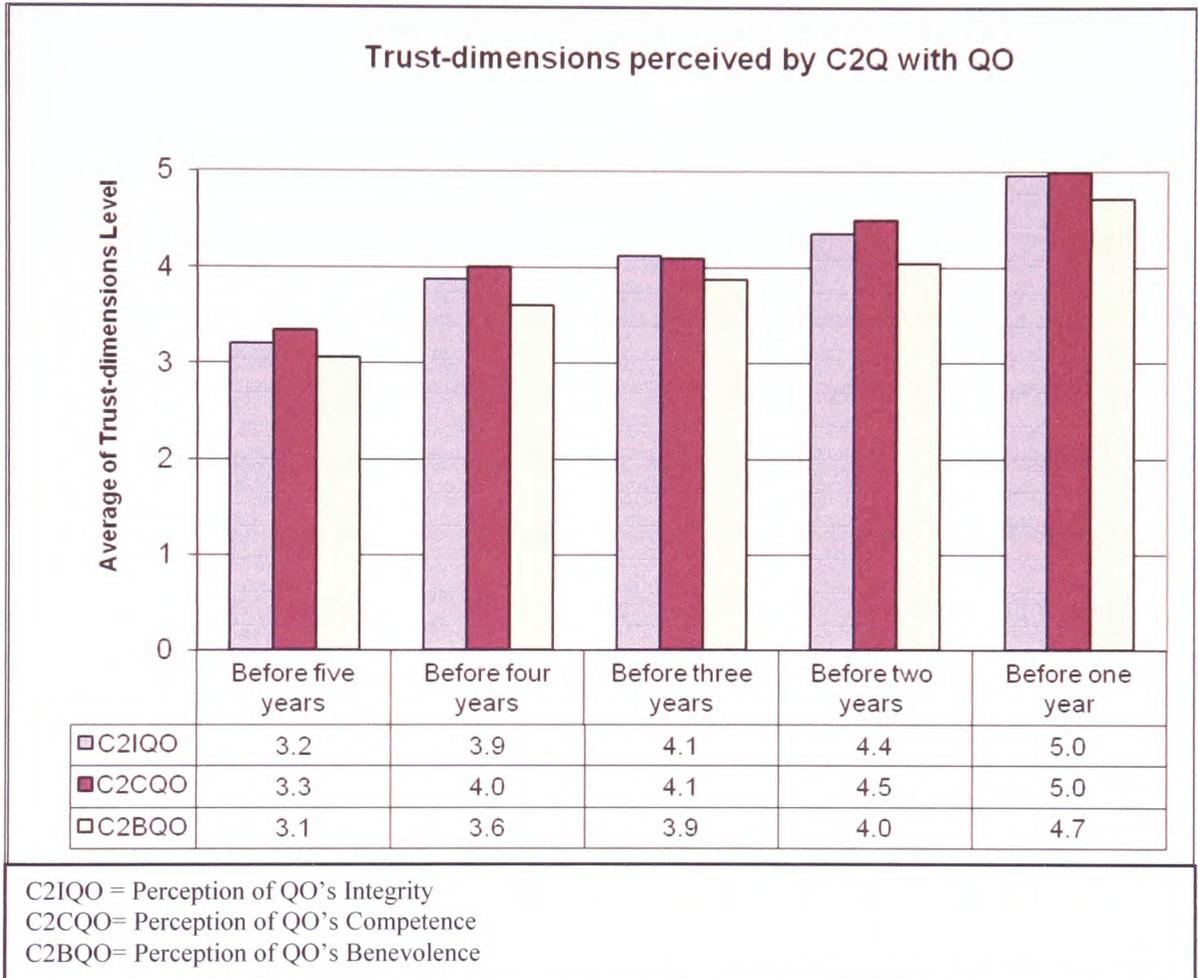
## 2. Trust In The Supply Chain Relationship Between QO and C2Q

In regard to the trust in the relationship between QO and the second downstream party, the analysis of the research data from QO's perspective has indicated the results highlighted in graph Q.7.



**Graph Q.7: Shows the trust-dimensions perceived by QO in the relationship with C2Q**

Concerning C2Q's perceptions of QO's trust dimensions in this supply chain relationship, the results obtained from the analysis of the research data are illustrated in graph Q.8.



**Graph Q.8: Shows the trust-dimensions perceived by C2Q in the relationship with QO**

### **A. Integrity Between QO and C2Q**

The relationship between QO and C2Q was investigated for perception of trustworthiness attributes that constitutes the integrity trust dimension. Initiating the analysis from QO's perspective of C2Q's trustworthiness attributes and concerning C2Q's honesty, the participants in QO had emphasised the perception of C2Q's honesty throughout the supply chain relationship. They

highlighted C2Q's honesty through its frank feedback, open discussion and the most important as expressed by QO's Procurement and Logistics Manager was its systematic payment that had always been approved in accordance with its promises of the fulfilment of its financial duties. In addition, the participants emphasised the perception of C2Q's fairness. C2Q's fairness was demonstrated in form of its fair price negotiation and its understanding of QO's efforts in rendering demanded product quality and quantities. Moreover, its fairness was highlighted by QO's Procurement and Logistics Manager through its past behaviour where it had showed consideration QO's operations dimensions and demanded lead times that suit QO's operations. Furthermore, QO's Warehouse Operations Manager had emphasised the perception of C2Q's fairness through its fair behaviour in this relationship, in which it had adhered to product-care instructions provided by QO to avoid cause of deterioration that QO would be blamed for. Foremost, all the participants emphasised the perception of C2Q's fairness in this relationship.

The participants also emphasised the perception of C2Q's commitment to QO's products and relationship. This perception was emphasised through the repeated interactions with QO and C2Q's appreciation that was viewed as indicative of its satisfaction.

In relation, the participants indicated strong link between the length of the supply chain relationship and the development of C2Q's commitment. They indicated that the repeated interactions with this downstream party had helped them to reveal its attachment to the relationship and hereby it had created an image of itself as a committed party. The perceptions used the perceptions of

C2Q's honesty and fairness to emphasise perception of QO's credibility. They stressed this perception through their explicit of confidence in this downstream party. In this respect, QO's Marketing Manager and QO's Technical Services Engineer had expressed this perception through C2Q's honesty. While QO's Procurement and Logistics Manager indicated this perception by stating:

***“C2Q’s credibility is significant for the success of the relationship with this downstream party because QO has engagements with this party on basis of immediate and postponed agreements and it was fulfilling its duties as have been agreed without deviation.”***

Based on the perceived credibility, all the participants emphasised confidence in dealing with this downstream party.

The integrity trust dimension was revealed in QO's perception of C2Q's relationship. Therefore, it is obvious that QO in this relationship had perceived C2Q's integrity.

QO's supply chain relationship with C2Q was investigated from C2Q's point of view. The interviewees in C2Q stressed perceptions of trustworthiness attributes that comprise QO's integrity. In expressing this trust dimension, the participants emphasised perception of QO's honesty. This perception was emphasised through QO's past behaviour in the fulfilment of its promises in regard to the quality of its products, the conditions of materials delivery in regard to agreed terms and quantities in which had always delivered them as promised. Concerning the fairness trustworthiness attribute, the perception of QO's fairness was emphasised by all the participants through its openness in

discussing its capability to yield the demanded products. Moreover, C2Q's Production and Procurement Manager highlighted this perception through the manner that QO showed in reacting toward feedbacks received from C2Q, especially when the feedback was involve critique of some aspects in QO's delivered products. This participate indicated that QO had reacted fairly and in justice. Furthermore, C2Q's Finance and Administration Manager stressed QO's fairness through fair prices of its products, fair behaviour it displayed in compensating C2Q for unintended defects if any were found in its products.

The interviewees also emphasised perception of QO's commitment in this relationship. This perception was indicated through QO's adherence to its promises, keeping awareness of its new modified chemical products that could be more helpful for C2Q's operations, its interest in C2Q's feedback and modifications it adopted in its process, its consideration of C2Q's need, its open communications with C2Q and through continual motives it had provided in form of professional advices to improve C2Q's processes. Additionally the participants stressed perception of QO's credibility in this supply chain relationship. QO's honesty and its commitment to its honesty was emphasised by the interviewees as a major reason for the perception of QO's credibility. Based on the perception of QO's credibility, they emphasised that QO was a dependable organisation and worth C2Q's confidence in this supply chain relationship. The participants indicated that the perception of QO's credibility was developed on basis of repeated interactions with QO and was reinforced as a standard in this relationship through QO's addiction to this likely behaviour.

As indicated above, the perceptions that were emphasised by the interviewees stress the perception of QO's integrity in this supply chain relationship. Therefore, by recalling the results of analysing of the relationship from QO's point of view and considering the analyses of the relationship from the perspectives of both parties, the integrity trust dimension is identifiable in the relationship between QO and C2Q. Therefore, the calculus-based trust had existed in this relationship and both QO and C2Q had trust in each other on basis of this trust type.

## **B. Competency Between QO and C2Q**

In the search for perception of C2Q's competency, the interviewees in QO emphasised the perception of C2Q's expertise. This expertise was highlighted through C2Q's ability to use QO's products and transform them into products that were able to attract high demand in the market. The participants emphasised to C2Q's expertise through the diversified products it had produced and the distribution channels that it had created to market its products. Moreover, C2Q's expertise was emphasised through C2Q's skills and experiences that it had demonstrated throughout the relationship, in which it was able to handle the supply chain activities in a manner that suited QO.

Enforcing the perception of C2Q's expertise, the interviewees emphasised C2Q's expertise in the approach that it followed in fulfilling its financial obligations, its sound marketing programmes and its expertise that resulted the innovation of in new products and creation of a need in the market that attracted new customers for its new products and eventually ensured continuation of demand for QO's products. Furthermore, the interviews highlighted C2Q's

expertise through specifications that it had provided related to the chemical materials it require, in which it had described the intended usage of the materials, which allowed QO to consider this aspect during its manufacturing processes. In addition, they highlighted C2Q's expertise on basis of sophisticated knowledge it apply in its inventory control.

The participants had emphasised perception of C2Q's ability and highlighted this perception through QO's ability to fulfil its financial duties and its ability to make a use of QO's products. Moreover, its ability in form of its capabilities and assets its own was indicated to had a major contribution in the continuation of the relationship. The participants pointed to C2Q's expertise in form of its perceived ability in this relationship. Moreover, they stressed C2Q's consistency on basis of its continual achievement in this relationship. C2Q's consistency was stressed in form of the resemblance in its behaviour in fulfilling its obligations in this relationship and through its regularity of functioning in this supply chain. Based on this consistency, the participants emphasised the perception of C2Q's dependability and consequently its reliability in this supply chain.

Concerning the development of the perceived trustworthiness attributes in this relationship, all the interviewees emphasised that these perceptions were developed in the relationship through repeated interactions with C2Q and perceived on basis of C2Q's consistent behaviour.

Based on this analysis of C2Q's relationship with QO it is obvious that the participants had determined perceptions of the trustworthiness attributes that

constitute C2Q's competency. Hence, from QO's point of view, C2Q was perceived as a competent downstream party in this supply chain relationship. In order to consider existence of knowledge-based trust in this relationship, the relationship will be analysed from C2Q's point of view to determine whether or not this downstream party perceived QO's competency in this relationship. This analysis is provided in the following section.

During the investigation of the relationship from C2Q's points of views, the participants emphasised perceptions of trustworthiness attributes that constitute QO's competency in this supply chain relationship. These attributes were QO's ability, expertise, consistency and reliability. The participants emphasised QO's ability through its productivity and its capabilities to fulfil C2Q's demands. Its expertise was emphasised through the quality of its products and its ability to produce with relentless improvement in its operations, which had allowed it to provide its products with competitive prices reasonable to C2Q's operations. Furthermore, the participants emphasised QO's expertise in form of its ability to produce products in accordance with C2Q's specifications. In addition, they stressed the perception of QO's expertise through its cycle time involved in its operations and its satisfactory lead times that had characterised its delivery schedules, which were embedding C2Q's expectations.

Concerning the consistency trustworthiness attribute, the participants had emphasised QO's consistency throughout this supply chain relationship. This consistency was highlighted through QO's steady behaviour where it had performed in a constant behaviour that enabled C2Q to anticipate QO's manner of interactions. Moreover, the participants stressed the perception of QO's

reliability on basis of its affable behaviour that it demonstrated in accomplishing its obligations in accordance with C2Q's expectations.

The indicated perceptions emphasised by the interviewees, as shown in this analysis of the relationship, assure the perception of QO's competency. Therefore, as it has been explicated in the analysis of the relationship from QO's point of view, similar perception was revealed in this analysis from C2Q's point of view reflecting QO's competency. Therefore, both QO and C2Q had perceived the competency trust dimension in this relationship and, hence, knowledge-based trust is identified in this relationship. Thereby, the second type of trust was in existence in this supply chain relationship. The next section considers QO's relationship with this party for trustworthiness attribute that compromise the third type of trust, which is the transference-based trust.

## **C. Benevolence Between QO and C2Q**

### **1. QO/C2Q**

In investigation for existence of transference-based trust between QO and C2Q, the relationship was investigated from both parties' perceptions. Considering QO's perceptions of this relationship, the participants stressed perceptions of the trustworthiness attributes that represent C2Q's benevolence. Highlighting these perceptions, the participants emphasised the perception of C2Q's goodwill intentionality in this relationship. C2Q's goodwill intentionality was highlighted by the interviewees through C2Q's loyalty to the relationship and its likely attitude in executing its promises in this relationship. Moreover, the participants emphasised the perception of C2Q's predictability on basis of C2Q's regularity

of interactions in this supply chain relationship. QO's Marketing Manager had emphasised this perception by stating:

***“QO has built firm relationship with C2Q with incessant interactions involving exchange of benefits and sharing of situations stressful and pleasurable, risky and safe, good and bad and C2Q's reactions in these situations were helpful and emits trendiness of homage. This makes C2Q predictable and expected to act in similar attitude convenient and considerate to QO's relationship.”***

The marketing manager statement involves perception of C2Q's goodwill intentionality and shows that C2Q predictability had evolved from this perception. Foremost, all the interviewees had stressed the perceptions of these trustworthiness attributes and indicated the development of these perceptions in this relationship to frequent deals occurred with C2Q along the supply chain relationship.

The perceptions of C2Q's goodwill intentionality and predictability indicate that C2Q's benevolence was perceived by QO in this supply chain relationship. Therefore, from QO's point of view C2Q was perceived as a benevolent party in this supply chain relationship. The next section provides analysis of the relationship from C2Q's point of view in regard to the perception of this trustworthiness attribute in QO's behaviour of interaction.

Regarding C2Q's perception of QO's relationship, the interviewees in C2Q had assured perceptions of the trustworthiness attributes responsible for the perception of QO's benevolence, which are QO's goodwill intentionality and QO's predictability. Regarding the former trustworthiness attribute, which is

QO's goodwill intentionality, the participants asserted this perception through QO's tolerance throughout this supply chain relationship. In this respect, the participants emphasised that QO was considerate party that showed understanding of C2Q's needs and had helped C2Q to overcome obstacles related to its performance in the supply chain in the aspects of inventory control and interchanged information along the supply chain. Concerning this aspect the interviewees highlighted training programmes that were conducted by QO to train C2Q's personnel to handle the supply chain processes in a more effective manner.

Moreover, the interviewees emphasised QO's goodwill intentionality through the special prices it offers to C2Q where it had supplied its high quality products at competitive prices. Additionally, the participants stressed the perception of QO's goodwill intentionality through continuous support it displayed to help C2Q's operations. According to the interviewees, QO had provided financial supports based on agreements between QO and C2Q to expand C2Q's capabilities and enhance its productivity in the market. The participants highlight to mutual benefit gained from these financial supports, in which C2Q had achieved high productivity rate that enhanced raised its demand of chemical materials from QO. This obviously clarifies the involvement of QO and C2Q in a win-win relationship that serves both parties concerns. Additionally, the participants emphasised QO's goodwill intentionality through its provision of expertise and skills when demanded by C2Q and through QO's continuous concern of C2Q's performance.

Regarding the later trustworthiness attribute, the interviewees had stressed QO's predictability through confidence in this downstream party developed throughout the supply chain relationship on basis of repeated dealings with QO.

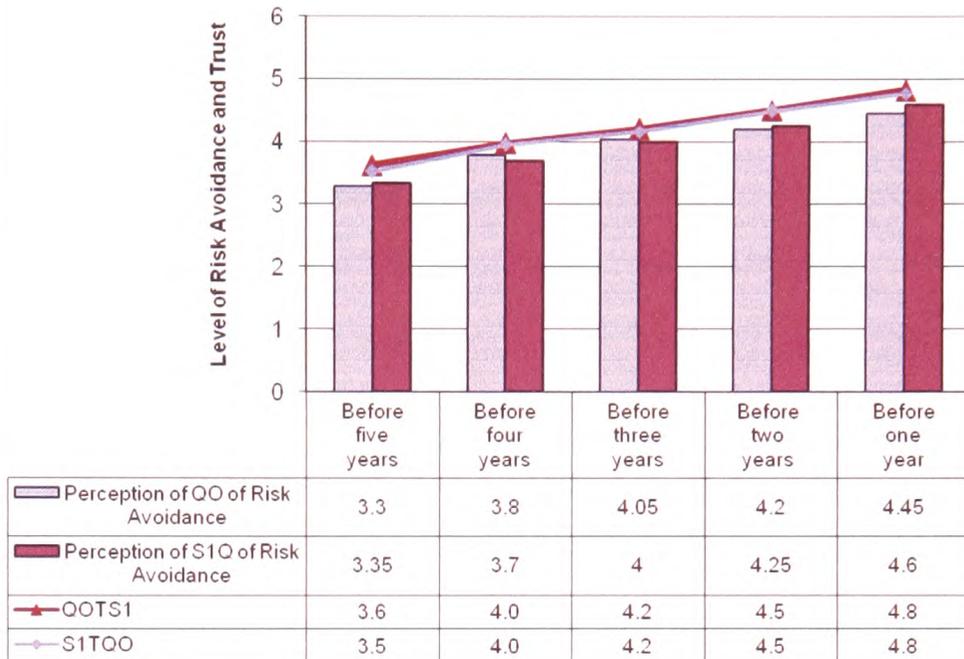
Based on this analysis of the relationship from C2Q's point of view, it is obvious that C2Q had perceived QO's benevolence in this supply chain relationship. Therefore, to the analyses of the relationship from QO/C2Q perspective and from C2Q/QO perspective, clarify the existence of transference-based trust between QO and C2Q in this supply chain relationship.

### **III. Analysis Of QO's Supply Chain Performance In Each Range Of The Supply Chain In Relation To Trust**

#### **1. Risk Avoidance**

The analysis of the level of risk avoidance in relation to the identified trust between QO and S1Q has produced the results highlighted in graph Q.9.

The Relation between the Risk Avoidance and Trust in the Supply Chain Range between QO and S1Q



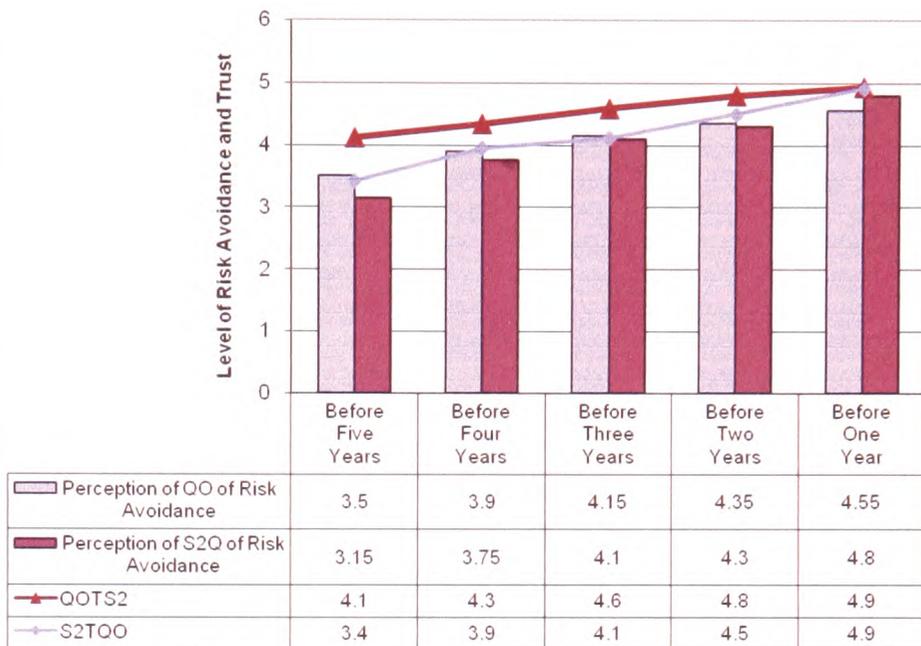
QOTS1 = QO's Perceptions of S1Q's Trustworthiness Attributes  
 S1TQO = S1Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.9:** Shows the relation between the risk avoidance in relation to the trust in the supply chain relationship between QO and S1Q

The above graph indicates interconnection occurred between the trust and the risk avoidance in the supply chain range between QO and S1Q. As shown in the graph, the perception of trust in each year was displayed equally from QO and S1Q perspectives where the trust lines highlighted in the graph are perfectly overlap all through the five years. Similarly the perception of risk avoidance was revealed in consistent to the trust development, which emphasises existence of parallelism between the trust development and risk avoidance. Regardless, the minor difference of the perception of risk avoidance between QO's perception and S1Q's perception, as highlighted by the graph in the before one year, the risk avoidance was perceived highly than in the previous years and in consistent with the trust development in the relationship.

