# Partnering in the Construction Industry: An Empirical investigation into the critical success factors

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# ABSTRACT

This thesis is concerned with improvement in construction management practices by studying the application of partnering within the industry. The motivation of the research was the recognition in literature (e.g. Latham and Egan) demonstrating that there is a need to address the fundamental problems of the fragmented industry structure in particular for the construction process to become more cost effective and quality focused for its customers, as well as more profitable for its participants.

Partnering is one approach to conducting business that addresses the economics and technological challenges confronting today's different industries. The partnering approach focuses on making long-term commitments with mutual goals for all parties involved to achieve mutual success. It is a term used to define a relationship between a customer and supplier, not to be confused with the formal legal entity, "a partnership" and its associated mutual liabilities. Partnering refers to a long-term agreement between companies to an unusually high degree of commitment to achieve separate yet complimentary objectives.

This research sheds light on the managerial issues inherent in the construction industry and offers an improved understanding of the partnering process by introducing a framework for partnering in construction. The framework demonstrates that the use of the appropriate management skills such as effective communications, conflict resolution techniques and the development of a favourable context (e.g. mutual trust and commitment) are essential to partnering success.

As most of the previous research on the subject was based on case studies and the main aim of this research is to investigate partnering success and factors related to this success, an empirical investigation through survey research was used as the appropriate research technique. The assessment of practices against theory was carried out through fifty-nine cases based in the UK. The analysis showed that there is a relative success in the application of partnering within the construction industry. It also revealed those factors, which have a direct relation to the success of the relationship. Finally this research provides recommendations for successful application of partnering within the industry.

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# CHAPTER ONE

# GENERAL INTRODUCTION

## 1.1 INTRODUCTION

There is no doubt that the construction industry is a key activity in any economy. Cox and Townsend (1998) stress that the construction industry is an important part of the United Kingdom (UK) economy.

The structure of the construction industry as a whole can be analysed in terms of demand and supply. On the demand side, the total market can be segmented in terms of type of work required, including housing, industrial, infrastructure, and commercial. One current trend worthy of note is the gradually increasing share of activity in the repair and maintenance sectors. Cox and Townsend (1998) explained this by the economic influence of the recession since the end of 1980's and early 1990's. Many clients for construction have reduced their capital investment in major construction works, opting to repair and maintain existing facilities instead. With the creation of the Construction Clients' Forum (now the Confederation of Construction Clients) and the Construction Round Table the demand side of the industry has recently became less fragmented.

The supply side of the UK construction industry continues to be extremely fragmented, both in terms of professions and constructors. Builders, engineers, architects, main contractors, and surveyors are represented by a number of separate bodies, each looking after the interests of their respective numbers.

The level of productivity and overall client satisfaction in the construction industry are fairly low compared with other industrial sectors. Cox and

Townsend (1998) suggested a range of common factors that could contribute to the inefficiencies in the construction supply chains. They summarised the main problems and barriers to achieving efficiencies as low and discontinuous demand, frequent changes in specifications, inappropriate (contractor and consultant) selection criteria, inappropriate allocation of risk, poor quality, inefficient methods of construction, poor management, inadequate investment, adversarial culture, and a fragmented industry structure.

There are a number of initiatives that have been presented as the basis for improvement in the UK construction industry. The major recommendations are those put forward by the industry and the government, in Constructing the Team (Latham Report 1994) and Rethinking Construction (Egan Report 1998) to overcome these problems.

The work carried out in the Latham Report probably represents the first comprehensive and coordinated attempt in many years to cure the industry's ills. A great deal of consultation took place with all parties involved in the construction process, in order to produce the final report constructing the Team in 1994. Since then, many of the report's recommendations have been partially, and in some cases fully acted upon.

The aim of the Latham Review was to formulate recommendations addressing the problems faced by the industry, and to assist clients in obtaining high quality projects through better performance and fairness to all. The final report is widely seen as a catalyst for much needed change. The report contains thirty main recommendations for the industry to effect the desired improvements. The most important of these was the proposal for a Construction Industry Board (CIB) to represent the suppliers and customers from the private and public sectors with central government.

The main objectives of the CIB are to implement the recommendations of *'Constructing the Team'* and the complementary agenda of the 1998 Egan report

*'Rethinking Construction'*. The CIB membership comprises four bodies of the 'supply' side of the industry, representing a collective membership of over 150 trade associations and professional institutions:

Construction Industry council (CIC) (consultants, institutions, and research bodies)

Construction Industry Employers' Council (CIEC) (lead contractors)

Contractors' Liaison Group (specialist contractors)

Construction Products Association (producers and distributors of construction products)

The body representing the public and the private sector users of the industries goods and services is the Confederation of Construction Client.

The report of the construction task force *'Rethinking Construction'* is based on the scope for improving the quality and efficiency of UK construction. The report formulates proposals for improving performance taken from other industries that have transformed themselves in recent years. It suggested that continuous and sustained improvement is achievable if efforts are focused on delivering the value that customers need, and being prepared to challenge the waste and poor quality arising from existing structure and working practices. It further suggested that the supply chain is critical to driving innovation, sustaining incremental improvement in performance, and that partnering was one approach which could be adopted.

There have also been other recommendations for change, emerging from other construction related bodies, such as the Reading Construction Forum (1995), White Paper (1995), and the Efficiency Unit Cabinet Office (1995). Most of the initiatives clearly demonstrate that there is a real need to address the fundamental problems of the fragmented industry structure in order for the construction process to become more cost-effective and quality focused for its customers as well as more profitable for its participants. One of most important

recommendations is the development of a more long-term collaborative, or partnering approach.

## 1.2 WHY PARTNERING

The notion of partnering between firms has its origins in the theories of strategic alliances and the management of supply chains. It essentially represents an arrangement whereby clients and suppliers seek a more rational and mutually effective form of association. As such, partnering has provoked great interest as a panacea for many of the contemporary ills of the UK construction industry – low productivity, a litigious and adversarial environment, and a limited take up of the technological business process innovation by firms. Construction industry partnering has been seen as a better way of sharing risk between client and supplier, and of providing suppliers with a more stable income stream.

Despite the level of interest, there is no clear consensus about what partnering actually is, the circumstances under which it will deliver the greatest benefit, or how it can be successfully implemented (Barlow et al 1997). Nevertheless, a presumption by Egan (1998) that partnering will bring benefits to the UK construction industry, including a new environment of co-operation, has been put forward.

While partnering promises benefits for both sides, there are potential obstacles to its development. The traditional emphasis in construction procurement has been on competitive tendering to secure the lowest possible bid from contractors. Partnering, where non-price factors such as attitude or understanding are also important criteria for selecting contractors, represents a fundamental rupture from tradition for both client and contractor.

## 1.3 AIM AND OBJECTIVES

The fundamental purpose of this study is to determine the factors associated with the development of a successful partnering relationship.

The best practices of partnering are investigated across a set of firms that represent different roles in a construction project such as clients/owners, architects, engineers, surveyors, general contractors, subcontractors, suppliers etc where partnering has been used. The research will also highlight the best practices involved in developing and sustaining a successful partnering relationship.

The main objectives of this research are as follows:

Identify the processes required for the implementation of partnering relationships.

Explore the application of partnering within the UK construction industry.

Explore factors associated with partnering projects success from previous practices.

Determine whether projects, which adopted partnering, were successful or not.

Identify factors associated with partnering success.

Produce recommendations for successful application of partnering relationships within the construction industry.

## 1.4 RESEARCH HYPOTHESIS

The main theme of this research is the subject of effective partnering relationships in the construction industry as a function of the managerial activities and behavioural characteristics. Based on the theoretical work and previous research undertaken on the topic of partnering in general and on partnering in the construction industry in particular (elaborated in chapters 2, 3, and 4,), the following hypotheses were formulated:

*Hypothesis one:*

*Partnering relationships are successful within the UK construction industry.*

*Hypothesis two:*

*There is an association between partnering success and partnering team orientation, i.e. partnering success is dependant on partnering team orientation.*

*Hypothesis three:*

*There is an association between partnering success and agreeing on the following agendas of the project: a) Mutual objectives, b) Continuous improvement, and c) Conflict resolution techniques*

*Hypothesis four:*

*There is an association between partnering success and signing a partnering charter, i.e. partnering success is dependant on signing a partnering charter.*

*Hypothesis five:*

*There is an association between partnering success and information sharing.*

*Hypothesis six:*

*There is an association between partnering success and the following behavioural characteristics: a) Commitment, b) Trust, and c) Co-ordination.*

*Hypothesis seven:*

*There is an association between partnering success and the duration of the project.*

## 1.5 THE RESEARCH DESIGN AND DATA COLLECTION

The research described in this thesis evolved around the establishment of the essential activities for establishing a successful partnering relationship.

Achieving this aim requires the development of a model to identify the elements of partnering success and to investigate the trend of success of partnering projects in the construction industry –as it will be shown in chapter four.

As the major target is to assess relationships between variables and to test consequent hypotheses, this research is mainly of an analytical nature. The survey method is, therefore, the appropriate means to achieve the research objectives. The main purpose of the survey is to examine relationships among the model variables as discussed in chapter four.

A sample of fifty-nine projects was studied. The sample consists of thirty-two contracting companies, seventeen consulting companies and ten clients. The data collected was processed using the Statistical Package for Social Sciences (SPSS).

## 1.6 THE STRUCTURE OF THE THESIS

The structure of the thesis is illustrated in figure 1.1: The Thesis Map. This research is composed of seven chapters. The first chapter is a general introduction to the research and outlines the aims and objectives and hypotheses to be tested.

Chapter two is concerned with giving an introductory background about the concept of partnering. It introduces the nature of partnering and its origins and describes the different meanings of partnering. The chapter also aims to provide an evolving analysis of what are the motives, which make partnering happen and also considers the merits and risks of the relationship.

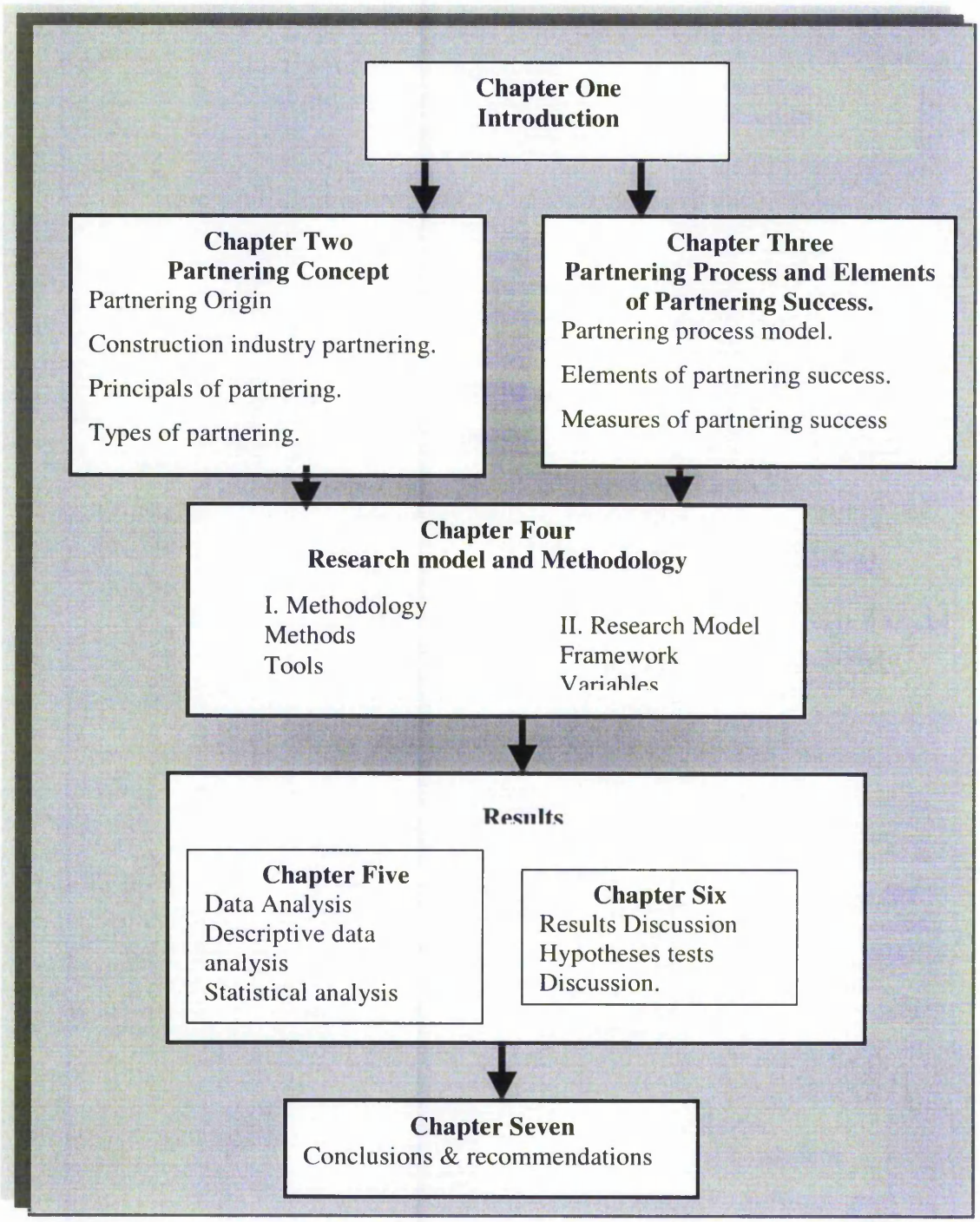


**Figure 1: Thesis Map**

In addition, it highlights the various types of partnering and the most common attributes of partnering relationships.

In order to have a full picture of the subject and to ensure the attainment of the partnering business objectives the literature review presented in chapter three shows in detail processes and activities associated with the success of the partnering relationship. It also reviews the different models of partnering processes from the previous literature and demonstrates views of partnering success and factors that enhance such success.

Chapter four investigates the main research methods applicable to this study. It gives an insight into the strengths and weaknesses of various research techniques, which could be used in order to select the most appropriate one. Results of the pilot study are discussed together with the influence of their outcomes on the formulation of the data collection technique and methods. Finally, a brief explanation of the statistical methods used in this research is presented.

The results of the study are reported in chapter five. Descriptive data collected from the different members of the supply chain of the construction industry undertaking partnering projects are presented in the first part of this chapter. The second part presents the inferential statistical results of the data collected.

Chapter six discusses in detail the results and findings cited in the chapter five, and identifies the retention and rejection of these research hypotheses.

Conclusions drawn from the findings of the research are outlined in chapter seven followed by relevant recommendations.

# CHAPTER TWO

# NATURE OF PARTNERING

## 2.1 INTRODUCTION

This chapter describes partnering and investigates partnering origins. It also provides an evolving analysis of what are the motives, which make partnering occur. This chapter also considers the merits and risks of the partnering arrangements. Moreover, it highlights the various types of partnering.

## 2.2 THE PARTNERING CONCEPT

There is no universal definition of partnering as yet. Partnering, in general terms, represents an arrangement whereby customers and suppliers seek a more rational and mutually effective form of association. SMMT (1994) described partnering as a commitment between a customer and a supplier to continuous improvement and shared benefits by exchanging relevant information openly and by resolving problems by working together rather than by finding a new trading partner.

Linton (1994:8) defined partnering as:

> *'An attitude of doing business which is characterised by long-term relationships, a high degree of co-operation, mutual trust and the absence of traditional 'buyer and seller' positions.*

Ellram (1991:1) described partnering as:

> *'...An agreement between a buyer and a supplier that involves a commitment over an extended time period, and includes the sharing of information along with sharing of risks and rewards of the relationship'.*

Although there is no consensus on the definition of partnering, one can see common threads in different definitions. To this effect, the above definitions state that in a partnering relationship, both the customer and the supplier commit themselves to continuous improvement and shared benefits and risks by exchanging relevant information openly and by resolving problems by working together.

In the construction industry, the concept of partnering has different meanings, many of which seem to be derived from similar sources. To some it means a single-sourced relationship, while to others it means effective project management (Larson, 1995). The majority of construction academics and practitioners essentially sees partnering as a tool for improving the performance of the construction process and emphasises the way it helps to create synergy and maximise the effectiveness of each participant's resources (e.g., Provost and Lipscomb, 1989; AGCA, 1991; CII, 1991; NEDO, 1991; Reading Construction Forum, 1995).

This perspective is captured in the definition of partnering developed by the Construction Industry Institute's Partnering Task Force (1991:2), which sees partnering as:

> *'A long-term commitment between two or more organisations for the purpose of achieving specific business objectives of each participant's resources. This requires changing traditional relationships to a shard culture without regard of organisational boundaries. The relationship is based upon trust, dedication to common goals, and understanding of each other's individual expectations and values.'*

The key elements described here are trust, long–term commitment and shared vision.

Partnering is also viewed as a management process. A recent definition was developed by the Construction Industry Board (1997:1) Report, which appears to borrow heavily from the work of the Reading Construction Forum (1995), using its definition as a starting point. The CIB (1997) report states that: *'...Partnering is a*

*structured management approach to facilitate team working across contractual boundaries.'*

The CIB report states further that partnering should not be confused with other good project management practice or with long-standing relationships, negotiated contracts, or preferred suppliers arrangements, all of which lack the structure and objective measures that must support a partnering relationship.

Matthews et al (1996) and Crowley and Karim (1995) agree that partnering is typically defined in one of two ways: either by its attributes, such as trust, shared vision, and long term commitment, or by the process whereby the term partnering is seen as a verb, and as such includes developing a mission statement, agreeing goals, and organising/conducting partnering workshops. Defining partnering in these ways illustrates the intended results of partnering.

Matthews (1996) stated that partnering can be defined within different contexts. To this effect, Kubal (1994) defined partnering in the context of its effect on communication flow. He stated that partnering was actually a quality improvement process that improved communication flow on a project. Kubal proposed that by opening communications amongst the project management personnel of all the organisations involved, the project was completed with the benefit of a positive team spirit, with all members working together to reach mutual goals. Abi-Karam (1999) also defined partnering as a dynamic communication process to detect and resolve disputes, and avoid prolonged costly litigation between contractors, owners, and their agents, throughout project construction.

Moore et al (1992) defined partnering in the context of cultural change and issue resolution; Baker (1990) in the context of trust and culture, whilst Crowley and Karim (1995) defined it in the context of organisations. Partnering has been defined in the context of communication and information flow.

Matthews (1996) concludes that any definition given by a particular author has a bias towards whatever element of the partnering concept that author believes is most important. Therefore, definitions may confuse when the author is not clearly stating the attribute(s), process(s) or category of partnering he is discussing.

Table 2.2 show how different authors define partnering either by its attributes, category, process or combination of each.

## 2.3 THE ORIGINS OF PARTNERING

The National Economic Development Council (1991) described partnering as having appeared to have evolved, rather than beginning life as the realisation of a specific idea. According to Benhaim (1997), partnering initially emerged in the motor car industry in the USA during the 1980s, influenced by the relationship established between the Japanese car manufacturers and their suppliers in the 1960s and 1970s.

More generally, according to Cook and Hancher (1990), partnering had been used as a contracting strategy by United States manufacturing and distribution companies since the early 1980s. This took the form of strategic partnering and long-term, highly structured and co-operative relationships between companies to achieve separate, but complementary objectives.

Although it appears from the above-mentioned facts that the terminology of partnering appears to have emerged in the United States, it is essentially borrowed from the Japanese way of working- the *'keiretsu'* structure. *'Keiretsu'* refers to a business society where a dominant central firm orchestrates the activities of smaller

| Author | Attributes | Process | Category (type of partnering) |
|---|---|---|---|
| Moore et al (1990) | • | Change process to resolve problems | • |
| Kubal (1994) | Open communication | Quality improved process | • |
| Baker (1990) | Trust | Total quality management | Long term relationship |
| Crowley and Karim (1995) | Trust/ shared vision | Mechanism for solving problems | Long term relationship |
| Reading construction forum (1995) | Commitment | • | One off/long term relationship |
| Bingham (1995) | • | • | • |
| Mattews et al 1996 | Trust/ shared vision | Agreeing goals, process for conducting partnering | Long term relationship |
| Construction industry institute (1991) | Trust, dedication to common goals | Changing to shared culture | Long term relationship |
| Associated general contractors (1991) | Responsibility, good faith | • | One off |
| Nedo (1991) | Responsibility | Formal or informal cooperation | Long term relationship |

**Table 2.2: Definition of partnering within different contexts**

suppliers and sub-contractors. The term partnering would receive little recognition in Japan, however, as their long-term relationships characterised by common goals and trust are an inherent part of culture, it is seen as the Japanese way of doing business (CII, 1991).

There are other factors which helped the development of this approach in Japan including: central planning/government support; a long-term view on investment; and most importantly, regular high spending clients in a healthy and growing economy.

Dyer and Ochi (1993) described the Japanese style partnering relationship as an exclusive supplier-purchaser relationship that focuses on maximising the efficiency of the entire business system. These supplier partners are typically called kankei-gaisha (affiliated companies) in Japan and are considered to be the vertical keiretsu of the parent company. They mentioned that, generally the goal of the Japanese partnering relationship is to increase the quality of products and services while minimising the total value-added costs that both the supplier and purchaser incur. In short, the goal is to create a "transparent" value chain where both parties can work jointly to solve the problems and expand rather than split the pie.

## 2.4 GENERAL PRINCIPLES OF PARTNERING

Bennett (1999) identified that there are four fundamental principles to partnering. These are cooperation, commitment, coordination and trust.

Cooperation

One of the fundamental principles of partnering relationships is co-operation. It is considered as a starting point for building successful partnering. Co-operation emphasises the need to integrate different activities of the project and views these as interdependent parts charged with meeting the end user or customers needs.

Bennett (1999) asserts that co-operation is more efficient than typical relationships within traditional competitive situations where everyone is expected to look after their own interests in the hope that the result will be a successful project. Co-operation is no longer seen as a process between one set of trading partners. It is further suggested by Spekman et al (1998) that co-operation now exists along the entire supply chain. They provided the example of GM's Saturn division where cooperation is no longer restricted to a few select parts suppliers, but it is open to many different suppliers and even its retailer dealer network. The entire team is synchronised to deliver products that permit Saturn to compete favourably against Toyota and Honda. Co-operation evolves as a network of interrelated firms whose primary objective strategic advantage for all members of the project team.

Coordination

Spekman et al. (1998) stress that although co-operation is essential for a successful partnering relationship, it is still not considered as a singularly sufficient condition. Co-ordination is seen as an essential principle for a partnering relationship. It is a necessity for ensuring workflow and effective information exchange.

Trust

Most of the literature reviewed stress that partnering is built on a foundation of commitment and trust (Lee and Billington, 1992). Trust can contribute significantly to the long-term stability of an organisation (Hiede and John, 1990). Trust is conveyed through faith, reliance, belief, or confidence on partners and is viewed as a willingness to forgo opportunistic behaviour. It is simply one's belief that one partner will act in a consistent manner and do what they say they will do. It is the sense of performance in accordance with intentions and expectations that hold in check one's fear of self serving behaviour on the part of the other members of the partnering team (Spekman et al. 1998).

Commitment

As it has been mentioned above, commitment is considered as one of the principles of partnering. Commitment is the belief that partners are willing to devote energy to sustain this relationship. That is, through commitment, partners commit resources to sustain the goals of the relationship. Partners become integrated into their customers' processes and are more tied to their overarching goals. This is the most essential element of partnering. To succeed requires fundamental belief, faith and stamina. The commitment must start at the top and it must be shared by senior management (CIB, 1997).

## 2.5 CULTURAL DIFFERENCES UNDER PARTNERING RELATIONSHIP

There is a significant difference between true partnering and traditional relationships. Ellison and Miller (1995) mentioned three differences as listed below:

In partnering relationships the parties are defining their relationship in terms of expected success instead of planning for potential failure.

For setting a partnering relationship, there is a common set of goals on which all stakeholders concur, instead of each party having its own set of goals. Everyone is expected to share equability in successes and failures.

Partnering requires 'commitment' from higher-level participants than from those engaged in executing the project. In a partnering arrangement, people must be willing and able to commit time to resolve issues long before they become problems, contentions, claims, or lawsuits.

It is clear that partnering practices are significantly different from traditional practices. CII (1991) identified that partnering relationships are characterised by few practices, each of which represent a marked departure from the culture of most organisations. The success of the relationship will be largely determined by recognition of and thoughtful yet prompt change from those past practices.

| Key Partnering Practices | Traditional Practices |
|---|---|
| Mutual trust forms the basis for strong working relationship. | Suspicion and distrust; each party wary of the motives of actions by the other. |
| Shared goals and objectives ensure common direction | Each party's goals and objectives, while similar, geared of what is best for them |
| Open communications avoids misdirection and bolsters effective working relationship. | Communications structured and guarded. |
| Long-term commitment provides the opportunity to attain continuous improvement | Single project contracting |
| Objectives critique geared to candid assessment of performance | Objectives limited due to fear of reprisal and lack of continuous improvement opportunity |
| Access to other's organisations; sharing of resources | Limited access with structured procedures and self preservations taking priority over total optimisation |
| Total company involvement commitment from CEO | Normally limited to project level personnel |
| Sharing of business plans and strategies | Sharing limited by lack of trust and different objectives |
| Absence or minimisation of contract terms that create adversarial environment | Routine adversarial relationships for self protection |
| Integration of administrative systems and equipment | Duplication and/or translation with attendant costs and delays |

**Table 2.5: Key Partnering Practices vs. Traditional Practices**

Source: CII (1991)

Table 2.5 identifies key partnering relationship practices and compares them with traditional practices of most organisations and individuals as identified by the CII.

Key cultural changes, including mutual trust, shared goals, and open communications, strongly built upon one another to give the chance to other opportunities. For example, a long-term commitment provides an opportunity for continuous improvement and a basis for taking additional cost-saving integration steps. Alternatively, traditional practices of single project awards, separate objectives and one-sided contract terms compound to yield adversarial working relationships.

## 2.6 BENEFITS OF PARTNERING

Partnering works for the entire project team. The CII task force (1991) stresses that partnering significantly improved the owner's competitive advantage, and provided many benefits to other participants. The following sections describe the common benefits of partnering.

### 2.6.1 IMPROVED PROJECT EFFECTIVENESS

There is a wide agreement that a partnering arrangement needs to be cost-effective in order for senior management to support it. Efficiency benefits are therefore particularly important. They might include improved project quality, better designs, fewer man-hours, cost improvements, and efficiency improvements.

a. Quality

Most of the literature suggests that the primary focus of partnering should be quality. At the level of standard quality control, some of the case studies report significant reductions in the number of defects (Bennett and Jayes, 1995). Better solutions to problems in one-off projects are said to emerge where there is the early involvement of all project participants. As partners become aware of each other's requirements

and standards, work can be carried out efficiently and reduce rework (Provost and Lipscomb, 1989; CII, 1991). The focus in long-term partnering on improving construction processes provides an opportunity to introduce total quality management into the relationship and helps to improve a safety performance (Provost and Lipscomb, 1989; CII, 1991; Barlow et al 1997).

b. Design

Bennett and Jayes (1995) found that one of the benefits of partnering is design improvement. This is because of an unusually deep understanding of customers' requirements within design teams. It enables more options to be explored in the time available. Measurable benefits derived from this include more effective use of space and more innovative detailed solutions. An important source of this benefit is the facility to involve contractors in the earliest conceptual phases of projects.

c. Efficiency

Bennett and Jayes (1995) suggested that established partnering teams find time to develop new techniques that provide better and more relevant services for their customers. They should develop more procedures and aim to achieve an improvement in the speed and effectiveness of problem solving. They asserted that clients find that partnering arrangements with contractors are beneficial especially where they do not have staff free to work with the contractor all the time. Partnering allows the continuity of personnel from project to project and so each new project starts at a higher point on the learning curve.

d. Cost improvement

Partnering has a direct impact on project cost. Barlow et al. (1997) state that the ability of participants to influence construction cost is greater in the earliest phase of the project, with diminishing opportunities during the later phases. A project that is well defined early in its timetable provides a good base for reducing cost and

increasing scheduling efficiency. This implies the need for the early establishment of a close relationship between the key partners. They added that in the longer term, the existence of a core partnering team could reduce the time spent learning how to work together, making it more responsive to any problems that might arise. Even though an initial design and planning cost may be higher in a partnered project, this should be offset by savings made by improved efficiency and reduced a level of disputes.

e. Speed

Partnering eliminates costly and time consuming selection processes and so allows faster project time (Bennett and Jayes, 1995). Measurable benefits of partnering may include shorter design time, quicker start on site, and shorter construction time. They concluded that all these can contribute to the completion time of a project.

### 2.6.2 More effective use of personnel

Partnering can offer better career development for staff by facilitating allocation, retention and development of human resources. A longer term partnering relationship can provide opportunities for organisations to draw on expertise not usually found in-house because it is not needed full-time. In this way the personnel resources of all the partners can be better used (Provost and Lipscomb, 1989; Baker, 1990; NEDO, 1991). The establishment of clear mutual objectives also allow each organisation to save personnel resources previously used only to oversee the efforts of the other companies (CII, 1991).

### 2.6.3 Reduced claims litigation

Barlow et al (1997) suggested that a major perceived benefit of partnering is that disputes can be more easily resolved internally, rather than escalating into litigation. An important aim of partnering is to identify problems as early as possible and thus minimise the potential for misunderstandings between different parties. The authors

concluded that as a consequence, partnering represents a proactive approach to problem avoidance, and as such helps to reduce the time spent documenting claims.

### 2.6.4 BETTER WORKING ENVIRONMENT

Several surveys (Baker, 1990; AGCA, 1991; Robbins, 1993; Vincent and Hillman, 1993) show that a less adversarial atmosphere and shared commitment to a project result in perceived improvements in the working environment.

### 2.6.5 RESPONSIVENESS TO CHANGING BUSINESS CONDITIONS

Construction companies face a highly competitive environment. Flexibility and innovation are important survival tools. Because it can lead to a more responsive, close-knit team of employees, partnering is said to improve the flexibility of firms and help them to seek new opportunities (Cook and Hancher, 1990, CII, 1991). Partnering may also help firms innovate in terms of their products and processes, and provide opportunities for organisational learning.

### 2.6.6 CERTAINTY

Bennett and Jayes (1995) explained that partnering makes it easier to ensure that project teams are all concentrating on the customer's objectives. It makes the programming of design and construction work more effective and the outcomes more certain. In some cases some clients have committed themselves to support a given level of a contractor's head office costs to ensure that it has the resources needed to concentrate on developing the partnering arrangement. Benefits that provide greater certainty include fewer cost overruns aided by reduced claims and litigation.

Many of the previous studies (e.g. Barlow et al., 1997; NEDO, 1991) stressed that those organisations which entered into partnering relationships had reported that the

continuity of work load had given them security and enabled them to prepare business development plans based on much firmer foundations.

### 2.6.7 INNOVATION

Partnering helps firms to become leaders in their business by innovating and exploring many alternative options (Bennett and Jayes, 1995). The authors suggested that this is because partners are able to discuss innovation and the associated risk in an open manner and share the risks and reward fairly. For example, partnering provides a basis for investing in the joint use of information technology. The continuity provided by partnering makes it worthwhile to invest in common systems and also provides the flow of profits needed to pay for the investment.

## 2.7 RISKS IN PARTNERING

It must be said that partnering is not risk-free, and there are some commentators who discussed the risk of partnering relationships in non-construction projects. Lamming (1993) stressed that the intensity of the partnering relationship and the philosophy of commitment can lead to a high level of pressure to perform. The author added that partners under pressure might be encouraged to take unnecessary risks to prove their worth. Saunders (1994) and Ramsay (1996) argued that the formation of a partnering relationship with a supplier involves considerable risks. They assert that the risk of the transfer of power from buyer to supplier is significant in a single source relationship. They argued further, that very large buyers will be in a position to overcome this risk by being able to dedicate resources to developing new sources of supply in the event of the original supplier flexing its new found power, while smaller companies will not be in a position to insure themselves against this type of risk.

There are some features of the construction industry, which make the introduction of partnering more difficult than in other industries. Al-Bahar and Grandall (1990) suggested that construction work generally involves considerable risk due to the complex nature and uncertainties inherent in construction process. They explained that the construction industry suffers from several factors, which can act as a hindrance to the effective application of partnering approach. Baxendale and Greaves (1997) stated that construction firms entering partnering arrangements with sub-contractors might limit competition resulting in the remaining firms forming cartels.

Some writers (e.g. Kanter 1990; Brown and Starkey 1994) suggested that one of the risks of partnering could be waste of time as a consequence of increased communication channels and points of contacts. They added that partnering relationships might increase the level of inter-organisational communication. Multiple interfaces between partners can make communication inefficient or even unmanageable unless each partner is internally well integrated.

Bennett and Jayes (1995), on the other hand, suggested some of the partnering risks which are summarised below:

### 2.7.1 REDUCED CAREER PROSPECTS

Staff involved in partnering arrangement often have doubts about how it can affect their career prospects. The partnering arrangement can be seen as external to the firm's business and so may handicap promotion prospects. They further suggested that senior management needs to address this anxiety and recognise the positive career benefits that acquired from involvement in partnering arrangements.

### 2.7.2 HIGHER MANAGEMENT OVERHEADS WITH UNCERTAINTY OF PAYOFF

The close integration of systems and procedures that characterise many partnering arrangements can give rise to management overheads with uncertainty of payoff. For example developing integrated Information Technology systems often involves a large expenditure though the benefits depend on the firms involved continuing to work together over a long period of time. Such investment therefore involves new risks if the partnering arrangement does not continue. These issues have to be dealt with by creating a frame work in which risks and rewards are fairly allocated and firms can have sufficient confidence to invest in long term joint systems and procedures.