In relation to the risk avoidance in the second range of the supply chain, the results of the average analysis are demonstrated in graph Q.10. As illustrated by the graph, there was difference in the perception of the level of trust in the supply chain relationship in the before five years until the before two years and a consequent difference in the perception of the risk avoidance had happened where QO has perceived the risk avoidance highly than the perceptions revealed by S2Q in all the mentioned four years. This indicates S2Q's had interacted with high trustworthiness attributes that resulted in the higher perception of S1Q's trust in this relationship than that displayed by QO in this period. Accordingly, the trust displayed by S2Q had underpinned QO to avoid supply chain risk. In contrast, in the before one year indicated in the graph, the trust was perceived in a concurrent manner from QO's perspective and from S2Q's perspective. In this specific year the risk avoidance was perceived highly from S2Q's point of view, which indicates that the trustworthiness attributes displayed by QO in this year had helped S2Q to hedge against the supply chain risk and achieve efficacy in this aspect (see graph Q.10).

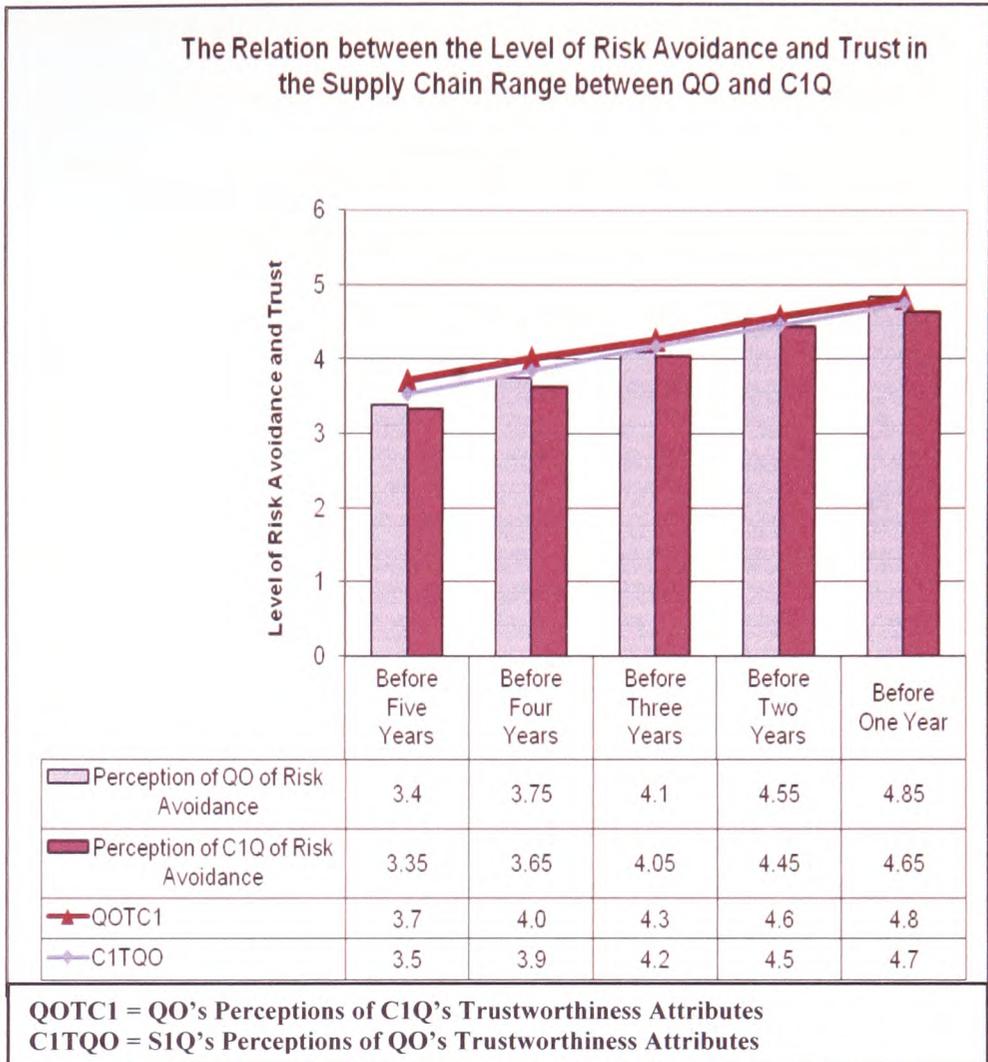
The Relation between Risk Avoidance and Trust in the Supply Chain Range between QO and S2Q



QOTS2 = QO's Perceptions of S2Q's Trustworthiness Attributes  
 S2TQO = S2Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.10: Shows the relation between the risk avoidance in relation to the trust in the supply chain relationship between QO and S2Q**

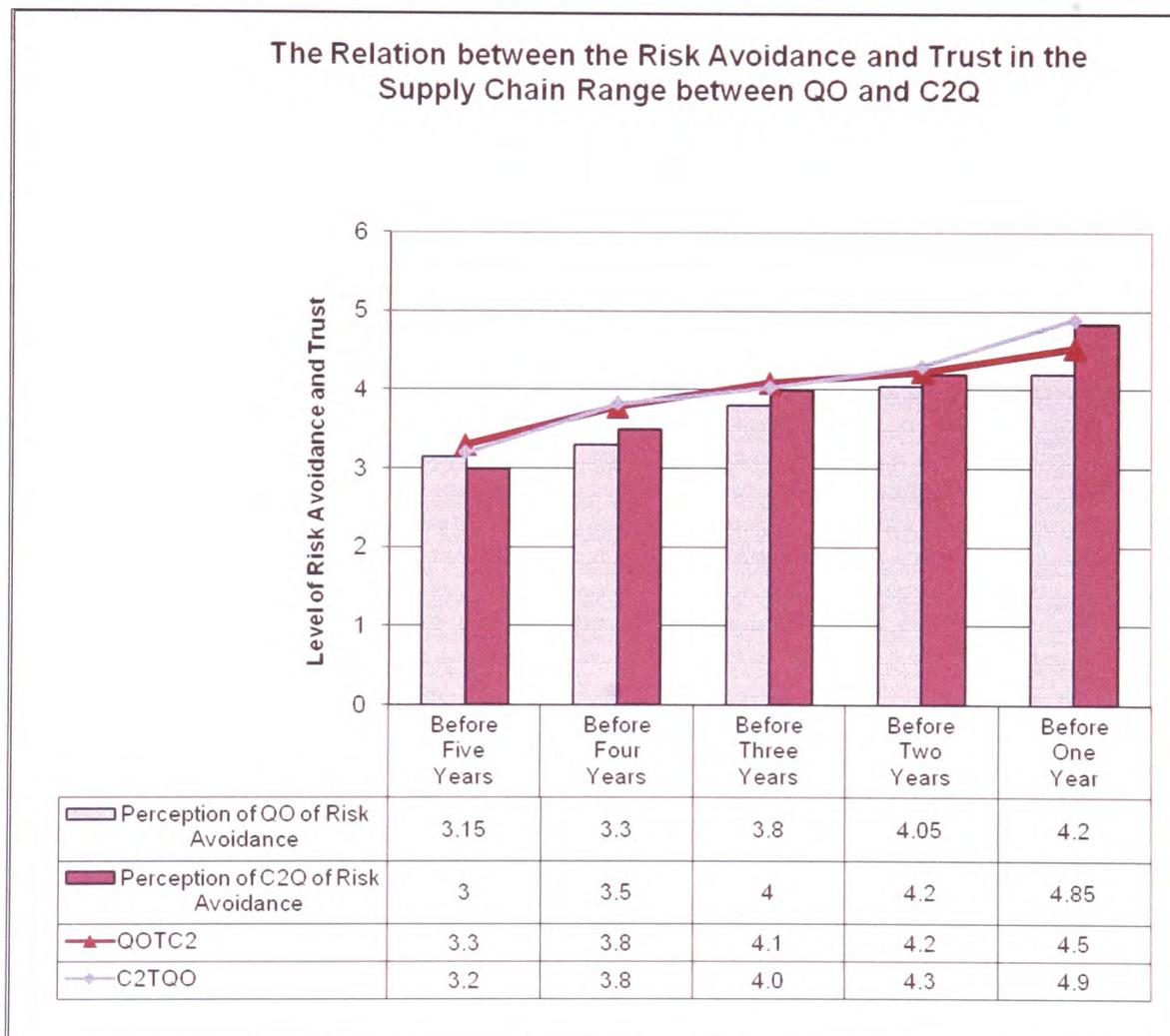
Regarding the risk avoidance in the supply chain ranges between QO and the downstream parties, the average analysis of the research data in regard to QO's relationship with C1Q, has yielded similar results to the ones demonstrated in the relationship between QO and S1Q. The average analysis results of this range are illustrated in graph Q.11.



**Graph Q.11: Shows the relation between the risk avoidance in relation to the trust in the supply chain relationship between QO and C1Q**

The above graph, shows proportional relationship between the risk avoidance achieved by QO and C1Q and the trust in this supply chain relationship. Concerning the risk avoidance in the fourth range of QO's supply chain, the results of the average analysis of the research data are highlighted in graph Q.12. This graph shows that, in the before one year till in the before four years, the trust between QO and C2Q had concurrently developed in the relationship. Consequently, correspondent improvement in the risk avoidance has happened over this period. However, in the before one year, minor difference had occurred

in the trust perception, as C2Q had perceived higher trust from QO in this year. Accordingly, the graph shows that in this particular year C2Q had perceived higher increment in the trust avoidance than in the previous year with a difference of 0.65, while QO had perceived less risk avoidance in this year with an incremental difference of 0.15 than in the previous year. This emphasises the role that the trust has on QO's supply chain risk avoidance.



**Graph Q.12: Shows the relation between the risk avoidance in relation to the trust in the supply chain relationship between QO and C2Q**

Referring to the relationship identified between the trust and the risk avoidance in the relationship between QO and C1Q, this interconnection is illustrated CXC1

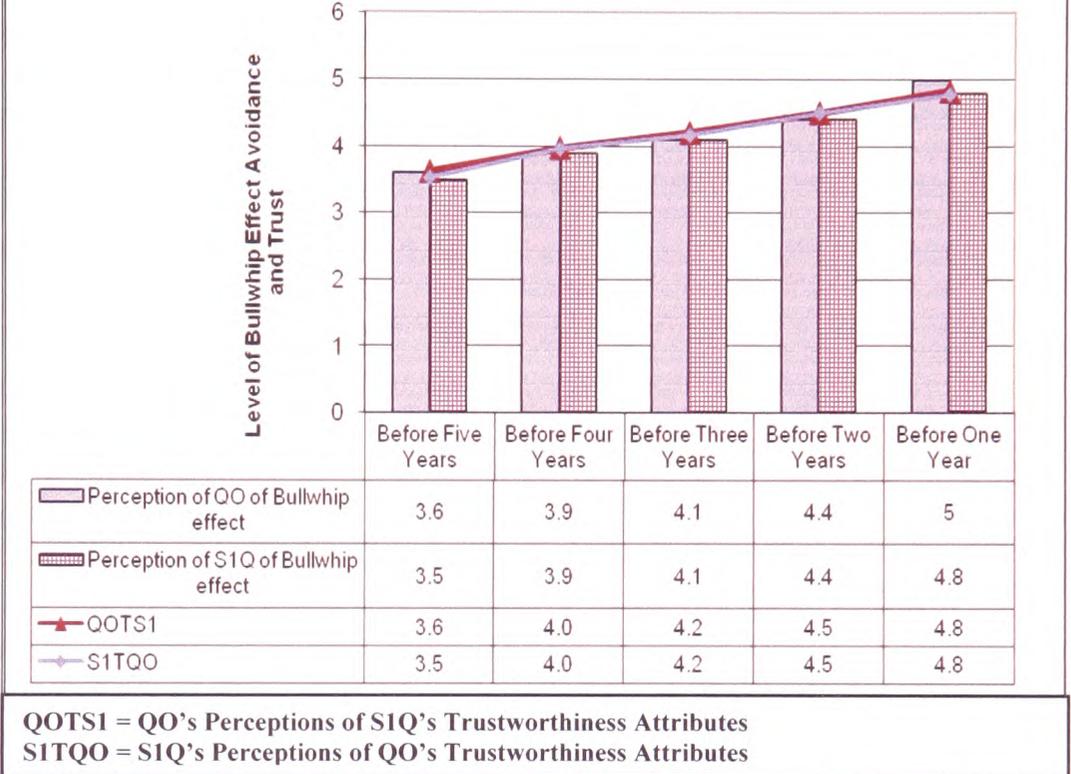
differently in graph Q.12 in the relationship between QO and C2Q. Even though the risk avoidance had improved with the trust development in the relationship, it did not improve in a proportional manner with the trust development (see graph Q.12). This identifies that higher probability of steady improvement in the supply chain could be achieved when both parties in the relationship exchange the trust in harmony, as the situation between QO and C1Q, rather than when difference in the trust exchange happens between the parties, as the case of the relationship between QO and C2Q.

Foremost, the analysis of the risk avoidance in relation to the trust between QO and each of the considered supply chain parties identifies that the trust in supply chain relationship improves the supply chain ability to withstand risk and the progression of trust in the relationship results in higher supply chain risk avoidance.

### **1. Trust Between QO and Its Supply Chain Parties and Bullwhip Effect Avoidance**

In this section, the trust between QO and its supply chain parties will be compared with the level of bullwhip effect avoidance perceived in the supply chain. The analysis will consider the performance of the supply chain in each individual range of QO's four supply chain ranges. Based on this comparison, correlations will be drawn between the bullwhip effect avoidance in the supply chain and the level of trust perceived in the supply chain relationship. Initiating the analysis with the bullwhip effect avoidance in the first range of the chain, the results obtained from the average analysis in relation to the trust between QO and S1Q are highlighted in graph Q.13.

The Relation between the Level of Bullwhip Effect Avoidance and Trust in the Supply Chain Range between QO and S1Q



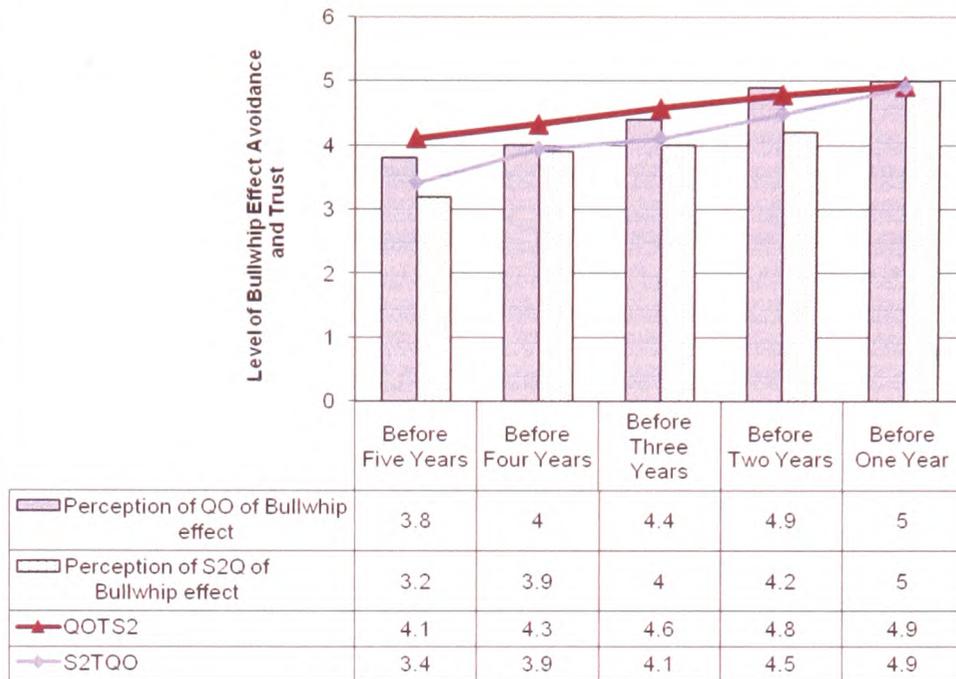
**Graph Q.13: Shows the level of bullwhip effect avoidance in relation to the trust in the supply chain relationship between QO and S1Q**

Graph Q.13, shows that the trust development over the five years of the relationships between QO and S1Q had resulted in improvement in the bullwhip effect occurrence in the supply chain. Explaining this relationship, the graph shows that in the before five years, QO has perceived the trust highly than S1Q does. Consequently, in this year, the bullwhip effect avoidance was perceived higher from QO's perspectives than the bullwhip effect avoidance perceived by S1Q. Absolutely, this indicates the perception of the consequence in regard to the position of the party in the chain. While, in the before four years till in the before one year the trust had developed in harmony in the relationship and both

parties; QO and S1Q, had perceived similar level of trust in the relationship. Consequently, gradual improvement had occurred in the bullwhip effect avoidance in accordance with the trust development. In this period both parties had perceived the achievement of similar increase the bullwhip effect avoidance in the supply chain except in the before one year. In the before one year, which is the latest year of the relationship, the upstream party had indicated less perception of the bullwhip effect avoidance than that expressed by QO. This implies that QO, particularly in the before one year of the relationship, has perceived no bullwhip effect occurrence in its supply chain, while S1Q perceived very rare bullwhip effect occurrence. Therefore, the trust in this supply chain relationships had resulted in elimination of the bullwhip effect in this range of QO's supply chain.

Regarding the bullwhip effect avoidance in the second range of the chain, the analysis of the bullwhip effect in this range in regard to the trust has yielded the results illustrated in graph Q.14.

The Relation between the Level of Bullwhip Effect Avoidance and Trust in the Supply Chain Range between QO and S2Q



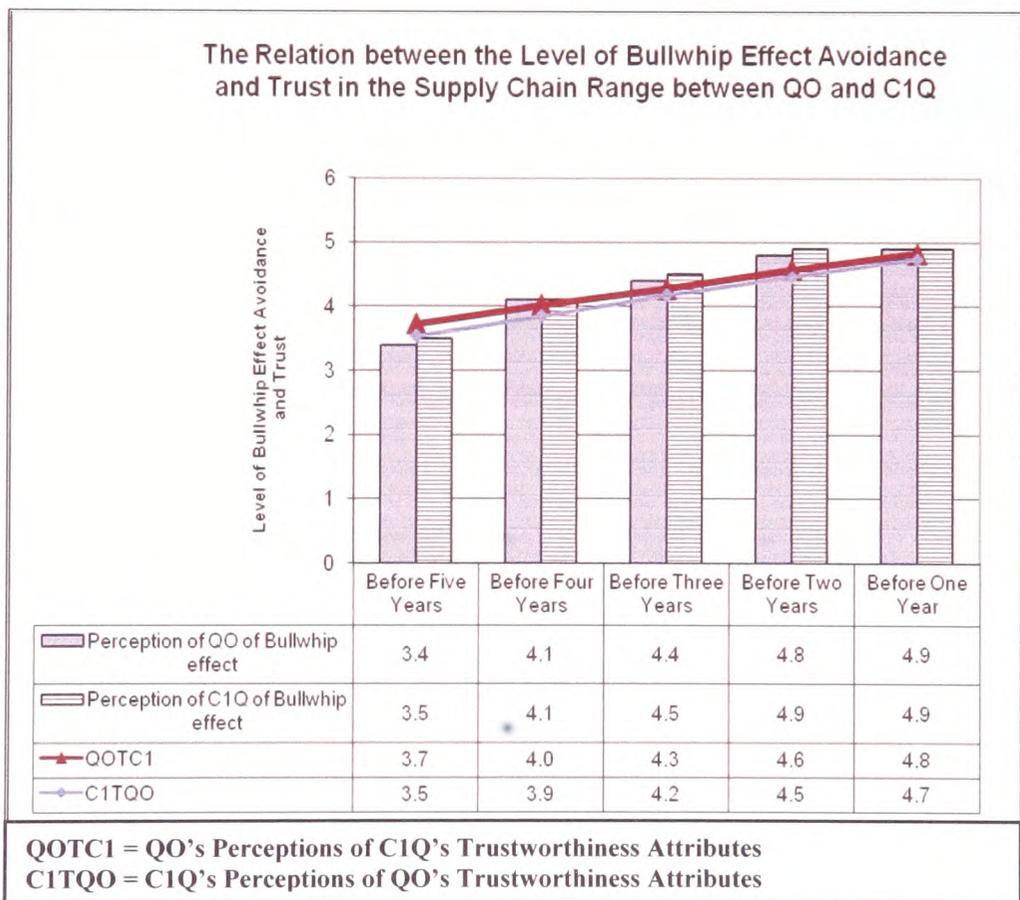
QOTS2 = QO's Perceptions of S2Q's Trustworthiness Attributes  
 S2TQO = S2Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.14: Shows the level of bullwhip effect avoidance in relation to the trust in the supply chain relationship between QO and S2Q**

The above graph shows similar relationship between the trust development and the bullwhip effect avoidance in the supply chain as identified in the analysis of the first range of this supply chain. However, in regard to the level of bullwhip effect avoidance and the trust in the supply chain relationship, from the before five years until the before two years QO had perceived S2Q's trust more than S2Q's perception of QO's trust. Accordingly, the bullwhip effect was perceived less from QO's perspective than from S2Q's perspective. In the before one year, as indicated in the graph, both QO and S2Q had perceived the same level of trust in this relationship and the bullwhip effect was perceived to be eliminated from occurrence in the supply chain. Hence, the analysis of the bullwhip effect

avoidance and the trust in this range indicates that the perception of similar high trust from both supply chain's parties in the supply chain relationship has the ability to eliminate the bullwhip effect occurrence.

Concerning the third range of QO's supply chain, which involves the relationship between QO and C1Q, the analysis of the research data in regard to the bullwhip effect avoidance in relation to the trust in this supply chain relationship has produced the results highlighted in graph Q.15.



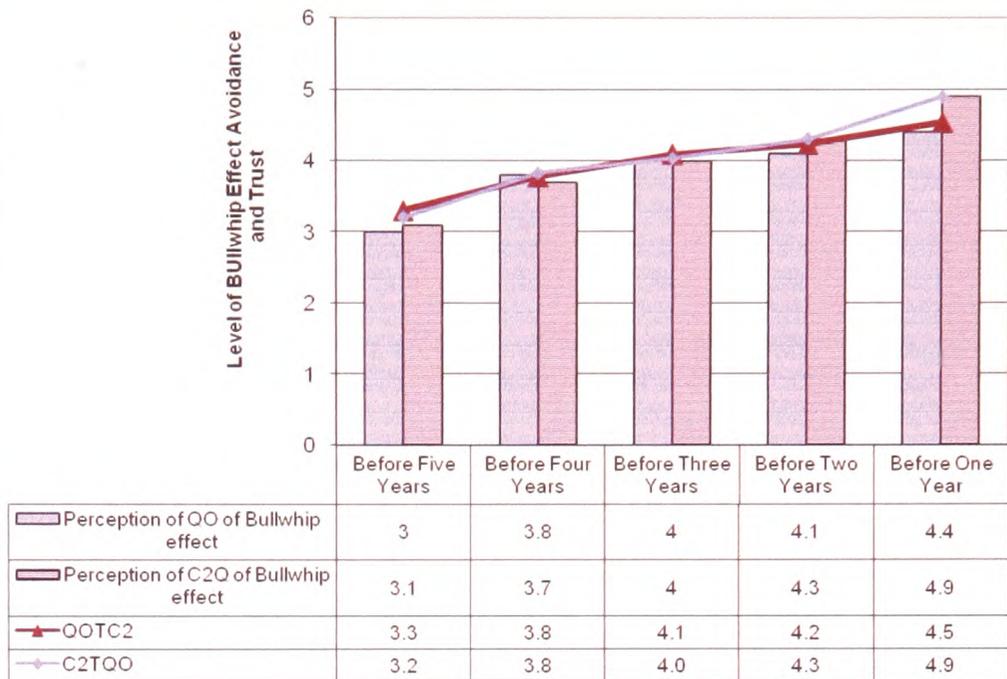
**Graph Q.15: Shows the level of bullwhip effect avoidance in relation to the trust in the supply chain relationship between QO and C1Q**

The analysis in this section aims to identify the effect of the organisation position in the supply chain and the perception of the supply chain performance when it acted as an

upstream party and when it acted as a downstream party in the chain. The results of the data analysis as highlighted in graph Q.15 shows comparable perceptions of the trust and the bullwhip effect avoidance in the relationship to that identified when this party interacted with QO as upstream party. Moreover, the results of the relationship between QO and C1Q indicates that C1Q has perceived slight higher bullwhip effect avoidance from that perceived by QO and the bullwhip effect avoidance had occurred concurrently with the trust development in the relationship. Therefore, this analysis indicates that the supply chain performance is not dependent on the party position on the supply chain but on the trust perceived in the supply chain relationship.

Regarding the relationship between QO and C2Q, which represents the fourth range of QO's supply chain, the results of the analysis, as illustrated in graph Q.16, have indicated similar relationship between the trust and the bullwhip effect avoidance to that identified in the other three ranges of this supply chain. As highlighted in the graph, the level of the bullwhip effect avoidance was perceived similarly from the perspectives of QO and C2Q along the five years of the supply chain relationship with slight higher perception from C2Q's point of view (see graph Q.16).

The Relation between the Level of Bullwhip Effect Avoidance and Trust in the Supply Chain Range between QO and C2Q



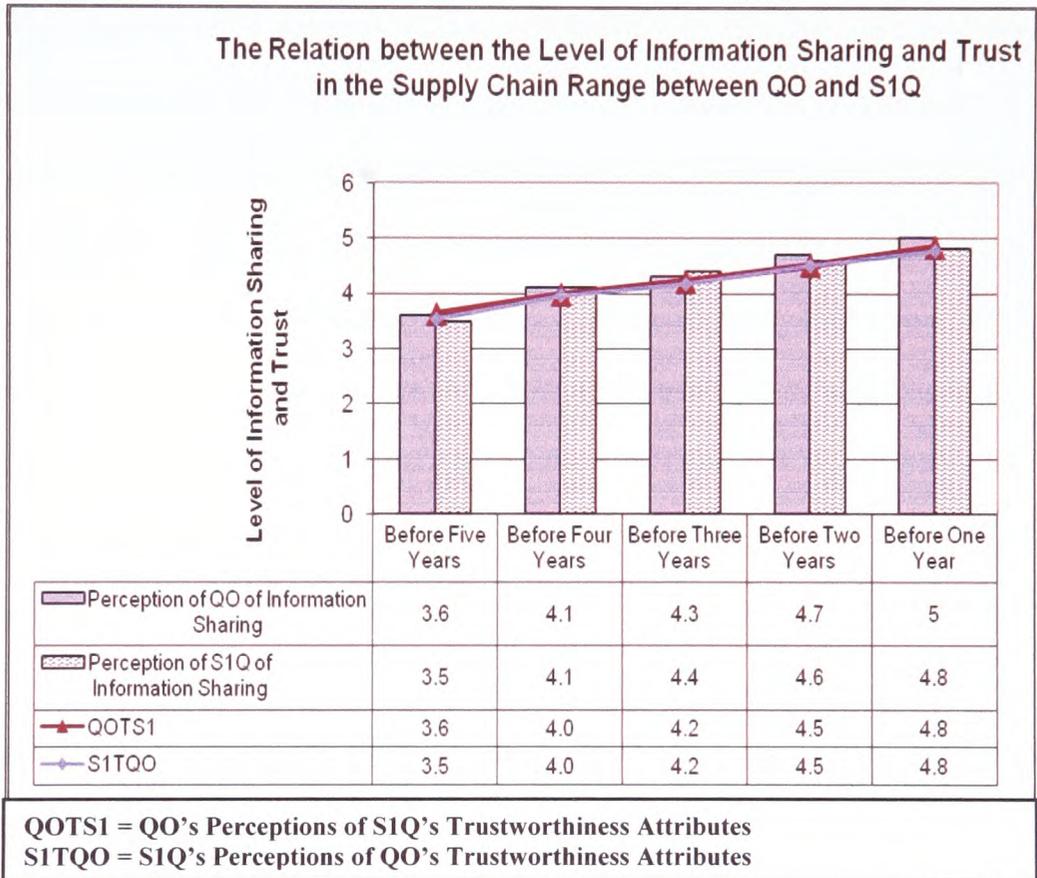
QOTC2 = QO's Perceptions of C2Q's Trustworthiness Attributes  
 C2TQO = C2Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.16: Shows the level of bullwhip effect avoidance in relation to the trust in the supply chain relationship between QO and C2Q**

The avoidance of the bullwhip effect in the supply chain had occurred in consistent comportment with the trust development in the supply chain relationship over the five years of the supply chain relationship. Hence, the analyses of the bullwhip effect avoidance in the four ranges of QO's supply chain had led to the identification of a positive impact that the trust has on the bullwhip effect avoidance, in which the development of trust in the supply chain relationships had been accompanied with improvement in the bullwhip effect avoidance.

## 2. Trust Between QO And Its Supply Chain Parties and Information Sharing

Considering the information sharing between QO and S1Q in the first range of the supply chain, the analysis of the information sharing in this range in relation to the trust in the relationship has produced the results highlighted in graph Q.17.

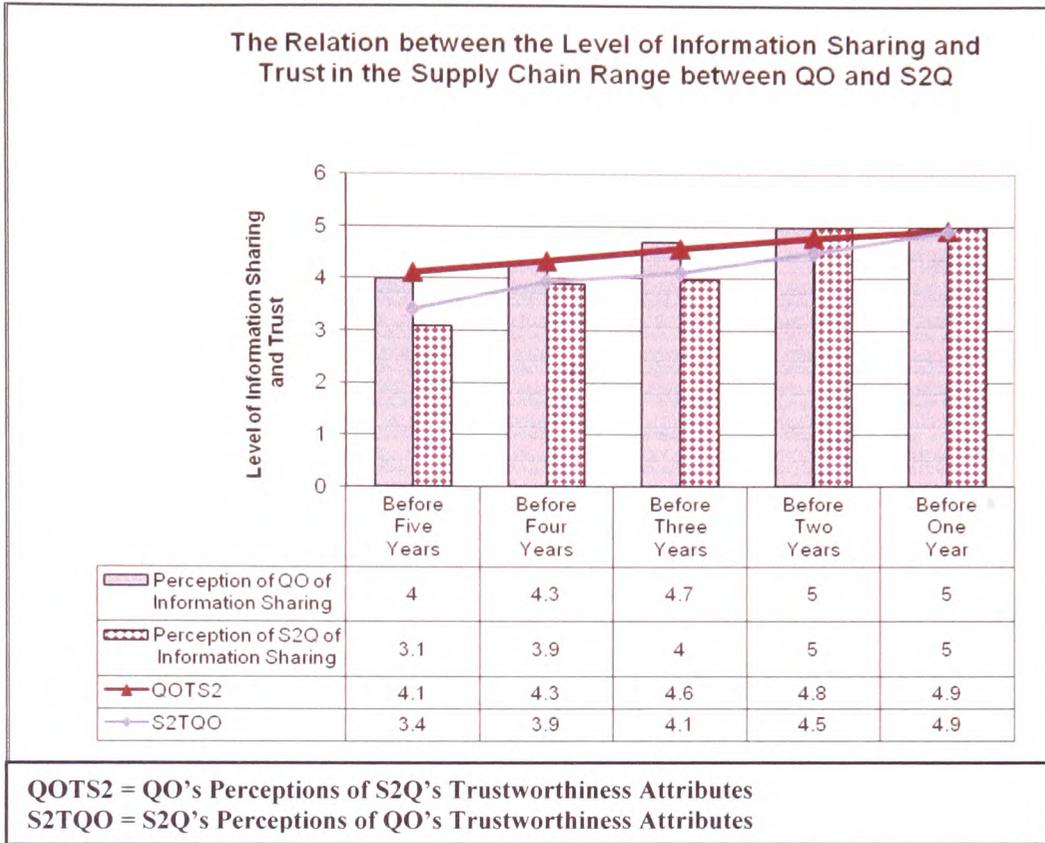


**Graph Q.17: Shows the level of information sharing in relation to the trust in the supply chain relationship between QO and S1Q**

Graph Q.17 indicates that the trust had developed along the five years of the supply chain relationship and improvement in the level of the information sharing between QO and S1Q had occurred in accordance with the trust development. The consistent connection between the trust development and the level of information sharing emphasises that the trust in this relationship encouraged QO and S1Q to share supply

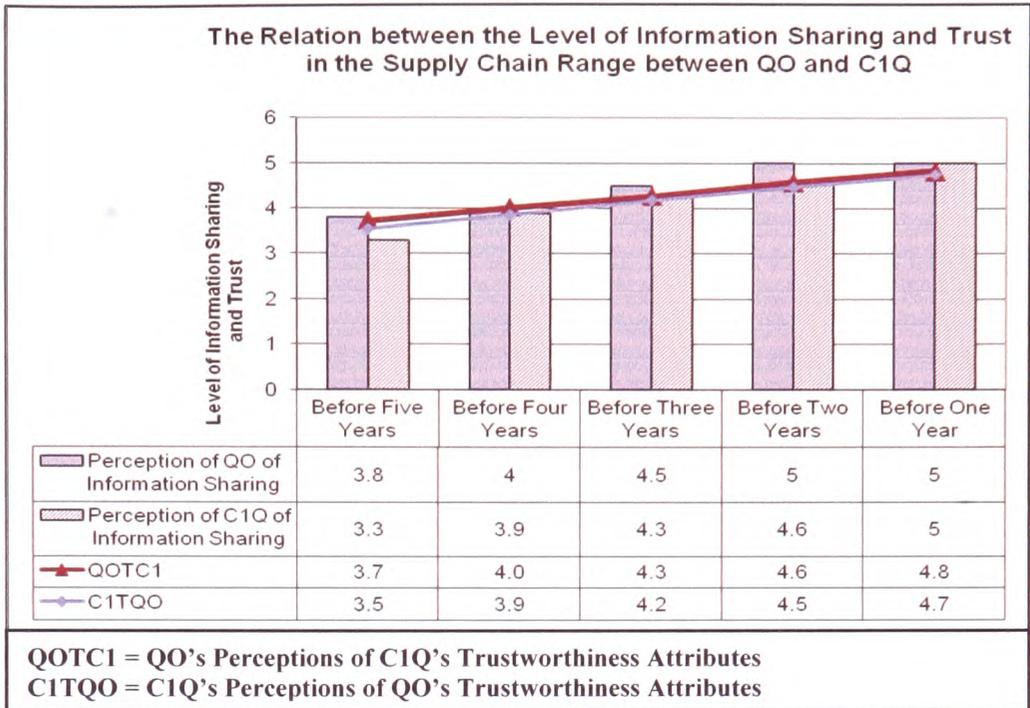
chain information. This is obviously demonstrated by the graph and particularly in the before one year, in which the trust reached to a higher level than in the previous years and a consequent higher supply chain information sharing had happened between QO and this upstream party.

Regarding the information sharing between QO and S2Q, the analysis of the research data of this range of QO's supply chain has generated the results illustrated in graph Q.18. As highlighted by this graph, in the before five years, before four years and in the before three years, QO in this supply chain relationship had perceived higher trust from S2Q's relationship than what S2Q had perceived along these three years. As a consequent, QO had perceived higher sharing of information from S2Q's side while S2Q had perceived less information sharing from QO's side, which implies that the lower trust that QO had in S2Q had effected its willingness to share information with this upstream party. While the high trust that S2Q had in QO motivated it to interact with higher supply chain information sharing. Then, in the before two years and in the before one year, the trust had reached its optimal level in this supply chain relationship and, as highlighted by the graph, optimal information sharing had occurred between QO and S2Q in these two years (see graph Q.18).



**Graph Q.18: Shows the level of information sharing in relation to the trust in the supply chain relationship between QO and S2Q**

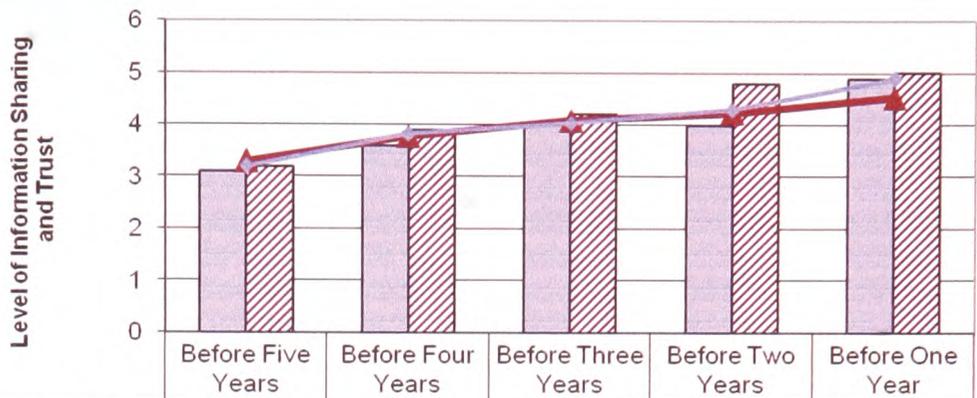
In relation to the information sharing in the third range of QO's supply chain, the results of the analysis have indicated similar relationship between the trust and the supply chain information sharing to that indentified in the relationship between QO and this party when it had interacted in the upstream relationship (S1Q). The results of the analysis of this relationship in relative to the trust in the relationship are indicated in graph Q.19.



**Graph Q.19: Shows the level of information sharing in relation to the trust in the supply chain relationship between QO and C1Q**

Considering the supply chain performance in the fourth range of QO's supply chain, the results of the analysis of the research data are illustrated in graph Q.20. The results show that throughout the five years of the relationship, C2Q had perceived high information sharing in QO's intercatins, which clarifies that QO in this relationship had initiative to exchanged information with this downstream party. Foremost, the information sharing in this supply chain relationship had improved with the deveopement of trust in the relationship over the five years highlighted in the garph. The graph emphasises that the high trust realised in the before one year had triggered QO and C2Q to show transperency in the information sharing, which relaised as optimal in this year (see graph Q.20).

The Relation between the Level of Information Sharing and Trust in the Supply Range between QO and C2Q



Perception of QO of Information Sharing	3.1	3.6	4	4	4.9
Perception of C2Q of Information Sharing	3.2	3.9	4.2	4.8	5
QOTC2	3.3	3.8	4.1	4.2	4.5
C2TQO	3.2	3.8	4.0	4.3	4.9

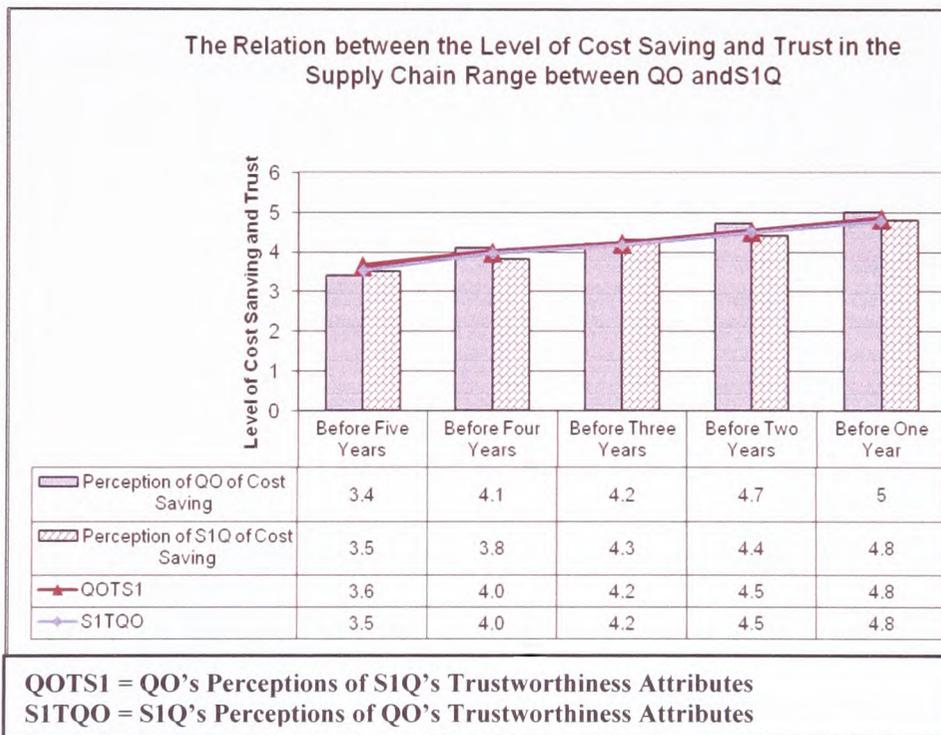
QOTC2 = QO's Perceptions of C2Q's Trustworthiness Attributes  
 C2TQO = C2Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.20: Shows the level of information sharing in relation to the trust in the supply chain relationship between QO and C2Q**

The analysis in this section has resulted in identifying that the trust has positive impact on the information sharing in QO's supply chain. Referring to the bullwhip effect analysis indicated in the previous section, concurrent relationship between the information sharing, the bullwhip effect avoidance and trust development in the supply chain relationships has been identified in this analysis. Hence, the trust in QO's supply chain relationships improved the information sharing level and consequently minimised the probability of the bullwhip effect occurrence in the chain.