### 2.7.3 REDUCED BUSINESS OPTIONS

Single sourcing a partnering arrangement creates dependencies that inevitably give rise to concerns on both sides. In general, it is better to maintain other options. Ideally each partner will maintain partnering agreements with three or four firms providing similar services and products. This retains competition and also means that if one fails, there is always an alternative. However, some of the products require all of a customer's business to justify necessary capital investments. In these circumstances firms need to ensure the single source supplier stays in business.

### 2.7.4 INCREASE IN LOSS OF CONFIDENTIAL DATA

According to Bennett and Jayes (1995) difficulties arise in some partnering arrangements over confidentiality. This, of course, happens in many normal contractual situations but with partnering relationships, especially where they are based on open book arrangements or joint project offices, an unusually wide range of confidential information may be available. They mentioned that these issue have been addressed in some partnering arrangements by including tough confidentiality

clauses in the contracts between the firms involved. However the most important safeguard is the real trust that grows up between the partnering teams.

## 2.8 TYPES OF PARTNERING

The literature (e.g. Bennett and Jayes, 1995; Baden-Hellard, 1995; CIB 1997; NEDC, 1991; ECI, 1997) reveals that partnering is not a unified concept, it can take on a number of different arrangements between companies. The vast majority of partnering commentators (e.g., Bennett and Jayes, 1995; Matthews, 1996; Kumaraswamy et al, 2000; Li et al, 2000) discuss partnering in the context of two major relationships, project partnering and strategic partnering. Barlow et al (1997) stated that project partnering generally refers to a much narrower range of co-operative arrangements between organisations for the duration of a specific project. These can involve:

The entire construction project, with the relationship embracing the whole process from conceptualisation to finished project.

Design, where the partnering process only covers the early planning stages of a project.

Conceptualisation, where the parties are working together to create a proposal or design.

Project partnering is partnering undertaken on a single project. At the end of the project the partnering relationship is terminated and another relationship may commence on the next project. Project partnering was pioneered in the U.S. construction industry during the mid to late 1980s. it is widely promoted in the public domain (e.g. Weston and Gibson, 1993 in Li et al 2000).

Li et al (2000) described that in project partnering relations, parties have common objectives that are project specific. Trust needs to be established, more

communication and understanding among parties are expected, and inter-organisational relationships have to be improved. However, different authors have different views regarding this type of the relationship. Thompson and Sanders (1998) referred to this as the co-operation stage. Ellison and Miller (1995) subcategorised this stage into collaborative team-oriented relationship and value added integrated team while Larson (1995) used the term informal partners and project partners.

Strategic partnering takes place when two or more firms' use partnering on a long-term basis to undertake more than one construction project or some continuing construction activity (Bennett and Jayes, 1995). It requires a long term commitment and trust by all parties involved to extend their relationships beyond the successful completion of a single project to the formation of an alliance. This alliance further extends its concern on project related matters to performance improvements in terms of products, services and work practices/processes, intending to achieve the missions on high quality and core competence resulting in the ultimate goal of customer satisfaction. This type of partnering has also been translated diversely by different authors.

Strategic partnering covers a broad range of strategic co-operative relationships between organisations or between different departments in the same organisation. These can involve highly structured arrangements providing for a high level of co-operation between partners (Anderson, 1994), although some argue that long-term partnering stops short of a true merger and allows each participant the latitude to pursue independent objectives and obligations (Cook and Hancher, 1990).

Project and strategic partnering levels discussed above are similar to those identified by Mathews et al (1996), who stress that by learning about the practicalities of partnering, an alliance can climb up the ladder as shown in figure 2.7.

Low performance might result in rolling down the ladder. In addition, each level of partnering requires a different set of performance measures tied to the band of performance to attain.

Recently, the Reading construction Forum published the Seven Pillars of Partnering (1998), which discussed partnering at an industry wide level. The Seven Pillars of Partnering (1998) states that new initiatives in partnering have enabled second and third generation partnering to evolve. Watson (1999) reported that second generation partnering was supported by the main features outlined in Seven Pillars of Partnering, these being strategy, membership, equity, integration, benchmark, project processes and feedback.

Townsend (1997) showed that partnering could take other different forms beside the above mentioned general forms such as:
Post award project partnering.
Semi-project partnering.
Pre-selection arrangements.
Co-ordination arrangement

Townsend suggested that the main differentiating features between these appear to be related to relationship duration, the basis of selection and the most appropriate conditions for application. Table 2.7 summarises this information.

Townsend further suggested that the reason for the existence of different types of partnering is the different levels of collaboration that are possible, depending on the type of supply relationship concerned. This in turn depends on the contingent circumstances faced by the organisations in a specific supply chain. This means that any organisation wishing to partner must first address the issue of what type of relationship it requires, before electing to follow any particular form of partnering.

| | | Differentiating Features | | |
|---|---|---|---|---|
| Forms of partnering | Source | Relationship Duration | Basis of Partner Selection | Conditions for use |
| Project partnering | Bennett & Jays (1995), Badden-Hellard (1995), CIB (1991) | One-off | Competition/ Negotiation | All projects. Best for high value, high risk. |
| Strategic/full partnering | Bennett & Jays (1995), NEDC (1991), CIB (1991) | Long-term | Competition/ Negotiation | Where good business case, part of medium long-term strategy. |
| Post-award | ECI (1997) | One-off | Competition | Public projects, including series of small projects |
| Pre-selection arrangements | NEDC (1991) | One-off/ long term | Negotiation | Any project. Advanced selection of contractors. |
| Co-ordination arrangements | NEDC (1991) | one-off/ long-term | Competition/ Negotiation | Any project. Agreement overlaid on standard contract. |
| Semi-project | Matthew, Tyler and Thorpe (1996) | One-off | Limited competition | All projects where scope of negotiation is limited. |

**Table 2.7: The Different Forms of Partnering.**

Source: (Cox and Townsend, 1998)

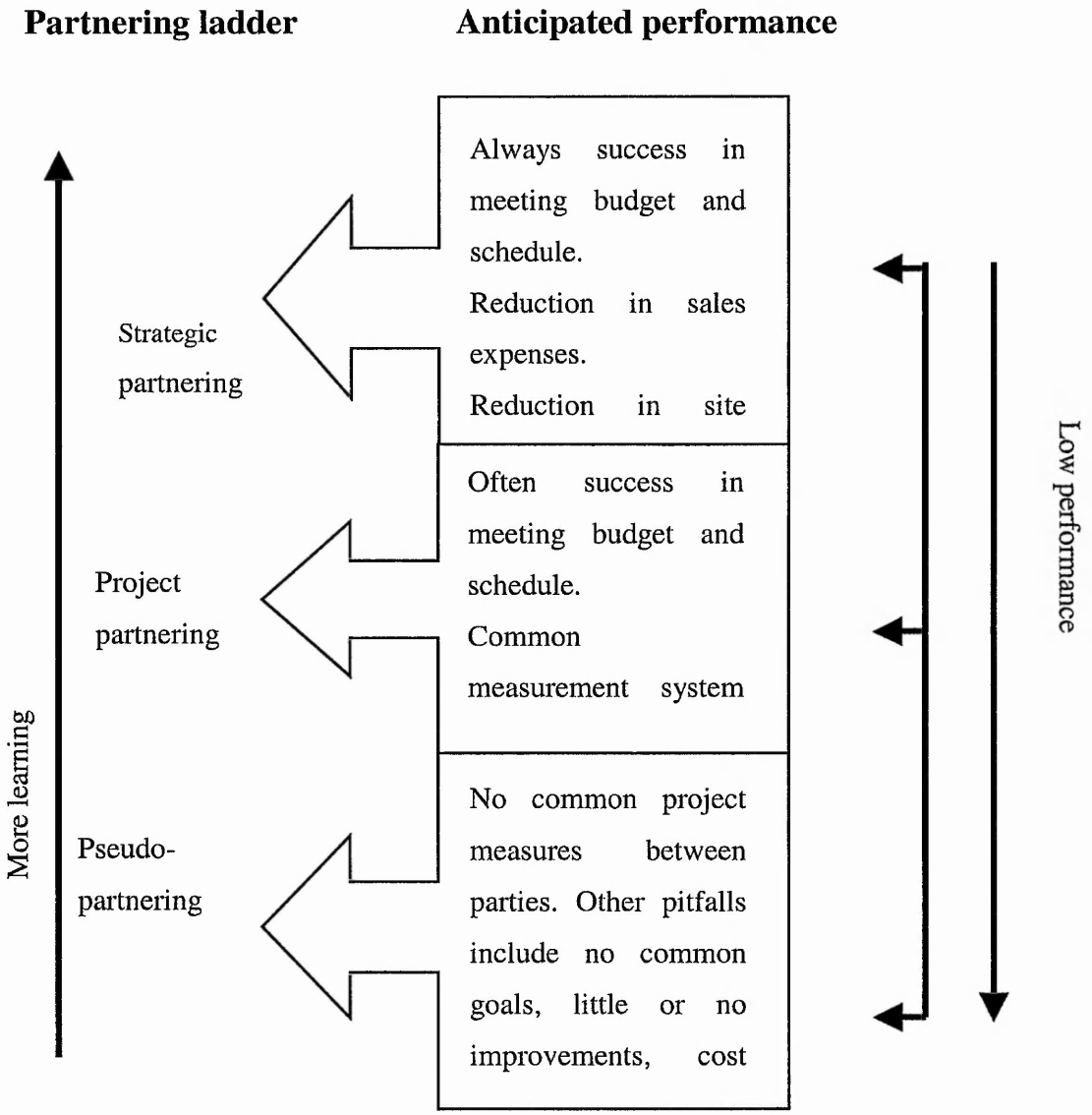


**Figure 2.7: The Ladder of partnering**

Sources: adopted from Matthews et al (1996) and Thompson and Sanders (1998)

## 2.9 PARTNERING, PARTNERSHIP AND STRATEGIC ALLIANCES

There is some evidence that confusion exists between the terms 'partnering', 'partnership' and 'strategic alliance'.

CII (1991) and Palmer (1995) wrote that partnering is a term that is used to define an optimum relationship and should not be confused with the formal entity of a partnership and its associated mutual capabilities. The Reading Construction Forum (1995) continues to expand on this point. It stated that Partnering and partnership have entirely separate characteristics, which must be clearly understood.

### 2.9.1. STRATEGIC ALLIANCES

Strategic alliance is broadly defined as a contractual agreement among firms to co-operate to obtain an objective without regard to the legal or organisational form the alliance takes (Harrigan, 1988). This definition accommodates the range of arrangements that can range from a handshake to licensing, mergers, and equity joint ventures.

Badracco (1991) defined the classic meaning of strategy and alliances. He stated that strategy is a company's basic long term goals and objectives and the ways in which its managers take action and allocate resources to accomplish these goals. Alliances describe all of the co-operative relationships between companies and competitors, customers, suppliers, government bodies, labour unions, and other organisations.

Lewis (1990) further discussed that strategic alliances are traditionally used by multinational companies as means to enter the markets of developing countries that apply restrictive conditions on foreign investment. Strategic alliances provide access to far more resources than any single firm owns. This can greatly

expand the firms' ability to create new products, reduce cost, bringing new technologies, penetrate other markets, pre-empt competitors, reach the scale needed to survive in the world markets, and to maximise profits.

### 2.9.2 Types of Strategic Alliances

Lorange and Roos (1993) stated that strategic alliances can take many different forms. They suggested four types of strategic alliances, which are listed below:

*Ad hoc pool*: This type describes where the parent firm puts in a minimum set of resources, often on a temporary basis by complementing each other, which are returned back to the parents in their entirety.

*Consortium:* This is another type of strategic alliance. In this type the parties are willing to put in more resources than in the ad hoc pool type. The values created in the strategic alliance being paid back to the partners. The consortium organisational structure is often used in large, complex, multi-disciplinary research programs. An example of this type is a strategic alliance where two firms engage in a common R&D consortium. Each partner puts in his best technologies, scientists, etc. The benefits are returned back to each partner after the scientific discovery. Millson et al (1996) commented that the consortium alliance structure is often used to minimise the risk to any one participant, to accumulate needed capital, and to acquire human, technological and physical resources.

*Joint venture*: Schillaci (1987) defined the joint venture as a co-operative business agreement between two or more firms that want to achieve similar objectives. This agreement usually involves the creation of a new co-operative entity to satisfy the mutual needs of all parties involved. He states that in this type both parties put in resources in abundance, allowing the resources that are generated in the strategic alliance to be retained in the alliance itself. An example of this is long term co-operation between partners to develop an

entirely new business. This type of strategic alliance is characterised by a more or less free-standing organisational entity with its own strategic life.

There are two classes of joint ventures can be defined- equity joint venture (EJVs) and non equity joint venture (NEJVS).

*Partnerships:* In this type each parent firm puts in a minimum of strategic resources. They arrange a common organisation for creating a strategic value. The resources generated are not distributed among the parties except as financial results. Unlike the joint venture, the partnership does not form a third firm, unlike consortia, partnerships usually involve only two firms. Moreover the partnership structure does not create the inflexibility or expense of mergers and acquisitions. Kanter (1989) points out that partnership represents a strategy entailing far more than a hand shake. She noted that partners need allies, not manipulated adversaries.

Quantity Surveying Practice (1997) defined partnership as 'the relation which subsist between persons carrying on a business with a view to profit.' A business is defined as 'including every trade, occupation or profession. This definition is different to the Lorange and Roos (1993) definition, which stated that partnership, is a business relationship between two firms only.

Bennett and Jayes (1995) stated that if parties wish to create true partnership, they must expect to create a relationship where the law will expect them to have a higher standard of conduct, one to the other, than they would if they simply had a commercial relationship. In partnership each partner is considered to be the agent of the partnership and, therefore, can bind the partnership with respect to the third parties. They added that partnership is often long term and dissolution is complex.

The above definitions outline the basic characteristics of the different types of the strategic alliances. The need for co-operation is the most commonly

similarity between the different approaches. However, the definitions show that the main differentiating features between the different types of strategic alliance are mainly based on level of resources invested to start the relationship, span of usage, values gained, pay back, and number of firms involved as shown in table 2.8.

The above definitions show that there is a clear distinction between partnering, partnership and strategic alliances. Partnership is shown to be one of the types of strategic alliances and defined as a contractual relationship. Partnership is a legal state where partners are liable. It is unlike partnering relationships, which is earlier defined in section (2.1). They show that partnering is a non-contractual relationship has differentiating characteristics and can be developed between any number of firms for any time limit.

| Type of alliance | Level of resources invested | Span of usage | Values (resources) gained payback |
|---|---|---|---|
| Ad hoc pool | Minimum set of resources | Temporary basis | Invested resources returned back to partners |
| Consortium | More resources than in ad hoc pool | Large, complex, multidisciplinary research programs | Values created are paid back to partners |
| Joint venture | High investment | Long- term co-operation | Values created are retained in the alliance itself. |
| Partnership | Minimum investment | Normally long-term co-operation | Resources generated are retained except financial results |

**Table 2.8: Differentiating features between the different types of strategic alliances**

## 2.10 MOTIVES TO ENTER INTO PARTNERING

Partnering cannot happen from isolation. Customer and suppliers do not decide suddenly to change the nature of their relationship. Partnering occurs because there are motives from either customer or supplier driven by a need to improve a company's competitive performance. Stuart (1997) asserted that there are several reasons for the development of partnering relationships including technology development, risk management and non-conformance cost reduction. Anderson and Narus (1990) suggested that the fundamental reason for the efforts of building partnering relationships is either to add value or reduce cost, or both Linton (1994) stated that the reasons why firms form partnering with each other are varied and are summarised as follows:

### 210.1 INCREASE IN COMPETITION IN THE MARKET PLACE

This is where companies face competition from many different sources. Many of the companies might be under pressure to extend their operations beyond their own geographical boundaries, either to meet customer requirements, or to compete effectively and achieve targeted growth levels. As in the case of a construction equipment manufacturer who knew that customers would depend on a quality service and maintenance facility that would provide a rapid response for local construction sites. Because of the nature of the construction business, with penalty clauses for late completion, equipment downtime is a serious problem. The manufacturer could not have a sufficiently wide distributor network to offer customer a local service so it set up partnering relationship with local service organisations, providing them with business and technical support, operating a priority parts delivery service to ensure that they could meet the customers' repair requirements promptly and efficiently.

### 2.10.2 HIGHER CUSTOMER EXPECTATIONS

In many cases competitive activities are driven by increasing customer expectations where suppliers are unlikely to have the resources and skills to meet these expectations without recruiting, retaining or investment under traditional relationship. Linton (1994) suggested that partnering offers the opportunity to develop these additional services, meet customer expectations and achieve higher levels of customer satisfaction.

### 2.10.3 PRESSURE ON COST

Cost reduction is one of the primary reasons behind partnering. In its simplest form, a supplying partner is offered a large share of the customer's business over a longer period of time. The customer then has a better and more predictable cost base, while the supplier enjoys higher levels of business with reduced sales and marketing costs. A more advanced form of partnering sees both companies co-operating on joint cost reduction exercises, for example modifying production processes, increasing quality to reduce waste or reworking, or achieving savings through re-design.

### 2.10.4 RAPID TECHNOLOGICAL CHANGE

New technology can reduce costs, improve reliability and product performance and increase customer satisfaction. The problem is that technology changes rapidly and few companies have the resources to achieve technical leadership without major investment in research, development and recruitment of high-technical staff. Partnering with suppliers who have a good record of innovations will provide that access. By developing new products or services, which are unique to the partnering relationship, a customer can develop technical advantage over competitors and secure the advantage for a sufficiently long period to build an effective marketing lead.

### 2.10.5 SKILL SHORTAGES

One of the pressures driving companies to enter into partnering is the shortage of skills in key areas such as design, engineering or marketing. Skills shortages mean that staff can be prevented from taking on strategic development tasks because of the pressure of the day-to-day working.

For companies aiming to compete, undertaking new product development or improving service, the cost of recruiting and retaining staff of the calibre prohibitive and therefore outsourcing appears to be the only viable alternative. Outsourcing can be used to overcome short-and long-term skills shortages and deal with peak and troughs in the workload. However, outsourcing without deep involvement in the customers business can lead to ineffective service, so partnering offers an attractive solution.

### 2.10.6 INTRODUCTION OF NEW BUSINESS PROCESSES

Re-engineering and core business development are just two of the business processes that companies are utilising to improve their competitive performance. Total quality management, just-in-time manufacturing, world-class manufacturing and many other approaches to business have each provided the manufacturer with a new way to manage business. Partnering integrates with each of these processes to provide companies with high levels of flexibility and opportunity to take advantage of advances in manufacturing technology. There were also some motives identified by Barlow et al. (1997) from a client's point of view, which are summarised as follows:

### 2.10.7 THE NEED TO CARRY OUT PROJECTS WITH SPECIFIC REQUIREMENTS, WHICH COULD NOT BE FULFILLING USING TRADITIONAL PROCUREMENT METHODS

Research conducted by Barlow et al. (1997), based on case studies identified

that clients felt that standard procurement approaches were too unpredictable or too costly in staffing, time and money. McDonald's for example felt that traditional approaches were unable to cope with their proposed schedule of starts and completion. The firm also wished to achieve design and construction uniformity between their outlets by increasing the use of prefabrication. Partnering is seen as a tool for the achievement of their business objectives.

### 2.10.8 A DESIRE TO RATIONLISE SUPPLIER BASE

Some clients have learned lessons from procurement practices in their core business. Partnering was seen as a tool to rationalise the supplier base and thereby improve construction performance.

The need to ensure that contractors and suppliers adequately represent the client to their public customer or other internal clients

They stated that some of the clients were keen to develop links with trusted contractors who could act as their 'public face'.

### 2.10.9 DISPUTE AVOIDANCE

Clients, contractors, and suppliers alike hope to work in an environment free form the stresses of traditional adversarial approaches. In the USA there is a considerable emphasis on the use of alternative disputes resolution procedure as a fundamental element of partnering. Barlow et al. (1997) commented that the reduced level of confrontation in the various projects they studied was arguably a secondary outcome of the partnering process and not a result of formal disputes.

## 2.11 SUMMARY

1. Partnering is a non-contractual relationship, which is currently applied in different industries worldwide. In general it has originated in the USA since 1980's following the Japanese way of working. Partnering is an integral part of

management approaches that now dominate manufacturing industries worldwide. Inevitably it is influencing the construction industry.

2. Partnering has no universal definition. It can be defined within different contexts, either by its attributes, category, process or a combination of this as shown in table 2.1. Partnering should not be confused with other good project management practices, or with long-term standing relationship, which lack the structure and objective measures that must support a partnering relationship.

3. The benefits and risks of partnering are also reviewed, beside the general motives that encourage firms to enter into partnering relationship.

A partnering arrangement can take different forms. It is generally categorised as short term-known as project partnering, or long term-known as strategic partnering.

Confusion was found to exist ABOUT the differences between partnering, partnership, and the different types of strategic alliance.

# CHAPTER THREE

# PARTNERING PROCESS AND ELEMENTS OF PARTNERING SUCCESS

## 3.1 INTRODUCTION

The previous chapter showed partnering as concerned with building relationships with other firms for maximising agreed business objectives. It also identified the various forms of partnering and risks and merits of this relationship.

In order to acquire a comprehensive view of the subject matter and ways to ensure the attainment of the partnering business objectives, the literature included processes and activities associated with the success of the partnering relationship. This chapter will review the different models of partnering identified in the literature. It also presents views of partnering success and factors, which enhance such success.

## 3.2 PARTNERING PROCESS MODEL

Partnering has become an increasingly popular form of business relation in the American construction industry over the last decade as shown in the previous chapter. Many books and articles have been published describing the concept of partnering, how partnering workshops are structured, and the benefits of partnering (e.g. Abudayyeh, 1994; Crane, 1995; Wilson et al, 1995; Proirier and Houser, 1993). These publications stress that partnering relationships create a harmonious environment that facilitates the attempts to reduce costs and litigation, and increase quality, productivity and profits.

There is a large volume of advice on how to make partnering work successfully. This advice is contingent upon researchers' approach to partnering. Most researchers (e.g. Barlow et al, 1997; Bennett and Jayes, 1995; Crane et al 1997; Crowly and Karim, 1995; Linton, 1994; Brooke and Litwin, 1997) generally define the partnering process in fairly systematic terms, arguing that it involves several basic sequential guidelines. The most commonly referred ones are discussed in the following sections.

## 3.3 PARTNERING AS A TEAM BUILDING PROCESS

To conduct a partnering project successfully, the relationship between partners needs to be developed and a commitment to the concept of teamwork needs to be achieved. Abudayyeh (1994) described partnering as a team building process. He modelled this process in terms of three steps. The first step in the process is expressing an interest in establishing an agreement between the relationship representatives. This interest is expressed in the pre-project conference held between the members of the project. Once an interest has been established, a date is set for organising a workshop to educate both parties on what partnering is all about, and to establish the partnering agreement.

The partnering workshops are organised and managed by independent partnering specialists called facilitators. The role of the facilitator is to lead the workshop and explain the goals of the session and to serve as a moderator during the group discussions. The workshop should be attended by different members of the project group to bring together all parties involved in the project. Its purpose is to try to establish an atmosphere between them, which will improve the process of communication and project execution.

The session is initiated by introducing the participants to each other. The facilitator then explains that everyone needs to be objective and willing to develop new attitudes and behaviours, with the ultimate goal of delivering a

product that meets high standards of quality, safety, timelines, and cost effectiveness. After all, a successful partnering relationship is based on eliminating the adversarial method of contracting, and focusing on collaborative problem resolution and prompt response to identified issues. With this in mind, a structured environment would be created with emphasis on teamwork, trust respect, integrity, honesty, openness, and professionalism.

Abudayyeh (1994) stated that after the aforementioned issues are discussed among the participants, two or more teams that represent the various parties involved are formed. Each team is given time to write down their goals with respect to the project at hand and what they expect from the other parties. After the completion of this exercise, the facilitator begins asking each team to present its thoughts. He or she writes these thoughts on a chart pad and tries to match the goals and expectations of all the teams to formulate one common agreement that satisfies everyone. The entire process is held in a focused and disciplined discussion mode. At the end of the day an agreement is outlined. The agreement is then typed and distributed among all parties involved.

Abudayyeh (1994) added as a final note that these workshops might be periodically repeated (every two to three month), if needed, to reemphasis the partnering relationship and remind the participants of teamwork advantages. The follow-up workshops are especially needed on projects where the staff-of any party to the agreement- has changed. They may also be needed when poor communications develop with time, particularly on long-term projects.

## 3.4 PARTNERING AS A CHANGE PROCESS MODEL

Organisational change models are used to direct the analysis and development of change strategies, and clarify perceptions about organisations (Wilson et al, 1995). The partnering process model illustrated in fig 3.2 is based on the underlying change theory of total transformation management process (TTMP) developed by Mink et al (1993). TTMP has demonstrated success in

implementing change in the United States and Australia. The steps of TTMP for describing a partnering process model are explained by Wilson et al (1995) in the following sections.

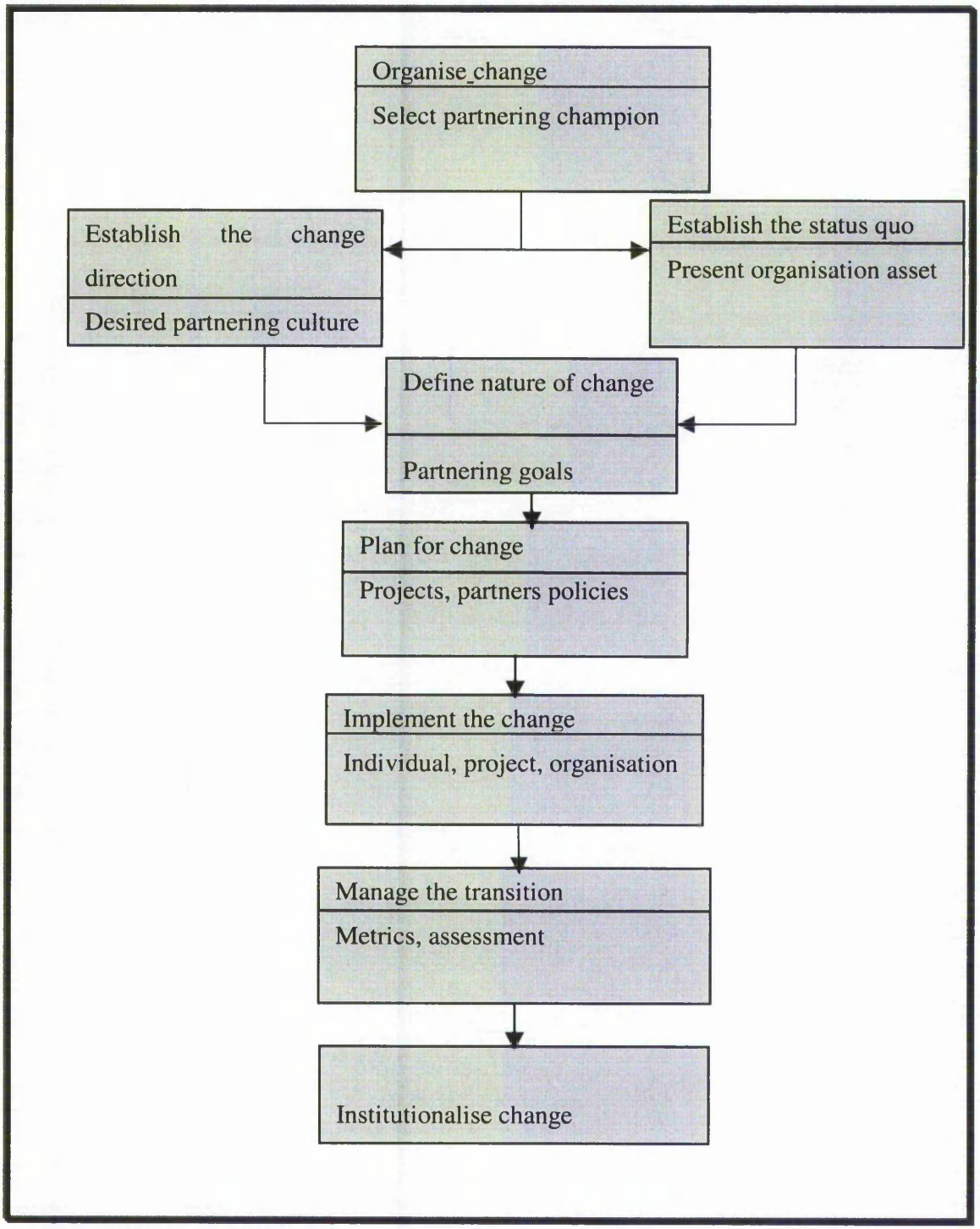


**Figure 3.2: Partnering as a change process model diagram**

**Source: Adopted from Mink et al (1993).**

### 3.4.1. Organising for Change: Transformation Leadership and Action Research Team

Wilson et al (1995) stated that the necessity for leadership in the partnering process cannot be over emphasised. He added that leaders play a dominant role in formulating and directing strategy, and that they are key players in change initiation and manifestation. The first step in the change process is identifying leaders to initiate and lead the change effort. These leaders form the transformation leadership team (TLT). Mink et al (1993) described the TLT as the company's top management group whose strongest contribution is providing strategic decision-establishing vision, mission, clear goals, and shared values for the organisation

Many partnering guides highlight the critical nature of obtaining the top leadership's commitment to partnering (e.g. Cook and Hancher, 1990; Edelman et al, 1991). Identifying and selecting these leaders, and obtaining their unequivocal commitment to partnering, is therefore critical to successful partnering effort.

The action research team (ART) monitors the change process at the project level and helps the organisation match results with intentions. These team members manage the partnering process and are responsible for continuous diagnosis, co-ordination and problem solving.

### 3.4.2. Establish Change Direction: Define the Future State

Once organised for change, the direction must focus on its future state. The definition of the organisation's future state is highly dependent on primarily four components: vision, mission, values and goals (Mink et al 1993). Listed in the following section are common definitions of these components and examples as they may appear in a partnering change process.

A *vision* expresses the long-term perspective of the organisation's leaders. It provides strategic direction for all components of the organisation.

A *mission* is a specific statement, which provide operational answers to the question who, what, when, where, and why.

*Values* are fundamental notions of correct behaviour. They form the foundation of an organisation's character (Cohen et al, 1992). Examples of partnering values include commitment, trust and confidence, clear expectations, responsibility, courage, understanding and respect, and excellence.

Organisational *goals* are mutual understandings, which establish the operational parameters driving mission fulfilment. Examples of partnering goals include on-time delivery, within budget, no claims and litigation, quality product, no rework, increased communication, better working environment, and customer satisfaction.

### 3.4.3 Establish the status quo: Describe the Present State

Once direction has been determined, the organisation must assess its present state in order to develop a plan of action. Wilson et al (1995) pointed out that the construction industry is predominant with adversarial relationships, poor communication, preconceived attitudes, and a lack of co-operation.

During the phase of establishing the status quo, the TLT assesses strengths, weaknesses, and opportunities by re-examining the organisations old vision, mission, goals, values, culture, system, and structure (Mink et al 1993). Consultation, employee and customer questionnaires, group and individual surveys, interviews, and competition analysis are examples of appropriate assessment tools. Assessment of the current state may focus on corporate or project-level expenditure caused by litigation, delays, and adversarial relationships.

### 3.4.4 Define Nature of Change: Assess the Present in Terms of the Future

Once the difference between the future state and the present state are noted, the TLT and the ART can develop specific goals might include maintain good working relationships with client/contractor, reducing litigation costs, reducing modification and change processing time.

### 3.4.5 Plan for Change: Define Strategy

Once the goals for the partnering transformation are identified, the ART proceeds to develop and implement a strategy to attain the goals. The partnering transformation require cultural adaptation, which may meet forceful resistance. Therefore, changes must be accomplished deliberately. Wilson et al (1995) suggested selecting specific projects for partnering as one method to ease the transition. The ART may also aid in the transition of partnering by selecting appropriate partners. Before entering into partnering relationship, an organisation should determine whether the elements for success are present. Before partnering actions are carried out, the ART and the other partners must establish comprehensive and unambiguous policies to guide their partnering efforts.

### 3.4.6 Implement change: Intervention At Three Levels

Ultimately, partnering is aimed at altering the corporate culture of the construction process, and therefore, attention must be directed towards the individuals, the projects, and the organisations involved.

#### 3.4.6.1. Individual intervention

There is a consensus among researchers as well as managers that the individual is critical to any change, and some organisations are changing their environmental attitudes through partnering and are experiencing rewards such as

work satisfaction and co-operation (Lurz 1993). Understanding the individual's concerns can significantly affect strategies for intervention. They further added that introductory workshops, formal, long-term training programs are imperative tools for successful corporate change.

3.4.6.2 Project intervention

If there is one area where the construction industry excels in developing partnering relationships, it is at the group or project intervention level. Wilson et al (1995) concluded that workshops are proven technique in the execution of partnering relationship. The makeup of a successful workshop has been explained in section 3.1.1 and therefore, a comprehensive explanation of a partnering workshop is not provided.

3.4.6.3 Organisational intervention

The last level of intervention required to internalise change is at the organisational level. The goal is to create an open and learning organisation, able to react to internal and external forces. Partnering offers a new paradigm based on trust, team work, dedication to common goals, commitment, and understanding of each other's expectations and values (Harback et al, 1994).

Wilson et al (1995) suggested that organisational intervention begins with a commitment from the top to focus on the process, and to change the process based on feedback and assessment. The organisation must seek feedback both internally and externally and restructure it programmes, policies, and procedures to meet its partnering vision, mission, and goals. The ART is the conduit of this feedback to the TLT.

As in individual intervention, Wilson et al (1995) stressed that organisations should rely heavily on surveys (both internal and external), employee opinion surveys, consultants, internal affairs, and team and organisational effectiveness

profiles are a few of the available tools that can assist organisations implementing change.