### 3. Trust Between QO and Its Supply Chain Parties and Cost Saving

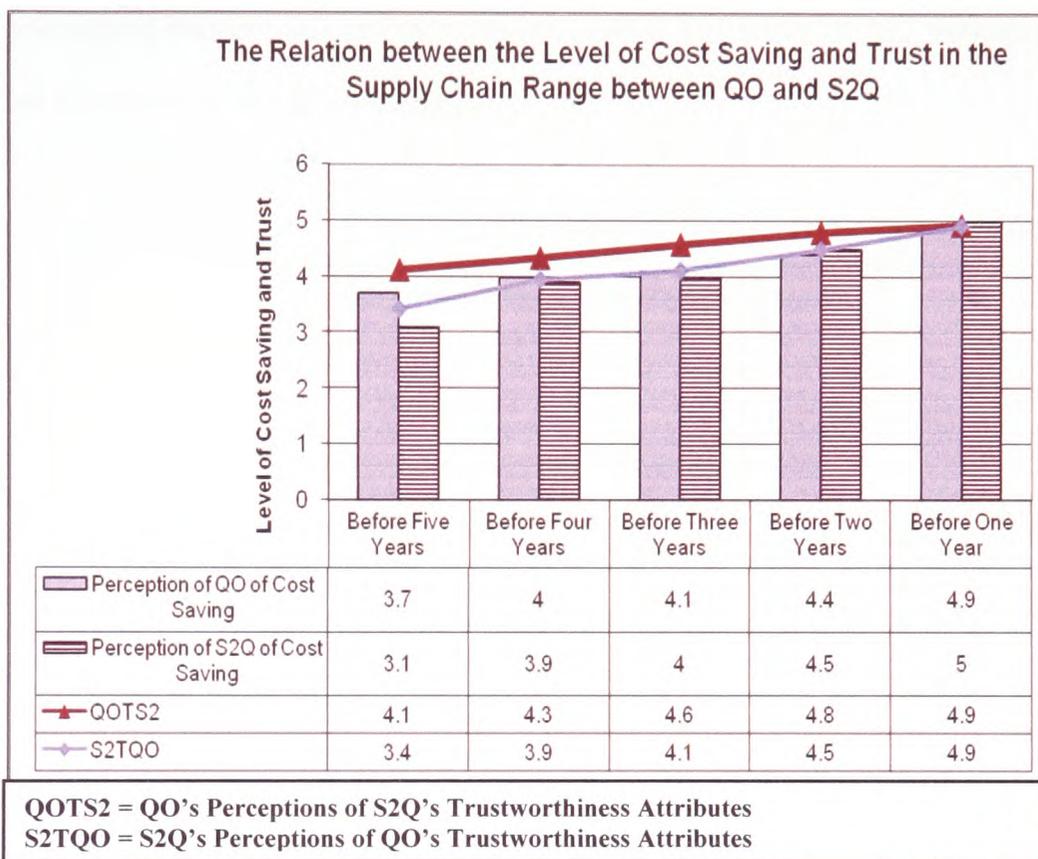
This section aims to compare the trust between QO and its supply chain parties and the level of cost saving perceived in the supply chain. Then, it draws correlation between the cost saving and the trust level perceived in the supply chain relationship. The analysis here starts with the relationship between QO and S1Q and cost saving achieved by the supply chain through this relationship. The analysis of the supply chain cost saving data maintained from the QO and S1Q has been analysed in relation to the trust in this supply chain relationship. The results of the average analysis of the research data are highlighted in graph Q.21.



**Graph Q.21: Shows the level of cost saving achieved by the supply chain in relation to the trust between QO and S1Q**

As indicated in graph Q.21, the trust development in the supply chain relationship was associated with improvement in cost saving achieved by the supply chain concurrently with the trust development. Similar relationship between the trust and the cost saving

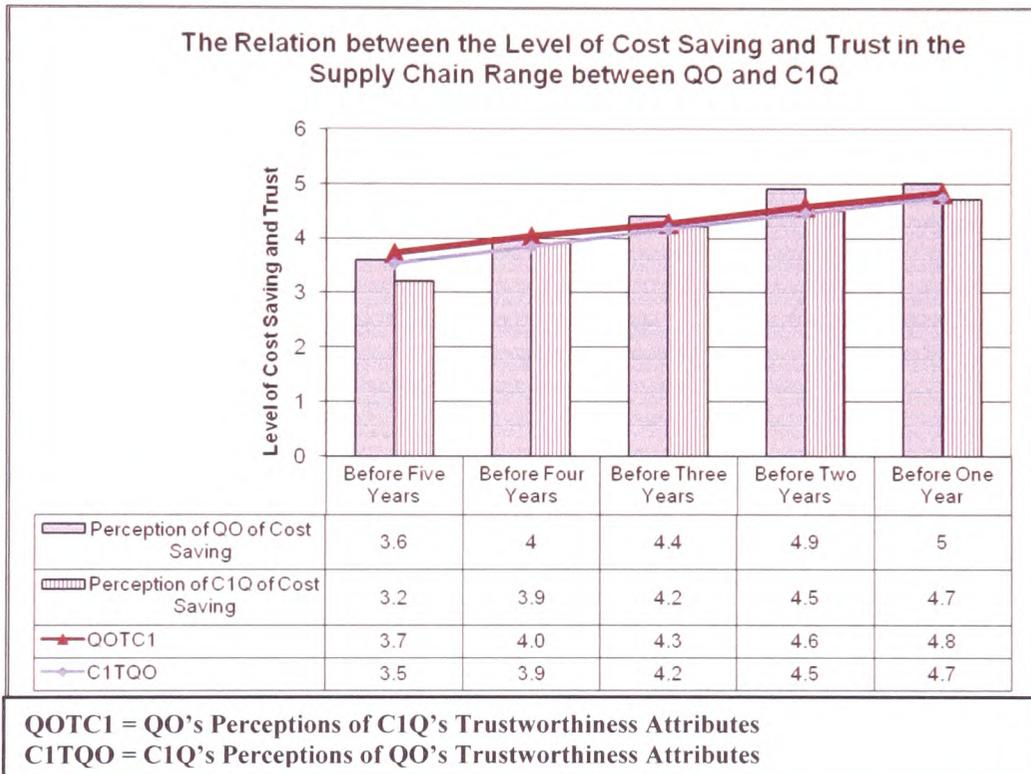
is indicated by the results of the analysis of the supply chain performance in the second range in regard to the trust between QO and S2Q as illustrated in graph Q.22.



**Graph Q.22: Shows the level of cost saving achieved by the supply chain in relation to the trust between QO and S2Q**

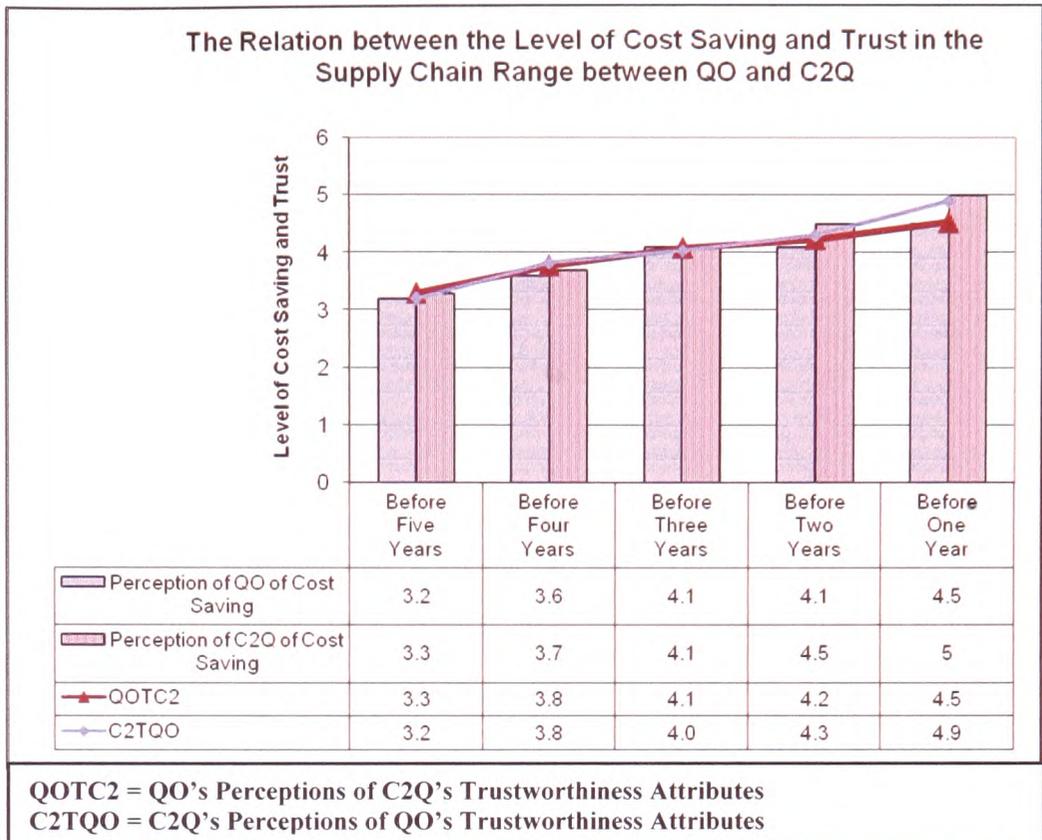
As illustrated in the above graph, in the before five years until in the before three years, QO had perceived higher cost saving occurred in its supply chain than S2Q's perception of this performance. QO's perception of the cost saving was consistent with the trust it perceived in this year, which was higher than what S2Q's perceived in the relationship with QO. In contrast, in the before four years and in the before one year, S2Q had perceived mostly similar cost saving in its supply chain relationship with QO, which occurred in accordance with the high trust developed in the supply chain relationship.

Concerning the analysis of the supply chain performance in the third range of the supply chain, the results of the analysis had indicated similar relationship between the trust and the supply chain cost saving to that identified in the relationship between QO and the upstream parties. The results of this analysis are highlighted in the following graph:



**Graph Q.23: Shows the level of cost saving achieved by the supply chain in relation to the trust between QO and C1Q**

Concerning the relationship between QO and C2Q, the analysis of the supply chain performance in the cost saving in relation to the trust occurred in the fourth range of the supply chain has yielded the results indicated in graph Q.24.



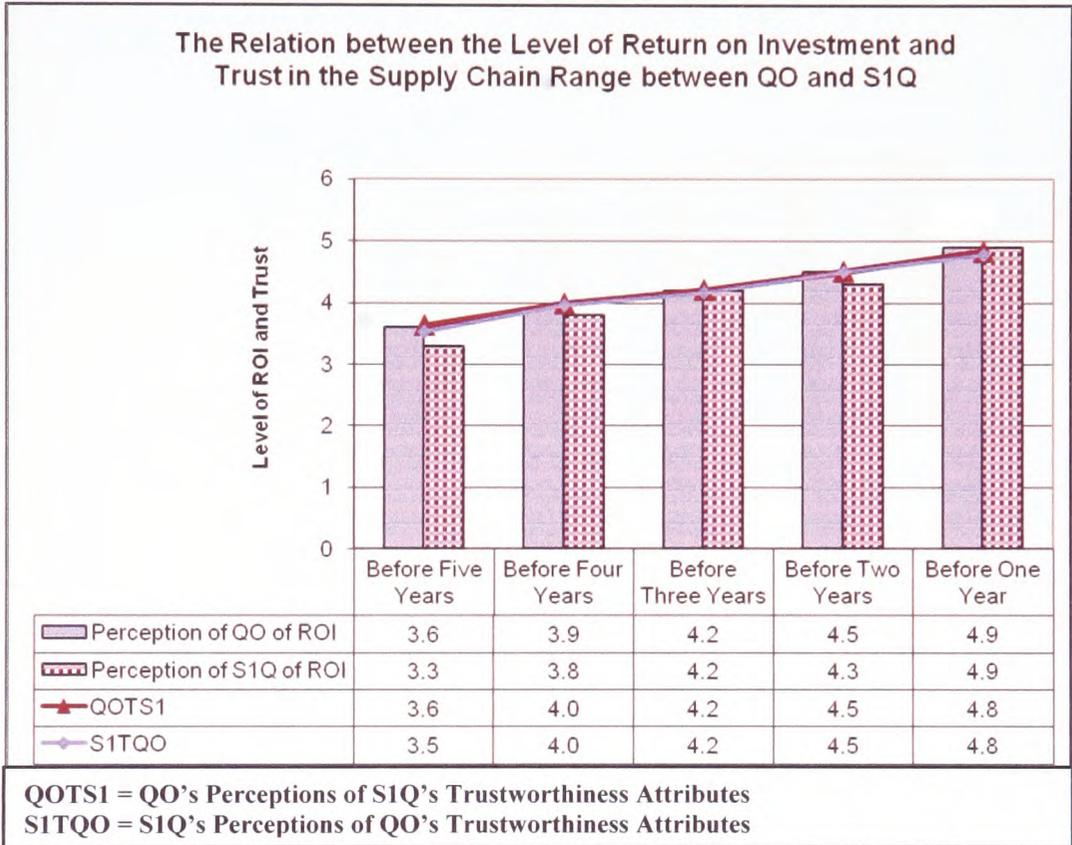
**Graph Q.24: Shows the level of cost saving achieved by the supply chain in relation to the trust between QO and C1Q**

The above graph indicates interconnection between the trust level in the supply chain relationship and the level of cost saving perceived in the supply chain similarly to what has been identified in the analysis of the other three ranges of QO's supply chain. Therefore, the trust between QO and its supply chain parties is identified to improve the level of the supply chain cost saving and, consequently, is regarded to result in a better financial performance of the supply chain.

#### **4. Trust Between QO and Its Supply Chain Parties and ROI**

This section aims to compare the trust between QO and its supply chain parties and the level of ROI perceived in the supply chain. The comparison is carried out in this section in order to identify correlation between ROI and the trust level perceived in

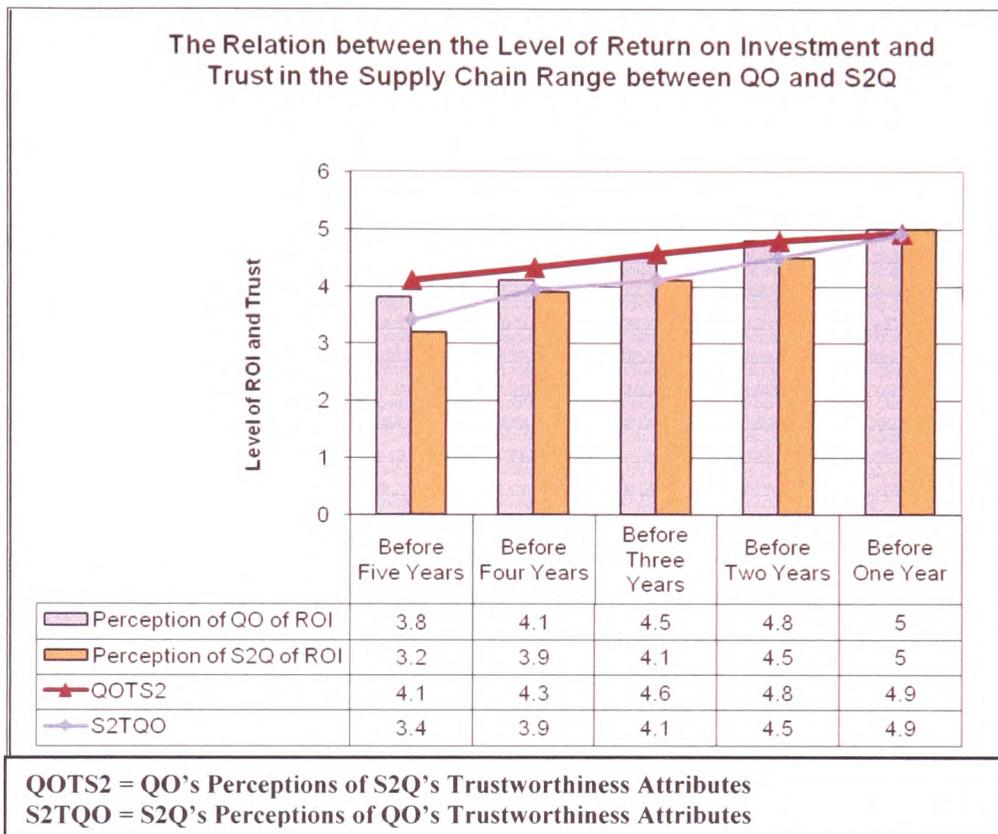
the supply chain relationship. Beginning the analysis with the relationship between QO and S1Q, the average analysis of the research data has provided the results illustrated in graph Q.25.



**Graph Q.26: Shows the level of ROI achieved by the supply chain in relation to the trust between QO and S1Q**

As illustrated in the graph Q.26, the trust development in the supply chain relationship was accompanied with improvement in the achievement of higher ROI. The graph shows coherence between the level of trust in the supply chain relationship and the achieved level of ROI by the supply chain. This implies that the trust in this supply chain relationship had assisted the supply chain in this range to improve its ROI.

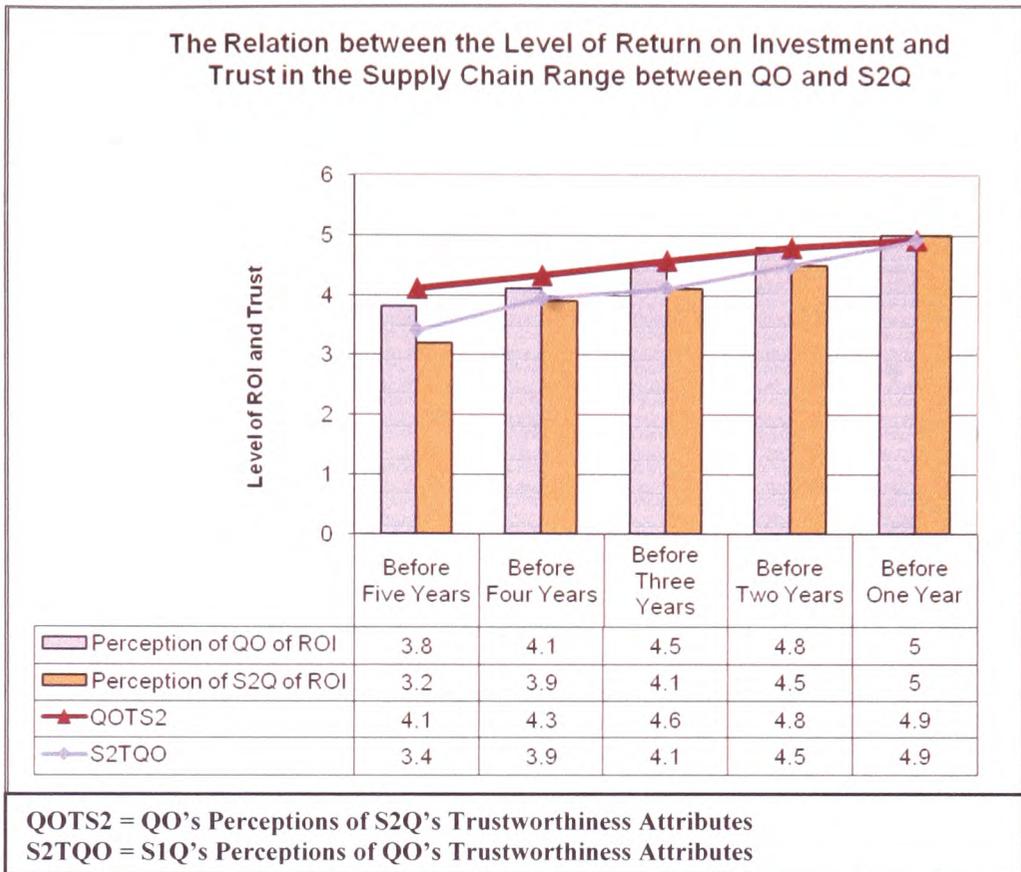
Regarding the analysis of the supply chain performance in the second range, the analysis has produced the results shown in graph Q.27.



**Graph Q.27: Shows the level of ROI achieved by the supply chain in relation to the trust between QO and S2Q**

The results of the supply chain performance in the achievement of ROI in regard to the trust in the supply chain relationship between QO and S2Q, illustrated in graph Q.27, indicates similar relationship between the trust and the supply chain performance to the relationship identified in the analysis of the supply chain performance and trust in the first range of the supply chain.