### 3.4.7 MANAGE THE TRANSITION

Many companies do not track the results of their partnering efforts, but conclude that partnering is paying off due to the reduction of adversity and the fact that work is more enjoyable. Wilson et al (1995) suggested that for those construction firms that are struggling with cost benefit aspects of implementing significant change within their companies, objective cost and benefit proof is needed. They added that if partnering is treated in the future as a strategic business venture, associated cost could rise to substantial levels. With increasing competition and demands for quality at reduced prices, partnering cost benefit ratios or a partnering index may become a reality. Eventually, partnering change efforts will require tracking and managing.

### 3.4.8 INSTITUTIONALISE CHANGE

The challenge now is twofold: (1) the organisation must support and recognise accepted behaviours, and (2) it must incorporate observations and recommendations from the management phase into every other applicable phase of the model. Both these tasks represent reinforcement for the new vision.

Leadership and personnel management play equally critical roles in the stabilisation of the change effort. For leadership, the private or public recognition of people, both as individuals and in groups, for a job well done demonstrates to the workforce the type of acceptable behaviour and the value organisations places on conformity and excellence. The stabilisation process is also a large function of the ART and the change managers. The ART obtains information through out the process, but particularly during the management phase, and the data is put back into the partnering process model for continuous improvement. Based on the type of information received, strategies can be adjusted, plans can be more completely developed, better opportunities can be

selected, and the incremental change achieved can be stabilised. Over time and numerous stabilisation iterations, the total change will be institutionalised in the organisation and the vision will be a reality.

## 3.5 STUDIES IDENTIFYING ELEMENTS OF PARTNERING SUCCESS

This section will identify different views concerning partnering application in the UK construction industry.

Barlow et al (1997) conducted research exploring the managerial processes involved in five client-led partnering arrangements. In these case studies, the broad consensus was that the personal characteristics of the individuals involved in the partnering relationship, especially their openness and willingness to accept and share mistakes, and the presence of more flexible communications between personnel were the two critical factors in building trust.

Attempts to simplify information flow and breakdown hierarchical systems of communications between organisation, partnering team and individual were another feature of the case studies. The authors also suggested that successful partnering relationships can be defined in terms of a two-way matrix, focusing on:

- The degree of individual 'fit' in a partnering team;
- The openness of communication.

Figure 3.3 indicates the configuration of these two dimensions and the kinds of partnering outcome that may result. It can be seen that organisations are more likely to achieve the 'win-win' outcome to partnering – a trusting relationship with a high degree of mutual understanding- when communications are open and the right individuals are involved.

problem resolution, continuous measurable improvements, and for commitment from management and stockholders.

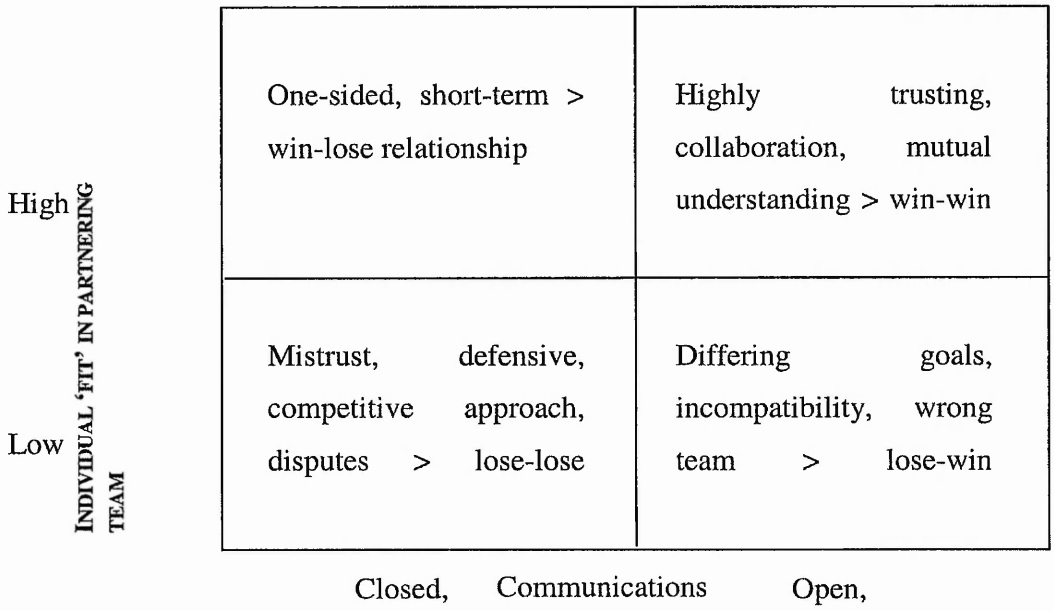


**Figure 3.3: Key influence on partnering outcomes**

Source: Barlow et al (1997:60)

## 3.6 CRITICAL ELEMENTS OF PARTNERING SUCCESS

It appears that some attributes are more contentious than others. For instance, studies of partnering have identified several key areas, which must be addressed to ensure optimal results. The following sections will cite these issues of partnering success considered in the early literature.

**Table 3.2.2: Key attributes of partnering success**

**Primary Resources**

| Key Attributes | CII (1991) | NEDC (1991) | Partnership Sourcing (1994) | Baden Hellard (1995) | Bennet& Jayes (1995) | CIB (1997) | ECI (1997) |
|---|---|---|---|---|---|---|---|
| Mutual objectives (risk and rewards) | • | • | • | • | • | • | |
| Agreed method for early problem resolution | | • | • | • | • | • | • |
| Continuous measurable improvements | • | • | • | • | • | • | • |
| Equality relationships (win-win) | • | • | | • | • | | • |
| Open (no blame) culture | | • | • | | • | | • |
| Customer focus | | | | | • | | |
| Management and stockholder commitment | • | | • | • | • | • | • |
| Trust | • | • | • | • | | | • |
| Long-term commitment emphasis | • | • | • | | | | |
| Innovation | | • | | | | | |
| Team approach | | | | | | • | |

Source: Townsend (1997)

### 3.6.1 DECISION TO USE PARTNERING

Bennett and Jayes (1995) described decision making as the recognition and systematic evaluation stage of opportunities where partnering is required or could be used. The decision to use partnering is often taken by an individual within an organisation.

It helps if top management supports the idea but in many cases the individual has to undertake preliminary work before the commitment can be obtained. According to Linton (1995), this stage is based on the following steps:

Identifying business drivers where partners need to identify their business needs before launching into any partnering relationship.

Evaluating partnering as an option to fulfill these needs, which in turn requires identifying the available market opportunities and identifying risks of not pursuing partnering.

Prepare for partnering within the company.

The author explained that it is important, at the first place, to identify the reasons underlining the decision to enter into partnering. This will help the partnering organisations to ascertain which benefits it hopes to achieve through partnering. As it has been mentioned in the previous chapter the business drivers could include cost reduction, dispute avoidance, or to carry out projects with specific requirements. Next, it is important to evaluate partnering as the best option for achieving the specific identified business goals.

To do this, a company considers the costs of partnering, the expected benefits of partnering to meeting business drivers, and type of partnering desired. This is achieved by identifying and ranking available market sectors in terms of their suitability for partnering taking into account the organisation's strategy for the future. It involves listing the kind of customers and suppliers needed to achieve the strategy and identifying their needs. It is also useful to identify which

products/services involve high risks and to consider how partnering can provide a safety net in case of difficulties.

This analysis should provide an in-depth evaluation of the needs and objectives to be served by partnering. Having decided that a market is suitable for partnering, the final step in this stage is to prepare an initial action plan. Its purpose is to demonstrate the potential benefits of partnering to the rest of the organisation and to describe the steps necessary to establish the arrangement. Bennett and Jayes (1995) added that in preparing the action plan, the following issues needed to be considered:

Setting a clear statement of how partnering will fit into the organisation's strategy. This should start at a strategic level and have a clear understanding of the mission, principles, strategic directions, plans and vision for the future.

Defining the culture needed to undertake partnering. Managing a cultural change is probably the most important and difficult transition that partnering requires.

### 3.6.2 PARTNER SELECTION

Most of the previous literature has stressed partner(s) selection as critical to the success of partnering relationships. The choice of a partner has a significant impact on the performance of an alliance since that choice determines the mix of skills and resources available to the alliance (Harrigan 1985; Rai et al 1996). It is crucial to determine if the resources of a likely partner have the potential to match the requirements for which the relationship was initiated. The following sections will present the partner selection process and the criteria for partner(s) selection.

#### 3.6.2.1 Partner selection process

A partner selection process should be established as soon as the need for partnering has been recognised and then adhered to until the right partner is chosen. Deciding to enter into partnering arrangement can cause a number of

risks to the participants. For example, a client can risk a loss of commercial advantage in the construction market while partners may also risk a loss of opportunities elsewhere. Therefore, selection of the right partner is one of the key steps in the partnering process. The selection process is often approached in somewhat rigid, formalised terms as described by Cook and Hancher (1990). They suggested that when selecting a potential partner one should:

Seek high quality experienced firms;

Concentrate on partner of equal status;

Employ step by step relationship building on all management levels;

Analyse potential partner's key resource contributions and contribution gaps;

Perform a detailed analysis of the potential partners strengths and weaknesses;

Analyse the potential partner's management style, organisation and cultural differences.

Barlow et al (1997) commented that some partners follow these steps to an extent, albeit in a somewhat unstructured way. They also added that some partners emphasise the degree of commitment shown by possible partners to work with them to drive down cost and seek efficiency improvements.

The process of selecting a partner was also addressed in the CII publication In Search of Partnering Excellence (1991), which may be referred to for a more detailed methodology for partner evaluation and selection. The report contended that partnering can embraces all the members of the project (supply chain) from client to consultants to main contractor to subcontractors to principal suppliers. It added that the process of selection of partners applies equally to any of the relationships in this chain giving an example of a private sector client who may devise a long list of possible partners in a number of ways.

If the client is a regular procurer of construction works it may be possible to draw up a satisfactory list based on previous experience. Generally the report identified the following steps to be followed during the selection process:

Form empowered selection team.

Develop a list of potential partners selection criteria.

Identify potential partners.

Evaluate potential partners.

Form empowered selection team

The report suggests that the partnering selection team should consist of representatives from all departments that will be affected by partnering and should be authorised to select a partner. These individuals will be working closely with the partner, as related to their respective departments. They must identify the critical technical skills needed of the partner and then identify the desired commercial criteria.

Developing a list of potential partners selection criteria

*The in Search of Partnering Excellence (1991)* report explained that the selection team must develop a list of partner selection criteria by applying the information regarding the services needed from a partner and the level of partnering that is desired. The major selection criteria will be discussed later in this chapter.

Identify potential partners

Bennett and Jayes (1995) identified that potential partners can emerge from a variety of resources-personal contacts, through industry associations or through approaches from firms already trying to find a partner. They also concluded that some partnering arrangements have developed through personal friendships between individuals. However, to prevent failure, the partnering arrangement itself must be the most important element and must supersede personal friendship. Partnering arrangements formed solely on the basis of personal friendship have a high potential for failure. Then it is important to review the candidates' performance to date to establish, what they have achieved, if they have effective quality systems, if they are at the forefront of development.

Having identified a number of potential partners, the process of moving from a long to a short list can be accomplished either through interviews or by requesting responses to an inquiry document.

Evaluate potential partners

Bennett and Jayes (1995) stated that when partnering idea does not come out of an established long-term relationship, the parties should examine with great care the compatibility of their organisations. Having used the predetermined criteria to identify potential partners, the main remaining issue is to establish the extent of their interest in partnering. There must be compatibility between partners. Expectations must mesh and partners must be on the same wavelength. Even if partners are different in size and power, it is important that equality exists. This step is often done by conducting detailed interviews that evaluate potential partner's company culture, business practices, and ability to accomplish business objectives. In doing this it will be necessary to jointly understand and review their polices and strategies in order to decide if partnering arrangement is likely to work.

### 3.6.2.2 Partners Selection Criteria

Barlow et al (1997) argued in their research that the selection criteria were mainly based on partners' past experience and past performance record. In their report, Bennett and Jayes (1995) stated that potential partners could emerge from a variety of sources such as personal contacts, through industry associations or through approaches from firms already trying to find a partner. They added that potential partners should be identified on the basis of carefully considered criteria. These are identified as:

Previous experience of working together.

Track record.

Potential for improvement.

Quality of management and work.

Availability of resources needed to make partnering work.

A potential to change and develop
A good performance record
An internal consensus that the potential partner is the right one
Understanding of and commitment to partnering

In their search of best practices in partnering, Bennett and Jayes (1998) concluded that the criteria for partner(s) selection should be mainly based on the nature of work to be undertaken, the interests of the firms involved, and their vision of how the partnering arrangement should develop. Once this information is obtained, a formal selection process should be adopted.

Jordan (1990) argued that the only reason to pursue partnering is that it is the best way to reach business objectives. Thus the choice must be built on a precise definition of the business priority needs and what are the most critical requirements to meet them. He added that no firm would make a perfect match. Similarly, prospective partners will see shortcomings in what others can offer. So each firm must satisfy its basic requirements and adjust to the rest. However, he summarised that there are three criteria that must be meet in a partner as:

*Combined strengths*

He concluded that without enough strength, partners couldn't succeed in the market. He concluded that a potential partner's competence is judged by studying the following:

Strengths and weaknesses.
Availability of resources matching business needs.
Track record.

Compatibility

Without compatibility partners will not work together well. A relationship depends on the people directly involved and partners' corporate culture. Both are important; even long-term employees may have a style that varies from company norms. Each firm's organisation and decision-making processes may also affect partnering. The measure of compatibility can be judged by the following:

Ability to perform teamwork.

Partners cultural match.

Performance in other alliances.

Commitment

Jordan suggested that without high levels of commitment, partners cannot go far. He stressed that in order to be sure of commitment level, it is necessary to be sure of:

Operating level commitment

Top level baking

Alliance fit in.

### 3.6.3. AGREEING PARTNERING OBJECTIVES AND ARRANGEMENTS

Much of the literature on partnering implementation adopts a relatively common approach, almost implying that there is a linear model compromising certain rationale steps. For example, AGCA (1991) argues that when following partner selection, the partners should meet at a senior level to discuss the partnering approach, and share strategic plans and project workload requirements. The project owner may take the leadership role regarding conceptual and objective issues, while the contractor may lead on execution issues, although in some cases the contractor may be placed to advise on procurement or conceptual issues.

The report by Reading Construction Forum (1995) follows similar lines. The report asserted that strategic partnering would need to align at the project level as well as the relationship level to achieve the necessary detail and consistency. Project-specific partners have less incentive to work on the quality of their relationship because of its short-term nature. However, partners need to realise that in order to enjoy the full benefits of partnering they need to agree on the following:

Mutual objectives.

Continuous improvement plans.

Conflict resolution techniques.

The report stated that this activity helps make both parties aware of individual expectations, and gives them adequate time to try to incorporate those objectives into win-win objectives of the relationship. Once the partners' objectives have been determined, a partnering alignment session needs to be conducted to establish the above mentioned agendas.

*Mutual objectives*

The development of mutual objectives is fundamental to partnering. These objectives should be mutually beneficial goals that do not conflict with either partner's project success. The aim is to find objectives that firmly ensure, for everyone involved, that their own best interests will be served by concentrating on the overall success of the project. A team-building workshop needs to be conducted to help establish trust and allow the objectives to be easily identified. Mutual objectives may include many issues but common subjects may include improved efficiency, cost reduction, reliable product quality, lower legal cost etc. This means that mutual objectives must ensure that everyone has a real chance to achieve greater individual success than if they concentrate on their own narrow advantage. In other words partnering enables everyone to win more than they could get by adopting traditional adversarial attitudes.

Bennett and Jayes (1995) in their report commented that it may be difficult to find mutual objectives given the great variety of organisations that are needed to design, manufacture and construct a modern building or engineering facility. They further added that clients, consultants and contractors often have different views about what constitutes success for a construction project. Nevertheless case studies show that if project teams are brought together to discuss their individual interests they can find mutual objectives.

The process of agreeing mutual objectives recognises that everyone wants to do a good job. Certainly, this is the case if partners have been selected properly. Competent people do not begin projects with the aim of delivering poor performance provided that they have realistic chance to fulfil their objectives.

Problem resolution

Conflicting issues are common among parties with incompatible goals and expectations (Cheng et al, 2000). According to Bennett and Jayes (1995) the aim of conflict resolution is to understand the problem correctly, and then resolve it at the lowest possible level, within a given time scale. If a solution cannot be found at one level then the next level of resolution is clear to everyone. The agreed problem resolution procedure is non-contractual and should always be used in a genuine attempt to resolve the problem without recourse to the contractual route. *Trusting the* team (1995) suggested three levels of problem resolution -technical, managerial and 'political'- and introduced a flow chart shown in figure 3.4.

Continuous improvement

In search of partnering excellence (1991) asserts that the commitment of partners to improve the process or product over time is the basis for productive partnering relationship. The principle of developing continuous improvement means paying more attention to planning how to do things in advance, and seeing how problems can be anticipated and avoided.

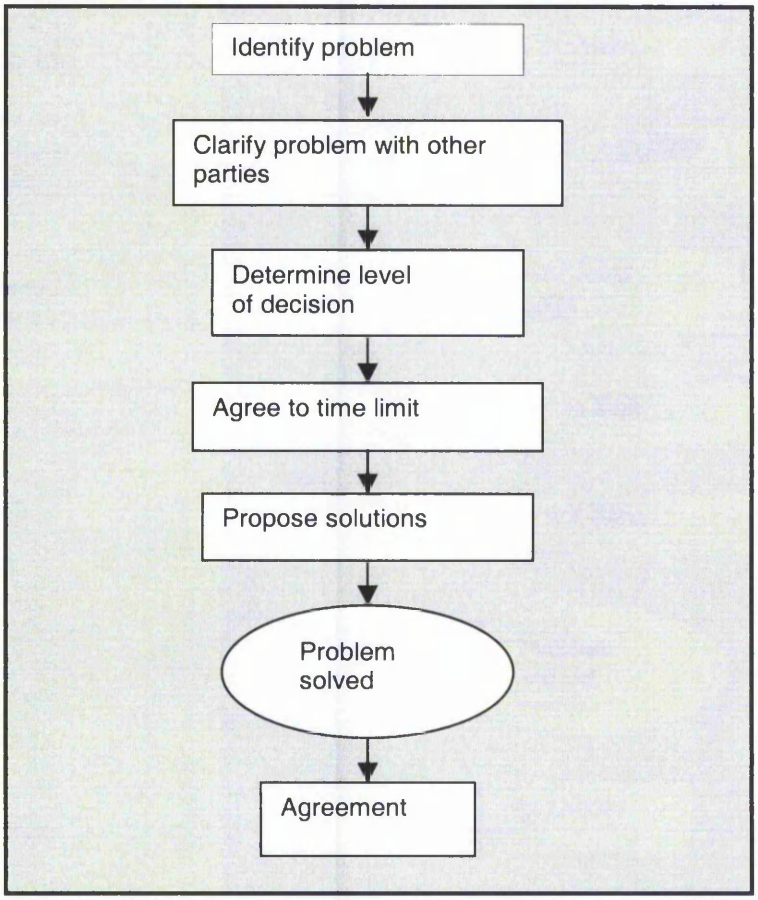


**Figure 3.4. Problem resolution flow chart**

Source: Trusting the team (1995:7)

The emphasis in continuous improvement is on collaborating with the members involved in the project to plan in the sense of mapping out the work processes or methods, identifying where performance can be improved, by which the combination of players, and then seeing what sort of programmer is viable once the processes have been improved. This amounts to a far more rigorous sense of 'planning' than is to be found in the most of the UK construction performance at project level (Holti and Nicolini, 1999).

Continuous improvement should be the concern of all parties involved in the project, as it is only effective when all parties are motivated to its achievement.

The end result is measurable increase in value, whilst properly meeting the client's needs, and it has many elements, such as:
Get it right first time,
Reduction of waste,
Quality,
Looking for opportunities, Competition.
Competition

### 3.6.4 PARTNERING CHARTER

During the project strategy development, team members should draft a partnering charter. The charter represents an informal agreement on the common goals and objectives, areas of continuous improvements, and the agreed problem resolution techniques.

Kubal (1994) points out that partnering involves a gradual coming together of the various parties perhaps facilitated by participation in a partnering workshop. However, a key part of this process of coming together is the creation of a business relationship that allows all partners to achieve their goals.

The case studies conducted by Barlow et al (1997) revealed that some that have an explicit attempt to develop a common set of partnering objectives, agreed among the main parties. Here the process had involved teambuilding events and the establishment of a partnering charter. It was suggested that in this case the project goals had set to some extent already been established by the client and main contractor, and the participants' views were shaped by the external teambuilding facilitators.

### 3.6.5 TRUST

Several researchers have made tentative attempt to define trust. Ring and Van De Ven (1994) states that two views on trust can be found in management and

sociology literature: (a) a business view based on confidence or risk in the predictability of one's expectations, and (b) a view based on confidence in another's goodwill. Baradach and Eccles (1989) say that trust is an exception that alleviates the fear that one's exchange will act opportunistically.

A study conducted by Smeltzer (1997) studied trust within buyer-supplier relationship from the perspective of purchasing mangers and represented the relevancy of the academic literature. He explained that in any analysis of buyer supplier relationships that does not include identity image and reputation is severely limited. He concluded that the trust and the mistrust could occur because of these issues. Identity, image and reputation can determine the extent to which trust is considered appropriate in buyer supplier relationships.

Corporate identity

It is the set of perceptions or personal constructs individuals use to describe what is the central and distinctive about their own organisation. In other words, what do they think about themselves and their organisation (Albert and Whetten, 1985).

Corporate image

Corporate image is what members of an organisation believe outsiders think of their organisation (Dulton and Dukerick, 1991). Image is how organisational members believe others see them serves as a benchmark against which purchasers evaluate and justify actions on an issue. Corporate image matters greatly to buyers. It represents the best guess at those characteristics buyers believe suppliers are likely to ascribe to the buyers because of their organisational affiliation.

Corporate reputation

Corporate reputation is different from image. Reputation describes the actual attributes outsiders ascribe to an organisation. If positive reputation exists, the relationship is more open and trusting. The converse is true if the reputation is negative.

Trust is generally seen as the cornerstone of a successful partnering relationship. Ultimately trust is expectation held by one trading partner that another partner will behave in a predictable and mutually acceptable manner (Sako et al, 1994; Dodgson, 1993). Pruitt (1981) defined trust as a belief that a party is reliable in fulfilling its obligation in an exchange. He added that it is highly related to firms' desire to collaborate. Zand (1972) stressed that the lack of trust will be deleterious to information exchange, to reciprocity of influence, and will diminish the effectiveness of problem solving. Anderson and Narus (1990) add credence to the above and suggest that once trust is established, firms learn that joint efforts will lead to outcomes that exceed what the firms would achieve had it acted solely in its own best interests.

Wolf (1994) observed that it is important not to rely on contracts in partnering relationships, as it is not possible for a contract to anticipate and resolve all the kinds of problems that may arise. Each party has to give a genuine belief in the integrity of the other side. Nevertheless, Kanter (1990) believes that there is no such a thing as premature trust and notes that sometimes parties to an alliance are naïve in trusting their partners too soon without any contractual safeguards in place. Trust must therefore be seen both as a product and enabler of a partnering relationship (Baden-Hellard, 1995).

Because partnering relationships are becoming important, several studies have analysed these relationships. As discussed above, trust is considered as an important variable in the development and maintenance of relationships. For instance, Ellram (1991) determined the average of ratings of factors leading to ineffective partnerships. Lack of trust was ranked by the buyers as the third

highest out of 19 factors, while the supplier ranked lack of trust as the fourth highest factor. Based on the series of studies, trust is seen as a critical component in the buyer supplier relationship.

Barlow et al (1997) commented that the problem for firms entering a partnering relationship is that trust cannot be 'benchmarked'- it is not possible to prejudge the trustworthiness of potential partners. One endemic barrier to greater trust may be the notion that winning means the other party has to loose, which in turn is grounded in a concern to minimise uncertainty and an unwillingness to make proactive risks (Uher, 1994).

Building trust may be the hardest part of creating a durable partnership, because it usually only emerges from an accumulation of shared experiences and from gradual deepening of mutual understanding (Wolf, 1994). Trust can break down through the turnover of employees. However, Dodgson (1993) stresses that partnering relationship can continue when interpersonal relationships fail if inter-organisational trust exists.

### 3.6.6 Open communication

Stoner and Freeman (1989) stated that effective communication is important for two reasons. First, communication is the process by which managers accomplish the functions of planning, organising, leading, and controlling. Second, communication is the activity to which managers devote an overwhelming proportion of their time. It has been characterised as the 'lifeblood' of an organisation.

Cummings (1984) suggested that in order to achieve the benefits of collaboration, effective communication between partners are essential. He added that communication captures the utility of information exchanged and is deemed to be a key indicant of partnership's vitality.

The aspects of communication are communication quality and participation in planning and goal setting. Communication quality is a key aspect of information transmission and includes such aspects as the accuracy, timelines, adequacy, and credibility of information exchanged.

Across the range of potential partnerships, communication quality is a key factor for success. Timely, accurate and relevant information is essential if the goals of the partnership are to be achieved. Honest and open lines of communication are essential for the growth of close ties between trading partners. And by sharing information and by being knowledgeable about each other's business, partners are able to act independently in maintaining the relationship over time.

Bennett and Jayes (1995) contended that free and open exchange of information is an important characteristic of good partnering. Careful consideration needs to be given at each management level to the kinds of information that should be made available to whom. A closely related feature of good practice is to work on the basis of open book costing. They added that the essential principle is not to keep secrets from each other about the subject of the partnering agreement on the other hand it is important to respect the status of confidential information. Likewise, Barlow et al (1997) mentioned that honest and open lines of communication are essential for the growth of close ties between trading partners.

### 3.6.7 ORGANISATIONAL CULTURE

It has been frequently argued that it is very hard to change organisational cultures. Organisational values and practices tend to be reinforced by hiring the 'right type' (Burack, 1991; Robbins, 1993). Strong organisational cultures can thus be deeply ingrained and give rise to patterns of uniformity in behaviour and underlying values. Established cultures are not easily modified because their very reason for existence often rests on preserving stable relationships and behavioural patterns. On the other hand, changing organisational cultures may help to align goals and promote trust between organisations and between

individuals (Provost and Lipscomb, 1989; Baker, 1990). A shared culture can be advantageous in terms of enhancing commitment and consistency of individual behaviours, but it can also be a liability if the shared values are not in agreement with organisational goals or if it means an organisation's members are resistant to change. The CIB report (1997) concluded that the first major task for senior management is to examine the culture of the company to ensure that it is conducive to a whole team co-operative approach. The aim is therefore to achieve effective internal partnering, horizontally between departments and vertically in the management structure.

### 3.6.8 TEAM-BUILDING

Team-building involving external facilitator is often seen as an important instrument in the partnering process and aligning the differing perspectives of participants from culturally diverse organisations (Mosely et al 1990; AGCA, 1991; Weston and Gibson, 1993; CII, 1994; Harback et al 1994; Bennett and Jayes, 1995). Teambuilding is said to help unfreeze prevailing attitudes, values, and behaviours (Belbin, 1981). The underlying assumption is that people are more likely to support what they help create, thereby creating a sense of ownership of the project (Mosely et al 1990). One objective of teambuilding workshops, often highlighted by commentators, is the drafting of a partnering charter by the participants. The charter is a non-legal document, which reflect the common goals of the partnering team members, conflict resolution techniques, and plans for continuous improvements.

### 3.6.9 COMMITMENT

Commitment refers to the willingness of trading partners to exert effort on behalf of the relationship (Porter et al 1974). It suggests the future orientation in which partners attempt to build a relationship that can weather unanticipated problems. Some researchers (e.g. Cumming 1984) suggest that a high-level of

commitment provides the context in which both parties can achieve individual and joint goals without raising the spector of opportunistic behaviour.

Macbeth and Ferguson (1994:161) stated that

> *Real commitment, through out the organisation, tends to come from companies who are either enlightened enough to cast off their dogged attitudes and make the relationship successful or are in the position of having no other choice to stay in businesses.*

They added that these are, but there are examples in the UK Oil and Gas sectors where operating companies have realised that their core competence does not lie in drilling and production and have seen a need to encourage contractors to take the responsibilities for these activities. The only way they have been able to achieve this is through developing relationships with contractors, which enables a transfer of expertise and sharing of risk and benefit through collaboration. Bennett and Jayes (1995) added that clients, contractors or consultants can initiate partnering. Irrespective of who takes the initiative in proposing partnering, it is important that the main parties are committed. They commented that the commitment of the main parties is essential for effective partnering arrangement, and the clients' commitment is vital. Mohr and Spekman (1994) also added that more committed partners will exert effort and balances short-term problems and long-term goal achievements, higher level of commitment are expected to be associated with partnership success.

Effective commitments are developed, not mandated. Real dedication must come from those who will be directly involved. As Jordan (1990) puts it, companies agree, people implement. In building the partnering relationship, people at first meet to discus mutual interest. At this level the relations are most fragile. A champion from each side emerges during early discussions who can sustain momentum. These individuals (champions) become committed to the concept and want to make it happen. They take the initiative to promote the partnering among their peers and to convince higher management of its merits.

Barlow et al (1997) suggested that top level management commitment is needed since most management practices are to some degree risk averse; i.e. there is a tendency to go to the most conservative solution to avoid any potential criticism or blame.

Macbeth and Ferguson (1994) pointed out that a partnering relationship requires a commitment from both parties to make change. Risk adversity can manifest itself at the beginning of the change program with individuals regarding the development of new relationships as being new and alien to the existing culture. They added that commitment is therefore never fully established and reversion to the old ways is always at hand. More commonly is that many companies embark on a partnering relationship program and discover halfway along that there is a need for some radical decisions. One of two things can then happen; either the middle manager will seek guidance from senior management only to find that they do not appreciate the problem and take a negative viewpoint or the middle manager will decide to put the particular issue to one side. In any case the implementation process become ineffective.

### 3.6.10 CO-ORDINATION

Co-ordination reflects the set of tasks each party expects the other to perform. Narus and Anderson (1987) believe successful working partnering relationships are marked by co-ordinated actions directed at mutual objectives that are consistent across organisations. Stability in an unstable environment can be achieved by greater co-ordination. Without high levels of co-ordination, just in time processes fail, production stops, and any planned mutual advantage cannot be achieved.

Buvik and Gronhaug (2000), suggested that effective co-ordination of business-to-business relationships is an important determinant of firms' competitiveness under changing market conditions. They argued that inter-firm exchanges

fraught with unforeseen contingencies cannot be governed with complete contracts. The parties can resort to incomplete contracts that enable them to adapt to changing circumstances by aligning supportive inter-firm co-ordination. The concept of inter-firm co-ordination as means of interaction, which organises the flow of activities, resources and information between partners in order to enable better realignment of terms of trade as change circumstances occur.

When there is a large cultural difference, there will be more contrasts between practices. Co-ordination can mitigate for cross-cultural differences. This, however, requires more effort to negotiate and to build understandings about what each firm will do for the other. When partners' activities are linked, the way each normally works might not suit with the other. And if partners don't share the same assumptions, they have to learn to interpret each other's judgments.

## 3.7 PARTNERING SUCCESS MEASURES

Partnering measures are designed to support objectives of a specific partnering relationship. While partnering objectives are the designated success criteria for an entire relationship, partnering measures provide a system for monitoring progress and influencing decisions. Crane et al (1999) stated that partnering objectives are long term and strategic, intended to encompass a broad array of separate efforts. Partnering measures, however, are short term and specific, intended as a management tool to ensure progress towards fulfilling objectives according to plan. Partnering objectives relate to desired end result. Partnering measures focus on milestones-monitoring progress towards desired end result.

To achieve partnering objectives, organisations develop strategies. Measures must be closely tied to the execution of these strategies and should be chosen for their effectiveness in providing an accurate reflection of progress towards established goals. Such measures assist with providing continuity through out the partnering process, ensuring that separate pursuits combine to support the

overall effort or plan. Measures that accurately represent progress towards the accomplishment of business objectives do so because they were developed in a logical, top-down manner, with business results as the driving focus.

Crane et al (1999) gave an example that one company experienced in partnering strategies shared a process called "objective, goals, strategies, measures" (OGSM) to aid in the development of measures. The first step in working through this process is to identify overall company objectives or business drivers. Second, intermediate goals are identified to support the achievement of the objectives. Third, strategies are developed to direct efforts towards goal achievement. Fourth, measures are created to assess progress towards effective implementation of strategies. The process of clearly identifying goals, design appropriate strategies, and monitoring progress according to a set of measures provides a framework for: a) establishing and communicating goals, b) monitoring progress, and c) evaluating results. This process allows participants to focus their efforts on items of highest priority-those most significantly affecting project results.

The development of an effective monitoring process typically follows a period of discussion among individuals representing the interest of each partner, including various levels within each partner companies. When affected parties participate in plan development, "buy in" to the final plan is more easily achieved. Additionally, through consultation with individuals familiar with specific work processes or activities, proper measurement of the most significant project aspects will most likely result. In the absence of employee representation, employees may not suspect that measures developed are equitable-intended to benefit one party than the other.

Crane et al (1999) pointed out that an effective measurement system must contain two basic elements: a performance baseline and a means for determining actual values. Using an example from the OGSM process, a goal for a company

may be to reduce engineering costs by 5% for each of the next four years. In order to assess progress towards the achievement of this goal, some information must be gathered regarding the base line of current engineering costs. To determine actual values, the partners would monitor engineering costs on an ongoing basis. Comparison of the historical base line with current engineering would allow the partnering relationship to assess its progress towards goal achievement. Data collection procedures must be well defined to ensure consistency among data and to provide for valid comparisons between the base line and actual values.