Regarding the supply chain ROI in the relationship with QO and the considered downstream parties, the analysis of the third range of the supply chain has yielded the results highlighted in graph Q.28.

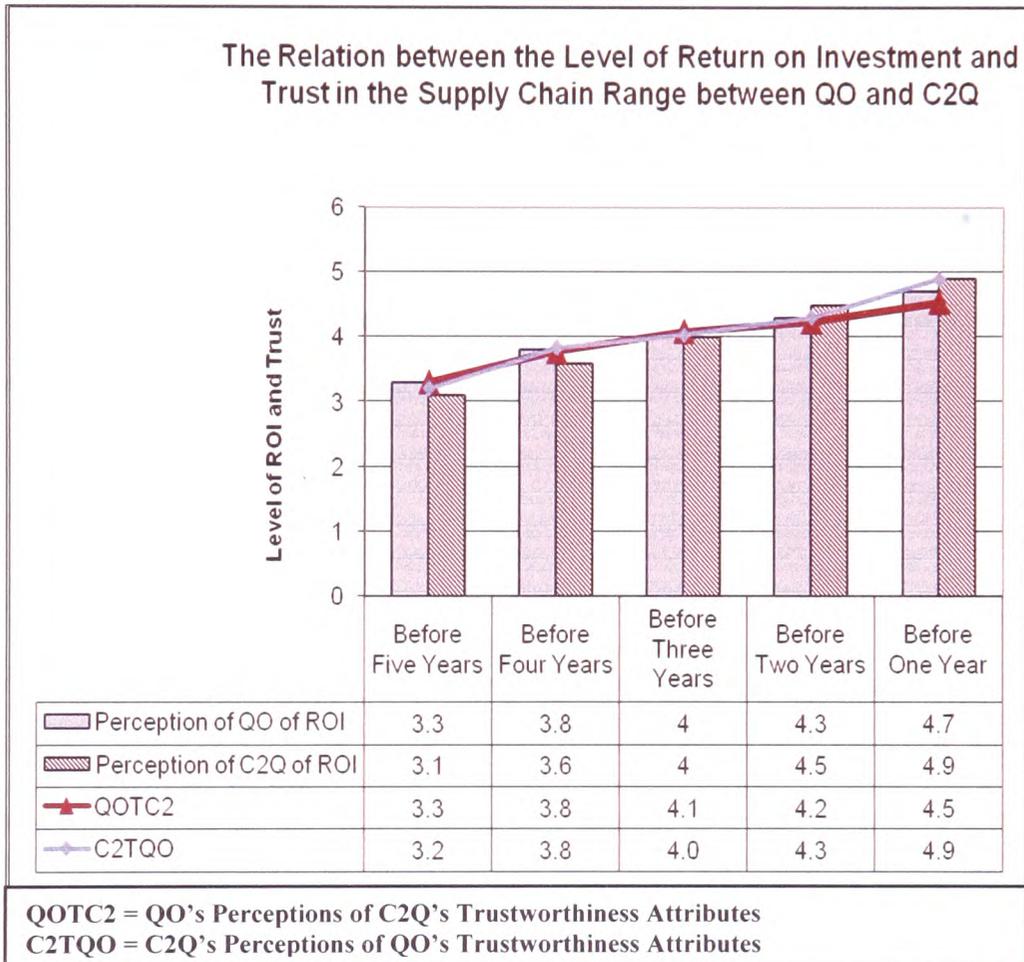


**Graph Q.28: Shows the level of ROI achieved by the supply chain in relation to the trust between QO and C1Q**

The above graph shows that the trust between C1Q and QO in the before one year was optimal and the supply chain was perceived by both parties to have achieved optimal ROI. The supply chain ROI was achieved lower in each previous year as going backward along the relationship, in accordance with the level of trust. That means that over length of the supply chain relationship, the supply chain ROI had improved consistently with the trust development in the relationship.

The supply chain performance in relation to the trust in the fourth range has resulted in the results indicated in graph Q.29. As indicated in this graph, the

results of the analysis of the supply chain performance in this range show consistency with the results maintained in regard to the supply chain performance and trust in the third range.



**Graph Q.29: Shows the level of ROI achieved by the supply chain in relation to the trust between QO and C2Q**

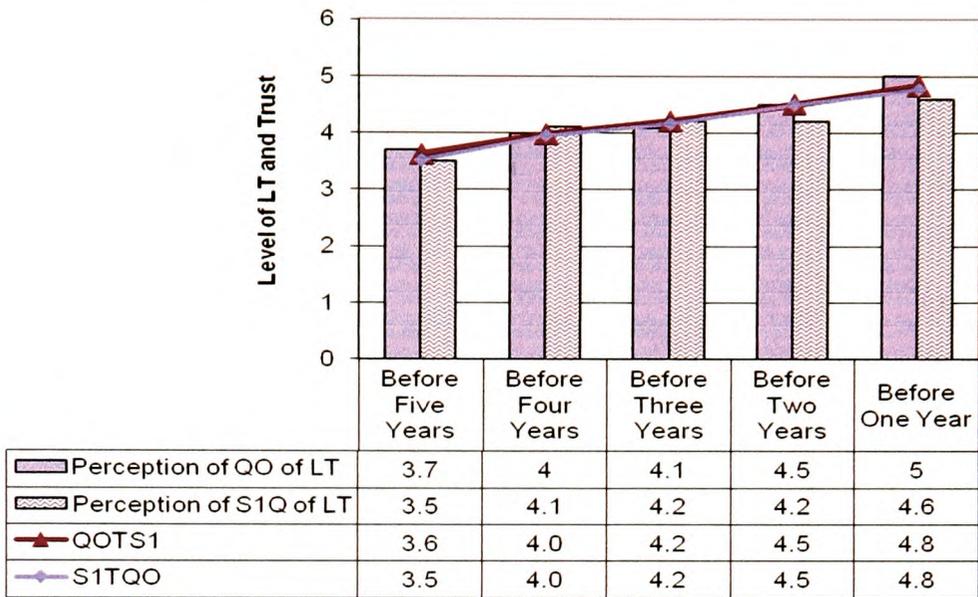
Therefore, the analysis in this section has identified that the trust in QO's supply chain relationships had positively affected the supply chain ROI and the development of trust in the relationship had resulted in consistent higher ROI achieved by QO's supply chain.

## **5. Trust in QO's Supply Chain Relationships and Its Supply Chain Lead Time**

As mentioned before, the researcher has investigated the supply chain performance from the perspectives of QO and the parties. This section considers the supply chain lead time in regard to the trust between QO and the supply chain parties selected for this study. The research data has been subjected to an average analysis and the results that indicate the performance of each range in QO's supply chain will be presented here.

In this section, the analysis commences with the relationship between QO and S1Q. The result of the analysis of the supply chain lead time achieved in this range in relation to the trust in the relationship is illustrated in graph Q.30. The results, as indicated by the graph, show that QO and S1Q had perceived of improvement in the supply chain lead time with the development of trust in the supply chain relationship. This improvement occurred over the five years indicated in the graph. The lead time was perceived to improve in consistency with the perceived trust. The graph shows coherence between the trust level in each year and the supply chain lead time achieved in each individual year of the supply chain relationship (see graph Q.30).

**The Relation between the Level of Lead Time and Trust in the Supply Chain Range between QO and S1Q**

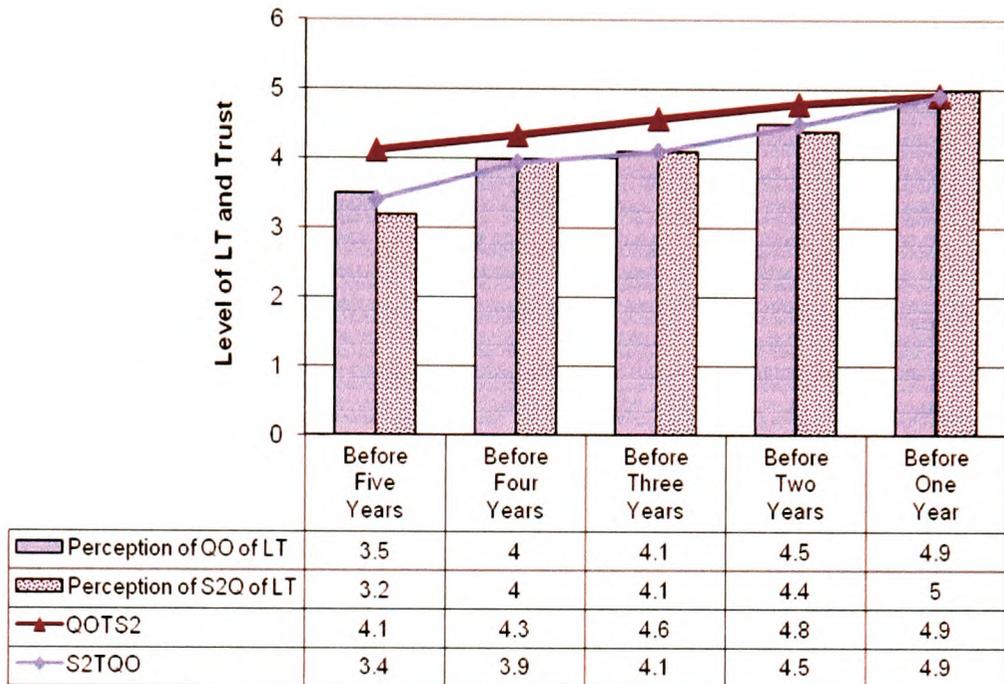


QOTS1 = QO's Perceptions of S1Q's Trustworthiness Attributes  
 S1TQO = S1Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.30: Shows the level of lead time achieved by the supply chain in relation to the trust between QO and S1Q**

Regarding the performance in the second range of QO's supply chain, which includes the relationship between QO and S2Q, the results of the analysis have showed similar connection between the trust in this relationship and the lead times achieved by the supply chain. The results of the average analysis of the supply chain lead time in relation to the trust are illustrated in graph Q.31.

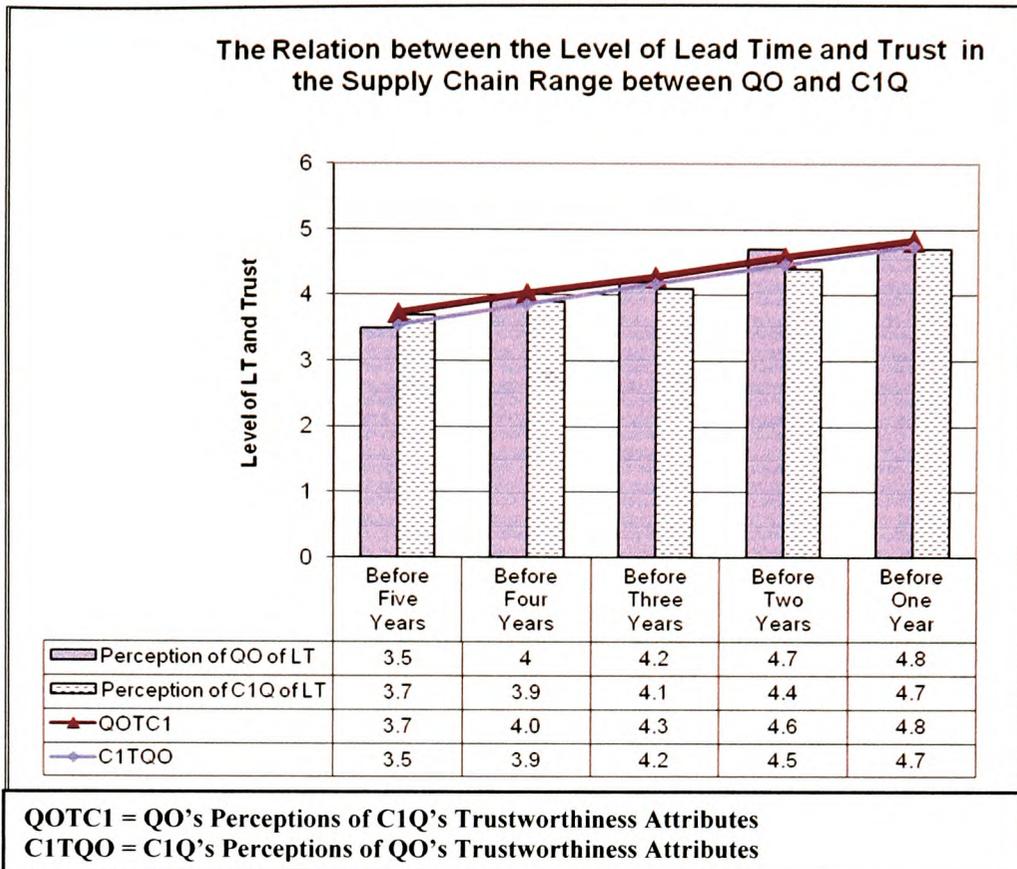
The Relation between the Level of Lead Time and Trust in the Supply Chain Range between QO and S2Q



QOTS2 = QO's Perceptions of S2Q's Trustworthiness Attributes  
 S2TQO = S2Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.31: Shows the level of lead time achieved by the supply chain in relation to the trust between QO and S2Q**

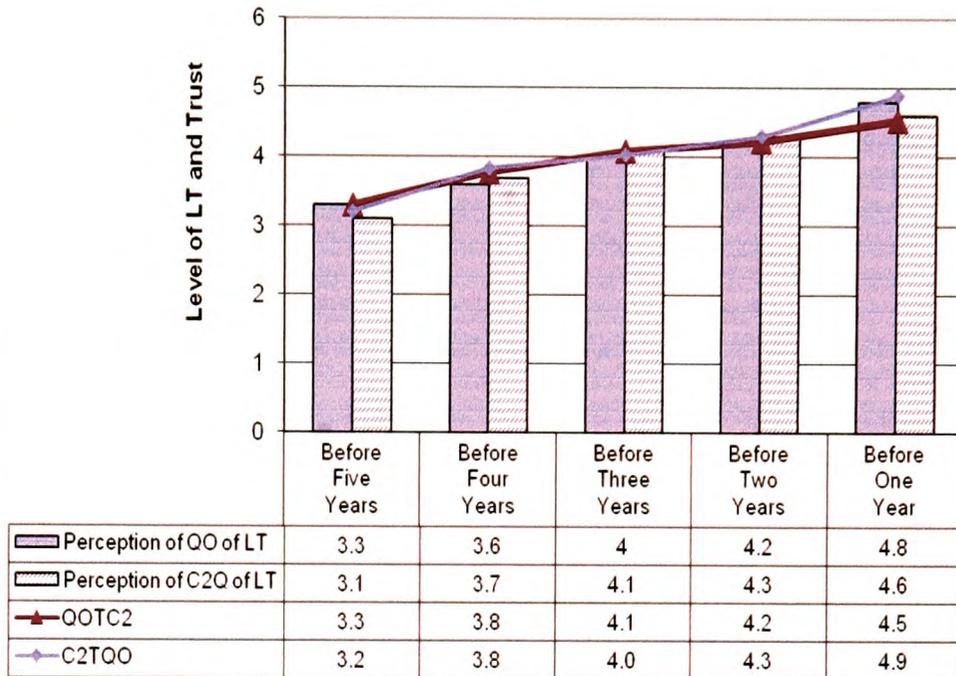
Regarding the supply chain in the downstream of the chain, the relationship between QO and C1Q was clarified as a reciprocal relationship where this downstream party was the same upstream party denoted as S1Q in this research. The analysis of the supply chain performance in this third range of QO's supply chain has yielded similar results to the results identified in analysing the relationship between QO and this supply chain party in the upstream relationship. The results of the average analysis are illustrated in graph Q.32.



**Graph Q.32: Shows the level of lead time achieved by the supply chain in relation to the trust between QO and C1Q**

In relation to the supply chain performance in the fourth range, the lead time achieved by the supply chain in relation to the trust in the relationship between QO and C2Q has produced the results highlighted in graph Q.33. The graph emphasises the concurrent relationship between the trust development and the lead time improvement.

The Relation between the Level of Lead Time and Trust in the Supply Chain Range between QO and C2Q



QOTC2 = QO's Perceptions of C2Q's Trustworthiness Attributes  
 C2TQO = C2Q's Perceptions of QO's Trustworthiness Attributes

**Graph Q.33: Shows the level of lead time achieved by the supply chain in relation to the trust between QO and C2Q**

Therefore, the analysis of QO's supply chain performance in the aspect of the supply chain lead time in regard to the trust in each range has resulted in identifying that the trust has positive effect on the supply chain lead time.

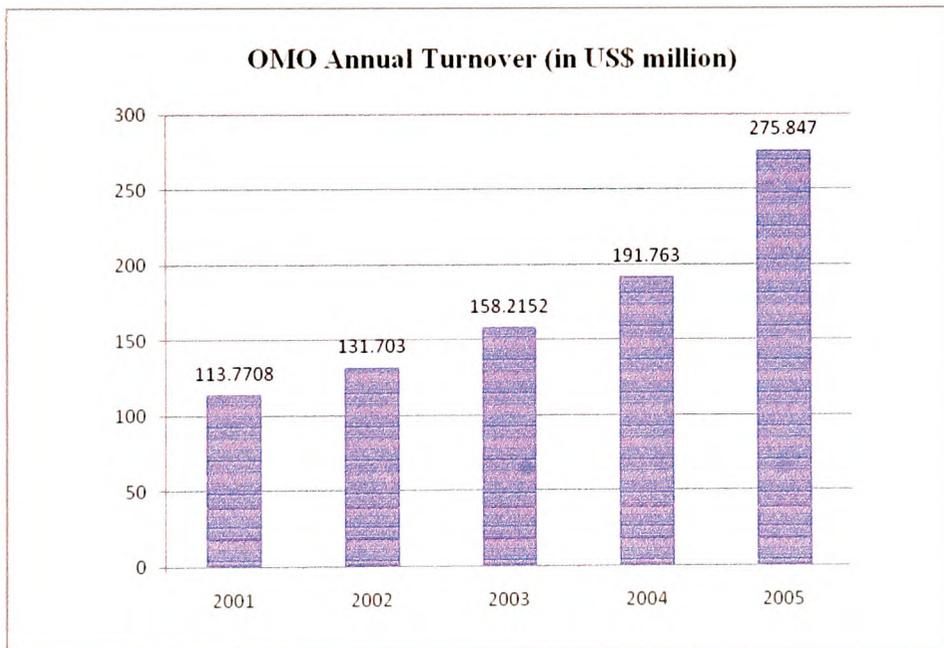
## APPENDIX 3

### Raw Data Maintained From Each Organization and Its Supply Chain Parties

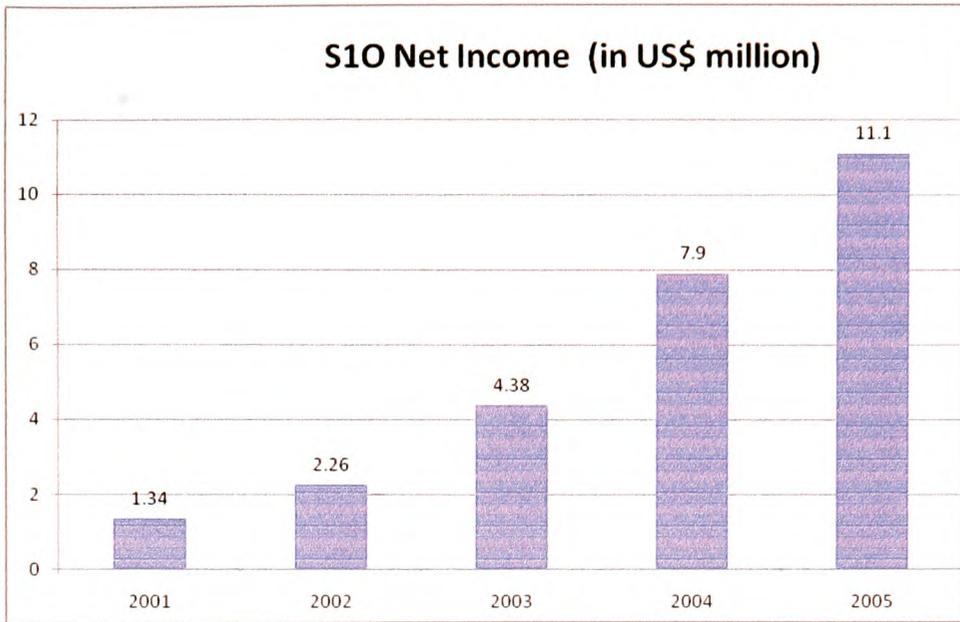
**Note:** As mentioned in this research, the names given to each of the organizations and its supply chain parties were deliberately done by the researcher to preserve confidentiality of each of the organizations subjected to this research as requested by each of the organizations. Consequently, the sources of the raw data are indicated in this appendix correspondingly.

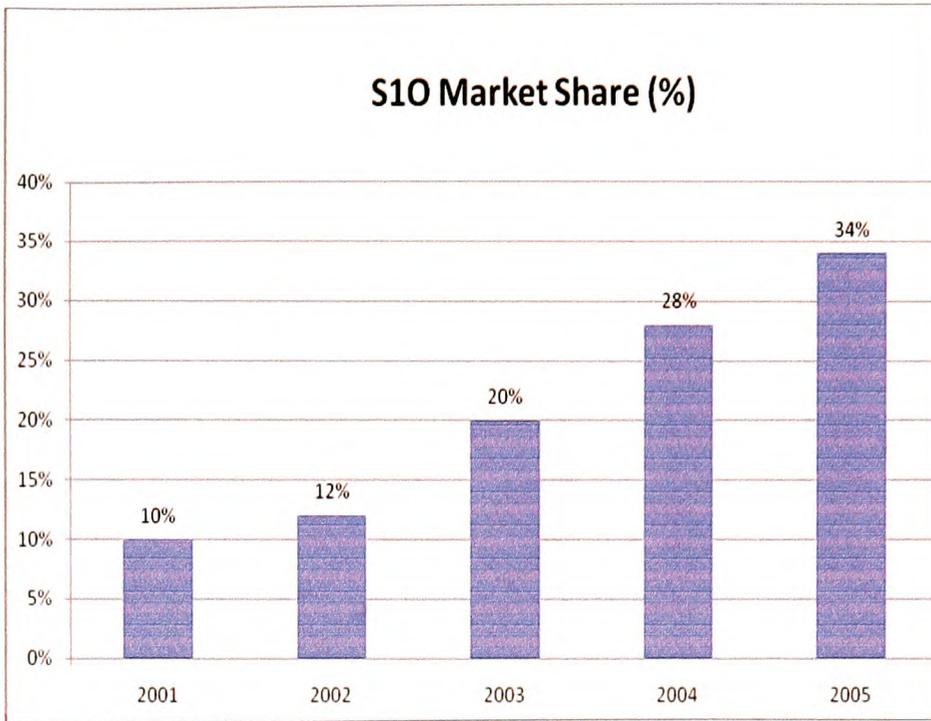
### 1- OMO and Its Supply Chain Parties Performance Indicators

#### A- OMO Performance Indicators (Sources: OMO's Financial Reports (2001 to 2005))

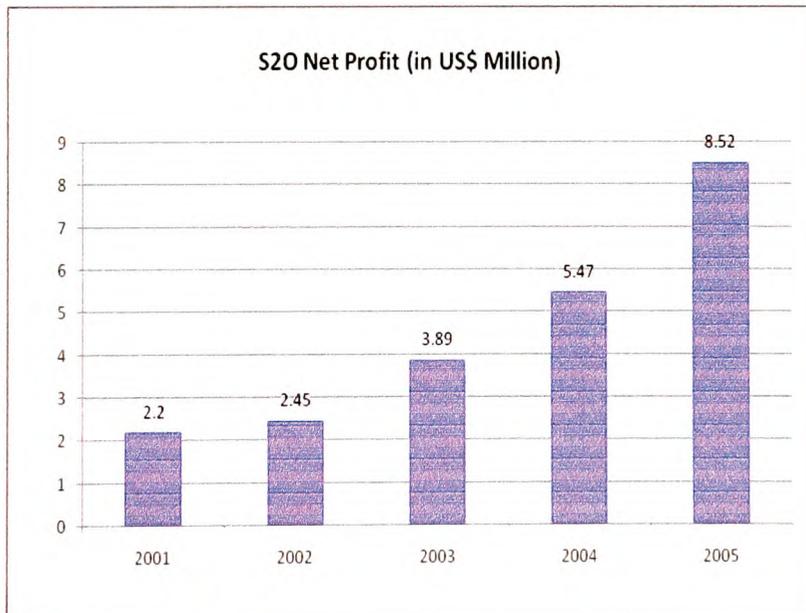


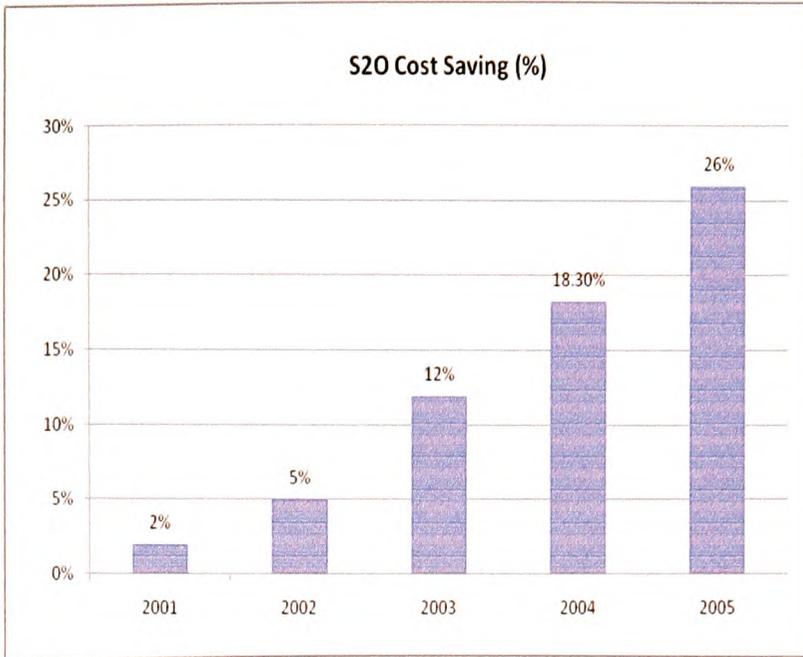
**B- S1O Performamnce Indicators (Sources: S1O's Financial Reports (2001 to 2005))**



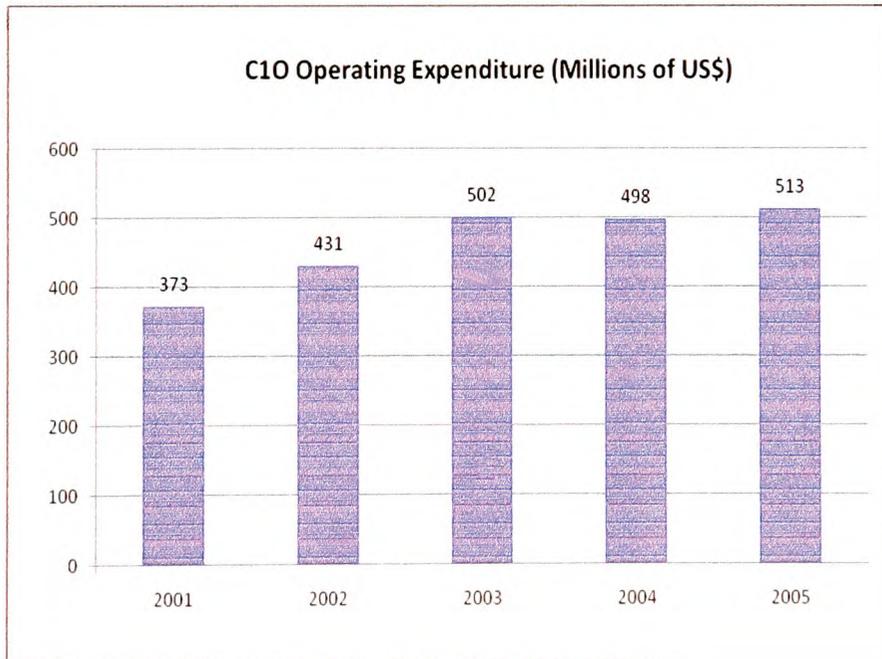


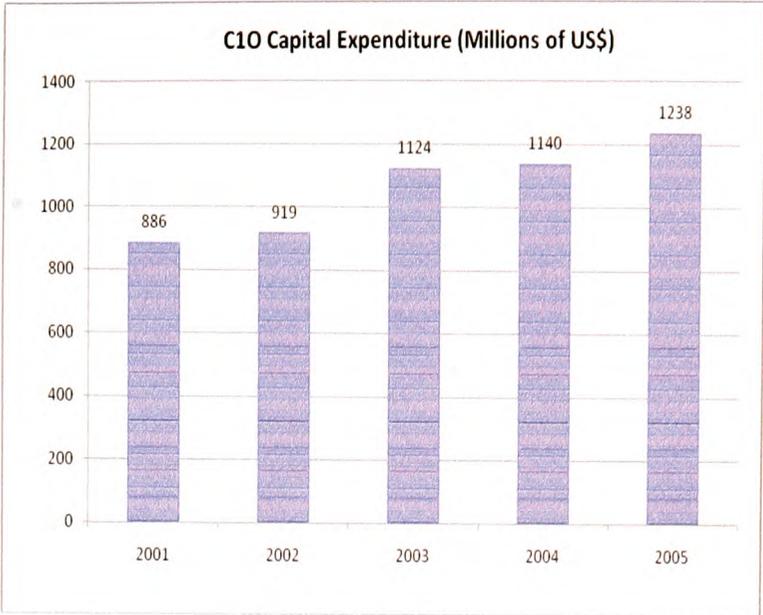
**C- S2O Performance Indicators (Sources: S2O's Financial Reports (2001 to 2005))**



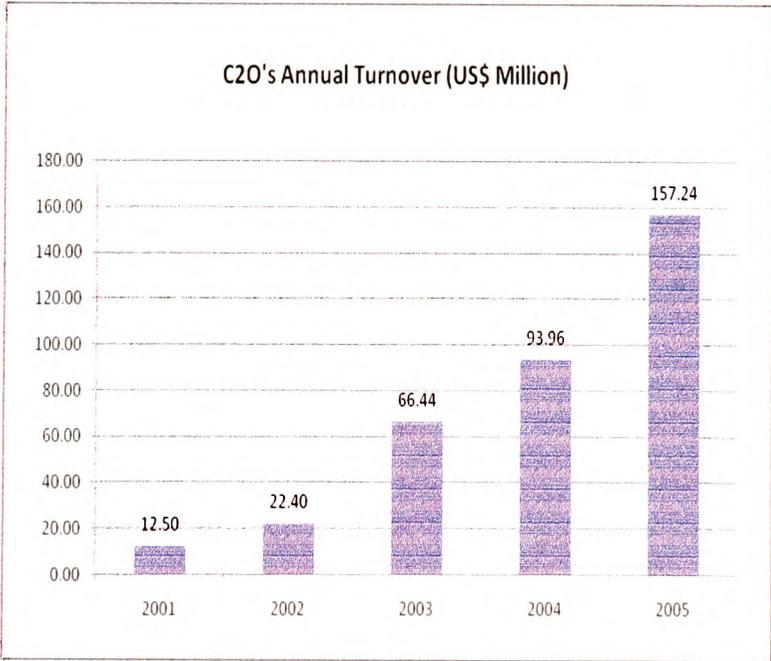


**D- C1O Performance Indicators (Sources:C1O’s Financial Reports (2001 to 2005))**



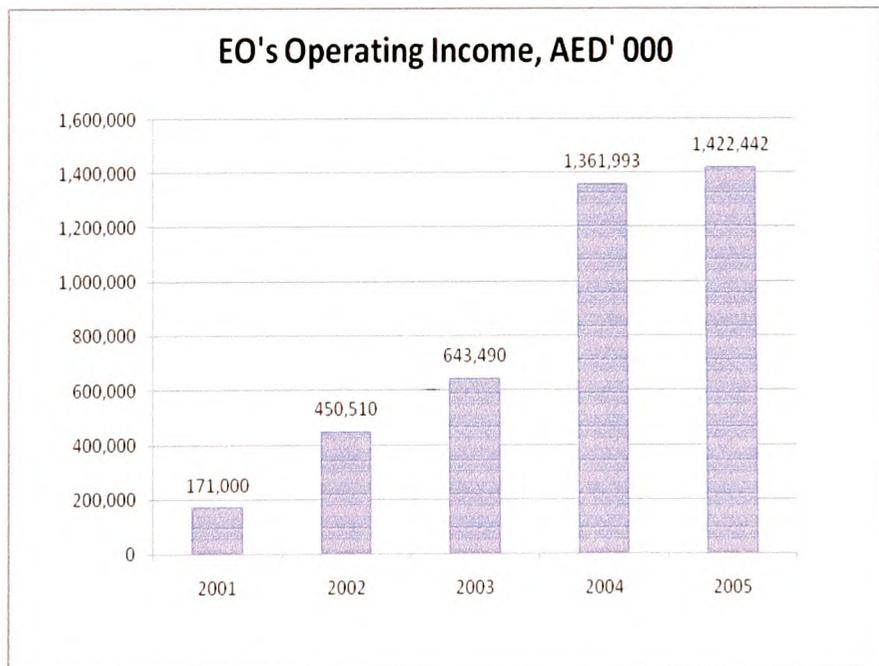
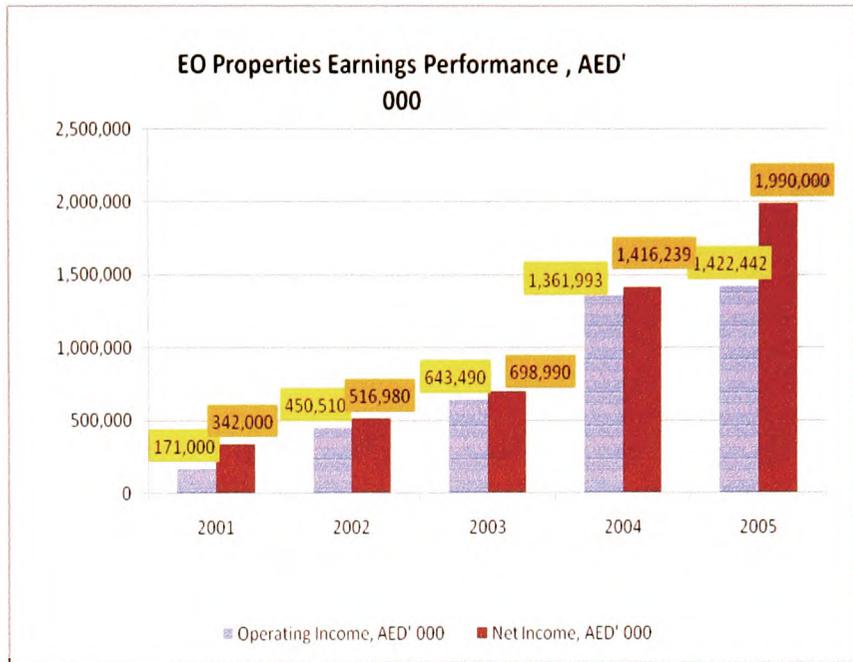


**E- C2O Performance Indicators (Sources: C2O's Financial Reports (2001 to 2005))**

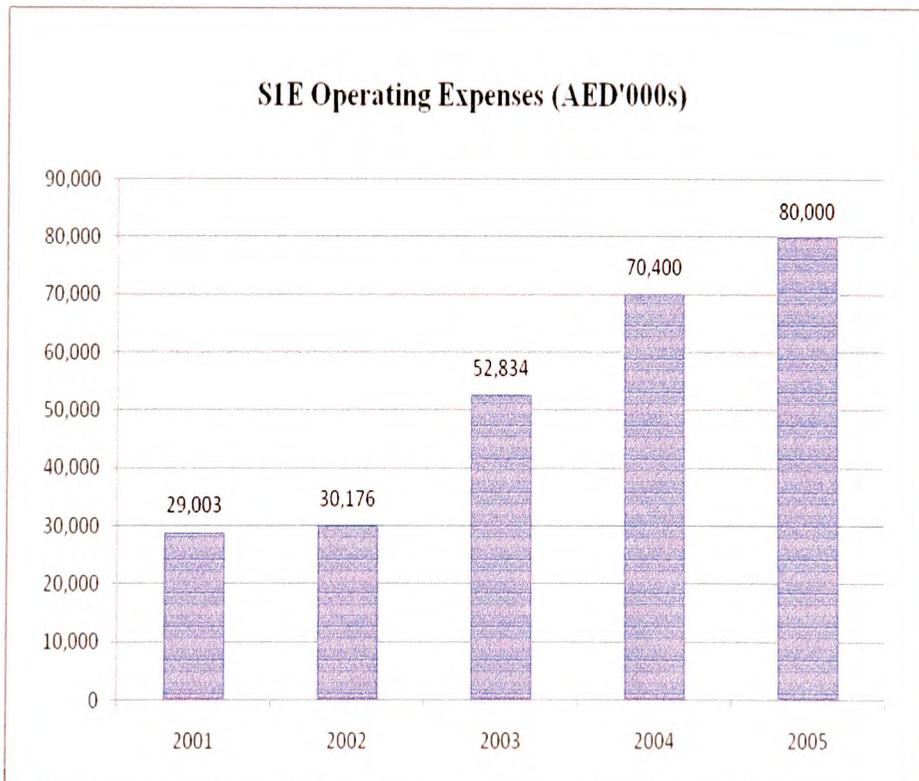
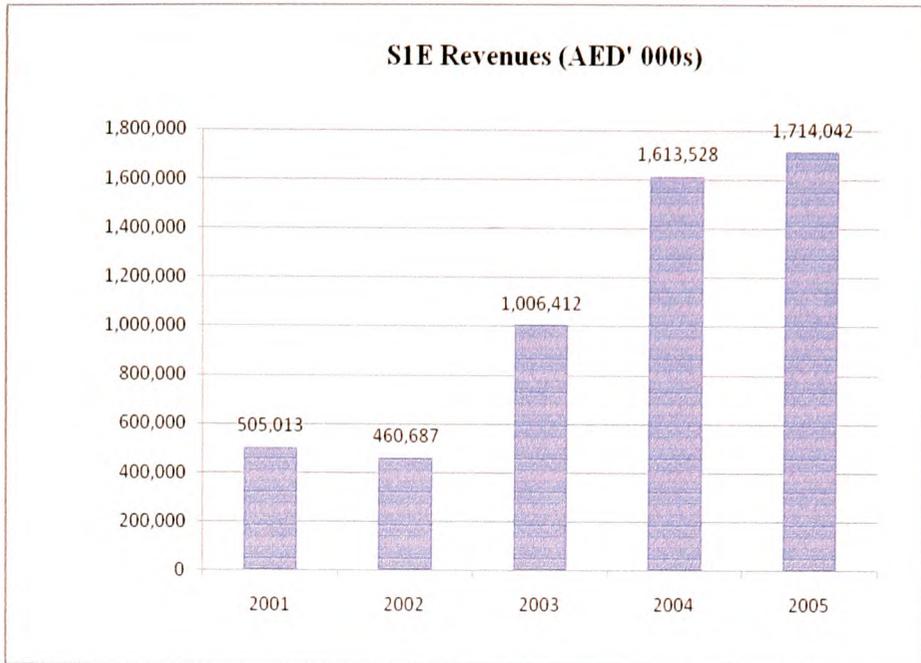


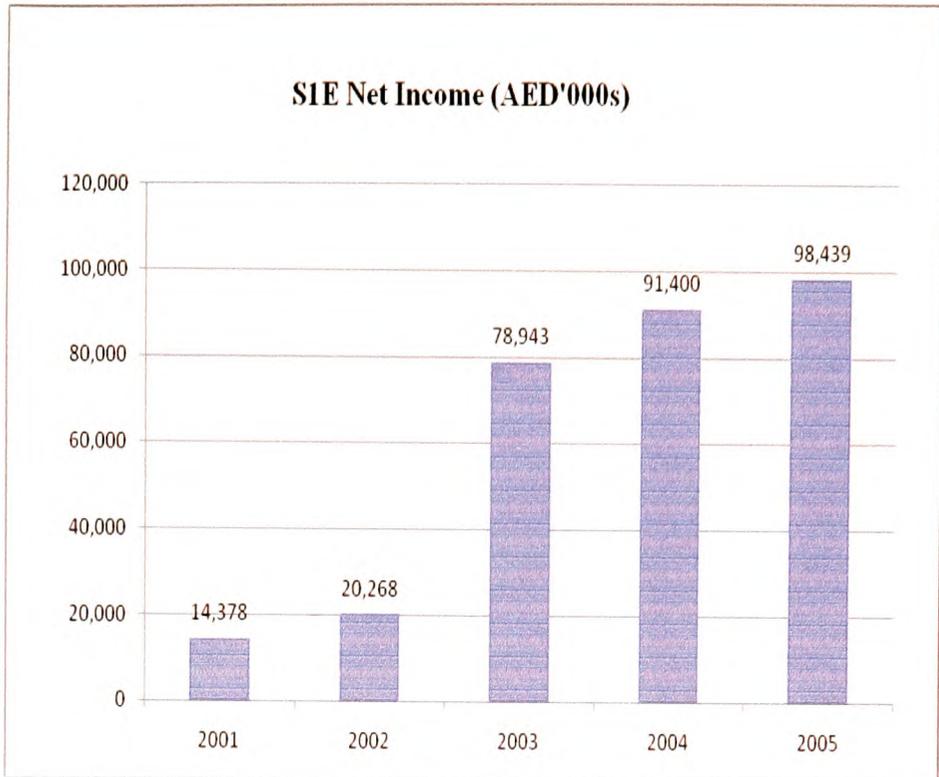
## 2- EO and Its Supply Chain Parties Performance Indicators