### 3.7.1 MEASURES OPTIMISATION

When establishing measures to monitor and control the partnering relationship, companies should be careful not to "over measure" (Crane et al, 1999). Measurement requires time and resources, and therefore, companies should designate only the most important areas for measurement, and select an effective means of doing so. It is often helpful to perform a formal prioritisation analyses to assist this effort. Ultimately, the best measures are a few simple ones keyed to the objective of the partnership. By identifying and measuring only those most significant areas, the partnering relationship saves resources and maximises effectiveness.

### 3.7.2 IMPORTANCE OF MEASURES

It is important to remember that measures are useful beyond a simple reporting function. Reporting is data, and what the decision makers needs is information (Bosakowski, 1993). Measures should provide for a proactive method of control. It is not enough for the partners to know that an activity is behind schedule. They have to know what caused the delay, the impact of the delay, and what options exist for getting the project back in schedule. When critical areas are monitored continually, partners immediately recognise when problems occur and can make timely and effective corrections. In the absence of such measures,

progress towards completion becomes ill-defined, and critical delays may not be recognised in a timely fashion.

### 3.7.3 TYPES OF MEASURES

Crane et al (1999) identified three different types of measures; result, process, and relationship; are used to ensure that the appropriate information is available at the right time. These measures are explained in the following section:

## Result Measures

These are "hard" measures based on performance. Companies that were interviewed all used cost, schedule, quality, and safety as result measures. Cost and schedule variance can be used to measure how well the project adheres to the original estimate and schedule. Quality typically includes such measures as the amount of rework required. Safety can be measured by compiling safety statistics such as lost time incidents.

Result measures can be used for strategic adjustments, mid-course corrections or continuous improvement. Each type of measures is most useful for making strategic adjustments to the partnering relationship. However, since the results measures typically rely on activity completion, they are of limited value for making mid –course corrections. The partnering relationship must turn to another type of measures to assess progress towards goal accomplishment in these areas.

## Process Measures

Process measures are used to effectively track in-progress activities, and thus provide an early warning system for identifying necessary mid-course corrections. Trouble areas discovered with process measures can be corrected or adjusted in a timely manner. The primary advantage of identifying potential problems early is to provide the decision maker with the greatest number of

options for problem solutions. The following is a list of some commonly used result and process measures according to Crane et al (1999):

Cost

Cost performance index.

Project within cash flow plans.

Billable ratio (engineering)

Engineering work-hour/unit of product.

Third-party work sampling to determine contractor effectiveness.

Value engineering saving.

Engineering as a percentage of total installed cost.

Duplication of effort

Cost growth.

Overhead as a percentage of total installed cost.

Schedule

Schedule performance index

Milestones met

Immediate notification of delays

Pre-assembly of equipment

Timely issue of engineering document and equipment

Availability of spar parts

Cycle time (product to market)

Time to process change orders, purchase orders, request for information, etc.

3. Safety

Lost-time and non-lost time incidents.

Occupational safety and health administration.

Drug testing result.

Safety training performed

Same-day correction of safety problems.

4. Quality

Conformance to specification.

Achieving of operating objectives.

Percent of rework.

Plant output.

Participation in design by construction/ manufacturing personnel.

Start-up performance.

Number of engineering changes.

Customer feedback.

Audit deviation.

Errors and omissions.

First pass yield

5. Litigation

Outstanding items

Number of conflict elevated for each level.

Just as results measures are inadequate for some purposes, process measures also have their shortcomings. Process measures are concerned with the short term, immediate impacts of problems in the process; they tell the decision-maker little or nothing about the condition of the environment in which it is taking place. To obtain this kind of information, a partnering relationship must make use of relationship measures to achieve a greater degree of foresight and realise the benefits of the increased time to react to problems in the relationship.

## Relationship Measures

Relationship measures are often referred to as "soft" measures, and are used to track the activities and effectiveness of the partnering team. The following is a list of some samples of relationship measures:

Internal communication

External communication

Worker morale

Internal and external trust

Accomplishment of objectives

Utilisation of resources

Problem solving

Creativity and synergy

Timely evaluation and appropriate response.

Relationship measures are often a set of subjective measures that team members use to assess the partnering relationship on a periodic basis. Some important issues that are addressed in relationship measures include the level of trust, the improvement of processes, and the effectiveness of the partnering relationship. It is important that these measures reflect the goals that were identified at the outset of the relationship.

Relationship measures are critical because the perception of partnering by the participants will often influence attitudes toward partnering. Attitudes either positive or negative are great predictors of the future success of the relationship. If the employees perceive partnering as a good idea with high potential for increasing efficiency, creating a better working environment, and reducing costs, they will be likely to make an exceptional effort to advance the relationship. Otherwise, if employees do not see partnering as an asset, their commitment to it can be half-hearted, and this negative perception can result in a self-fulfilling prophecy. Relationship measures can identify these attitudes early in the process and warn that the relationship is not what it should be.

When making decisions based on relationship measures, it is important that decision-makers look at trends, not individual data points. Relationship measures monitor processes and ongoing activities to assess levels of co-operation and trust and individual data points do not portray this information.

## 3.8 SUMMARY

Partnering has become an increasingly popular form of business relation in the construction industry over the last decade. There is a belief that partnering arrangements create harmonious environment that facilitate attempts to gain greater business objectives. Different models of partnering process show the steps that a company interested in pursuing partnering should take to maximise the benefits of partnering. It is a rational, top-down approach that allows an organisation to methodologically prepare for and maintain a successful partnering relationship.

Views of the elements of partnering projects success were reviewed and there appears to be an almost universal agreement concerning the need for: mutual objectives, an agreed method of early problem resolution, continuous measurable improvement, trust and commitment between different team members, and co-operation and co-ordination. Partnering success measures review showed that these measures allow participants to assess the current status of the partnering arrangement and identify strength and weaknesses. Measures used in a partnering relationship will not be effective, however, unless they are developed in a proper manner. Measures must reflect the parameters that are indicative of goal achievement. Additionally, partnering measures must be tailored to suit the culture, needs and abilities of all involved parties.

# CHAPTER FOUR

# RESEARCH METHODOLOGY

## 4.0 INTRODUCTION

Chapters two and three presented the concept of partnering and the different processes and practices for the development of successful relationships. This chapter investigates the main research methods potentially applicable to achieve the aims of the study and discusses the strengths and weaknesses of various research techniques, which could be used. It also identifies the methodology deemed to be most appropriate for this research. The influence of the results of the pilot study are discussed together with its impact on the formulation of the data collection technique and methods. Finally, a brief examination of the statistical methods used in this research are presented.

## 4.1 AIM OF THE STUDY

The fundamental purpose of this study is to determine the factors associated with the development of a successful partnering relationship. Throughout the study the primary goal is to understand better the factors that support and encourage partnering relationships.

Given this theme, investigation is made across a set of firms into the partnering practices that represent different roles in a construction project such as clients/owners, architects, engineers, surveyors, general contractors, subcontractors, suppliers. This research will highlight the factors required for developing and sustaining a successful partnering relationship.

The objectives of the research are:

To identify the processes required for the implementation of partnering relationships.

To explore the application of partnering within the UK construction industry.

To explore factors associated with partnering projects success from previous practices.

To determine whether projects which adopted partnering were successful or not.

To identify factors associated with partnering success.

To produce recommendations for the successful application of partnering relationships within the construction industry.

## 4.2 RESEARCH MODES

Research aim and objectives significantly influence the researcher's plan of action and the research may have several objectives. The objectives might be the explanation of certain behaviour, the description of an event, or the exploration of an unstudied topic. However, these objectives are not mutually exclusive. A research project may include one or all of them (Djebarni, 1993). According to Al-derham (1999) there are three main recognised modes of research: exploratory, descriptive and analytical. These modes are identified according to the objectives of the research. Therefore, there is no best mode of research. The type that achieves the desired objectives will be the best.

## 4.3 AN OVERVIEW OF RESEARCH METHODS

According to Yin (1994) there are several ways of performing behavioural research. They include histories, experiments, surveys and case studies. Each has its particular advantages and disadvantages, depending upon three conditions:

The type of research;

The control the researcher exercises on actual behavioural events;
The focus on contemporary as opposed to historical phenomena.

| Method | Form of Research Question | Requires Control Over Behavioural Events? | Focuses on Contemporary Events? |
|---|---|---|---|
| Survey | Who, what[1], where, how many, how much | No | Yes |
| History | How, why | No | No |
| Case Study | How, why | No | Yes |
| Experiment | How, why | Yes | Yes |

**Table 4.1: Relevant Situations for Different Research Methods**
Source:Yin1994

Given the fact that this study focuses on contemporary events and does not require control over behavioural events, only survey and case study methods are discussed.

### 4.3.1 The Survey Method

According to Phillips (1967), the survey constitutes a method of data collection that utilises interview or questionnaire techniques for recording respondents' opinions. The manner in which questionnaires or interviews are administered may differ according to the circumstances and conditions of the field. The salient features of the survey method are as follows:
It is appropriate for collecting specific quantitative data.
It is feasible and relatively cheap.

Broad generalisations and inferences can be made from a small sample.
It offers greater possibility for replication. The user has prior knowledge of the answers likely to be procured.

#### 4.3.1.1 Interview Techniques

Interviews are one of the most frequently used of all data-gathering techniques. The interview can be thought as a continuum of types, in which the polar ends are structured and unstructured. The chosen form hinges mainly on the nature of research and the personality of interviewee (see strengths and weaknesses of interviews in table 4.2).

#### 4.3.1.2 Questionnaire Techniques

The questionnaire is a self-administered interview. It requires self-explanatory instructions and effective question design since there is often no interview to help explain what may appear ambiguous to the respondent (Smith, 1981). In fact, questionnaires are different from interviews mainly in the way they are administered. Self-administered questions are referred to as questionnaires, while questions delivered face-to-face are referred to as interviews.

### 4.3.2 The Case Study Method

The case study usually involves the in-depth study of a specific setting rather than a random sample. The researcher relies on a repertoire of instruments to collect data including informal interviewing, the use of knowledgeable informants and participation in and observation of events as they happen.

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[1] 'What' questions, when asked as part of an exploratory study, pertain to all these methods.

According to Yin (1984:1), a case study is:

'...an empirical inquiry that investigates a contemporary phenomenon within a real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used."

**TABLE 4.2: A Comparison of Interview Techniques**

| Type | Strength | Weakness |
|---|---|---|
| 1.Informal Conversational Interview | Increases the salience and relevance of questions.<br>Is built on, and emerges from observations.<br>Can be matched to individuals and circumstances. | Different information collected from different people with different questions.<br>Less systematic.<br>Data organisation and analysis can be quite difficult. |
| 2. Interview Guide Approach (Unstructured) | The outline is more comprehensive.<br>Data collection somehow systematic.<br>Logical gaps in data can be anticipated and closed.<br>It remains fairly conversational and situational | Important and salient topics may be inadvertently omitted.<br>Interviewer flexibility in sequencing and wording questions can result in substantially different responses, thus reducing comparability. |
| 3.Standardised Open-ended Interview (Semi-structured) | Comparability of responses increases.<br>Data are complete.<br>Provides understanding of respondents' own viewpoints and interpretations.<br>Review of the instrument used is possible.<br>Organisation and analysis of data is easy.<br>Can be modified to fit the needs before or during interview.<br>Can convey empathy and built trust.<br>Interviewer's bias is reduced when there are several interviewers. | Little flexibility in relating the interviewer to particular individuals and circumstances.<br>Standardised wording of questions may constraint and limit naturalness and relevance of questions and answers.<br>Non-comparability of responses. |
| 4.Closed and Quantitative Interview (Structured) | Questions and answers are fixed in advance.<br>Respondents choose from too fixed answers. | Respondents must fit their experiences and feelings into the researcher's categories.<br>May be perceived as impersonal, irrelevant and mechanistic.<br>Can distort respondents' answers by strictly limiting their response choices. |

(Source: Adapted from Patton 1990)

Al Derham (1999) identified some characteristics of the case study method as follows:

It is appropriate for building up a qualitative contextual illustration of the setting.

It is appropriate for examination of complex social relationships and intricate patterns of interactions.

It offers greater richness of data in-depth and penetration in analysis.

The user has a limited prior knowledge of the setting.

The data gathered gives very limited scope for generalisation.

## 4.4 RESEARCH MODEL

A better approach to examining data is to draw on one's prior theoretical knowledge and insight about different processes which might be involved, and to test whether the data shows the consequences of those processes. In other words, one uses a theoretical model of what he/she thinks might be happening to guide the search for patterns in the data.

Nachmias and Nachmias (1992) explained that a model is viewed as a likeness of something. For example, an engineer might have a model of a machine such as a space shuttle i.e. the model serves as a physical, visual representation of the structure and features of the space shuttle. The authors further explained that models in the social sciences usually consist of symbols rather than physical matter, that is, the characteristics of some empirical phenomenon, including its components and relationship between its components and are represented in logical arrangements among concepts.

A model, then, is a representation of reality. It delineates certain aspects of the real world as being relevant to the problem under investigation, makes explicit the significant relationships among the aspects, and enables the formulation of empirically testable propositions regarding the nature of these relationships. To

this effect, a model is a key element in determining the scope of the research. It points to those variables that must be considered or controlled on data collection and analysis. Echenique (1970) distinguishes between models designed for prediction, description, and exploration or planning, and between those, which are conceptual (i.e. mathematical model) or physical (i.e. architectural models). Fellows and Liu (1997) classified models as ionic, replications, analogues and symbolic.

*Ionic model:* is the visual or pictorial representation of certain aspects of a real system, such as computer screen icons to denote programmes; detailed drawing of a part of a building.

*Analogue model:* is the model that employs one set of properties to represent some other set of properties which the system poses, (e.g. electrical circuit to mimic heat flow through a cavity wall).

*Symbolic model:* is the one that requires logical or mathematical operations (e.g. equation of an 'S curve' of project cash flow)

*Replication model:* is the one, which display a significant physical similarity to the reality as a doll.

For research purposes, the more common forms of models are analogue and symbolic, whilst in the construction industry, ionic models and replications are usual.

## 4.5 RESEARCH MODEL FOR THIS STUDY

As it has been mentioned earlier in this chapter, the main aim of this research is to examine the successful application of partnering within the construction industry and to identify factors related to this success. This task is to be accomplished by setting out the variables associated with the application of partnering. This research requires a study of a number of projects rather than

one or two case studies in order to be able to analyse the relationship between the variables.

A review of the literature on factors affecting the success of partnering relationships within the construction industry shows that they can be categorised as:

*i) Activities* required for the initiation and implementation of a partnering relationship. Figure (4.5.1) illustrates the identified activities, which need to be considered during the initiation and implementation of a partnering relationship.

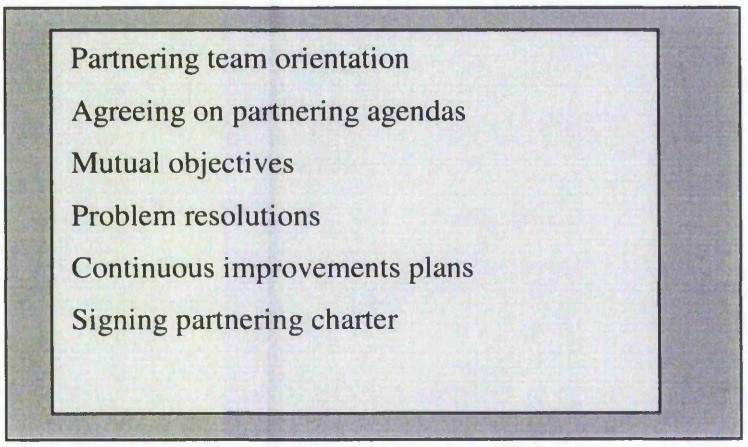



**Figure 4.5.1:Managerial activities**

*ii) Behavioural characteristics:* The literature reviewed in chapter three identified certain behavioural characteristics associated with partnering relationship success (e.g. Baden-Hellard, 1995; Cummings, 1984; Harback et al., 1994; Bennett and Jayes. 1995; Porter et al., 1974; Mohr and Spekman 1994). The researcher proposed, on the basis of the literature review, for the current research model that these characteristics need to be practised during the course of the relationship and identified them as commitment, trust, co-ordination, and information sharing as illustrated in figure 4.5.2.

In order to achieve the objectives of the research, a model has been set as illustrated in figure 4.5.3, relating the determinants of a partnering relationship.

The design of this research model, based on the theoretical framework of this research, is centred upon the following two premises:

Firstly, partnering application is based upon certain activities that distinguish this relationship from other traditional relationships. Secondly, while partnering generally tends to depend on certain activities during its implementation, there are certain behavioural characteristics, which are associated with the success of the relationship.

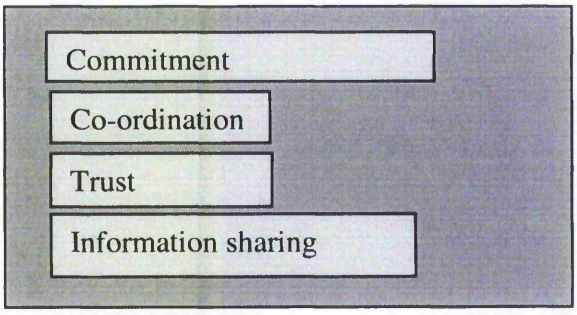



**Figure 4.5.2: Behavioural characteristic**

The model in figure 4.5.3 shows that there are some key elements, which enhance the success of partnering relationships. These centre on the presence of certain activities and behavioural characteristics as shown in figures 4.5.1 and 4.5.2. Based on the literature cited in chapter three it is clear that although partnering can offer a lot of business benefits, it can also produce high levels of risk. Therefore, after deciding to enter into a partnering arrangement, agendas are designed to reflect the future scenarios, which will be essential for the full development of the relationship. Thus, the success of partnering projects requires a close working relationship and the ability of each partner to adopt its facilities to the partnering success. Accordingly, as these agendas are set, the relationship will bring many improvements.

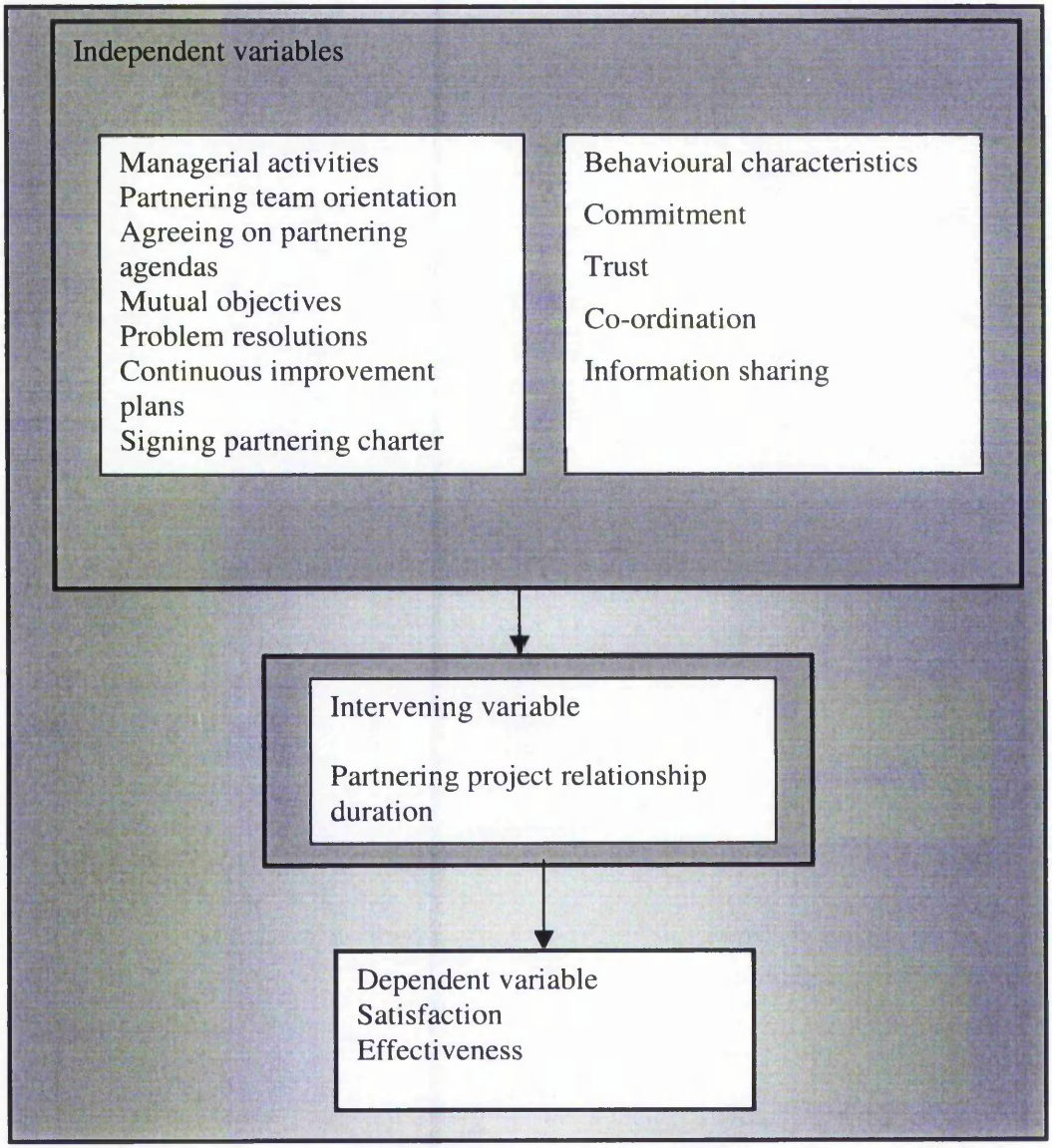



**Figure 4.5.3: Research model**

These improvements differ from one organisation to another depending on the specific circumstances and requirements of each organisation. Team-building

through partnering workshops is often seen as an important instrument in the process of building trust since it helps partners align their differing perspectives.

The model also postulates that for the success of a partnering relationship to occur, there are some behavioural characteristics that are proposed to be related directly to its success. It shows that high degrees of trust and open communication are essential ingredients of a partnering process. It is also necessary to secure the commitment of the partnering team. Some members of the team may be visionaries who can initiate a radically new approach such as partnering while others may be more involved in implementing and reinforcing the partnering process itself.

The research model proposes that the success of partnering can be determined by the impact of the basic managerial activities and behaviours on the effectiveness and satisfaction with the partnering arrangements. The three principal model variables are:

*Independent variables*: these are managerial activities and behavioural characteristic variables.

*Intervening variable*: this is the duration of partnering project, which is suggested to have an impact on the relationship between the dependant and independent variables.

*Dependant variables*: these are effectiveness and satisfaction, which reflect the relationship success.

## 4.6 MEASURES OF PARTNERING SUCCESS

Partnering success measures is an issue that is frequently discussed and yet rarely agreed upon. Because of the diverse, individual nature of partnering relationships there are no standard measures to evaluate the success of partnering relationships, and hence the concept of partnering success remains ambiguously undefined. Travis et al. (1997) argued that the measurement of partnering success should be based on how well the established goals and

objectives of each partner are being fulfilled. They also added that incentives should be developed and structured so that they reward the progress toward the advancement of the general business drivers identified at the outset of the relationship.

Mohr and Spekman (1994) used two indicators of success: objective indicators such as sales volume, and subjective indicators, such as, satisfaction of one partner with the other. Their objective indicators are based on the assumption that the relationship is formed to attain certain set of goals. The attainment of such goals is one indicator of the relationship success. The effective indicator of satisfaction is based on that, which generates satisfaction, exists when performance expectations have been achieved.

Ellram (1990) argued that the existing supplier selection model tended to concentrate on the satisfaction of current needs rather than a supplier's potential and future direction. Ellram listed four factors for consideration in forming a longer term relationship:

Financial issues

Organisational culture

Technology

Other factors.

Cousins (1992), identified the following attributes as being important in success:

Price

Delivery

Quality

Innovation

Level of technology

Culture

Commercially

Productive flexibility
Ease of communication
Current reputation.

However, the above list of dimensions for measuring the performance of partnering success includes not only performance dimensions but also attributes of capability oriented dimensions including financial issues, organisational culture and strategy, trust, management attitudes, technology, safety record, strategy and process, innovation, commercially, ease of communication and current reputation, without explicitly differentiating between them.

This research, is concerned with identifying the element of success rather than determining the performance measures of the relationship. Based on the theoretical framework of this research, two indicators of success are used, namely objective indicators and subjective indicators. The choice of the objective indicator (e.g. cost saving, meeting schedule) is based on the notion that a partnering relationship is formed to attain agreed business/project objectives. The attainment of such objectives can act as one indicator of the relationship success. The choice of the subjective indicator is based on the notion that success can be determined by how far partners are satisfied with the different aspects of the relationship (e.g. utilisation of resources, information systems).

## 4.7 RESEARCH HYPOTHESES

Formulating hypotheses is one of the major steps in the research process; they constitute an important part of that process. Hypotheses may be divided into descriptive and relational types. In descriptive hypotheses, the question asked deals with the distribution or occurrence of a given variable with no attempt to explore the relationships among variables. A relational hypothesis, on the other hand, seeks to know whether a given variable is related to another one (Al Derham, 1999).

The main target of this research is the subject of effective partnering relationship in the construction industry as a function of the managerial activities and behavioural characteristics.

Based on the theoretical work and previous research undertaken on the topic of partnering in general and on partnering in the construction industry in particular (as discussed in chapters two and three and in particular in sections 2,6 and 3.6 and illustrated in table 3.2.2 and as shown in the research model), the following hypotheses were formulated:

**Hypothesis one:**

*Partnering relationships are successful within the UK construction industry.*

**Sub-hypothesis one:**

*Partners are satisfied with their relationship.*

**Sub-hypothesis two:**

*Partnering projects are effective.*

**Hypothesis two:**

*There is an association between partnering project's success and partnering team orientation, i.e. partnering success is dependant upon partnering team orientation.*

**Hypothesis three:**

*There is an association between partnering project's success and agreeing on the following agendas of the project: a) Mutual objectives, b) Continuous improvement, and c) Conflict resolution techniques*

**Hypothesis four:**

*There is an association between partnering success and signing a partnering charter, i.e. partnering success is dependant on signing a partnering charter.*

**Hypothesis five:**

*There is an association between partnering success and information sharing, i.e. partnering success is dependant on information sharing.*

**Hypothesis six:**

*There is an association between partnering success and the following behavioural characteristics: a) Commitment, b) Trust, and c) Co-ordination*

**Hypothesis seven:**

*The association between the elements of partnering and the success of the partnering projects is contingent upon the duration of the relationship.*

## 4.8 METHODOLOGIES SELECTED FROM PREVIOUS STUDIES

There are some practical studies, which attempted to investigate the issue of the partnering relationship in the construction industry. Cited below are some of the previous studies' strategies.

Larson (1995) conducted a wide-encompassing study investigating the relationship between construction projects success and alternative approaches (including partnering) to managing owner-contractor relationship. The study was part of a programme sponsored by the Project Management Institute (PMI), which is a professional association for practitioners of project management with more than 6,000 members worldwide. It is directed at examining the relationship between four different approaches to managing the owner-contractor relationship and the various indicators of project success. It also aimed to determine the effect of bid status of a project on these relationships. Larson's technique was to mail a questionnaire to a 280 randomly selected PMI members. The results of this study indicate that partnered projects achieved superior

results in controlling costs, the technical performance and in satisfying customers compared with those projects managed in an adversarial, guarded adversarial and even informal partnering manner.

Eddie et al. (2000) conducted a short study to develop a model to identify the critical success factors (CSFs) which can contribute to successful use of partnering in construction projects. The authors identified the CSFs from the previous published literature from construction management as well as other management disciplines. They also described how these factors can be evaluated to improve productivity and performance of construction projects. To achieve their target, they used individual measures for evaluating the level of the CSFs within a partnering organisation. For the data collection, senior executives were invited to answer a set of questions that asked them to respond to statements (i.e. observable items or indicators) about the extent to which the CSFs are established in their organisations, based on a five-point Likert scale (from mostly disagree to mostly agree). Moreover, the rate of success was assessed by using objective and subjective measures.

In a study designed to develop a conceptual model of business relations, Hinks et al. (1996) conducted a case-study to examine a 20 year relationship between a client and contractor. During the 20 years, the client and the contractor successfully completed, 15 construction projects. The study was funded by the EPSRC. The researchers examined the traditional nature of relationships in the construction industry and contrasted this to those found in the manufacturing industry. The purpose of the study was to combine the finding of this case study with recent literature from both construction and manufacturing industry. The developed model was also tested in subsequent case studies.

Barlow (1996) conducted research for the ESRC Innovation Programme to investigate the managerial processes involved in partnering, through a series of five partnering case studies of existing partnering arrangements in the

construction industry. The case study method was selected because the cases considered represented a range of different types of partnering relationship and different construction sectors. Some 60 in-depth interviews were conducted with personnel in these companies. The interviews examined such areas as: the direction of, and motives for, the particular strategies that have been adopted; the ways in which personnel adjust to change by making trade-offs or restructuring work relationships; and the evolution of partnering in response to unexpected events or crises. Interviews were also conducted with major contractors who were pro-actively seeking partnering relationships, to explore their experiences in the current construction market.

| **Aim of the study** | Methodology adopted |
|---|---|
| Partnering as a managing successful owner-contractor relation (Larson, 1995) | Survey method |
| Establishment of critical success factors of essential for successful partnering relationship (Eddie, 2000) | Case study |
| Conceptual model of business relations (Hink et al, 1996) | Case study |
| Managerial processes involved in partnering (Barlow, 1996) | Case study |
| Forms of construction industry partnering (Barlow, 1997) | Case study |

**Table 4.3: Methodologies selected for previous studies**

Barlow et al. (1997) conducted a lengthy study which aimed to explore the forms of construction industry partnering in Britain in the mid-nineties to late-nineties and the organisational and managerial processes involved in implementing partnering relationships. They also aimed to highlight some of the

implications of partnering for economic and business theory, especially the debates in 'institutional economics' about non-market arrangements between firms, and in the theories of strategic change about 'organisational learning'. The techniques employed in this research involved in-depth interviews in a series of companies engaging in different types of partnering relationship.

## 4.9 RESEARCH METHODOLOGY

Following the review of the research strategy in the previous section, the criteria upon which the selection of the current research strategy is based are discussed below.

### 4.9.1 SELECTION OF THE APPROPRIATE METHOD

Different research methods are not alternatives to be chosen between on a-priori grounds. They are complementary to each other rather than in competition. The choice is made on the basis of appropriateness to the objectives of the research. The current research is of an analytical mode as the major target is to assess relationships between variables and to test consequent hypotheses. As a result, the survey method is chosen as the appropriate means to achieve the research objectives, given that the survey's main purpose is to examine relationships holding in the population.

The review of previous related studies presented in section 4.7 revealed that the case study method has been the most used technique to gather information in this area of research. Although the case study can offer greater richness of data and in-depth penetration in analysis, it, however, gives very limited scope for generalisation of facts. In view of the fact that the purpose of this research is to have a broad view of partnering application and to identify the relation between the variables, therefore the survey method is chosen as the appropriate method for this research. Moreover, the theoretical review presented in sections 4.2 & 4.3 showed that the survey is the most suitable method for questioning and sampling and is more appropriate for quantitative data collection technique.

### 4.9.2 SELECTION OF THE APPROPRIATE TECHNIQUE

Survey methods include many data gathering techniques, such as postal questionnaires, personal interviews, and telephone interviews. The survey for this research requires wide coverage and addresses a population that is geographically dispersed around different places over the UK. Interviewing would involve high travel costs and time investment, therefore a postal questionnaire is chosen as the most suitable instrument for gathering data for this research.

Wiersma (1986:179) defines the questionnaire as:

> *"a list of questions or statements to which the individual is asked to respond in writing; the response may range a check mark to an extensive written statement."*

The questionnaire technique according to Kemmies and McTaggart (1988), is probably the most commonly used method of inquiry. The authors described three main types of questionnaire. The first is the mailed questionnaire, in which a prepared list of questions is mailed to the respondents for answering and return. The second type is the group-administered questionnaire, in which the group from the sample concerned is gathered in one place to fill in the questionnaire. The third is the personal contact questionnaire, where the researcher personally contacts the respondents and ask them complete the questionnaire.

| Advantages | Disadvantages |
|---|---|
| Easy to administer, quick in fill in | Analysis is time consuming |
| Easy to follow up | It is difficult to get a list of good questions together |
| Data are quantifiable | Some respondents do not answer honestly |
| Make tabulation of responses quite effortless | Effectiveness depends very much on reading ability and comprehension of individual |
| Provides direct comparison of groups and individuals | Response rate is often low, due to fear of lack of anonymity |
| Appropriate for large samples | Difficult to get questions that explore in depth |
| Provides direct responses of both factual and attitudinal information | Respondents try to reproduce the "correct responses" |

Adapted from Gay (1992)

Table 4.8.2: Advantages and Disadvantages of the Questionnaire Technique

As a data collection technique, the questionnaire has several advantages and limitations. These are summarised in table 4.8.2. Nachmias and Nachmias (1992) argues that the questionnaire ought to translate the study objective into specific questions; the answers of these questions should provide the data for testing the research hypotheses or questions.

Researchers such as Gay (1992) and Salvin (1984) have provided general guidelines to be taken into consideration when constructing a questionnaire. These researchers suggested that a questionnaire should:

Be clear and simple as possible

Avoid questions that are too long
Ask only simple questions where respondents can answer
Avoid questions with two parts
Follow a natural logic and order
In multiple choice questions, ensure that all the possibilities are covered.

All these principles were taken into consideration when constructing the questionnaire for this study.

### 4.9.3 Stage 1: The First Pilot Study

A pilot study is one that is conducted prior to the main research. It aims to avoid unforeseen problems, to clarify the questions used in a questionnaire or a structured interview, as well as enabling the researcher to get acquainted with the units of the field (e.g. people, place). Pilot studies are often used in many areas of research, particularly when the area being investigated is relatively complex and/or large.

The main purposes of the pilot study depend on the characteristics of the research and include the following:
To gather information related to the principal target of the research, information that is helpful in conducting the main survey;
To check out some particular elements of the main research;
To explore initial conditions of the field;
To warn of potential problems; and
To gather data of more descriptive nature which is helpful to gain insights into some research-related problems.

In this research, two pilot studies took place before the main survey taking into account the above mentioned points. The fundamental target of this research is to investigate the successful application of partnering in the construction industry not only from the perspective of the clients-contractors, but also from

the perspective of the main members of construction project ranging from clients, contractors, materials suppliers, sub-contractors, and consultants. This approach arose from the view that partnering relationships can be successful through the entire supply chain of the construction industry, in addition to the fact that the perception of the members of the construction project will represent the realities of partnering application within the industry.

Due to the difficulty of securing large sample representing all the construction industry sectors, the sample size for this research is mainly centred on the building industry sector. However, the same methodology adopted for this research can be applied for other industry sectors. Therefore, the words 'construction' and 'building' are used interchangeably in this research.

The first pilot study of this research was carried out to identify the firms which are currently conducting some or all their business through partnering relationships, in order to have an insight of possible sample size. This was achieved through a one page questionnaire asking the respondents to identify their business activities and their ability to participate the current research (see appendix). The sample selection process was carried out as follows:
The list of consulting companies is generated from the list supplies by *Building* (October 1998) for the top 200 consulting companies in the UK.
The list of contractors and materials suppliers is produced from the list of top 500 leading contractors and materials suppliers listed by *Building* (December 1997).
The clients list is generated from the Construction Clients Forum list.

The questionnaire was piloted to 200 contracting companies, 100 consulting companies, 25 materials suppliers and 15 clients. Eighty three questionnaires are back from the total of 340. The results of the first pilot study revealed that:
Almost all of the material suppliers responded that they were not involved in any partnering relationship.

Only 12 client companies were able to participate the research.
Most of the participants of the research seem to be composed of main contractors and consulting companies.

The intention was to use the data to produce a stratified sample, which would enable the perception of the three groups to be statistically analysed, evaluated and compared. For this to be possible, a minimum of 30 responses of each group would be necessary. The level of responses did not occur; therefore, the decision was made to amalgamate the groups and analyse the perception of all respondents as one set.

### 4.9.4 Stage 2: Questionnaire Design

The operationalisation of hypotheses is a very important step in the undertaken of any research. Operationalisation means the translation of the hypotheses into a working form that allows the examination of the desired associations. The questions were constructed and designed to elicit information specific to this study and were therefore divided into seven sections:

Section 1: General information
This section is devoted for general information related to the characteristics of the partnering companies participating the research. Participants were asked about their partnering business activity and their experience in conducting partnering projects.

Section 2: Project information
This part is concerned with general information about the specific project for which respondents are going to relate their answers of the questionnaire. At the beginning of this section they were asked to base their answers considering the most recent project completed by their organisation using partnering relationship. They were also asked about the initiator of the relationship, the

significance of the project to the overall organisation's business, and the duration of the project.

Section 3: Partner selection criteria

This section deals with measuring what respondents' value when they selected their partner(s). Respondents were asked to rank partners selection criteria from a set, which is drawn from previous literature, on a five point Likert Scale ranging from 1 for very low effect to 5 for very high effect in selecting their partner.

Section 4: Partnering process

This section explores what respondents say they do in the relationship interactions and is divided into three parts:

Partnering relationship decision making: The items in this part explore how respondents formulated their decision for entering into a partnering relationship. Theoretically, it is suggested that partners need to identify the benefits and risk of the relationship and then decide the best option for their organisation according to their business needs. Respondents were asked if they followed these steps when making their decision to partner.

Partnering workshop: in most of the previous studies about setting partnering relationship it is suggested that the aim of partnering workshops was to get the partnering team together, to orient the team about the new concept, and to establish and agree the foundations of the relationship. In this part the respondents were asked if they conducted partnering workshops and if so, how frequently people were involved in the workshop, and their opinion on the importance of the workshop to the success of the relationship.

Partnering charter: a partnering charter is considered to be of great importance to the success of partnering relationship since it makes the partners committed to

the relationship. In this part the respondents were asked if they considered signing a charter for the current project, whether they signed charters for previous projects and if they think that any charters used impacted positively to the success of their project.

For all the above sections the respondent were asked to answer by "yes" and "no" to questions.

Section 5: Partnering relationship practices

This section is devoted to measuring the respondents' practices through the entire course of their relationships. Most of the previous literature, as cited in chapter three, stressed that in order to secure a successful relationship partners need to be committed to the relationship, a high level of trust must exist between the partnering firms, and partners need to co-ordinate their activities and the flow of information between them. This part of the questionnaire measured these different behaviours through a five point Likert scale.

Section 6: Motives to enter into partnering

In order to have a better understanding of the reasons that firms engage into partnering, this section is assigned to identify these reasons. Respondents were asked to rank on a five point likert scale from a list of questions generated from previous literature (Larsen, 1995; Barlow et al., 1997)

Section 7: Partnering relationship performance

Traditional performance measures would reflect cost reduction and increase in profits. Two different measures of performance were developed for the questionnaire. One measure focused on the contribution made by the achievement of the goals set prior to the project start and the other measured the level of satisfaction between the partners with the different aspects of the relationship.

### 4.9.5 STAGE 3: THE SECOND PILOT STUDY

The purpose of the pilot study, which was carried out in February 1999, was to test whether the concepts and language used in the questionnaire were comprehensible to the people participating in the case study and whether the order of questions is acceptable. The pilot study evaluated not only the questionnaire items, but also: a) The quality of the questionnaire, b) The length of the questionnaire, and c) The overall appropriateness of the survey method to the problem in question.

Gay (1992) suggests that questionnaires should be piloted before they are conducted. He points out that pre-testing questionnaires not only serves to identify the problems in understanding the directions and questions in them. Gay (1992: 229) stated that:

> *Yield data concerning instrument deficiencies as well as suggestions for improvement. Having two or three available people complete the questionnaire first will result in identification problems. The subsequently revised instrument and the covering letter should then be sent to a small sample from your intended population or a highly similar population. Pre-test should be encouraged to make comments and suggestions concerning directions, recording procedures and specific items.*

For the purpose of this pilot study, copies of the questionnaire were sent to four contractors, two clients, and four consulting companies. These were sent with a covering letter explaining the purpose of the study. Respondents were asked to write comments and suggestions concerning directions and questions in the questionnaire. All of the ten participants were also visited and interviewed to discuss the elements of the questionnaire. The results of these interviews revealed that most of the interviewees are not inclined to give hard figures about specific projects, and they advised to measure the effectiveness of partnering projects subjectively.

Based upon the findings of the pilot study, the questionnaire was revised in the light of the pre-test subjects' comments. Some questions were rephrased to

ensure clarity. The measure of partnering project success is mainly based on the partners' satisfaction with the different aspects of the relationship and effectiveness of projects. The questionnaire was revised in the light of the pre-test subjects' comments.

## 4.10 MAIN STUDY AND SAMPLE SIZE

The final version of the questionnaire was printed out and sent to 83 construction companies, of which 38 were contracting companies, 33 were consulting companies, and 12 were clients. The field study was carried out during March-June 1999 ended with a sample size of 59 responses, of which 32 were main contractors, 17 were consulting companies, and 10 were clients. Although the 83 firms sampled promised to participate in the research in the first pilot study, some were unable to return their completed questionnaires. Some of them sent letters to apologise for not being able to return the questionnaire for no reason. Nevertheless, the response rate was 71% which is relatively high when compared with other construction industry surveys, such as Akintoye and Black's rate of 26.7% (1999) and Vidogah and Ndekkugri's rate of 27% (1998).

As mentioned in section 4.9.3, since the level of responses did not occur it was decided to amalgamate the groups and analyse the perception of all respondents as one set. However, in order to eliminate the possibility of bias between the responses of the different groups, responses of each group were analysed separately. Although the analysis is not statistically reliable due to the smallness of sample size, it can indicate the trend of each group towards success. The results show that there is a similarity between the different groups towards performing successful partnering relationship.

## 4.11 STATISTICAL TECHNIQUES USED TO ANALYSE DATA

Statistical analysis of the data was carried out using *The Statistical Package for Social Sciences* (SPSS). SPSS is a huge and wide-encompassing package. Various statistical methods were used, which varied from descriptive analysis to relational analysis, including:

### 4.11.1 Correlation

Correlation is a statistical technique that is used to measure the relationship between two variables. Correlation has a number of different applications that include: Prediction, Test Validity and, Theory Verification. Two points should be emphasised in this incidence:

Correlation simply describes a relationship between two measures. It does not explain why the two variables are related; and

The value of correlation can be influenced by the ranges of scores represented in data. Whenever a correlation is based on scores that do not represent the full range of possible values, one should be cautious in interpreting the correlation.

### 4.11.2 Spearman Rho

This technique, which is also known as Rank order correlation, is used for hypothesis verification. The technique is based on the difference between the ranks of the two variables. This test is used when the assumptions of the parametric test of being normally distributed and showing homogeneity of variance were not met. The test results identify the strength of the relationships between variables concerned. It provides a value between "-1" and "1". The closer to "1" in either direction, the stronger the relationship is and the closer to "0" in both directions signifies an extremely weak relationship. The positive or negative size indicates the direction of the relationship.

$$r_s = 1 - \frac{6 \sum d^2}{n\left|n-1\right|\left|n+1\right|}$$

Where

$r_s$=Spearman's correlation coefficient

$d$=the difference in ranks between items in a pair

$n$=the number of items

### 4.11.3 chi-square

The chi-square test $\chi^2$ is used to determine the presence of an association between the two variables, when the data of research consist of frequencies in discrete categories.

$$\chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where

$O_{ij}$= observed number of categories in the $i$th row of the $j$th column.

$E_{ij}$= number of cases expected under $H_0$ to be categorised in the $i$th row of the $j$th column

The values of $\chi^2$ yielded by the above formula are distributed approximately as chi-square with

$df$= $(r-1)(k-1)$

Where

$r$=the number of rows

$k$=the number of columns in the contingency table.

The value of $\chi^2$ with a specific degree of freedom can compute the significance of the association.

### 4.11.4 Friedman test

This test is used to determine the level of preference for two or more related samples of a non-parametric set of data. The Friedman test statistics is

approximately distributed as a chi-square distribution. The idea behind this statistics is that if there is no difference between the groups, each subject's ratings would be random, and there would be no difference in the mean ranks across the variables. The equation for the Friedman test is

$$\chi^2 = \frac{12}{Kj\ (j+1)}\left[\sum_j T_j^2\right] - 3k\ (j+1)$$

where k is the number of sets of matched observations, j is the number of groups, and T is the sum of ranks for each group. (i.e. K is the number of cases and j is the number criteria to be ranked)

### 4.11.5 The Wilcoxon Signed Rank test

The Wilcoxon Signed Rank test represents a non-parametric version of related samples t-test. It is used when the two samples are not independent. The most common situation is when the same subjects are measured twice. This test is used when the assumption of the t-test are not met.

$$z = \frac{N\ (N+1) - 4T}{\sqrt{\frac{2N\ (N+1)(2N+1)}{3}}}$$

Where

N= the sample size, T= the sum of ranks.

### 4.11.6 Elaboration method

Elaboration is the examination of a relationship between two variables within the categories of a third variable. This sort of analysis is termed as elaboration because a primary relationship of interest is explored under a variety of different conditions. The introduction of a third variable into the analysis helps in specifying conditions under which the relationship would be strong or weak. This method is used to examine the effect of time variable upon the basic association being investigated.

## 4.12 SUMMARY

This chapter reviewed research methods appropriate to the current research and methods data collection techniques. Examples of research methods for assessing the match between practice and theory for the application of partnering in the construction industry have been given. The survey method is chosen to achieve the research objectives. The surveying of a wide range of construction bodies could strengthen the weight of findings, particularly with respect to the relative success of partnering project with in the construction industry. The data collection technique employed for this research is postal questionnaires as has been discussed. In this respect, it was felt necessary to get, at least, thirty questionnaires back to allow for the conduct of a meaningful statistical data analysis.

# CHAPTER FIVE
# DATA ANALYSIS

## 5.0 INTRODUCTION

This chapter will present the results of the study. It is divided into two parts. Part one deals with the description of the data collected from the different members of the supply chain of the construction industry undertaking the partnering projects. Part two of this chapter reports the results of the statistical analysis of the data.

## 5.1 DATA ANALYSIS

The whole sample size is comprised of fifty-nine responses. Thirty-two of these respondents were construction companies, seventeen were consulting companies members, and ten were clients. The descriptive data collected from these fifty-nine responses is composed of eleven main sections:

Characteristics of the responding firms.
Characteristics of the partnering projects.
The criteria for partner selection.
Motives to enter into partnering.
Decision making process.
Process of conducting partnering workshops.
Behavioural characteristics practised during the process of the project.
Managerial activities associated with partnering projects.
Risks encountered during the process of partnering.
Information related to satisfaction with the different aspects of partnering projects.
Information related to the effectiveness of partnering projects.

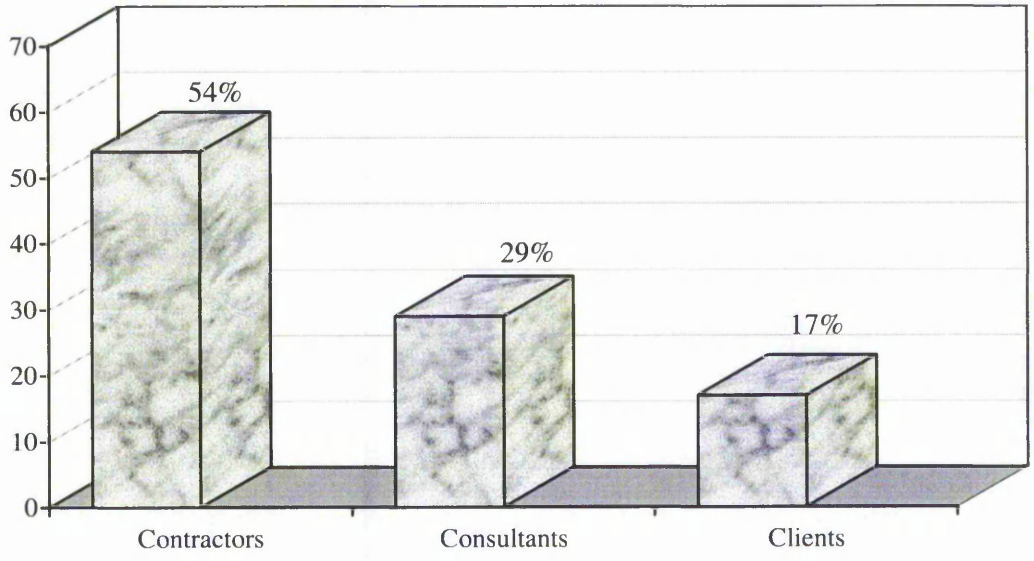
## 5.2 CHARACTERISTICS OF RESPONDING FIRMS

The characteristics of the responding firms describe the activities for which the firms are partnering and their experience in conducting partnering projects.

### 5.2.1 BUSINESS ACTIVITY

The respondents were asked to describe the nature of the business activities for which they are partnering.

**Figure 5.1: Partnering Business Activity**




The results illustrated in figure 5.1 show that the nature of the business activity comprise three main groups. Group one which is represented by 54% and are main contractors, and group two by 29% of the respondents are practising consulting activities and group three by 17% who are clients.

### 5.2.2 EXPERIENCE IN PARTNERING

Respondents were asked about their experience in practicing partnering relationships. The range of experience of respondents varies between six month and seventy-two months.

**Figure 5.2: Experience In Partnering**

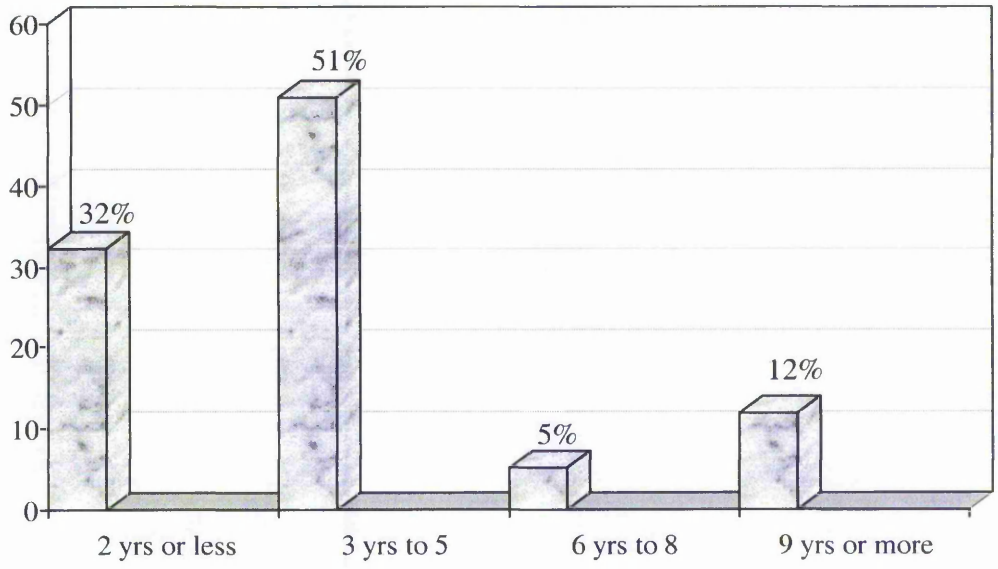


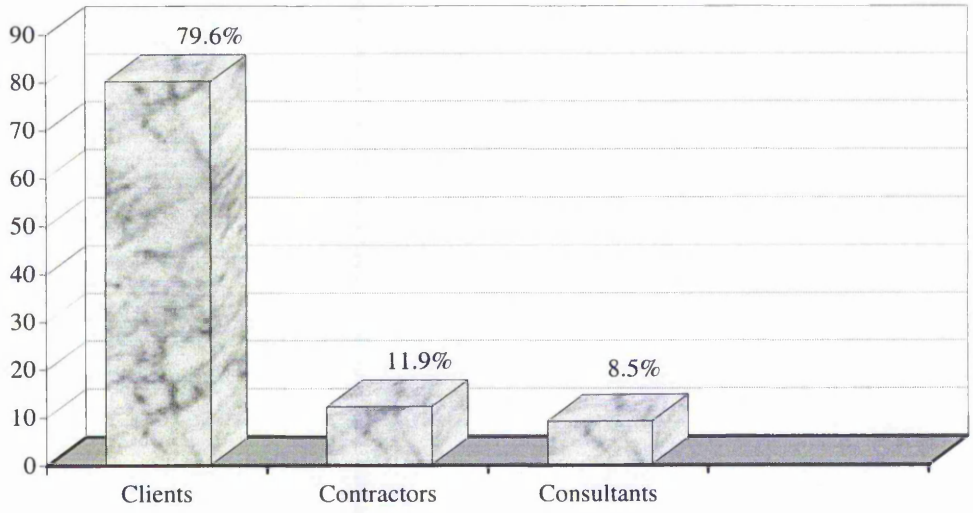

Figure 5.2 show that nearly half of respondents (51%) have an experience ranging from three to five years. Thirty two percent of the respondents had an experience of two years or less. The figure further shows that only five percent are having an experience ranging between six to eight years and twelve percent having an experience for nine years or more.

## 5.3 CHARACTERISTICS OF PARTNERING PROJECTS

### 5.3.1 PARTNERING RELATIONSHIP INITIATION

Figure 5.3 shows that 79.6% of the partnering relationships had been initiated by clients. Very minor initiation had been introduced by contractors (11.9%) and consultants (8.5).

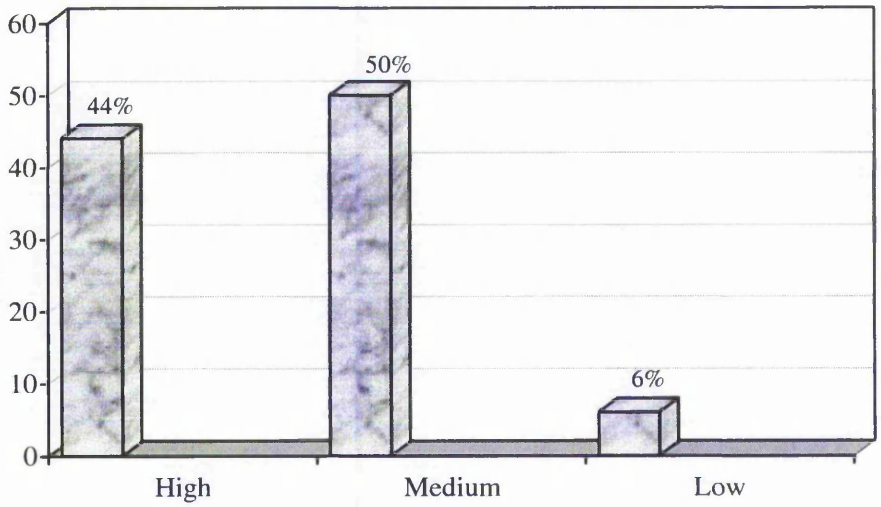
**Figure 5.3: Partnering relationship initiator**




### 5.3.2 PROJECT SIGNIFICANCE

Respondents were asked to answer the questionnaire based on the most recent partnering projects completed by their organisations. One of the key indicators of the project characteristics was the significance of the project in the context of their organisations overall business. Figure 5.4 clearly shows that nearly half of the projects were of medium significance and 44% of them had high significance while only 6% were of low significance.

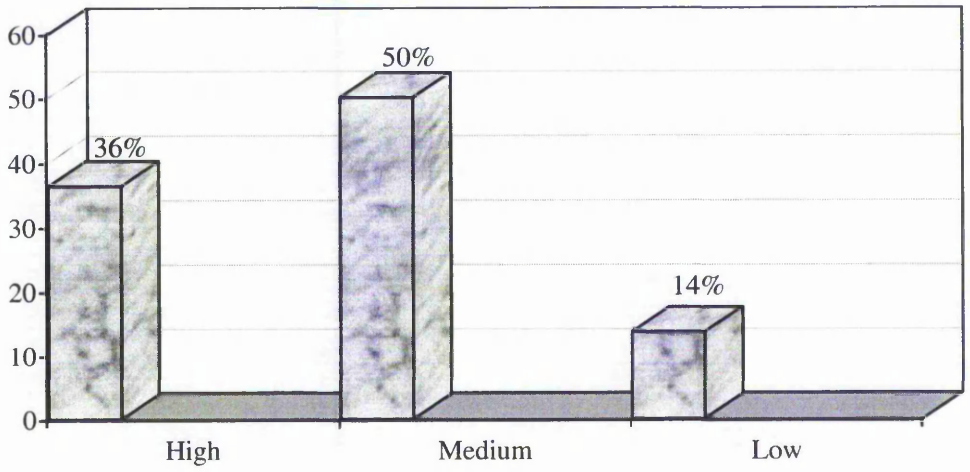
**Figure 5.4: Project Significance**




### 5.3.3 AMOUNT OF SPEND

Figure 5.5 shows that half of the projects were of medium amount of spend compared to the overall organisation's spent while 36% of the projects were of high spend, and only 14% were of low spend.

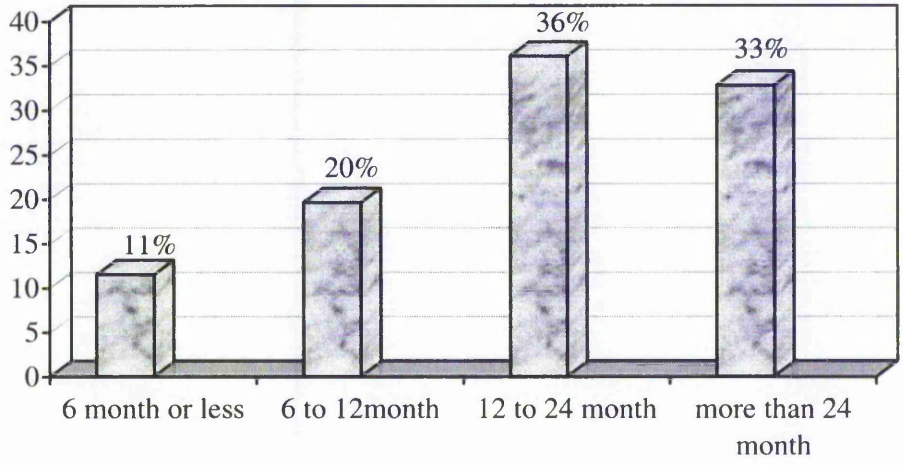
**Figure 5.5: Amount of project spend**



#### 5.3.4 PROJECT DURATION

Figure 5.6 show the percentage of duration of projects investigated by this research. 33% of the projects duration lasted for more than two years, while 36% took a duration between one and two years. It also shows that 31% of the projects duration was for one year or less.

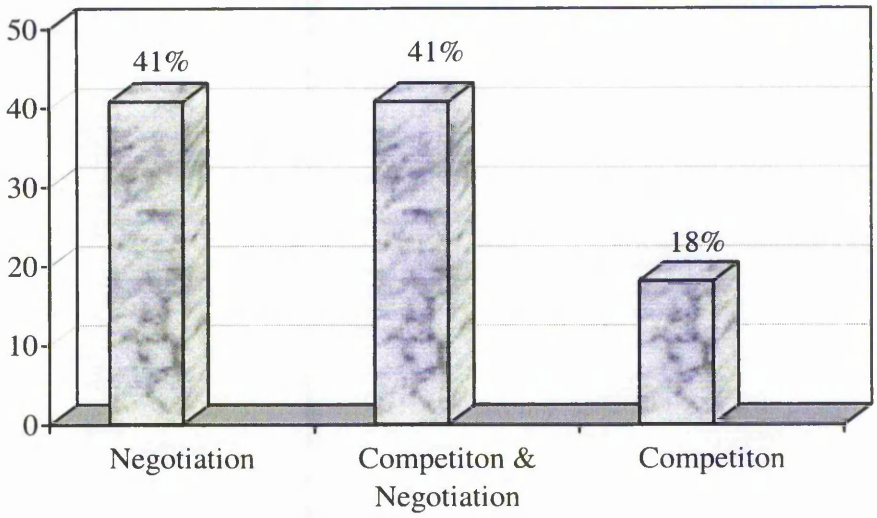
**Figure 5.6: Duration of investigated projects**




#### 5.3.5 BASIS FOR PARTNER SELECTION

Respondents were asked to identify the basis for selecting their partners. Figure 5.7 shows that 41% of the respondents selected their partners on the basis of negotiation while 41% selected them on the basis of competition and negotiation. The figure also shows that (18%) of the total sample has selected their partners on competition basis.

**Figure 5.7: Basis for Partners Selection**




## 5.4 CHARACTERISTICS OF PARTNER SELECTION

The choice of a partner has a significant impact on the performance of an alliance since that choice determines the mix of skills and resources available to the alliance (Rai et al 1996). It is crucial to determine if the resources of a likely partner have the potential to match the requirements for which the relationship is initiated (Bennett and Jayes 1995, Lewis 1990, Barlow et al 1997, Rai et al 1996). Consequently, the values and capabilities of partners need to be carefully scrutinised.

Respondents in this section of the questionnaire were asked to rate how they had based their criteria for selecting their partners from a given set of criteria. They rated each criterion on a five-point Likert scale; ranging from one, expressing that the criteria are of no importance, to five, expressing that they of high importance. Responses for each criterion are to be compared in order to see whether there are any differences in partners' preferences for the selection criteria.

Because the same respondents rated each criterion of the given set, the samples are not independent. Therefore, a related sample test needed to be used.

Furthermore, because responses are ratings, rather than a continuous measure, these data are not suitable for the analysis of variance.

The non parametric alternative to a repeated measure of the analysis of variance is the Friedman Test. This test is based on ranks within each case. The scores for each variable are ranked and the mean ranks for the variable are compared. Normally the Friedman Test is used to test the null hypothesis. The null hypothesis here states that there is no preference between the selection criteria. The results shown in tables 5.1 and 5.2 below clearly display the results of Friedman Test. Table 5.1 shows that the value of the Chi-square statistic is 176.23, with a significance level of 0.000. Therefore, the null hypothesis, which states that 'there is no difference among the preferences in the selection criteria' is rejected. One can state that there is a significant difference between the preferences of the selection criteria.

**Table 5.1: Friedman Test**

| | |
|---|---|
| N | 57 |
| Chi-square | 176.227 |
| df | 9 |
| Asymp.sig. | 0.000 |

Table 5.2 displays the mean ranks for each criterion of the set. Figure 5.8 shows that the respondents seek partners who have good performance record and who have the potential and skills for development in addition to a good organisational reputation.

Trust and commitment of the partnering firm serve to offset the risks of opportunistic behaviour in which one acts in one's own best interest to the detriment of one's partner (Anderson and Narus 1990, Spekman et al 1998). Partners' strengths and weaknesses characteristics and degrees of

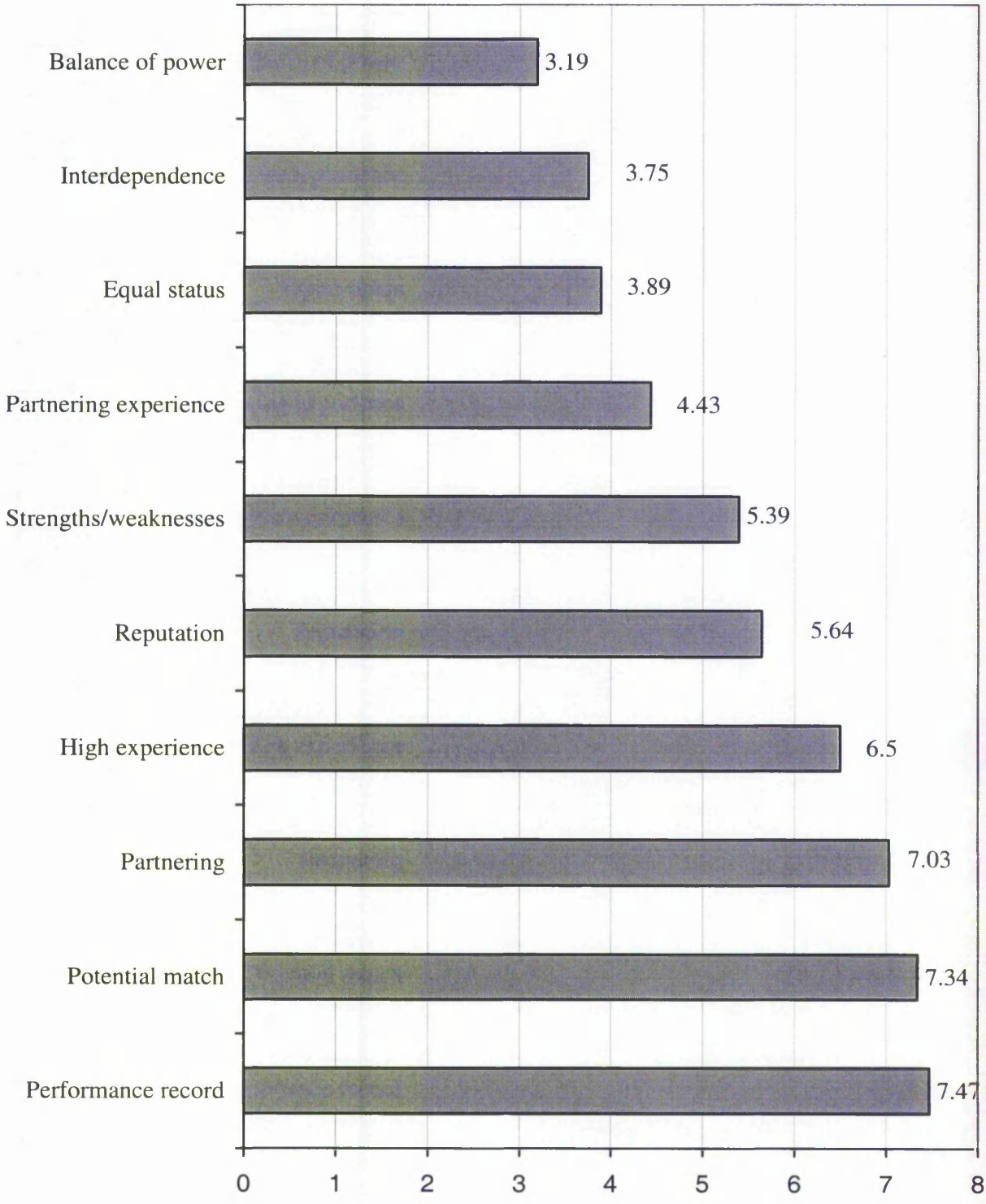
interdependence between the partnering firms show less importance to the respondents.

These findings show that respondents are generally concerned about partners' potentiality and reputation in the market rather than about the status and power of the partnering organisations.