### A- EO's Performance Indicators (Sources: EO's Financial Reports (2001 to 2005))

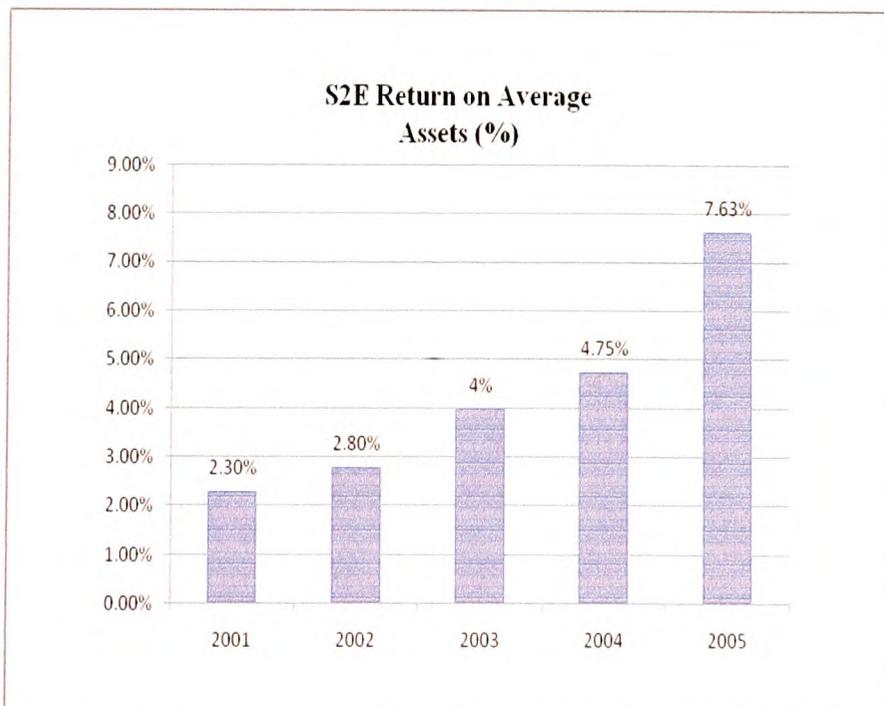


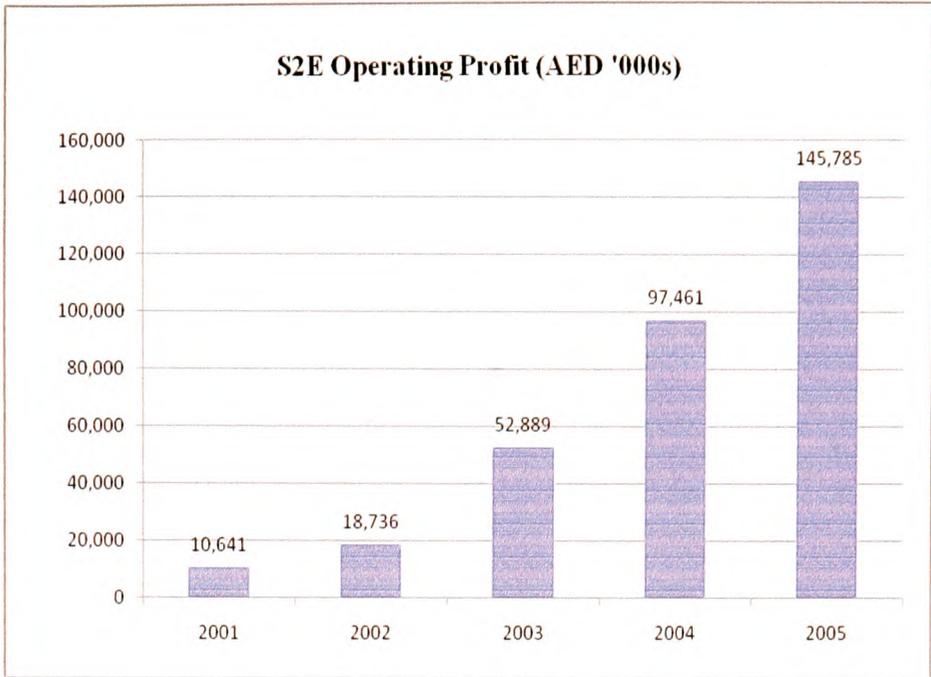
**B- S1E Performance Indicators (Sources: S1E's Financial Reports (2001 to 2005))**



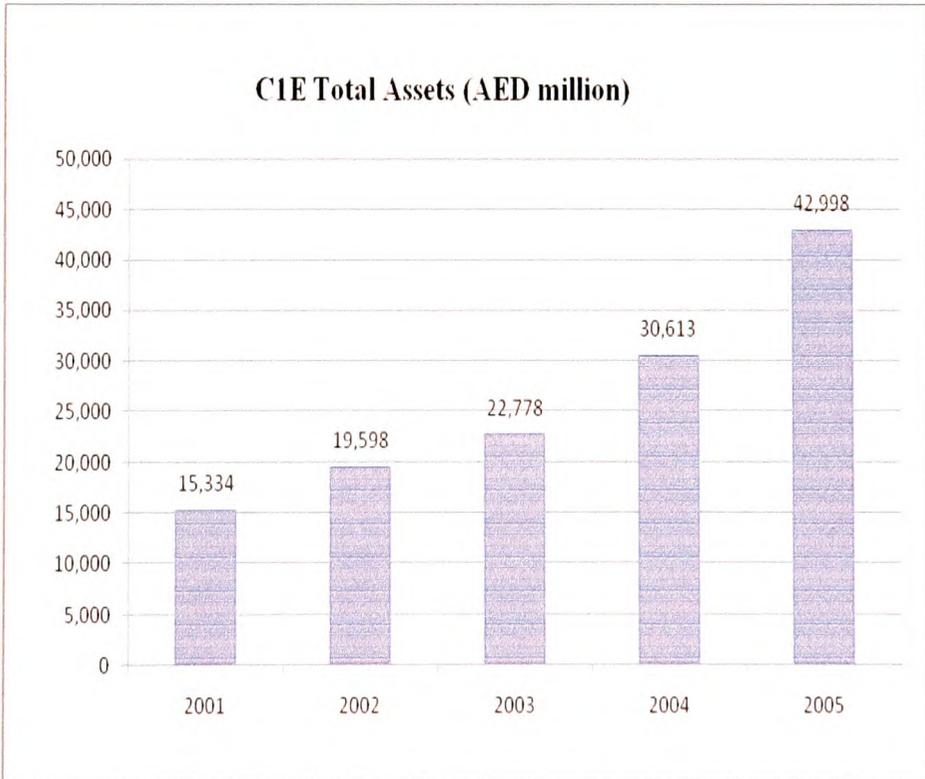


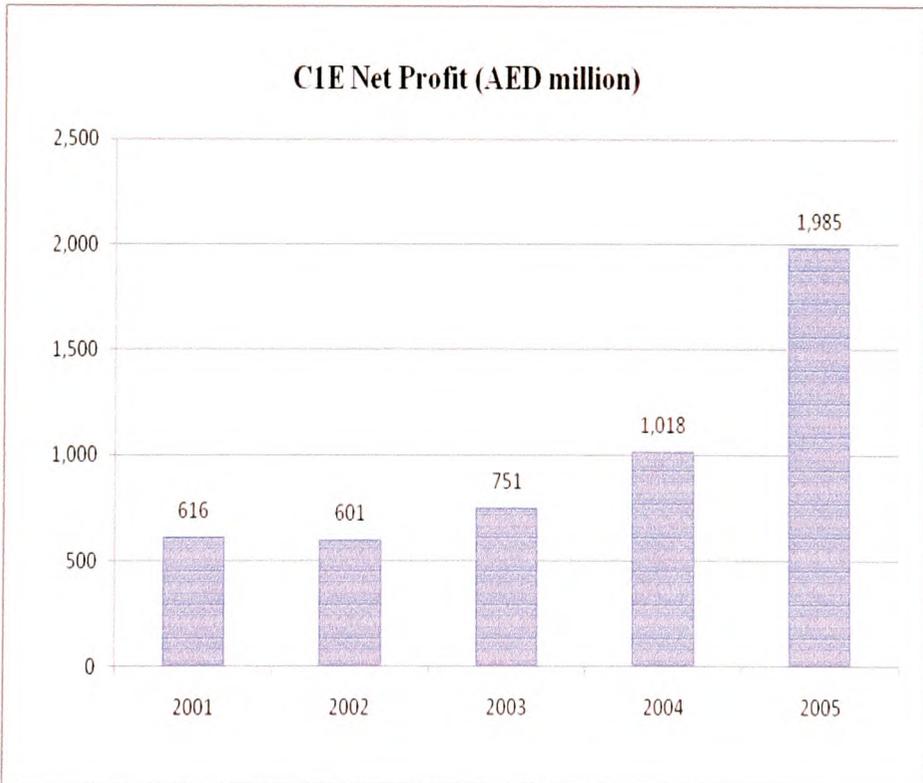
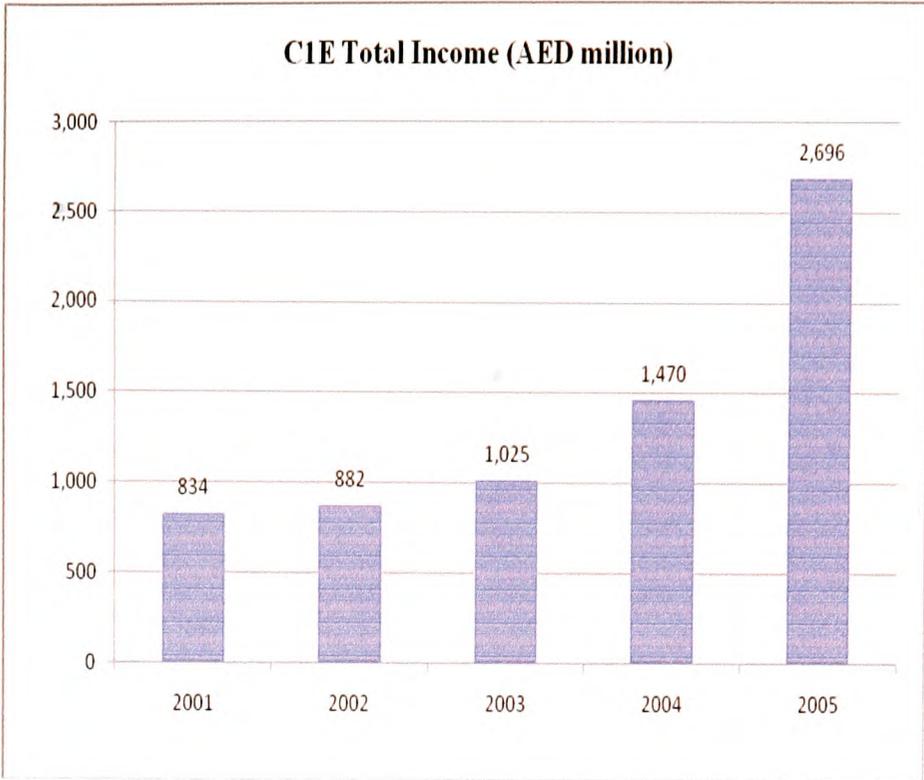
**C- S2E Performance Indicators (Sources: S2E's Financial Reports (2001 to 2005))**

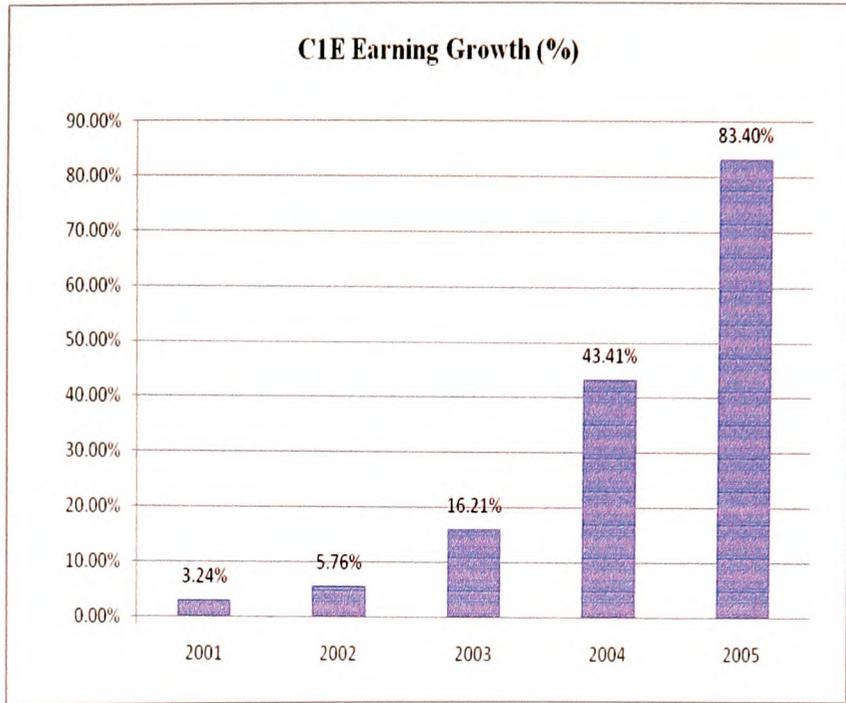




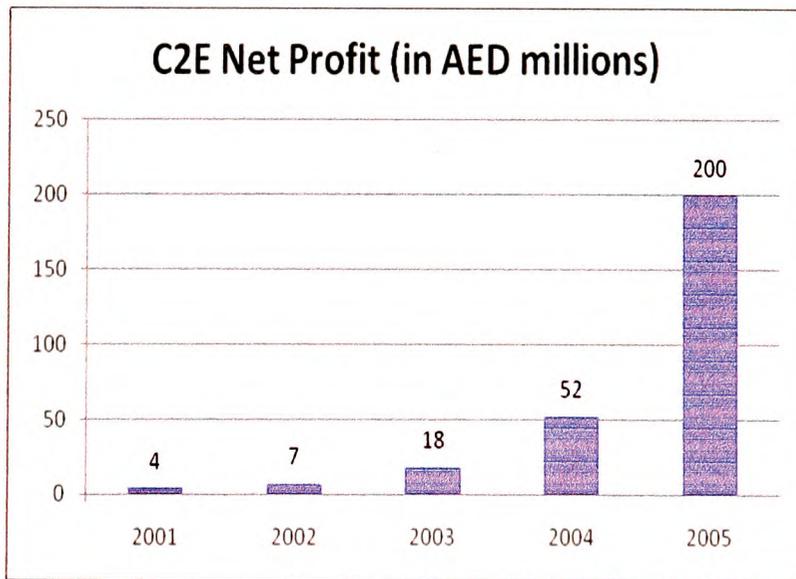
**D- C1E Performance Indicators (Sources: C1E's Financial Reports (2001 to 2005))**



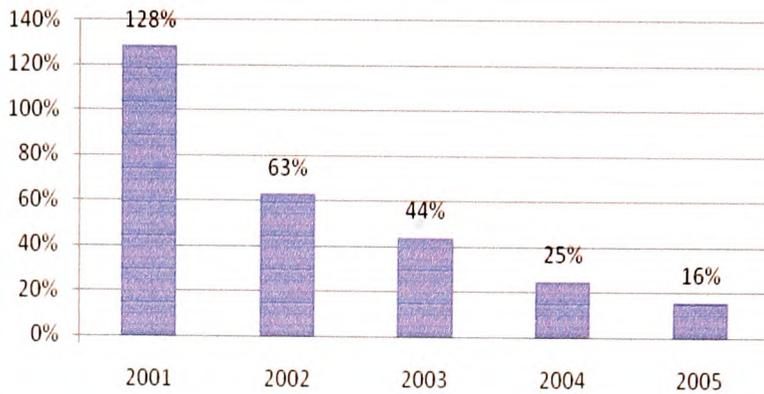




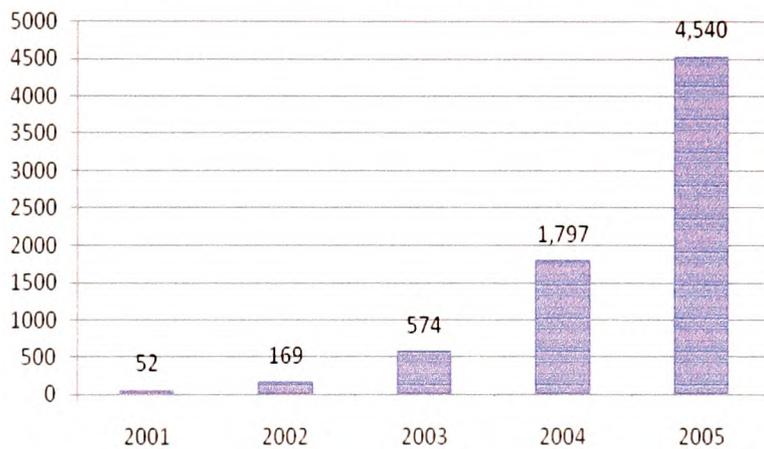
**E- C2E Performance Indicators (Sources: C2E's Financial Reports (2001 to 2005))**



### C2E Operating Expenses to Total Income (%)



### C2E Total Assets (in AED Millions)

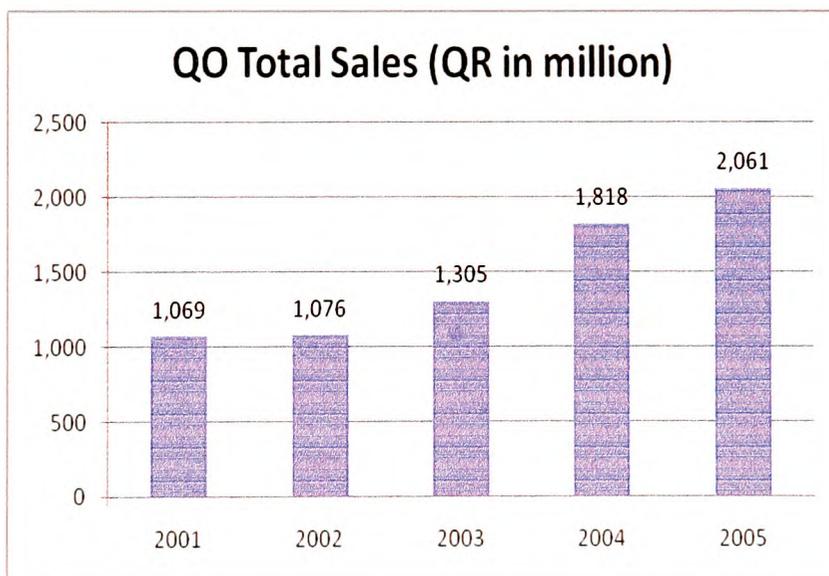
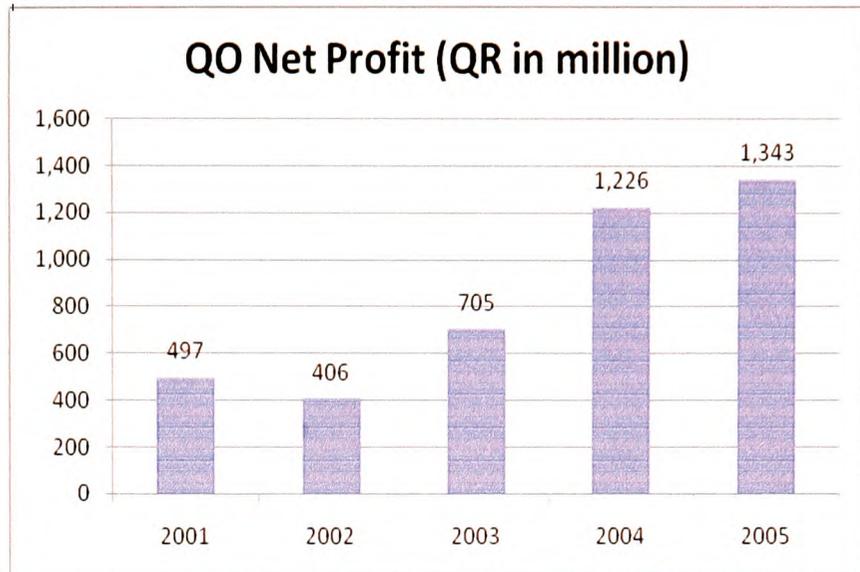