**Table 5.2: Ranks of partner's selection criteria**

| Selection criteria | **Mean Rank** |
|---|---|
| Partners performance record. | 7.47 |
| The match of the potential partners skills with the needs of the project. | 7.34 |
| Partners potential to develop and adapt with partnering. | 7.03 |
| High experienced firms. | 6.5 |
| Partner's organisational reputation. | 5.64 |
| Partners strengths and weaknesses. | 5.39 |
| Experience in partnering. | 4.43 |
| Partners of equal status. | 3.89 |
| Degree of interdependence. | 3.75 |
| Balance of power between partnering organisations. | 3.19 |

**Figure 5.8: Criteria for Partner Selection**



## 5.5 MOTIVES TO ENTER INTO A PARTNERING RELATIONSHIP

Respondents were asked about the reasons that motivated them in partnering relationship. The list of questions were generated from interviews with practising managers and also elicited from academic publications (e.g. Barlow et al 1997). The analyses of the results by using Friedman Test, as shown in the previous section, are given in tables 5.3 and 5.4. What is reflected is that the highly ranked motives range from performance improvement, increasing customer satisfaction to dispute reduction. While construction industry recession is considered as one of the reasons, which motivated the industry practitioners to seek other business options (Cox and Thompson 1997), it is not considered as a driving motive for entering into partnering according to the findings of this research.

The null hypothesis is: 'There is no significant difference between the motives to enter into partnering.'

The test statistics of Friedman Test show that the value of Chi-square test is 240.11, with a significance of 0.000, thus confirming the rejection of the null hypothesis. This result means that the alternative hypothesis: *'there is a difference between the motives which have driven partners to enter into partnering.'* is accepted.

**Table 5.3: Friedman statistic test**

| | |
|---|---|
| Chi-Square | 240.11 |
| Df | 14 |
| Asymp.Sig | 0.000 |
| n | 58 |

**Table 5.4: Selection criteria ranks**

| Motives | Mean ranks |
|---|---|
| Performance improvement | 12.28 |
| Willingness to increase customer satisfaction | 10.75 |
| Belief on partners capability | 10.48 |
| Disputes reduction | 10.28 |
| Procurement cost in terms of time | 9.09 |
| Business match | 8.76 |
| Project requirement | 8.3 |
| Handling projects free from traditional approaches | 7.93 |
| Procurement cost in terms of money | 7.63 |
| Adequately representing each other | 6.9 |
| Partnering for project fulfilment | 5.97 |
| Rationalise supplier base | 5.91 |
| Free stress working environment | 5.9 |
| Requirement of partnering for bidding | 5.55 |
| Industry recession | 4.25 |

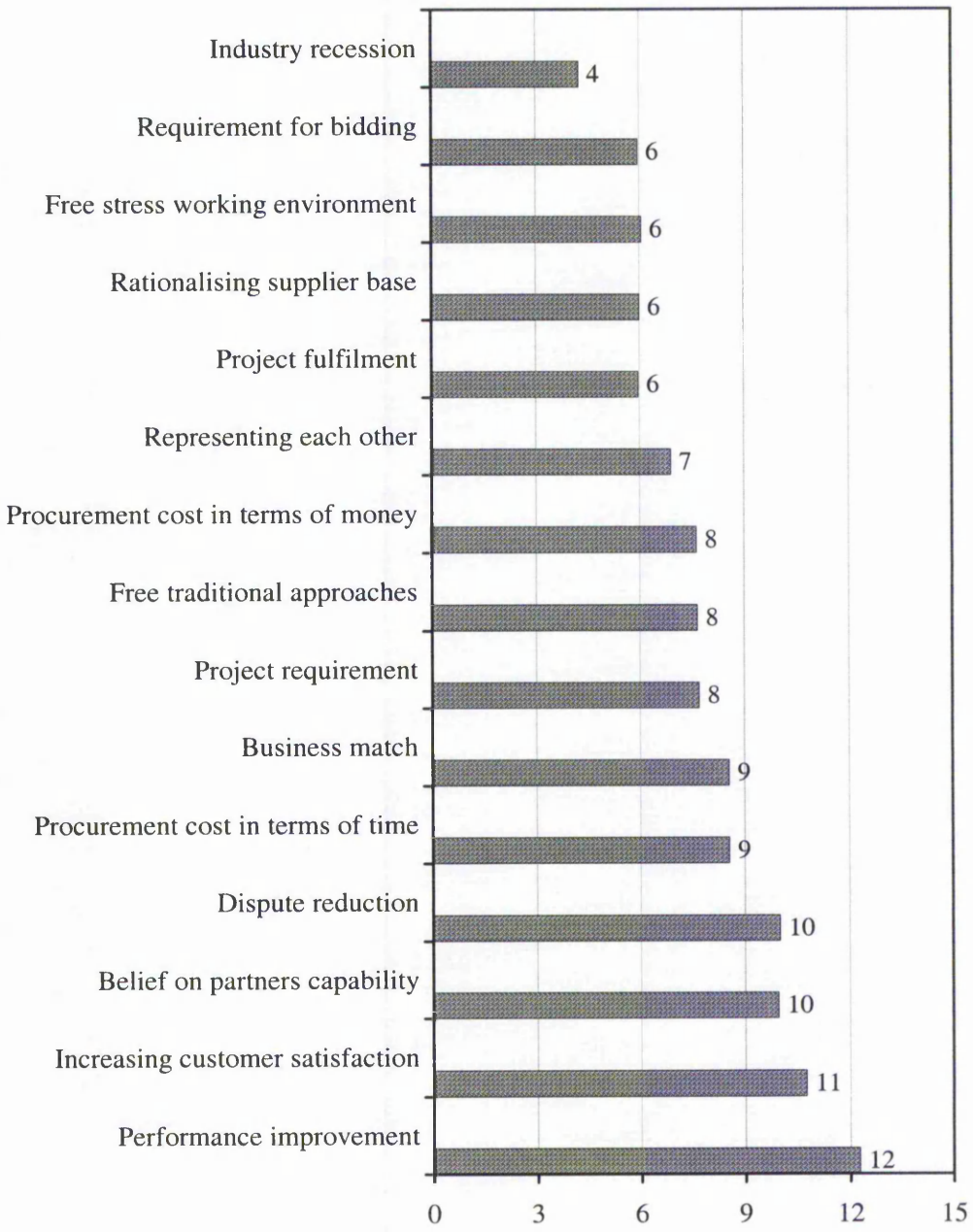



**Figure 5.9: Motives to Enter into Partnering**

## 5.6 PARTNERING DECISION MAKING PROCESS

Partnering is a special mode of inter-organisational collaboration where partners are expected to integrate and share information for the sake of the relationship success. Although it can offer business gains, partnering can cause some risks such as loss of confidential data and waste of time in communicating with each other, or loss of business options (Akintoye and Black 1999, Bennett and Jayes 1995). Therefore, pitfalls and gains should be examined and weighted in connection with the project requirement before launching into a partnering relationship.

The analysis at this stage will provide an in-depth evaluation of the needs and objectives to be served by the partnering relationship. It will define the nature and scope of products/services to be covered and identify the driving forces such as cost and availability of resources needed to meet the future forecast of the organisation.

The following sections will present the results of the decision-making process, followed by the participating respondents answers to this research. The components of the partnering decision making process are:
Identifying organisational business drivers.
Identifying partnering as a best business option.
Setting an initial action plan.

The following sections also present the results of the components of the decision making process for setting a partnering relationship.

### 5.6.1 IDENTIFYING ORGANISATIONAL BUSINESS DRIVES

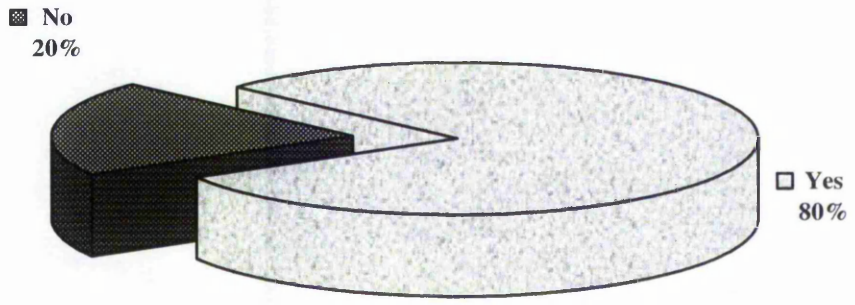
Partners need to identify their organisation's business drivers. They have to ascertain which benefits they hope to achieve through partnering such as

reducing cost or introducing new markets. They also need to identify their core competencies since this will help them establish the skills and services required from the other partner.

Respondents were asked if they had specific business drivers to enter into partnering. Specifically, respondents were asked if they had specified the core objectives of their projects, identified their products/services required and the degree of dependence on such product/services.

The results show that eighty percent of the respondents considered the step of choosing the suitable market to be in accordance with their project objectives (See figure 5.10).

**Figure 5.10: Identifying Organisational Business Drivers**

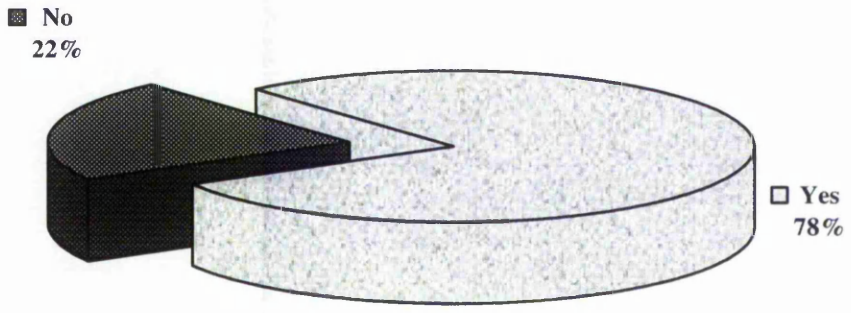



### 5.6.2 IDENTIFYING PARTNERING AS THE BEST BUSINESS OPTION

It is crucial for the success of partnering to evaluate it as an option for achieving identified goals. To do this, partners need to identify and rank the benefits and risks of entering into partnering relationship and their contribution to meet the business drivers. In this section, respondents were asked if they had considered

identifying the available market opportunities, ranked these opportunities and identified the risks of not pursuing such a relationship in connection with their business objectives. The results (figure 5.11) reveal that 78% of the respondents did considered this stage while 22% were not.

**Figure 5.11: Identifying Partnering as the best business option**

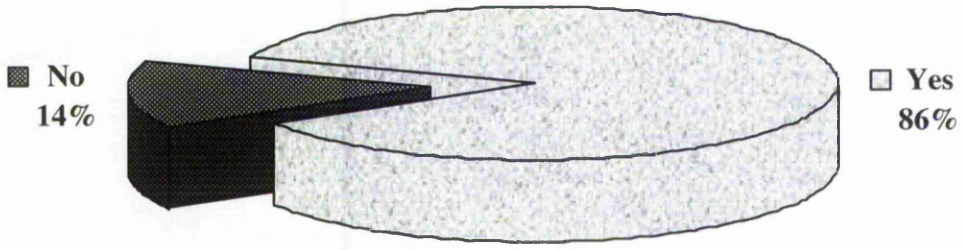



### 5.6.2 SETTING AN INITIAL ACTION PLAN

If partnering is considered as the best business option, then it will be necessary to prepare and align the partnering relationship within the organisation itself. At this stage, it is required to set a clear statement about partnering for the whole organisation, and to identify the key people who can champion this relationship.

At this stage it will also be important to involve top management members who are critical at supporting the execution of the project. In this section, respondents were asked if they considered this stage during their decision making process or not. The analysis of the results in figure 5.12 showed that 86.4% had set an initial action plan.

**Figure 5.12: Setting Initial Action Plan**

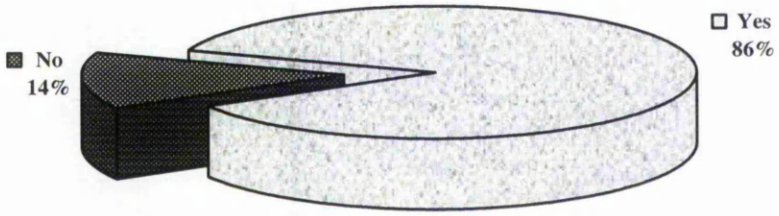



## 5.7 PARTNERING WORKSHOP

### 5.7.1 CONDUCTING A PARTNERING WORKSHOP

In this section the interviewees were asked whether or not they had conducted partnering workshops during the course of their projects. The analysis shows that 86% of the participants conducted partnering workshops during the course of their relationship (see figure 5.13).

**Figure 5.13: Conducting Partnering Workshops**



### 5.7.2 WORKSHOP FACILITATOR

The partnering workshop facilitator is the person who has skills to run workshops and who has an understanding of construction and concept of partnering. In this section, the respondents were asked if they had employed a workshop facilitator or not. Figure 5.14 shows that 71.2% employed a partnering workshop facilitator.

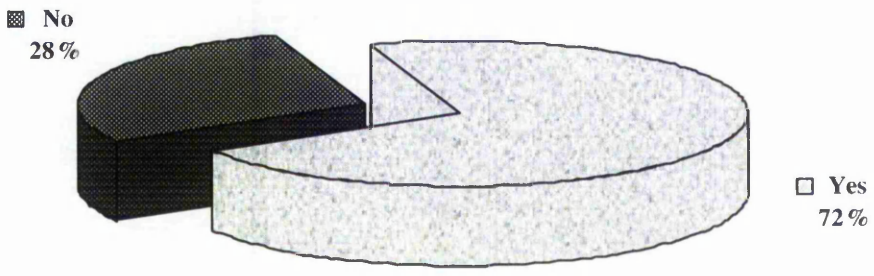
### 5.7.3 PARTNERING CHARTER

This general heading includes the results of the partnering relationships where the partnering charter has been discussed, drafted and signed during a partnering workshop for the sake of the relationship.

## 5.7.3.1 Discussing the partnering charter

Figure 5.15 shows whether the respondents had discussed the elements of the partnering charter of the projects under investigation or not. It shows that 70% of the respondents had discussed the partnering charter.

**Figure 5.14: Workshop Facilitator**



### 5.7.3.2 Drafting a partnering charter

The results illustrated in figure 5.15 show that a partnering charter has been drafted for 63% of the projects under investigation.

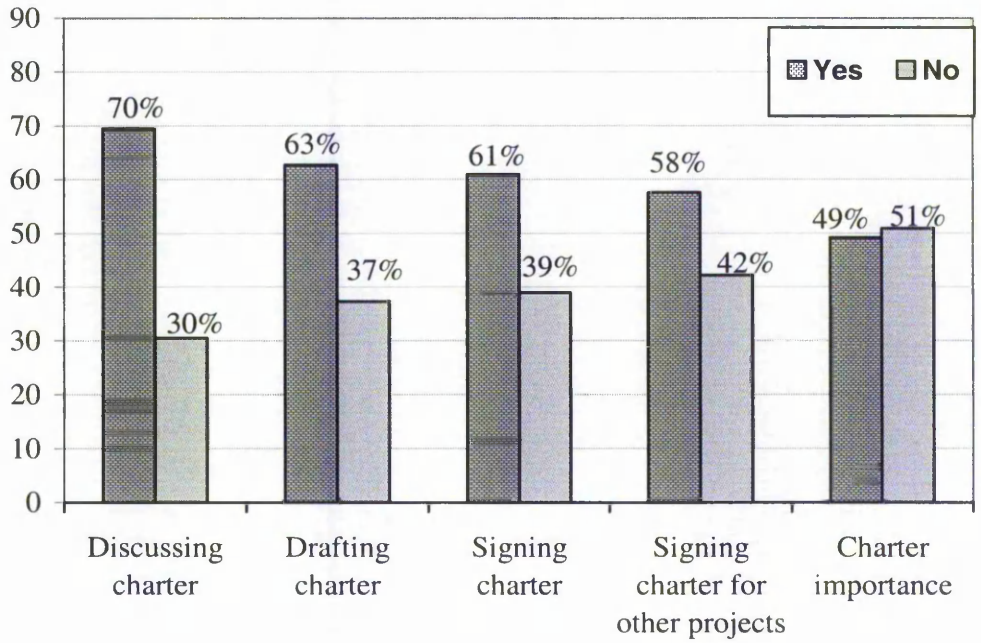
### 5.7.3.3 Signing a partnering charter

The analysis of the results demonstrated in figure 5.15 shows that only 61% of the projects' respondents have signed a partnering charter, despite the fact that almost seventy percent have discussed the charter element as mentioned in section 5.7.3.1 above.

### 5.7.3.4 Signing a partnering charter for other projects

To confirm the importance of the partnering charter, the respondents were asked if they had considered signing a partnering charter for other projects or not. The analysis shows that less than sixty percent 58 of the interviewees had considered signing a partnering charter for other projects (see figure 5.15).

**Figure 5.15: Partnering charter**



### 5.7.3.5 Importance of the partnering charter

With respect to the importance of the partnering charter, the respondents were also asked if they had considered signing a partnering charter would have an impact on the success of the relationship. The results of the analysis in this section revealed that more than half of the respondents did not agree that signing a partnering charter had a direct impact on the success of their partnering relationship (see figure 5.15).

Partnering is a relationship where there may not be contractual obligations between all the partners in such a relationship. It is cited in the literature reviewed that signing a partnering charter can mandate the relationship and can act as a reminder for all the partnering team of the goals and missions of the relationship. The above results revealed that 51% of the respondents were not considering partnering charter as important to the success of partnering relationships. It also showed that 39% of these research participants did not sign a partnering charter. Subsequently to the survey, multi-party contracts including PPC 2000 has been developed; and in the ECC contract, option X12 is available as a bi-party contract.

## 5.8 FEATURES OF PARTNERING

There are three essential features that need to be agreed upon in order that partnering can take place. These features are mutual objectives, continuous improvement and problem resolution techniques. In the following section, the respondents were asked to identify the agenda, which they had agreed.

### 5.8.1 MUTUAL OBJECTIVES

The most fundamental requirement of partnering is the agreement on the mutual objectives between the partners. The results illustrated in figure 5.16 had revealed that with respect to investigated projects, 92% of the partners had agreed on the mutual objectives.

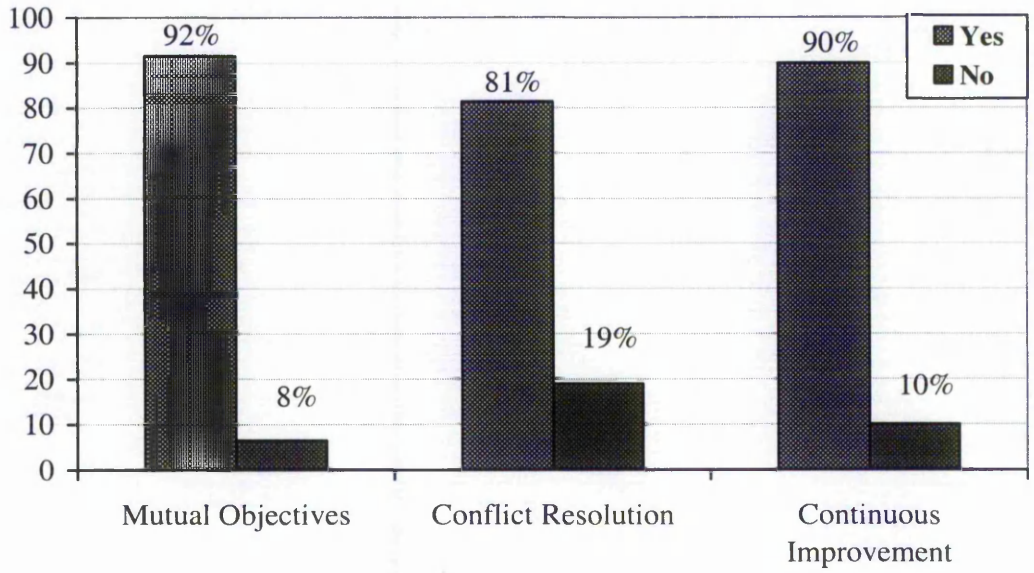
### 5.8.2 PROBLEM RESOLUTION TECHNIQUES

Construction projects are inevitably complex and consequently they can lead to situations where problems may arise. Accordingly, agreeing on problem resolution techniques from the beginning can minimise these prospective problems. The results shown in figure 5.16 revealed that 81% of the investigated projects the partners had agreed on conflict resolution techniques.

### 5.8.3 CONTINUOUS IMPROVEMENT

Results illustrated in figure 5.16 shows that for 90% of the project partners agreed on continuous improvement plans while only 10% did not agreed on the improvement plans.

**Figure 5.16: Problem Resolution Techniques**



## 5.9 BEHAVIOURAL CHARACTERISTICS

This general heading includes the results of the behavioural characteristics practiced by the project team during the course of the partnering relationship. The behaviour measured includes commitment, co-ordination and trust.

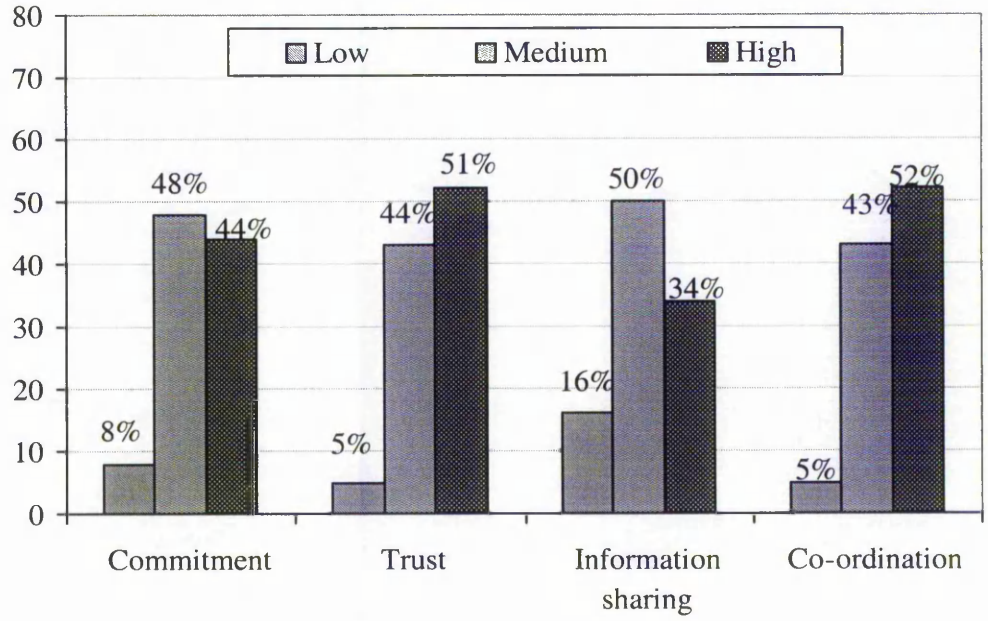
### 5.9.1 COMMITMENT

Analysis of the result by size category, as shown in figure 5.17 indicated that 44% of the respondents were highly committed to the relationship, 48% had moderate commitment and only 8% were not committed.

### 5.9.2 TRUST

Trust between partners represent the corner stone of the relationship. Analysis of the results displayed in figure 5.17 showed that 51% of the participants in this research had high trust on each other, while 44% had moderate trust among them, and only 5% had practised low trust behaviour during the course of their relationship.

**Figure 5.17: Behavioural Characteristics**



### 5.9.3 CO-ORDINATION

The measurement of co-ordination between partners had shown that more than half (52%) of the participants interviewed had practised high co-ordination behaviour, while 43% were moderately coordinating and only 5% did not co-ordinate (see figure 5.17).

### 5.9.4 INFORMATION SHARING

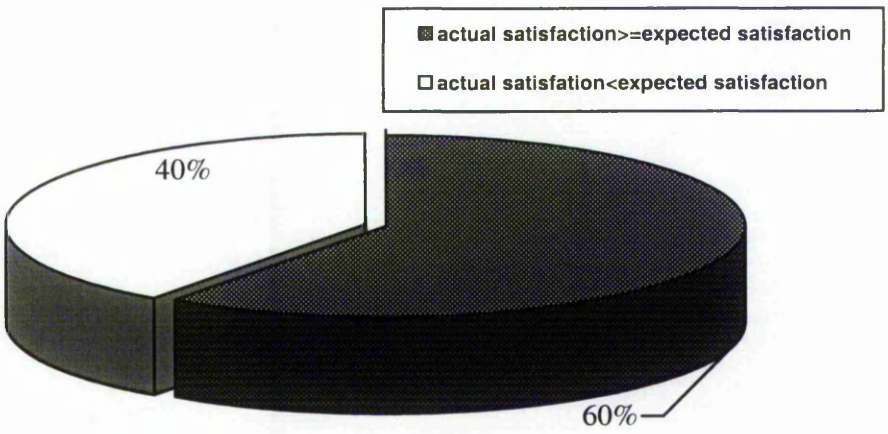
Analysis of results as displayed in figure 5.17 revealed that 33% of the respondents had practised high level of information sharing, while 50% agreed that they had been sharing information to a fairly acceptable extent. (See figure 5.17)

## 5.10 SATISFACTION WITH THE PARTNERING RELATIONSHIP

This section deals with measuring participants' levels of satisfaction with respect to the different aspects of their partnering relationships, such as utilisation of resources, feedback systems and processes through which partnering relationship continues.

The participants were asked to evaluate their level of expected satisfaction before starting the project and also to evaluate their satisfaction level after the project's completion on a five point Likert scale. Overall, the results showed that sixty percent (60%) of partners were satisfied, in general, with their partnering relationship, out of which 47% were extremely satisfied and 13% were satisfied with their relationship. The results also revealed that 40% of the respondents were not satisfied with the different aspects of the relation. So in accordance with the description given above, it is concluded that the investigated partnering relationships were relatively satisfying.

**Figure 5.18: Satisfaction with the outcomes of the partnering relationship**




## 5.11. PROJECTS EFFECTIVENESS

The respondents were asked to evaluate the effectiveness of their projects, taking into consideration what they had expected them to achieve and what they had achieved. Respondents were given a set of effectiveness criteria to rate on a five point Likert scale.

The overall results had shown that sixty one percent (61%) of the projects were effective out of which 55% had achieved more than what they had been expected (see figure 5.19). These results indicate that most of the participants of this research were either achieving their expectations or more than what they were expecting.

**Figure 5.19: Partnering Projects Achievements**

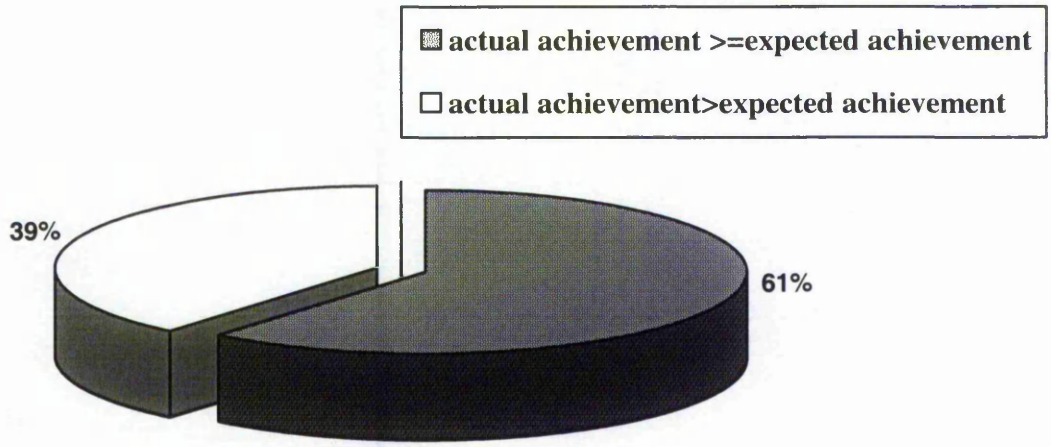
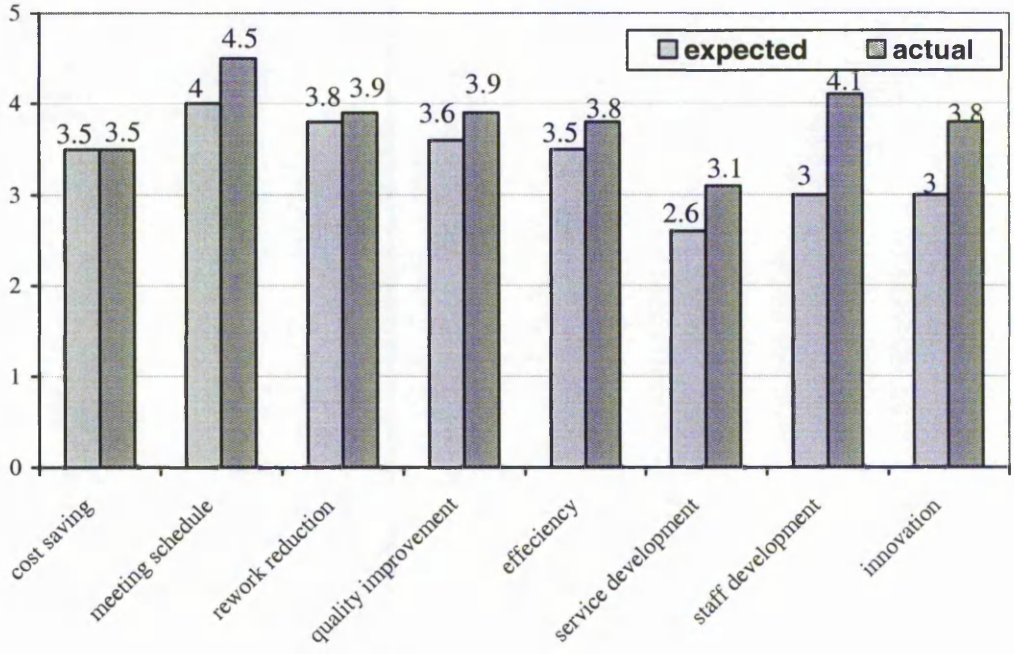



**Figure 5.20: Levels of Partnering Projects Achievement**



## 5.12 TESTING THE HYPOTHESES

The following section will display the results of the statistical tests undertaken on the data collected. The main statistical tools employed were Mann Whitney Test, Cross-Tab, and Correlation Analysis. Results having a significance of 1% downwards are assumed to be conclusive. That is, a particular result that has a 1% probability or less or having occurred by chance, the null hypothesis will be rejected. The analysis was undertaken on personal computer, using statistical package for social sciences (SPSS), for windows version 8.0 statistical analysis package.

## 5.13 HYPOTHESIS ONE

The main hypothesis of this research project is:

*Partnering relationships are successful within the UK construction industry.*

As has been discussed in chapter four, there are not yet any agreed upon measures for partnering relationship success. Nevertheless, The aim of this part is to avoid using a single criterion to measure success. Instead, a multiple faceted-criteria or indicators of success are used. The criteria of success employed consist of achieved effectiveness compared to expected achievement and the level of actual satisfaction compared to expected satisfaction. Therefore, hypothesis one is divided into two sub-hypothesis:

Sub-hypothesis 1.1:

*Partners are satisfied with their relationship.*

This hypothesis is tested using Wilcoxon Ranked Test (see 5.5 and 5.6l). This test is used to measure if there are any significant differences between what is expected and what has actually been achieved.

The findings displayed in table 5.6 below revealed that the results of Wilcoxon Test between the expected satisfaction and the actual satisfaction. It showed that z=0.22, with a significance value of 0.82, which means that the null hypothesis

*'partners are not satisfied with the different aspects of their relationship'* is rejected, because the significance level is more than 0.1. Therefore the alternative hypothesis *'partners are satisfied with the different aspects of their relationship'*, is accepted.

**Table 5.5**

**Wilcoxon Signed Ranked Test for satisfaction**

| Actual satisfaction/Expected satisfaction | | |
|---|---|---|
| | N | Mean Rank |
| Negative ranks | 23[a] | 28.72 |
| Positive Ranks | 27[b] | 22.76 |
| Ties | 7[c] | |
| Total | 57 | |

*Ranks of expected and achieved satisfaction*
*a Actual satisfaction <expected satisfaction*
*b Actual satisfaction > expected satisfaction*
*c Expected satisfaction = actual satisfaction*

The above results explain that there is no significant difference between the expected and the actual satisfaction. This provides a general trend about the whole sample with respect to what the respondents were expecting to be their satisfaction before starting the project and also what their actual satisfaction is after the project's completion.

Furthermore, table 5.5 portrayed the results, which has shown that the sum of the positive ranks and ties is greater than the negative ones. This means that the sum of respondents who are satisfied is more than those who are not satisfied. It can, therefore, be said that partners are satisfied with their projects outcome; in other words, the projects undertaken through partnering are successful.

**Table 5.6**

**Test statistics**

| | Actual satisfaction/Expected satisfaction |
|---|---|
| Z | -0.223 |
| Asymp. Sig. (2-tailed) | 0.824 |

Sub-Hypothesis 1.2:

*Partnering projects are effective.*

The results of testing hypothesis 1.2 showed that the sum of the positive ranks and ties is more than the sum of the negative ranks. The Wilcoxon Test value (table 5.8) is 0.71, with a significance level of 0.47, which is greater than 0.1. hence, this is confirming that the null hypothesis *'partners are not achieving their expected goals'* is rejected because the result is not significant. This confirms the acceptance of the alternative hypothesis *'partners are achieving their expected project achievement.'*

**Table 5.7**

**Wilcoxon Signed Ranked Test for Achievements**

| Actual achievement/expected achievement | | |
|---|---|---|
| | N | Mean Rank |
| Negative Ranks | 21 [a] | 27.98 |
| Positive Ranks | 30 [b] | 24.62 |
| Ties | 3 [c] | |
| Total | 54 | |

*Ranks of expected and achieved effectiveness*

*a Actual achievement < expected achievement*

*b Actual achievement > expected achievement*

*c Expected achievement = Actual achievement*

The non-significance of the test explains that there is no significant difference between what was expected to be achieved before the start of the projects and what had actually been achieved by the end of the projects. This means that projects undertaken through partnering are achieving their participants' expectations or even more, confirming that projects undertaken through partnering are effective.

**Table 5.8**

**Test Statistics**

| | Actual achievement/expected achievement |
|---|---|
| Z | -0.710 |
| Asymp. Sig. (2-tailed) | 0.478 |

Based on the findings of the above results, one can conclude that partners were satisfied with the different aspects of the relationships, as they had achieved their expectations. This shows that the general trend of the data related to projects undertaken through partnering indicate that they are successful.

## 5.14 HYPOTHESIS TWO

*There is an association between partnering success and partnering team orientation, i.e. partnering success is dependant on partnering team orientation.*

In order to find out if there is any correlation between the elements of partnering success and partnering team orientation Spearman's rho test was used. Table 5.9 showed that the correlation coefficient was 0.37, with a significance level of 0.005. This result shows that there is a significant association between the elements of the partnering success and the partnering team orientation.

**Table 5.9**

**Correlation between the partnering team orientation and the elements of the partnering success.**

| Partnering team orientation | **rho** | p | N |
|---|---|---|---|
| Effectiveness | 0.24 | 0.08 | 53 |
| Satisfaction | 0.37 | 0.005 | 55 |

## 5.15 HYPOTHESIS THREE

*There is an association between partnering success and agreeing on the following agendas of the project: a) Mutual objectives, b) Continuous improvement, and c) Conflict resolution techniques*

Sub-Hypothesis 3.1:

*There is an association between the elements of partnering success and agreeing on the mutual objectives of the project.*

**Table 5.10**

**Correlation between Agreed upon Mutual Objectives and Elements of Partnering Success**

| Agreed mutual objectives | Phi | p | N |
|---|---|---|---|
| Effectiveness | 0.25 | 0.03 | 55 |
| Satisfaction | 0.59 | 0.005 | 57 |

The above table shows the results of cross-tab between the elements of success [effectiveness/satisfaction] and the agreed upon mutual objectives between the partners. It showed that phi is 0.59 with satisfaction with an association probability of less than 0.01. This indicates that the relationship between the two variables is significant and phi is 0.25 for effectiveness, with an association

probability of 0.03, which means that the association is significant. Both results are significant, and therefore the sub-hypothesis 3.1 is retained.

Hypothesis 3.2:

*There is an association between the elements of partnering and setting continuous improvement plans for the relationship.*

The table 5.11 below shows the results of the cross-tab phi between the elements of partnering (satisfaction and effectiveness) success and setting continuous improvement plans. It shows that phi for satisfaction is 0.4 with an association probability of 0.002. This means that the association between the two variables is significant. It also shows that phi for effectiveness is 0.33, with a probability of less than 0.05, thus revealing the strong association between the two variables. Therefore, the result is significant, and hence the hypothesis is verified.

**Table 5.11**

**Correlation Between Continuous Improvement and the Elements of Partnering Success**

| Continuous improvement | Phi | p | N |
|---|---|---|---|
| Satisfaction | 0.4 | 0.002 | 57 |
| Effectiveness | 0.33 | 0.04 | 55 |

Hypothesis 3.3:

*There is an association between partnering success and the agreed upon problem resolution techniques.*

The table below also presents the results of cross-tabulation between elements of partnering (satisfaction effectiveness) success and agreed upon problem solving

techniques. It showed that phi for satisfaction is 0.55, with an association probability of less than 0.05, which means that the association between the two variables is significant. Phi for effectiveness is 0.38, with a probability less than 0.01, which is less than the set level of significance.

**Table 5.12**
**Correlation between Problem Resolution Techniques and the Elements of Partnering Success**

| Problem resolution techniques | Phi | p | N |
|---|---|---|---|
| Satisfaction | 0.55 | 0.03 | 57 |
| Effectiveness | 0.38 | 0.008 | 55 |

This result shows that there is a strong association between the elements of partnering success and the agreed upon fundamentals of the partnering relationship, i.e. that the success of partnering relationship is dependant on agreeing upon mutual objectives, continuous improvement plans and conflict resolution techniques.

## 5.16 HYPOTHESIS FOUR

*There is an association between partnering success and signing a partnering charter, i.e. partnering success is dependant on signing a partnering charter.*

This means that the association between the two variables is not significant. Phi for effectiveness is 0.23, with an association probability of 0.16, which means that the association is not significant. To test the association between the elements of partnering success and signing a partnering charter a cross-tabulation procedure is used. Table 5.13 below shows the results of chi-square and the elements of partnering. It showed that Phi for satisfaction is 0.105, with an association probability of 0.43.

**Table 5.13**

**Correlation between Signing a Partnering Charter and the Elements of Partnering Success**

| Signing a partnering charter | Phi | P | N |
|---|---|---|---|
| Satisfaction | 0.23 | 0.43 | 57 |
| Effectiveness | 0.11 | 0.16 | 57 |

## 5.17 HYPOTHESIS FIVE

*There is an association between the success of partnering and information sharing.*

**Table 5.14**

**Correlation Between Information sharing And The Elements of Partnering Success**

| Information sharing | Rho | p | N |
|---|---|---|---|
| Effectiveness | 0.366 | 0.006 | 55 |
| Satisfaction | 0.399 | 0.002 | 57 |

Table 5.14 shows the results of Spearman's Correlation Test between elements of partnering (satisfaction and effectiveness) success and information sharing between partners. It showed that the Rho for satisfaction is 0.399, with an association probability of 0.006, which means that the association between the two variables is significant. Rho for effectiveness is 0.366, with a probability of 0.002, which is greater than the set level of significance.

This result shows the higher the intensity of information sharing, the greater is the possibility of the partnering project success confirming the retention of the hypothesis.

## 5.18 HYPOTHESIS SIX

*There is an association between the success of partnering and the following behavioural characteristics: commitment, trust, and co-ordination.*

In order to verify the hypothesis, it is divided into three sub-hypothesis which will be tested using Spearman's Correlation Test between elements of partnering success and commitment, trust, and co-ordination. The results of the correlation between the above variables have revealed the following:

Hypothesis 6.1:

*There is an association between the commitment behaviour and the success of partnering projects.*

Table 5.15 shows the correlation coefficient between the commitment behaviour and effectiveness is 0.4 with a significance level of 0.004, thus revealing the strong association between the two variables. This result shows that the higher the level of commitment between the partners, the greater is the probability of the project success.

**Table 5.15**

**Correlation Between commitment behaviour and the Elements of Partnering Success**

| Commitment | Rho | p | N |
|---|---|---|---|
| Effectiveness | 0.4 | 0.003 | 55 |
| Satisfaction | 0.54 | 000 | 55 |

Hypothesis 6.2:

*There is an association between the trusting behaviour and the success of partnering projects.*

Trusting behaviour is shown to be strongly connected with the element of partnering success. The Correlation Coefficient rho for satisfaction is 0.66, with a significance level of 0.000 showing the association between the two variables. The results show that rho for effectiveness is 0.48, with a significance level of 0.000 showing the association between the two variables. This result explains the importance of trusting behaviour between the partners for the success of the project.

**Table 5.16**

**Correlation Between Trusting Behaviour And The Elements of Partnering Success**

| Trust | Rho | p | N |
|---|---|---|---|
| Effectiveness | 0.48 | 0.000 | 55 |
| Satisfaction | 0.66 | 000 | 55 |

Hypothesis 6.3:

*There is an association between the co-ordination behaviour and the success of partnering projects.*

Table 5.17 shows the strong association between the behaviour of co-ordination and the elements of partnering success. The Correlation Coefficient rho for satisfaction is 0.64 with a significance level of 0.00 and for effectiveness rho is 0.44 with a significance level of 0.001. The results show the strong association between the variables thus confirming the retention of the hypothesis.

**Table 5.17**

**Correlation Between co-ordination and The Elements of Partnering Success**

| Co-ordination | Rho | p | N |
|---|---|---|---|
| Effectiveness | 0.44 | 0.001 | 55 |
| Satisfaction | 0.64 | 000 | 55 |

Collectively, the above results confirm the importance of the behaviour of commitment, trust and co-ordination for the success of a partnering project. These hypotheses will be discussed in more detail in the following chapter.

## 5.19 THE IMPACT OF PROJECT DURATION ON THE SUCCESS OF THE PARTNERING RELATIONSHIP: HYPOTHESIS 7

*The association between the elements of partnering success and the success of the partnering projects is contingent upon the duration of the relationship.*

This research also attempts to deal with the impact of project duration or the effect of the duration of the relationship on the importance of the elements of partnering success at the different levels of the relationship. In previous studies it was stressed that the partnering relationship does not develop overnight as it would need some project duration to enjoy its benefits. Consequently, the following hypothesis has been formulated:

Table 5.18 demonstrates that the association between the commitment behaviour and the elements of partnering success vary with projects duration. It shows that for short-term projects, Spearman's association coefficient for satisfaction is 0.39, with a significance level of 0.017 confirming the strong association between the variables, and for effectiveness is 0.2 with a significance level of 0.1, showing that no association between the variables.

**Table 5.18**

**Correlation between commitment behaviour and elements of partnering success controlling of duration**

| | satisfaction | | | effectiveness | | |
|---|---|---|---|---|---|---|
| Commitment | Rho | P | N | Rho | P | N |
| Short term projects | 0.39 | 0.017 | 38 | 0.2 | 0.1 | 36 |
| Long-term project | 0.78 | 000 | 19 | 0.69 | 0.001 | 19 |

On the other hand, it also shows that for long-term projects the association coefficient rose to 0.78 for satisfaction, and 0.78 for effectiveness with a strong significance level. These results show that the longer the duration of the project, the higher is the intensity of the commitment behaviour.

**Table 5.19**

**Correlation between trust behaviour and elements of partnering success control of project duration**

| | satisfaction | | | effectiveness | | |
|---|---|---|---|---|---|---|
| Trust | Rho | P | N | Rho | P | N |
| Short-term projects | 0.36 | 000 | 38 | 0.34 | 0.04 | 36 |
| Long-term project | 0.72 | 0.005 | 19 | 0.77 | 0.001 | 19 |

The results displayed in table 5.19 show the Spearman's Correlation Test for trust and the elements of partnering success with control of project duration. They illustrate that for short-term projects the association coefficient was 0.36, with a significant association of 000, and the coefficient for effectiveness is 0.34 with a significance level of 0.04. This strong significant association, however, rose to 0.77 association coefficient for effectiveness. Therefore, the impact of project duration on the level of trust between partners is confirmed.

**Table 5.20**

**Correlation between co-ordination behaviour and elements of partnering success controlling for project duration**

| | satisfaction | | | effectiveness | | |
|---|---|---|---|---|---|---|
| Co-ordination | Rho | P | N | Rho | P | N |
| Short term projects | 0.63 | 000 | 38 | 0.41 | 0.014 | 36 |
| Long-term project | 0.63 | 0.003 | 19 | 0.48 | 0.03 | 19 |

The results displayed in table 5.20 demonstrate that the Spearman's Correlation coefficient of co-ordination and the elements of partnering success may vary with project duration. The table shows that for short-term projects, Spearman's association coefficient for satisfaction is 0.63, with a significance level of 0.000, and for effectiveness is 0.41 with a significance level of 0.014 confirming the association between the variables. On the other hand, it also shows that for long-term projects, the correlation coefficient remained the same for satisfaction, and slightly rose to 0.48 for effectiveness with a high level of significance. This result shows that co-ordination is required at different levels of relationship irrespective of the length of the project or the relationship.

Table 5.21 displays the correlation between information sharing and partnering success. It shows that there is a strong correlation between the variables for short-term projects, while it does not show any significance for long-term projects.

The correlation coefficient for the short-term projects is 0.34 for satisfaction, with a significance level of 0.04, and 0.38 with a significance level of 0.02 for the effectiveness measure.

**Table 5.21**

**Correlation between information sharing behaviour and the elements of partnering success controlling for project duration**

| | Satisfaction | | | effectiveness | | |
|---|---|---|---|---|---|---|
| Information sharing | Rho | P | N | Rho | P | N |
| Short term projects | 0.34 | 0.04 | 38 | 0.38 | 0.02 | 36 |
| Long-term project | - | - | | - | - | - |

Table 5.22 shows the results of the correlation between the elements of partnering success and setting the features of partnering. It showed that the correlation coefficient for short-term project is 0.53 for satisfaction, with a significance level of 0.001 and a coefficient of 0.21 with a significance level of 0.2 for the effectiveness measure.

**Table 5.22**

**Correlation between features of partnering and the elements of partnering success controlling for project duration**

| | Satisfaction | | | effectiveness | | |
|---|---|---|---|---|---|---|
| Feature of partnering | Rho | P | N | Rho | P | N |
| Short term projects | 0.53 | 0.001 | 38 | 0.21 | 0.2 | 36 |
| Long-term project | 0.61 | 0.005 | 19 | 0.66 | 0.003 | 19 |

For long-term projects, the correlation coefficient rose to 0.61 for satisfaction with a significance level of 0.005, and 0.66 for effectiveness with a significance level of 0.003. This shows that partners conducting long-term projects are more concerned about setting and agreeing about the fundamentals of their relationship.

**Table 5.23**

**Correlation between partnering team orientation and elements of partnering success controlling for project duration**

| | satisfaction | | | effectiveness | | |
|---|---|---|---|---|---|---|
| Partnering team orientation | Rho | P | N | Rho | P | N |
| Short term projects | 0.14 | 0.42 | 36 | 0.02 | 0.9 | 36 |
| Long-term project | 0.71 | 0.001 | 18 | 0.69 | 0.003 | 18 |

The above table shows the results of Spearman's Correlation Test between elements of partnering success (satisfaction and effectiveness) and partnering team orientation controlling for the duration of the relationship. It showed the rho for short-term project is equal to 0.14 for satisfaction, and 0.09 for effectiveness with no significance level. For long-term projects the correlation coefficient rose to 0.71 for satisfaction, with a significance of 0.001, and 0.69for effectiveness with a significance level of 0.003, which are both greater than the set level of significance. This result shows that the importance of partnering team orientation increases with a length of the project duration. This explains that for long-term projects, partners were more concerned about getting the team oriented about the relationship than those of short-term project.

# CHAPTER SIX

# DISCUSSION OF RESULTS

## 6.0 INTRODUCTION

The previous chapter identified the variables and how they are related to the elements of partnering success, and shows the factors which are directly associated with the success of partnering projects. This chapter analyses and discusses the results of the research. The discussion is based on the literature and the results cited in the previous chapter. As indicated in chapter four SPSS has been used to analyse the results statistically.

## 6.1 HYPOTHESIS ONE

**Hypothesis one**
*Partnering relationships are successful within the UK construction industry.*

Partnering has been extensively studied in business environments (e.g. Rai et al 1996, Eddie et al 2000, Barlow et al 1997, Bennett and Jays1994). Bennett and Jayes (1998:3) stated that: 'Partnering is becoming increasingly well understood in the building industry as a way of working with clients to jointly deliver vastly improved construction performance.'

Larson (1995) commented that partnering is becoming a rallying cry in the North American Construction industry. Partnering within the UK construction industry was introduced in the early nineties (Barlow et al 1997). It is seen as a way to attain business objectives by maximising the efficiency of each participant's resources.

One of the main objectives of this research is to investigate the trend of partnering relationship success within the construction industry. As discussed in the previous chapters the criteria of success used in this research are satisfaction and projects effectiveness. Tables 6.1 and 6.2 summarise the results of the two sub-hypotheses, which are discussed in the following sections.

### 6.1.1 SUB-HYPOTHESIS 1.1:

*Partners are satisfied with their relationship.*

Table 6.1 shows the Wilcoxon Test results for expected satisfaction and actual satisfaction. It shows that z is 0.22 with a significance value of 0.84 indicating that there is no significant difference between the expected and actual satisfaction. Based on this results it can, therefore, be said that the respondents who participated this research are satisfied with their project outcome. In other words, the projects undertaken through partnering are satisfying and respondents feel that they are satisfied with the different aspects of relationship.

**Table 6.1:**
**Wilcoxon Signed Ranked Test Statistic for Expected Satisfaction and Actual Satisfaction**

| | Z | p |
|---|---|---|
| Expected satisfaction/actual satisfaction | -0.22 | 0.84 |

The previous results indicate that partners are satisfied with different aspects of the relationship and that the effectiveness of projects was meeting their expectations. This confirms the fact that projects undertaken through partnering are successful.

Comparison of these results with other studies is generally useful, although it is somewhat simplistic. This simplicity is engendered by two principal reasons. Firstly, most of the studies on partnering were conducted using case-study

method. Secondly, operationalisation of the partnering concept and measures of project success have always been different. As Larson (1995:33) emphasised:

> *'Often projects are considered a technical success in spite of being over budget and behind schedule. And, participants may still be dissatisfied with the project even when it is under budget and in time.'*

### 6.1.2 SUB-HYPOTHESIS 1.2

*Partnering projects are effective.*

Table 6.2 above shows that the Wilcoxon Test value for expected achievement and actual achievement is -0.71 with a significance level of 0.47, which is greater than 0.1. Therefore, there is no significant difference between what was expected to be achieved before the start of projects and what actually had been achieved by the end of the projects. This means that partnering projects investigated in this research are effective and respondents believe that they are achieving what they planned.

**Table 6.2:**
**Wilcoxon Signed Ranked Test Statistic for Expected Achievement and Actual Achievement**

| | Z | p |
|---|---|---|
| Expected achievement/actual achievement | -0.71 | 0.47 |

One study that is methodologically similar to the current research was undertaken by Larson (1995) and reviewed in chapter three. Larson studied 280 construction projects. He examined the relationship between project success and partnering as well as approaches to managing the owner-contractor relationship. Success was measured in terms of controlling costs, meeting schedules, technical performance, avoiding litigation and satisfying customers.

The results of the study revealed that although there was no significant difference with respect to meeting the schedules and avoiding litigation, partnered projects, on the average, had achieved more superior results than informal partnered projects in terms of controlling costs, meeting customer needs and achieving technical performance. Quite interesting here, is that the results of the current research and Larson's research are very similar, thus indicating the positive direction of partnering success in the construction industry.

Cooper et al (1996) conducted a study on a twenty years relationship between clients and contractors during which 15 projects had been completed successfully. The research examined the traditional nature of relationship in the construction industry and contrasted it to those found in the manufacturing industry. Cooper et al (1996) intended to develop a conceptual model for business relationship and practical guidelines for effective working relationships between designated stakeholders on construction project.
The case study projects were considered to be successful in the sense that the work was delivered on time and within budget. This research finding is in line with Cooper et al's research result in that they both show that partnering is proved to be successful within the construction industry.

## 6.2 HYPOTHESIS TWO

*There is an association between partnering success and partnering team orientation, i.e. partnering success is dependant on partnering team orientation.*

As with any new theory or innovative idea, the challenges lie not just in understanding the concept but also in the process by which it can be successfully implemented. Many companies, as indicated in chapters two and three, seem to like the idea of partnering as a means of curing their ills, but a very few have a total grasp of all the areas which have to be tackled in putting it into practice. Partnering is rather a revolutionary concept, which requires the discarding of

traditional attitudes and practices and establishing new goals and systems. As Macbeth and Ferguson (1994:164) emphasised:

> *'...master-servant situation has to be relaxed throughout the change process to allow the best opportunity for the relationship issues to be explored in a frank and honest manner. Without these realisation, there is a little probability of the relationship becoming a true partnership'.*

As partners need a comprehensive understanding of what partnering is all about, the authors suggested that the theory of partnering needs to be regarded as an issue by all members of the partnering team, since the lack of awareness and understanding can lead to conflict within the companies to the and eventual break-down of the relationship.

Table 6.3 illustrates the results regarding a direct association between the elements of partnering success and the partnering team orientation. It shows the correlation coefficient of 0.37 with a strong significance level of less than 0.01.

These findings indicate strongly that making the partnering team aware of the different aspects of the new approach is significant for the successful application of the partnering. According to the literature (e.g. Kubal 1994, Abudayyeh 1994), partner orientation is normally conducted through partnering workshops, where the different teams are brought together to discus the different issues of the relationship.

**Table 6.3:**
**Correlation of Partnering Team Orientation and Elements of Partnering Success**

| Partnering team orientation | Satisfaction | Effectiveness |
|---|---|---|
| Rho | 0.37*** | 0.24* |
| N | 55 | 53 |

*** p< 0.01, ** p<0.05, * p<0.1

The goals of the workshop are to help the project team establish an open and honest communication and to introduce the participants role and explain the

nature and the requirement of such relationship. The facilitator can then discuss the goals of the partnering workshop and the concepts of partnering with the workshop participants. If economically feasible, an independent third party facilitator may be hired. If the project is not economically large enough to support a professional facilitator, a mutually acceptable third-party volunteer may be found in a local university or professional organisation. Edelman et al (1991) suggested that the facilitator should discuss the concepts of principals negotiated, where solutions that serve the interest of both parties are sought.

## 6.3 HYPOTHESIS THREE

*There is an association between partnering success and agreement on the following agendas of the project: a) Mutual objectives, b) Continuous improvement, and c) Conflict resolution techniques*

The hypothesis is composed of three sub-hypotheses discussed as follows:

### 6.3.1 AGREED COMMON GOALS

*'There is an association between the elements of partnering success and setting mutual objectives.'*

Setting mutual objectives improves partners mutual understanding and future plans fulfilment. Examples of partnering goals includes on time delivery, no claims and litigation, quality product, and no rework. Without the setting of mutual objectives, difficulties may arise because partners are not in complete agreement about the purpose of a partnering relationship and the process by which its goals can be achieved. It is also possible that short-term and long-term objectives of partners can be misunderstood, so the direction of the relationship may be rather misleading. Therefore agreeing and identifying the project objectives is critical to the relationship success. Rai et al (1996) concluded that partner congruity is one of the critical success factors of partnering relationship.

Table 6.4 reveals the results of cross tabulation between the elements of success (effectiveness and satisfaction) and the agreeing upon mutual objectives among the partners.

**Table 6.4:**
**Correlation Between Agreed upon Mutual Objectives and Elements of Partnering success**

| Mutual objectives agreed upon | Effectiveness | Satisfaction |
|---|---|---|
| Phi | 0.25* | 0.587*** |
| N | 55 | 57 |

*** p< 0.01, ** p<0.05, * p<0.1

The table shows the contingency coefficient phi for satisfaction to be 0.59, with an association probability significance less than 0.01 and Phi for effectiveness is 0.25 with an association probability significance of 0.03. The sub-hypothesis is retained.

Crane et al. (1997) conducted research for developing a methodology for successful partnering relationships. They concluded that partnering relationships alignments phase through which mutual objectives are set, is necessary to be designed to help partners understand each other's long-term goals and objectives. Having achieved these understandings, the parties can then work together to make their plans a reality. The formalisation of these goals and the associated parameters, form a starting point to guide the future action of the partners.

Wilson et al. (1995) and Mink et al. (1993), in describing a process model to move partnering beyond a single project agreement, stated that for a successful partnering process, partners must focus on the future state of the relationship. They suggested that the definition of the organisation's future state is highly dependent on three primarily components: vision, mission and values.

Based on the results of this research and previous literature, one can say that in order to achieve a common goal, there must exist a level of consensus. Therefore, partners must expect to have a shared perspective in order to achieve the merits of such close relationships. Mutual agreement on the purpose of the relationship is necessary because it provides the basic fundamentals of the relationship among and within the partnering organisations.

### 6.3.2 CONTINUOUS IMPROVEMENT PLANS

*'There is an association between the elements of partnering success and agreeing on continuous improvement plans.'*

In seeking to obtain the full benefits of partnering, there must be a potential for improvement in the product or service which is the subject of the partnering arrangement. One of the intentions of this research was to investigate if agreeing on continuous improvement plans is critical for the relationship success.

The results of this research revealed that there is a significant relationship between the partnering success and agreeing on continuous improvement plans. Table 6.5 below shows the output of the cross tabulation between the elements of partnering success (satisfaction and effectiveness) and agreeing upon continuous improvement plans.

**Table 6.5:**
**Correlation Between Agreed Continuous Improvement Plans And The Elements of Partnering Success**

| Continuous improvement | Effectiveness | Satisfaction |
|---|---|---|
| Phi | 0.33** | 0.40*** |
| N | 55 | 57 |

*** p< 0.01, ** p<0.05

It reveals that the phi for satisfaction is equal to 0.4 with an association probability significance of 0.002, which means that the association between the two variables is significant. It also shows that Phi for effectiveness is 0.33, with a probability significance of less than 0.05, thus revealing a strong association between the two variables.

Bennett and Jayes (1994) stated that it is essential if partnering is to deliver its potential benefits that explicit attention is given to ensuring that performance continually improves.

The authors also asserted that competition provides a spur to continuous improved performance. The nature of construction is such that all too often cut throat competition drives down initial prices, quality and safety, management competence which then results in claims, disputes, poor performance and firms going out of business. Constructing the Team (The Latham Report 1994) describes these failings in greater details and recommends partnering as the way forward. Bennett and Jayes (1995) added that competition has a place in partnering, but it must be used in a manner that encourages greater efficiency. They also suggested that in selecting construction firms, it is sensible to have three or four consultants of each discipline and three or four main contractors, and the contractor should have three or four subcontractors of each craft or trade to provide real competition.

Partnering can be used in all of these relations and the existence of alternatives provides the competitive element that produces challenges and ever-tougher

targets. However, competition is not the only weapon available. Moreover, carefully researched information about best international practices (e.g. benchmarking) has been used, to this effect, in the past to help set tough but achievable targets for projects in the UK. A wide range of sources should, therefore, be used to identify where improvements in performance are likely to be found and to help in deciding exactly what specific targets should be sought on any given project.

Brouthers et al. (1995:21) commented saying:

> *'To avoid the pitfall of ambiguous or different goals, participants should make sure they have synchronous goals to begin with, then review what has been accomplished in terms of the original goals at least every three to six months. The alliance is less likely to lose sight of objectives if frequent assessment is made.'*

In order to improve the efficiency of relationship, the partnering team should search for better operating processes and procedures by introducing new models of approaches and methods. Based on the main concern of this research, the partnering team should look for continuous improvement in response to the turbulent environment.

### 6.3.3 CONFLICT-RESOLUTION TECHNIQUES

*'There is an association between the elements of partnering success and agreeing conflict resolution techniques.'*

Conflict often exists in inter-organisational relationships due to the inherent interdependence between parties. The escalation of disputes originating between partners can be a major barrier to the success of the relationship. A certain amount of conflict, however, is expected during the course of any partnering relationship. Agreeing to resolve the expected conflicts is suggested to be critical for the success of partnering projects (e.g. Mohr & Spekman 1994, Borys and Jemison 1998).

One of the research objectives is to investigate the importance of partners agreement on conflict-resolution techniques to the success partnering relationships. Table 6.6 presents the results of cross-tabulation between elements of partnering success (satisfaction and effectiveness) and agreement on problem solving techniques. It shows that phi for satisfaction is 0.55, with an association probability less than 0.05, and phi for effectiveness is 0.38, with a probability significance level of less than 0.01, which means that the association between the two variables is significant.

These results infer that when parties are engaged in joint-problem solving, a mutually satisfactory solution may be reached. Consequently, this has an impact on enhancing the partnering relationship success. Partners often attempt to persuade each other to adopt particular solutions to the conflict situations. Therefore, prescribing a dispute resolution process from the start of the relationship will secure the harmony between the partners and will ensure a healthy environment for the project conduct.

**Table 6.6:**
**Correlation Between Agreed upon Conflict Resolution Techniques and The Elements of Partnering Success**

| Problem-resolution techniques | Effectiveness | Satisfaction |
|---|---|---|
| Phi | 0.38*** | 0.55** |
| N | 55 | 57 |

*** p< 0.01, ** p<0.05

The findings of this research regarding conflict-resolution techniques are consistent with emerging research on partnering relationship. Eddie (2000) and Mohr et. al (1994) found that the manner in which parties resolve conflicts has implication of partnership success.

Crane et al. (1997) research revealed that resolving disputes at the lowest level will help reduce the number of escalated disputes that must be resolved by top management and consequently reduce the unwanted strain on the relation. Thomas (1998) asserted that, inevitably, there will be instances in which the partnering individuals who are close to the situation can not readily achieve resolution. If this is caused by disagreement or exceeding established authority levels, then escalating the resolution process might be necessary. This escalation process is established so that no person can cause a significant stoppage or delay in the work as a result of stubbornness or other factors.

## 6.4 HYPOTHESIS FOUR

*There is an association between partnering success and signing a partnering charter, i.e. partnering success is dependant on signing a partnering charter.*

The purpose of the partnering workshop is to establish commitment, build the partnering team strength and the mutual goals and objectives among the parties. Partners must identify goals and develop plans to achieve such goals and draw up an agreement to commit to those goals. This agreement is non-contractual and is known as a partner charter. It acts as a form of a reminder of the firm's intentions. The author, based on the literature review, suggested that the charter could aid in the effectiveness of the partnering relationship.

The results of this study displayed in table 6.7 show that there is only a weak correlation between signing partnering charter and partnering projects effectiveness. This means that the partnering charter does not seem to have any significant impact on the partnering project effectiveness.

**Table 6.7:**
**Correlation Between Signing Partnering Charter and The Elements of Partnering Success**

| Signing a partnering charter | Satisfaction | Effectiveness |
|---|---|---|
| Phi | 0.11 | 0.23 |
| N | 57 | 57 |

Harback et al. (1994:25) commented:

> *'whatever the scenario, it is important that a partnership charter with a mission statement and goals be hammered out and signed. The charter demands some forethought since it is the first visual instrument of shared-partnering commitment. It is very important and symbolic'.*

Bennett and Jayes (1995) suggested that it should be signed by all partnering firms as evidence of their intention to try to work on the basis of partnering attitudes.

## 6.5 HYPOTHESIS FIVE

*'There is an association between partnering success and information sharing.'*

The findings of this research showed that the more information shared, the higher is the effectiveness of partnering projects. It appears that partners need to provide each other with appropriate information in a frequent and informal manner.

Table 6.8 shows a significant correlation between information sharing and elements of partnering success. Information sharing was shown to be of great importance to the model of success of partnering.

Barlow (1996) concluded from the cases he investigated that attempts to simplify information-flow and develop new communication structures were a

common feature in all the case studies, either by cutting a chain of command, or by allowing key people of each organisation to talk directly to each other.

**Table 6.8:**
**Correlation Between Information Sharing Behaviour with Elements of Partnering Success**

| Information sharing | Satisfaction | Effectiveness |
|---|---|---|
| Rho | 0.40*** | 0.37*** |
| N | 57 | 55 |

*** p< 0.01, ** p<0.05

This has helped to break down formalised systems of communication and create a flatter structure. Another feature was the compression of information-flow so that people working on the late assembly can talk directly to those involved in the earlier design and planning stages, without communicating with intermediate project managers or quantity surveyors.

Ellison and Miller (1995) suggested that, to achieve effective communication, partners can establish open channels of communication between executives of the client instead of leaving communication solely to the project manager or at a working level. Cheng et al (2000) added that the formation of effective communication channels can be used to motivate partners to jointly participate in planning and goal-setting and therefore exert their co-operative efforts to create compatible expectations (Mohr and Spekman 1994). They suggested an example of conducting partnering workshops as a means of a channel of communication. In the construction industry, partnering workshops are often used to stimulate participation. Typically, a facilitator conducts the workshop to ensure that all discussions are constructive and that specific outcomes are achieved. In a friendly and open environment, the facilitator will aim to identify those joint-goals, which can be used as targets for determining how best to

procure the project, making sure that cost, time, quality and safety are not jeopardised in any way whatsoever.

## 6.6 HYPOTHESIS SIX

*There is an association between partnering success and the following behavioural characteristics: a) Commitment, b) Trust, and c) Co-ordination.*

By definition, partnering is a relationship which is not regulated by any contractual obligation[2]. The ultimate success or failure of the relationship to achieve its intended targets resides with the people directly involved. Because these people are uniting from different organisations, a new working relationship must be developed in any joint-endeavour. Chan and Heide (1993) suggested that any joint relationships will allow people to constructively confront, challenge and compromise in a give-and-take manner. Consequently, this builds mutual trust and can promote co-operative attitudes. Moreover, they added that, to achieve mutual respect, all parties involved must be highly committed and competent.

One of the objectives of this research is to identify behaviour associated with successful partners. This has been formulated in hypothesis six. The results of this hypothesis are described in section (5.18) in the previous chapter. The summary of the results shown in tables 6.9, 6.10 and 6.11 below indicate that there is a significant association between the elements of partnering success and the following behavioural characteristics: Commitment, Trust, Co-ordination.

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[2] Although multi-party and bi-party contracts are now developed (PPC 2000 and ECC Option)

### 6.6.1 COMMITMENT

*'There is an association between commitment and the aspects of success of partnering projects.'*

The results show that there is a significant association between the elements of partnering success and commitment. Commitment is particularly important for the management of projects because of their temporal nature. The relatively short life span of projects and the need to get the team working productively, as soon as possible, require a great deal of effort.

There is an agreement among researchers that commitment can provide the additional impetus that projects require to get them off to a good start. Burgess & Turner (2000) argued that the introduction of new technology or strategic initiatives could represent a period of discomfort and risk for any organisation. They commented that commitment can help smoothen this period of transition by removing the delays, decision constraints and reversion to the old ways of working associated with non-commitment or mere compliance.

**Table 6.9:**
**Correlation Between Commitment Behaviour with the Elements of Partnering Success**

| Commitment | Satisfaction | Effectiveness |
|---|---|---|
| Rho | $0.54^{***}$ | $0.40^{***}$ |
| N | 57 | 55 |

$^{***}$ $p< 0.01$, $^{**}$ $p<0.05$

Meanwhile, Macbeth and Ferguson (1994) suggested that most management practices are, to some degree, risk averse; i.e. there is a tendency to go to the old ways of doing business and to the most conservative solutions to avoid any potential criticism or blame. The risk adversity can manifest itself at the

beginning of the relationship as being new and unfamiliar with the existing relationship. They concluded that commitment is therefore never fully established and reversion to the old ways is always at hand. Macbeth and Ferguson also stated that lack of trust is endemic in most organisations, which are about to tackle partnering relationship saying that: *'...The lack of trust is an obvious barrier to gaining commitment to the relationship change process...'*(pp 160)

Most of the previous studies on partnering have stressed on the importance of commitment for the success of such relationships. However, a very few studies have attempted to conduct an empirical investigation of how critical the behaviour of commitment to the success of partnering projects is. The strong finding of this research for commitment related to partnering success elements is similar to other findings on closer business relationship, in general, and partnering relationship, in particular (Parkhe 1993, Mohr & Spekman 1994). Indeed, the results of this study are in line with previous researches and literature.