### C2E Equity to Total Assets (%)

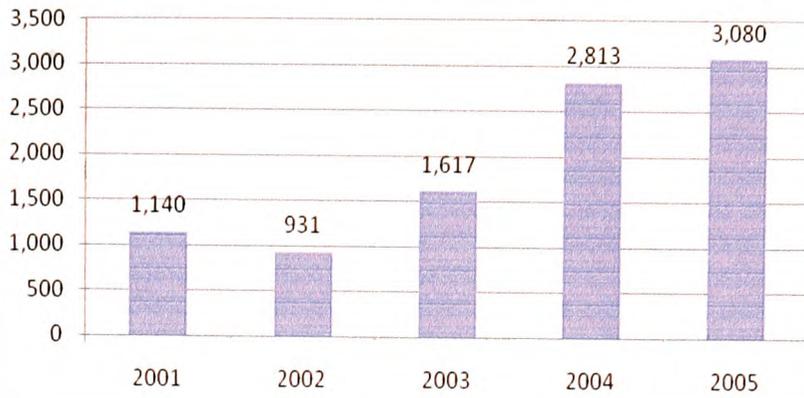


### 3- QO and Its Supply Chain Parties Performance Indicators

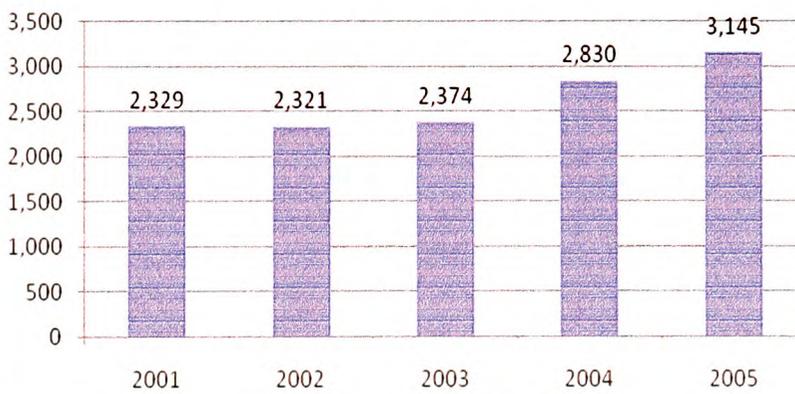
#### A- QO Performance Indicators (Sources: QO's Financial Reports (2001 to 2005))



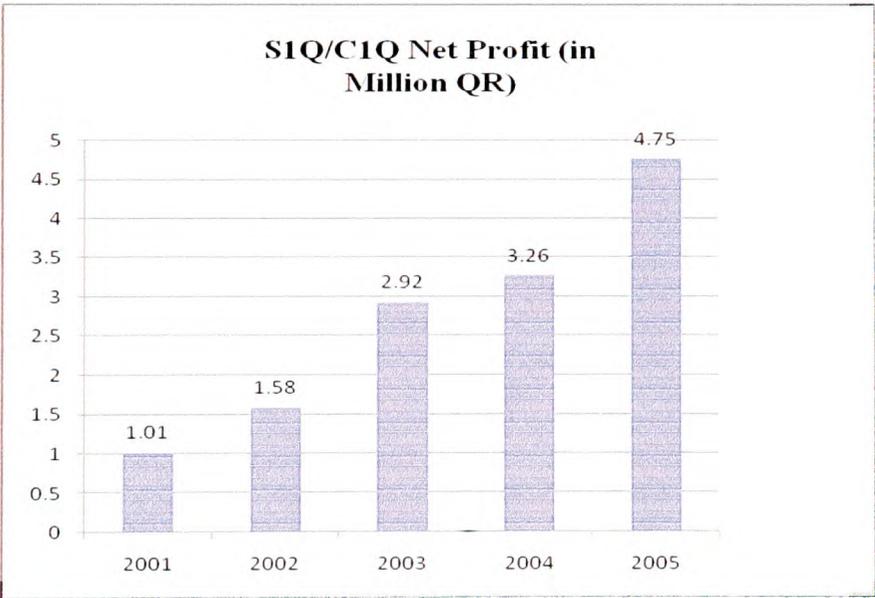
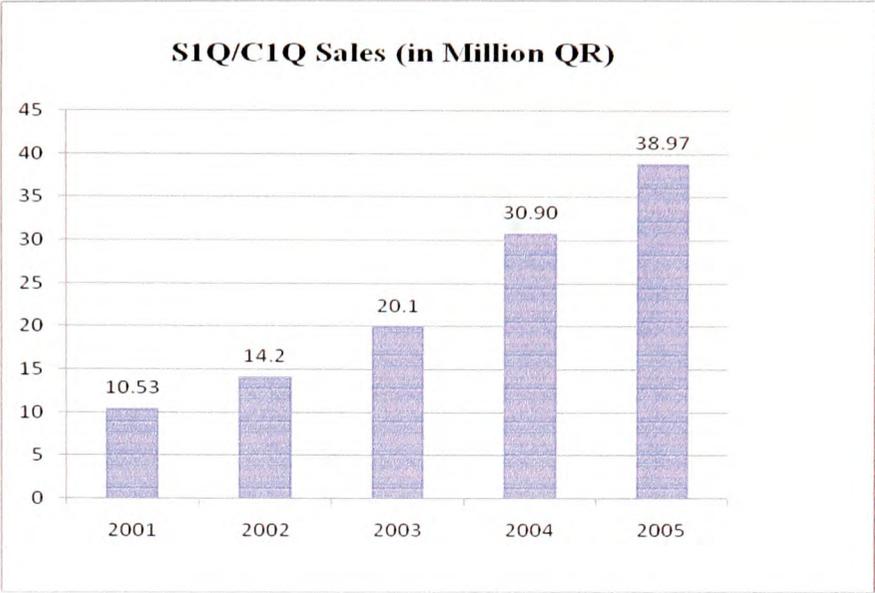
### QO Earnings Per Share (Paid-up value: QR 1,000 per share)



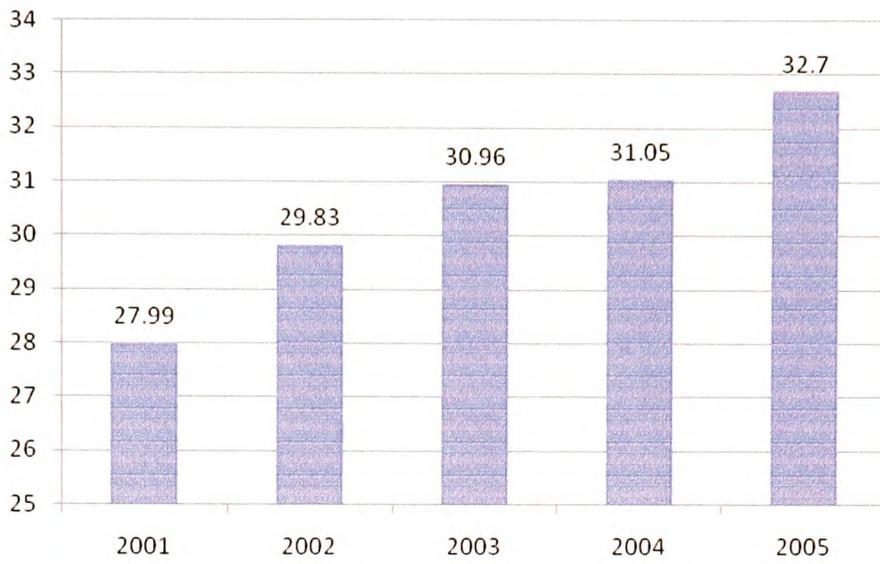
### QO Total Shareholders' Funds (inclusive of dividend)



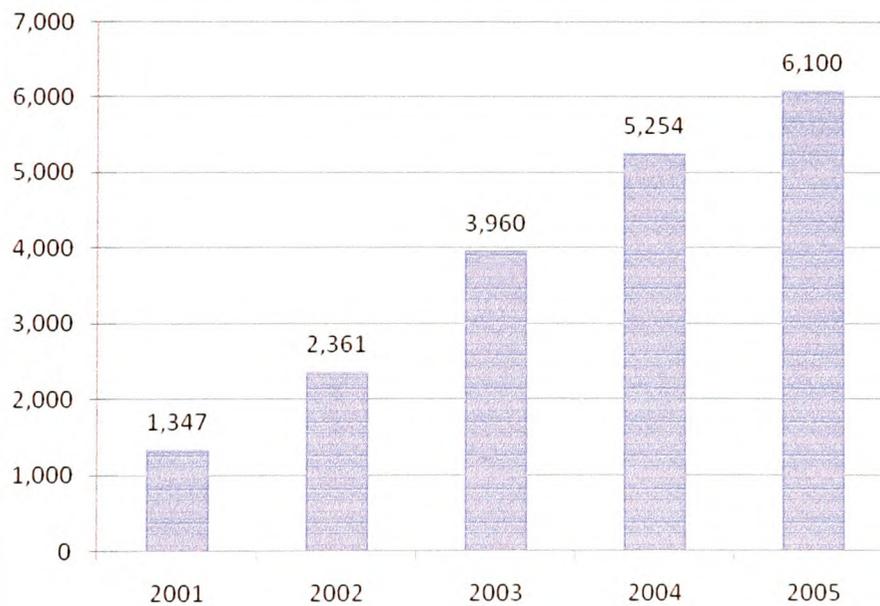
**B- S1Q/C1Q Performance Indicators (Sources: S1Q/C1Q's Financial Reports (2001 to 2005))**

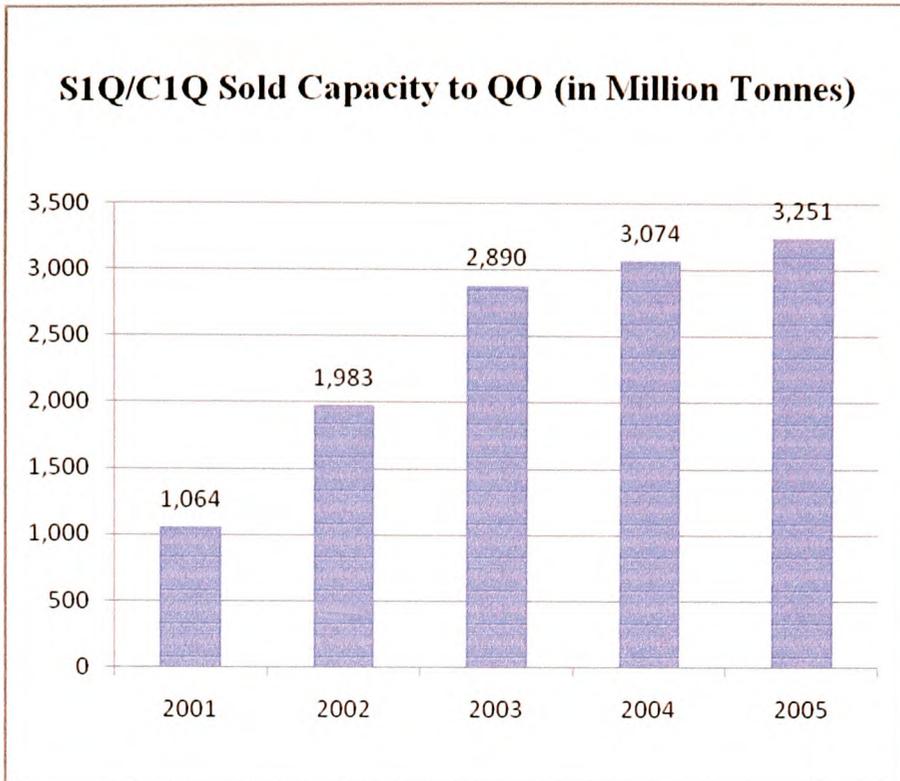


**S1Q/C1Q Total Equity (in Million QR)**

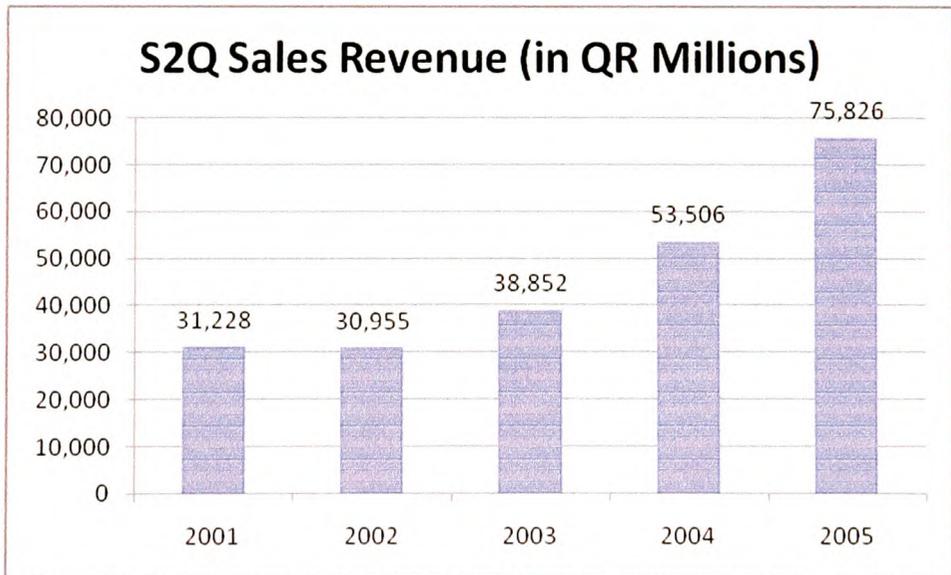


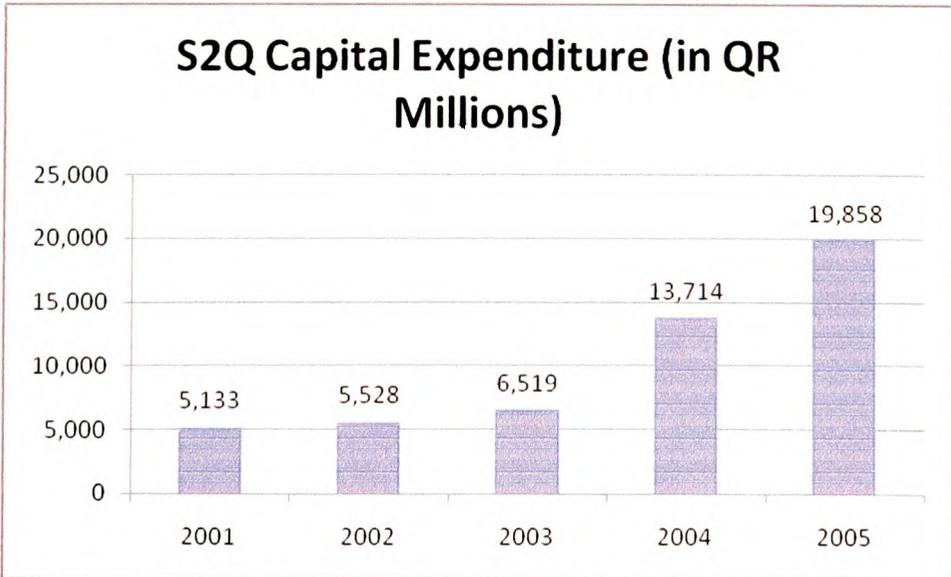
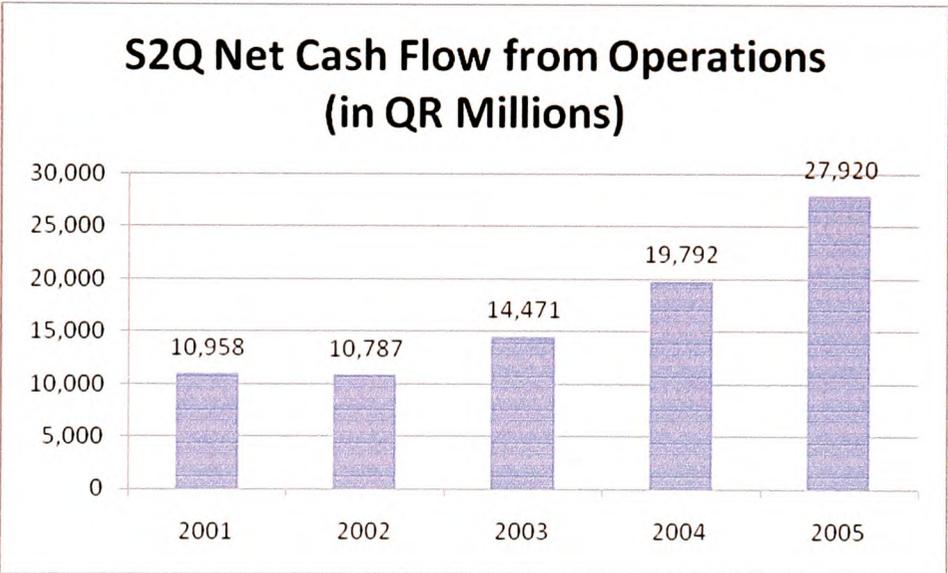
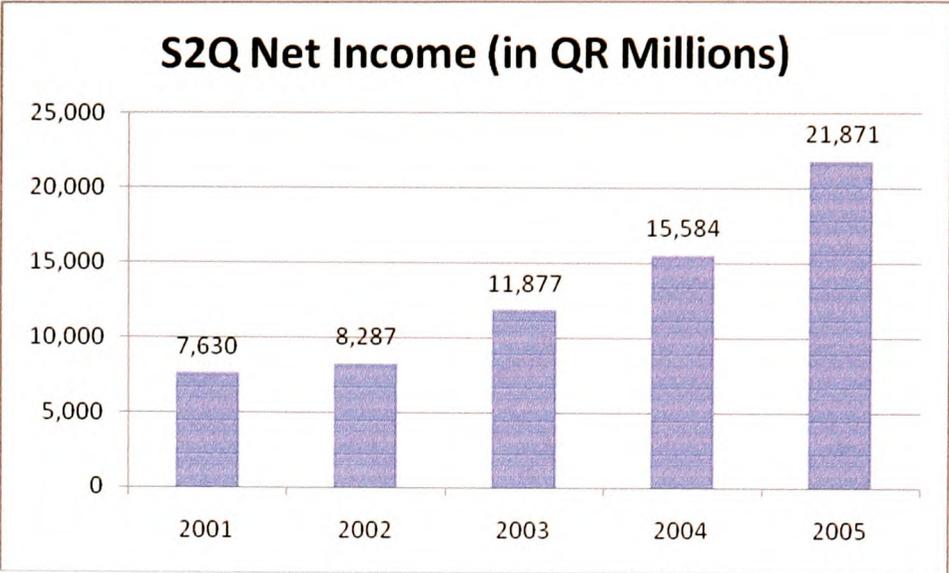
**S1Q/C1Q Sold Capacity (in Million Tonnes)**

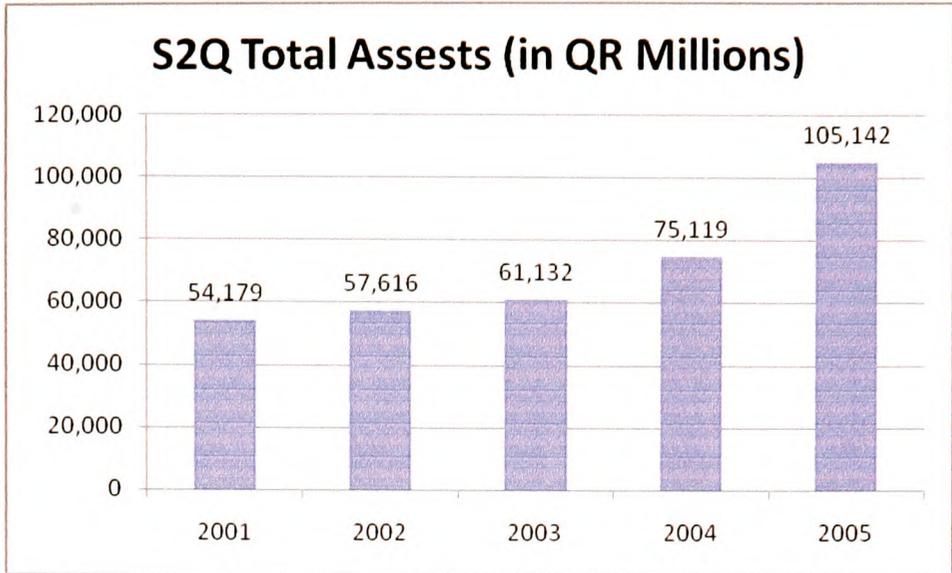




**C- S2Q Performance Indicators (Sources: S2Q's Financial Reports (2001 to 2005))**







**D- C2Q Performance Indicators (Sources: C2Q's Financial Reports (2001 to 2005))**