It is argued in previous literature and research that more committed parties are expected to balance the attainment of short business objectives and with long term goals and achieve both individual and joint missions without raising the fear of opportunistic behaviour (Parake 1993, Mohr & Spekamn 1994, Cheng et. al 2000).

Partnering involves a commitment by organisations to eschew adversarialism and to cooperate to achieve common business objectives (CII 1991, Bennett and Jayes 1995). Thus partnering is defined as 'a long-term commitment between two or more organisations for the purpose of achieving specific business objectives' (NEDO 1991:5)

### 6.6.2 TRUST

*'There is an association between trust and the aspects of success of partnering projects.'*

There is a consensus that trust is a cornerstone for the success of any relationship. Trust is an essential ingredient in almost all kinds of human relationship such as: marriage, friendship, business relationship etc. In such relationships, people tend to focus on common goals and strive to improve such goals throughout the life of the relationship. Many have assumed that trust has a smoothing effect on exchanges in a very efficient way (Das & Teng 1998, Zand 1972). One of the objectives of this research is to determine the importance of trusting behaviour to the success of partnering relationships, which is formulated in hypothesis six.

**Table 6.10:**
**Correlation Between Trust With The Elements of Partnering Success**

| Trust | Satisfaction | Effectiveness |
|---|---|---|
| Rho | 0.66*** | 0.48*** |
| N | 57 | 55 |

*** p< 0.01, ** p<0.05

The results of this research have revealed that there is a significant association between partnering success and the trusting behaviour as table 6.6.2 displays. That is to say, trust has been found to be an important predictor of partnering success.

This finding is consistent with emerging research on partnering relationships. Mohr and Spekman (1994) suggest that trusting behaviour is important in soothing partners' fear of opportunistic behaviour and it leads to greater satisfaction with the phases of the partnership. In view of that, it has been shown

here that having confidence, and believing that partners will act fairly and in the best interest of the relationship, can lead to greater satisfaction with the different aspects of the relationship.

Munns (1996) conducted a survey on 110 construction companies measuring the level of confidence between the different members of a construction project namely client, contractor, and architect. He concluded that if the quality characteristic of low trust is perpetuated within a contract, the potential for breakdown in the relationship becomes high. This reveals that the lower the level of trust between the different members, the higher is the possibility of the contract failure. Therefore, partners with high level of trust are experiencing high levels of success in their relationship.

### 6.6.3 CO-ORDINATION

*'There is an association between coordination and the aspects of success of partnering projects.'*

Co-ordination is the process whereby both specified workflow and information flow are exchanged in a manner that permits smooth interaction between partners and ensures delivery and other mechanisms that attempt to bring successful projects. Pfeffer & Salancik, (1978) suggest that stability in an uncertain environment can be highly achieved via greater coordination. Further, Frazier et al (1988) suggested that high levels of coordination are associated with mutually fulfilled expectations. Recently, Cheng et al (2000) identified coordination as one of the critical success factors for partnering relationships.

**Table 6.11:**
**Correlation Between Co-ordination Behaviour With The Elements of Partnering Success**

| Co-ordination | Satisfaction | Effectiveness |
|---|---|---|
| Rho | 0.60*** | 0.40*** |
| N | 57 | 55 |

*** p< 0.01, ** p<0.05

The findings related to the co-ordination variable with the elements of partnering success as shown in table 6.11 suggest that there is a strong association between the behaviour of co-ordination and partnering relationship success.

The result that co-ordination is a predictor of partnering success in this research is similar to other findings of other researches in business relationships. Mohr et al (1994) reported in their study of determining the characteristics of partnership success that high levels of co-ordination between trading partners mean that greater partnership success levels are likely to be expected.

A study conducted by Spekman et al (1998), in their study of investigating partnership as a perspective of supply chain management, commented that co-ordination is important, but only as a threshold. They argued that firms can co-ordinate production and logistics activities to ensure JIT delivery, but they never reach the stage of full integration whereby future design and product performance and long-term strategic intentions are shared.

## 6.7 HYPOTHESIS SEVEN

*The association between the elements of partnering and the success of the partnering projects is contingent upon the duration of the relationship.*

Experiential learning is desirable and even required. It is particularly advantageous if the participants have prior knowledge of each other's capabilities and expectations (Chan & Heide 1993).

This research has sought to find out the impact of project duration on the importance of variables at different levels of the relationship. It is intended to determine the impact of project duration on the level of success of the relationship. The literature review generally shows that long-term relationships are more successful than others.

**Table 6.12:**

**Correlation Between Critical Factors of Partnering, Partnering Success Measures, and Project Duration**

| | Satisfaction | | Effectiveness | |
|---|---|---|---|---|
| | T1 | T2 | T1 | T2 |
| Behavioural Characteristics | | | | |
| Trust | 0.36*** | 0.72*** | 0.34** | 0.77*** |
| Commitment | 0.39** | 0.78*** | 0.22 | 0.69*** |
| Co-ordination | 0.63*** | 0.63*** | 0.41** | 0.48** |
| Information sharing | 0.34** | - | 0.38** | - |
| Partnering characteristics | | | | |
| Mutual objectives | | | | |
| Conflict resolution | 0.53*** | 0.61*** | 0.21 | 0.66*** |
| Continuous improvement plans | | | | |
| Partners orientation | 0.14 | 0.71*** | 0.02 | 0.69** |

***p<0.1, **p<0.05,

T1= short term projects, T2= long term projects

Table 6.12 above shows the summary of the results of the correlation between the critical factors of success and partnering relationship success. Figure 6.1 presents the above results graphically. The findings displayed in this table and figure 6.1 summarise the following observations:

1. Most of the previous research has identified the importance of trust to the success of partnering, but only a few have paid attention to how to build trust (e.g. Lazar 2000). This research has empirically, demonstrated that the trusting behaviour development is dependant upon the project's duration. Table 6.12 above shows the association between trusting behaviour and partnering projects effectiveness controlling for project duration. It illustrates that the association is more significant for projects of long-term duration. The trust-success measures correlation coefficient highly rose, from 0.36, for short-term projects, to 0.72 for long-term projects. This means that the more the partners are getting involved in relationship, the more they acquire the trusting behaviour, which, in turn, will have positive impact on in their project success. Hence, the results of this research display conformity with the line of thinking that experience enhances the effectiveness of having time to build trust during the course of the project. This explains why partners at the beginning of the relationship are more concerned with building mutual trust, and, by time, trust is established through proving their goodwill to each other. In line with the findings of this research, Creed and Miles (1996) have noted that trust level is not static in any given relationship and needs to be developed in a conscious and gradual manner. Moreover, according to Gulati (1995), trust is more likely to take accumulation of prior satisfactory experiences.

2. Commitment is shown to be a critical factor for the success of partnering relationship. It should always come from top management and pass through the structure of the organisation. The results displayed in the above table demonstrate that the commitment behaviour and partnering

success correlation has shown the same effect as the trusting behaviour. It is clear from the table that the longer the project duration, the more the partners get committed to the relationship. This makes it clear that partners do not get committed from the beginning of the relationship, but it is built with time as the relationship grows.

3. Effective co-ordination of business-to-business relationship is shown to be an important determinant of partnering relationship success. The impact of project duration does not show any effect on the co-ordination behaviour between the partners. The co-ordination-partnering success correlation coefficient actually remained at the same level of 0.63, with the same significance level, for short-term and long-term project. This result reveals that the co-ordination behaviour is not affected by the duration of the project and it is the same for short and long term.

4. It has been shown earlier that there is evidence that a successful partnering relationship depends critically upon working together when trying to solve common problems, when executing their agreed upon objectives and jointly plan for the future and make their success interdependent. The results of table 6.12 support this idea and show how the correlation coefficient of the association between partnering characteristics and success is raising from 0.53 ($p<0.01$) for short-term projects, to 0.61 ($p<0.01$) for long-term projects. This endorses the idea that long-term projects partners are more concerned with setting the fundaments of their projects than short-term projects partners.

5. The findings of this research highlight the idea that effective communication by information sharing is an important theme for partnering success. The reason for information exchange criticality is because both open and prompt communications between partners is believed to be a fundamental characteristic for building trust (Larson,

1992, Kanter 1994). The results portrayed in the above table show that the information sharing-partnering success correlation increases with time. It may, however, takes a while before the partnering relationships develop between organisations within which they feel comfortable and with the assurance that the sensitive information they share will not be abused by either parties.

6. Getting the partnering team oriented, at the beginning of the partnering relationship, about the different aspects of the relationship is shown to be of little importance for short-term projects. The results of the above table show that the weak significant association between partnering team orientations and partnering success for short-term projects. It also shows that the results have gone up to a highly significant coefficient of association of 0.71 for long-term projects. This indicates that in long-term projects, partners are more concerned about orienting their teams and about the new relationship.

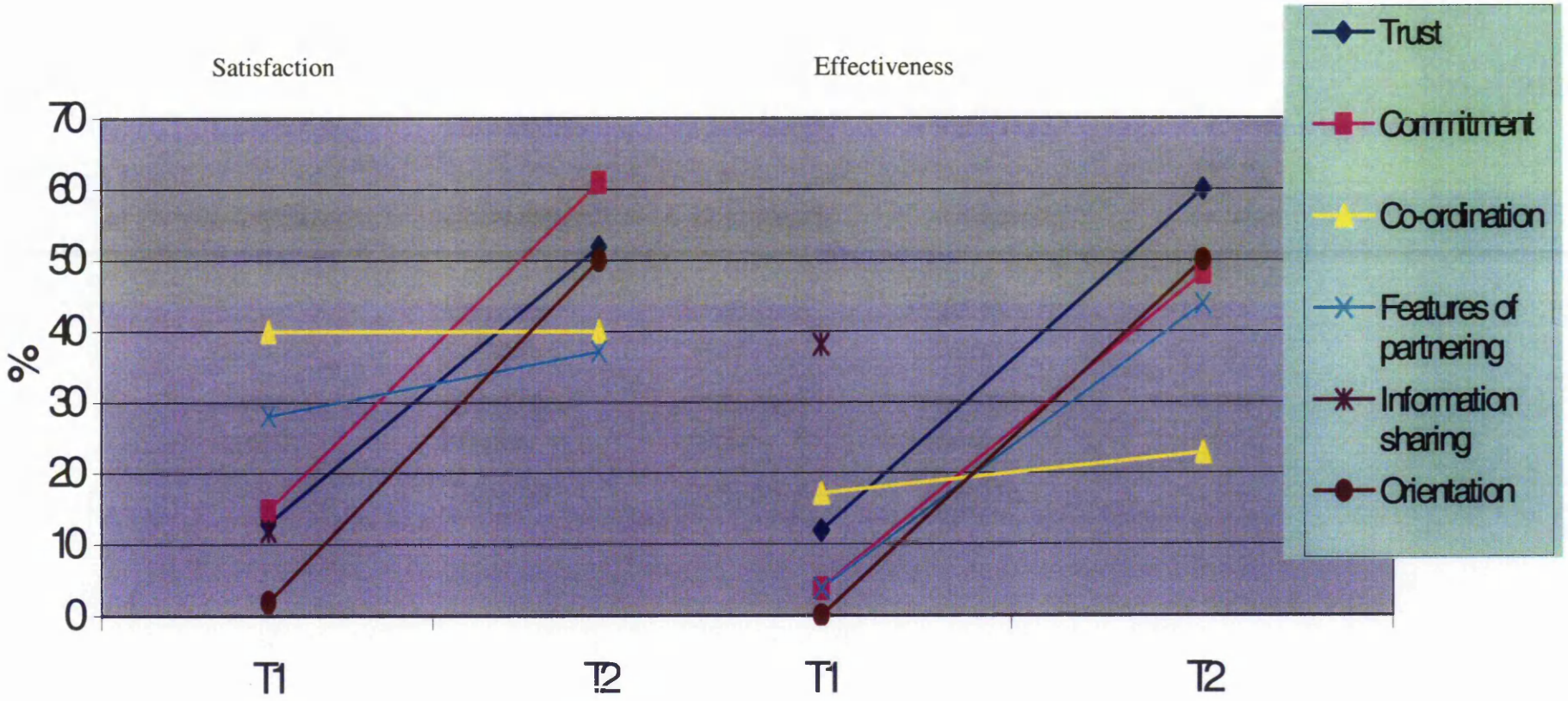
Most of the previous research has identified that the development of successful relationships is based on certain processes and techniques (e.g. Eddie et al 2000). It has been highlighted in this chapter that there are certain practices and behaviours, which are directly related to the success of partnering projects.

It has also been stressed that the true implication of a partner may only be assessed in the long-term when companies have a considerable amount of experience of the application, which it develops over time. This is supported empirically in this research by demonstrating that long-term successful projects are intensively practising the activities and behaviours, which are proved to be directly related to partnering success.

Wilson et al (1995), in describing a partnering process model to move partnering beyond a single project agreement, stated that values are fundamental notions of

correct behaviour, while Cohen et al. (1992) consider values to form the foundation of an organisation character. Examples of partnering values include commitment, trust and confidence, clear expectations, responsibility and courage.

**Figure 6.1:Iimpact of project duration on the association between the success factors and the elements of partnering success**



# CHAPTER SEVEN

# CONCLUSIONS AND RECOMMENDATIONS

## 7.0 INTRODUCTION

The rationale for forming partnering arrangements is well documented. Many commentators have argued that partnering can have a substantial and positive impact on project performance, not only with regard to time, cost and quality, but also with regard to more general outcomes such as greater innovation and improved user satisfaction (e.g. CII, 1991, NEDO, 1991, Latham, 1994, Bennett and Jayes, 1995, 1998). This research adds to this literature and contributes an empirical database by reporting findings from a research work designed to explore factors associated with partnering success in the UK construction industry.

Despite the amount of interest shown in partnering, the extent of actual empirical research is rather limited. To this effect, Bresnen and Marshall (2000) argued that the extent of empirical research is rather limited and much of the work to date is notable for its prescriptive tendencies and heavy reliance on anecdotal data. Furthermore, Li et al (2000) asserted that the lack of empirical research in partnering has resulted in minimal improvements in our understanding of the concept. By obtaining data from the construction field, 'real' construction theories can be developed. They recommended that future research should focus on empirical studies of the following:

Better performance measures and critical success factors, which are the subject of this research, and

The development and testing of partnering models and processes, formulation and selection partnering strategies.

To this effect, the aim of this research was to determine the factors associated with the development of successful partnering relationships. The main objectives of this research were set to achieve the following:

1. Identify the processes required for the implementation of partnering relationships.
2. Explore the application of partnering within the construction industry.
3. Explore factors associated with partnering projects success from previous practices.
4. Determine whether projects, which adopted partnering, were successful.
5. Identify factors associated with partnering success.
6. Produce recommendations for the successful application of partnering relationship within the construction industry.

The opening chapter of this thesis introduces the importance of partnering as one of the business options, which can be used for the improvement of the UK construction industry. The second chapter of the thesis gave a brief introduction on the nature and origins of the partnering concept. Chapter three presented the different models of partnering process and reviewed the previous studies related to successful application of partnering relationship. The research model was tested using a sample of fifty-nine projects in order to test the main hypotheses of this research, which are presented in chapter four. The analysis of the data collected was presented in chapters five and six. This chapter presents a summary, conclusions of this research and recommendations for future studies.

## 7.1 SUMMARY OF THE RESEARCH FINDINGS

The empirical tests reported provide a serious effort to examine partnering success and the factors that contribute to this success. The results reveal that projects undertaken properly through partnering are successful, indicating the success of the application of partnering in the construction industry.

| Research Hypothesis | Result |
|---|---|
| 1. Partnering is successful within the construction industry | Retained |
| 1.1 Partnering projects are effective | Retained |
| 1.2Partners are satisfied with the different aspects of the relationship | Retained |
| 2 Partnering success is dependant on partnering team orientation | Retained |
| 3 Partnering success is dependant on agreeing project agendas | Retained |
| 4 Partnering success is dependant on signing a partnering charter | Rejected |
| 5 Partnering success is dependant on information sharing | Retained |
| 6.1 Partnering success is dependant on mutual commitment | Retained |
| 6.2 Partnering success is dependant on mutual trust | Retained |
| 6.3 Partnering success is dependant on mutual co-ordination | Retained |
| 7. Success of partnering project is contingent upon relationship duration | Retained |

**Table 7.1: Summary of research hypotheses findings**

Effective communication also proved to be one of the critical elements of partnering. It has also been revealed that team-orientation, joint participation by partners in planning and goal setting at the initial stages of the project are very important elements for setting a successful relationship. The following sections of this chapter will present a summary of the findings compared to previous literature together with comments and recommendations.

## 7.2 CRITICAL FACTORS FOR PARTNERING PROJECTS SUCCESS

Since the early 1990s many organisations in the UK construction industry have employed partnering within their business practices and relationships. Walter (1998) showed that many of the large UK-based main contractors were pursuing partnering relationships, with partnering workloads increasing over time. Similarly the Reading Construction Forum (Bennett 1998) and Watson (1999) clearly show the attention major 'blue chip' clients are giving partnering.

Recently, Kumaraswamy et al (2000) conducted a case study research between successful and unsuccessful partnering subcontractors. The results show that successful subcontractors had consciously reduced their pricing level by an average of around 10% in recognition of savings that they anticipated form the improved working relationships and arrangements. They concluded that these enhanced operational efficiencies were expected to arise from the partnering arrangements. This research also concluded that partnering is relatively successful within the UK construction industry. Kumaraswamy and Mathews (2000) concluded that 'confidence' in such direct and tangible benefits from partnering was inspired by the following:

Acceptance of the main contractors' philosophy that industry needed a radically changed approach to doing business.

Increased acceptance of partnering principles in the industry in general.

Benefits that were seen to have emerged from such client-main contractor partnering.

The following sub-sections (7.2.1, 7.2.3, 7.2.4) will summarise and compare the findings of this research with previous and recent research related to the subject as shown in table 7.2.

### 7.2.1 TEAM ORIENTATION

There are many reasons for construction companies to move away from traditional management to a partnering approach. Organisations' involved in partnering are required to develop a new culture based on mutual understanding of different expectations and values and to develop a deep understanding of how they can mutually benefit from the new relationship. Educating different parties on what partnering is all about can help to attain this. The current research showed that partnering team orientation is an essential part of the partnering process and that it has a direct relation with the success of partnering. Most of the previous research (Abudayyeh 1994, Barlow et al 1997, Cheng et al 2000, Bresnen & Marshal 2000) as shown in table 7.2 has identified team orientation as an essential element for partnering success Introducing the concept of partnering and getting the new team together will help the project team establish open and honest communication channels to develop a team spirit and to share the roles of each group participants.

Pheng (1999), in identifying the elements of partnering with in the construction industry, argued that people within any construction organisation need to be educated about partnering from the early stages of the relationship. He stressed that an understanding and commitment to the concept are essential. During the orientation stage, a high degree of contact between the firms is required. Such contacts will allow the relationship to become established and this can be done through partnering workshops, which are held to show how partnering firms can work together. To this effect, it is essential that all the project participants attend partnering workshop. Bennett and Jayes (1995) stated that the purpose of the workshop is to build mutual understanding among all participants and to establish how partnering firms can work together. The latter will focus on introducing the concept of partnering and building mutual understanding among all participants. The workshop focuses on changing the attitudes of the participants from traditional to team spirit. In many cases, it is sensible to

employ an external facilitator with an extensive understanding of partnering concepts and facilitation procedures.

**Table 7.2**

| | Current research | Mohr & Spekman 1994 | Abudayyeh 1994 | Barlow et al 1997 | Cheng et al 2000 | Bresnen & Marshal 2000 |
|---|---|---|---|---|---|---|
| Mutual objectives | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Joint problem solving | ✓ | ✓ | ✓ | ? | ✓ | ? |
| Continuous improvement | ✓ | ✓ | ✓ | ? | ✓ | ✓ |
| Trust | ✓ | ✓ | ✓ | ✓ | ✓ | ? |
| Commitment | ✓ | ✓ | ✓ | ✓ | ✓ | ? |
| Coordination | ✓ | ✓ | × | ? | ✓ | × |
| Information sharing | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Partnering charter | ✓ | × | ? | × | ? | ✓ |
| Team orientation | ✓ | ? | ✓ | ✓ | ✓ | ✓ |

✓: Elements identified by the reference,

×: Factors not identified by the reference,

?: elements identified with in the reference but not studied as an element of success.

### 7.2.2 PARTICIPATION

## 7.2.2.1 Mutual Objectives

Table 7.2 indicated that all studies identified are considering the importance of mutual objectives to the success of partnering. The results of this research indicate that successful partners were setting unambiguous terms for their objectives and future scope regarding their project specifics. Cheng et al (2000) defined compatible goals as strategic goals of individual organisations that can converge to form the goals of the alliance and help to glue the organisations together and establish direction, value, and related activities. Lynch (1990) stated, failure of partnering is attributed to ambiguous goals and poorly co-ordinated activities. This clearly shows that clarity of focus is vital to the success of partnering.

Brouthers et al (1995) commented that

> *"To avoid the pitfall of ambiguous or different goals, participants should make sure they have synchronous goals to begin with, then review what has been accomplished in terms of their original goals at least every three to six months. The alliance is likely to loose sight of objectives if frequent assessment are made."*

It is clear that a process of partnering will not work when the interests of different parties remain unclear. In view of that, setting mutual goals and objectives is critical to success of partnering.

## 7.2.2.2 Joint Problem Solving

The results of this research are in line with most of the previous research findings as shown in table 7.2. the results show that defining a process or structure for managing unanticipated problems and taking others perspective enhance the success partnering projects.

Partnering research emphasises commitment (Crowley and Karim, 1995), trust (Munns 1995) and mutual goals. Thompson and Sanders (1998) suggested that

the presence of these factors tends to lead to a near conflict-free collaboration. A contradicting view argued that conflict is present in all situations. Harback et al (1994) have identified that conflict between internal and external partners is one unresolved pitfall in partnering. Liu and Fellows (2001) commented that a conflict-free situation is only an ideal to be pursued, i.e. conflict is better managed rather than avoided, to provide positive results.

Joint problem solving can bring any grievances and underlying issues to the surface. The purpose is to allow problems to be resolved early before developing into conflict or disputes. Therefore, prescribing a dispute resolution process from the start of the relationship will assist in securing the success of partnering.

### 7.2.2.3 Continuous Improvement

Bennett and Jayes (1995) concluded that, "if partnering is to deliver its potential benefits, it is essential that explicit attention is given to ensuring that performance continually improves." The results of this research show that agreeing on continuous improvement plans is positively related to the success of partnering projects. Cheng et al (2000) stressed that partnering can help organisations reduce adversarial relationship; expensive litigation and it can also help organisations improve their performance and achieve continuous growth when it can expand its utility as a strategic function. They added that creativity can then become the common theme in partnering as it may encourage innovative work and management practices. Partners, then, can set actions to induce changes, seize opportunity and rectify the course. If the partnering relationship is formed to undertake a single construction project, this may limit the usefulness of continuous improvement plans.

### 7.2.2.4 Signing a Charter

The participation stage can take place through partnering workshops where partners can establish commitment, trust and mutual goals and objectives among all members of the partnering team. At this stage, they identify goals, develop a

plan to achieve them and draw up a non-legal agreement or a charter to commit to the agreed goals. The charter is to express the overall targets and specific improvement targets to be achieved through individual projects.

The findings of this research show that signing partnering charter is not very crucial for to the success of the relationship. The European Construction Institute Report, (1997:3) stated that:

> *The charter – sets out the aspirations and expectations of the parties and the relationships that they hope to achieve. It is not intended to be a contractual document nor does it supersede the contract. While the contract establishes the legal relationship between the parties, it is the charter, which concerned with the working relationships.*

Abudayyeh (1994) and Cheng et al (2000) reviewed the use of the partnering charter within the partnering process but they did not hint at its criticality to the success of partnering. In contrast Bresnen and Marshall (2000) stated that in most of the cases they studied, the partnering process included an agreement of charters or mission statements. In this research most of the interviewees during the pilot study have commented that signing a charter will not add to their commitment to the project.

### 7.2.2.5 Contractual Issues

Frequently the term of partnering is used to capture a spirit of cooperation that may occur on any type of project. Firms involved in partnering build their relationships on trust and cooperation, so there should -seldom- be a need to resort to the law (Bennett 1998). However, the partnering process raises some legal issues and there have been some recent developments that it is important to be aware of.

Bennett and Jayes (1995) stated that partnering is more about living by the spirit rather than by the letter of the law. They added that pointing to a partnering charter would not stop a legitimate claim from a contractor, if the problem solving techniques have failed to work. It is therefore important to consider the

potential consequences before drafting the document setting out partnering relationship, because the participants may inadvertently create legal relationships they do not intend.

Green and McDermott (1996, in Bresnen 2000) stated that it is important to bear in mind that the use of partnering methods does not necessarily lead to effective outcomes, in the same way that using traditional forms of contracts does not necessarily result in poor performance. Nevertheless, partnering is seen as about changing behaviour and/or attitude, encouraging clients and contractors to transgress the conflicting interests that lie at the heart of their exchange relationship by engaging to common interest centred around specific project goals and/or more strategic long term relationship (CII 1991, NEDO 1991)

Barlow et al (1997) argued that for those who are newly using partnering and who view the idea with a fair degree of suspicion, a contract is viewed in essence as a safety net.
The ACA (Association of Consultants Architects) have recently published (September 2000) a partnering contract PPC 2000. As it is newly published it needs some time for its effectiveness to be judged. Similarly the New Engineering Contract has an option (Option X12), which enables the addition of the option to the ECC contract arrangements. This too, will be judged over time.

Mathews (1996) argued that formal agreements representing all stakeholders equally will have to be developed as learning of formal partnering in the UK develops. He also added that because of the long nature of strategic partnering formal agreement to define the extent of the relationship will have to be developed.

Brensen and Marshall (2000) argued that the level of understanding of some participants are forged in less formal terms with a partnering arrangement which effectively supersedes the role the contract, while others view the formal

contract as a crucial safeguard against any breakdown of the partnering arrangement. The authors asserted that there is a division between those who see partnering as an informal development and those who regard it as something more formal and requires contractual enforcement.

The rationale behind partnering within the construction industry is to transform its adversarial culture to more cooperative one. The authors concluded that the production of new contracts will distract from the main theme of partnering. This is supported by Bennett and Jayes (1995, 1998) who emphasised that partnering is more about building relationships based on trust and cooperation rather than the letter of law.

### 7.2.3 BEHAVIOURAL CHARACTERISITIC

Since people are uniting from different organisations, the quality of the working relationship takes a greater importance than if they belong to the same organisation. Li et al (2000) concluded that for a partnering team to work productively, some contextual characteristics should be present, such as trust, long-term commitment, and extensive communication. In the following section the characteristics identified by this research are summarised.

#### 7.2.3.1 Trust

Many publications described the establishment of a 'trust-based' relationship between owner and contractor as one of the foundations for achieving successful project partnering (e.g. construction industry institute 1994, Edelman 1991). Das and Teng (1998) suggest that changes in the relationship between organisations may actually affect the way trust develops. Lazar (2000) states that trust can grow and develop over time, spontaneously appear in a relationship, or pre-exist the relationship. This means that trust can appear spontaneously or exist between people and organisations before the relationship begins – just on the basis of reputation.. The author concludes that partnering

can allow project members to constructively confront, challenge and promise in a 'give and take' way. This builds mutual trust and promotes co-operative problem solving.

The finding of this research is in line with previous research concerning trust, as shown in table 7.2. It showed that trust is one of the factors directly related to partnering projects success

#### 7.2.3.2 COMMITMENT

A committed person is sought to adopt a specific performance goal and to persist in attempts to reach it even through difficulties (Liu and Fellows). Synergy is important and a partnering relationship is mostly recommended where the management teams of all parties involved display a fundamental commitment and where companies share a common culture (Smiricich 1985). Commitment is seen as a very important factor in partnering (e.g. Crowley and Karim 1995, Mohr and Spekman, 1994, Cheng et al, 2000).

Partners' commitment improves the relationship, builds strengths and dependency. The results also show that commitment develops with time. In building the partnering relationship, people, at first, meet to discuss mutual interest. At this stage partners are expected to agree on the agendas of the project. Locke and Latham (1990) commented that commitment is present when goals are specific and clear. Individuals are also more likely to be truly committed to a cause if they believe they have a choice about joining it and did so without external coercion. *'Social scientists have determined that we accept inner responsibility for a behaviour when we think we have chosen to perform it in the absence of strong outside pressure'* (Cialdini, 1993, in Burges and Turner, 2000). The authors conclude that since partners enter into partnering by their own will, and agree on the relationship agendas, they are expected to be committed to the relationship.

The results of the research show that commitment is directly related to the success of partnering projects. This is in line with previous researches and literature as discussed in chapter six and shown in table 7.2.

### 7.2.3.3 Co-ordination

The research identified that co-ordination is one of the key factors for partnering success. As stated in chapter six, co-ordination is the process whereby both specified workflow and information flow are exchanged in a manner that permits smooth interaction between partners and ensure delivery and other mechanisms that attempt to bring successful projects. Partnering requires information exchange, joint planning.

This research confirms that maintaining coordination organises the flow of activities and information required for the smooth interaction between the partners.

Buvik and Gronhaug (2000) stated that inter-firm coordination organises flow of activities, resources and information between partners to enable better realignment of terms of trade as changing circumstances. They added that that inter-firm coordination is important in order to improve product design changes production planning. Therefore, coordination of information exchange and joint planning in ways that extended beyond an arm's length exchange of information is essential during the course of the relationship.

The results also convey that at the beginning of the relationship, trust is usually low. It is being built through the development of the relationship. The partnering team orientation stage is considered as exploratory and tentative nurture. Orientation and participation are critical because they establish the norms and ground rules of the relation that moves the parties involved towards a growing

level of trust. Trust is being built between firms, as they have passed the development stage of formation.

### 7.2.4 EFFECTIVE COMMUNICATION

Communication processes underline most aspects of organisational functioning, therefore communication behaviour is critical to organisational success. Mohr and Spekman (1994) believed that communication captures the utility of information exchanged and is deemed to be a key indicant of the partnering indicant. They identified three aspects of communication behaviour: communication quality, extent of information sharing and participation in planning and goal setting. The extent of information sharing is the means of effective communication studied in this research. Information sharing refers to the extent to which critical, often proprietary, information is communicated to one's partner (Mohr and Spekman, 1994). They added that the systematic availability of information is an important predictor of partnering success.

It has been shown that information sharing is an enabler and is a key to the success of a partnering relationship. The data show that sharing similar values between the partners and having a common vision has a direct relation with the partnering success.

The findings of this study add credence to the suggestions by Eddie et al (2000) that effective communication is one of the critical success factors of partnering. The results are also in line with the findings of the study conducted by Mohr & Spekman (1994), and others as shown in table 7.2, who concluded that without effective communication, the success of partnering is in doubt.

Cheng et al (2000) argued that the formation of inter-organisational relationships has always been a problem in construction. Typically, at the beginning of any partnering relationship, parties will have their own terms of

preference. Consequently, breakdown in transmitting information is found to be one of the barriers in the construction industry. Love et al (1998) stated that because of the cultural diversity, partners tend to be dominated by their own goals and objectives, which can be conflicting, and as a result, may cause adversarial relations. Therefore, facilitating exchange of ideas and communicating future intentions of the relationship is critical to enhance the success of partnering relationship. The criticality of effective communication for partnering relationship is summarised as follows:

Effective communication skills can help organisations facilitate the exchange of ideas and visions.

Effective communication skills can also facilitate mutual understanding within partnering team, which in turn, stimulates confidence in releasing information to each other.

Effective communication is considered as a basic requirement for a partnering relationship since it facilitates solutions rather than establish positions or find fault with each other.

Open communication between partners can be critical in signalling future intentions and might be interpreted as an articulating evidence of more subtle phenomenon such as commitment and loyalty.

Effective communication through open communication channels can also be used to motivate partners to jointly participate in planning and executing mutual objectives.

Each of the factors identified above (7.2.1 – 7.2.4) contribute strongly to a successful partnering relationship and form the basis for the recommendations identified below.

## 7.3 RECOMMENDATIONS

Partnering among firms is receiving increased attention in the popular press and academic publications. They both stress that partnering is a strategic competitive tool for firms wishing to continue to compete and lead. Management must think partnering and learn to reach out effectively.

Identifying the critical factors characterising partnering within the construction industry can be useful for business people and academics alike. It can be useful to business people in developing and understanding which factors have positive impact on partnering. These factors may have implications beyond the construction industry to other businesses partnering in other sectors. They can also be useful to academics in understanding and modelling partnering relationship.

Overall, the results lend support to some of the essential principles of partnering. One of the essential conditions for the success of partnering is laying the foundation for a healthy teamwork prior to beginning a project. The findings support the importance of establishing upfront agreed-upon agendas for implementing partnering and resolving disputes as well as establishing in advance what constitutes equitable profit for each party. If agreed upon framework and procedures are in place before starting the project, then successful co-operation is more likely to be sustained.

Based on the findings of this research the following recommendations are suggested:

1. It is important for business people to understand that the partnering relationship cannot be developed overnight. Partnering takes time to nurture and, therefore, attention is required to develop such relationship. Whether partnering is planned or evolved naturally in the course of conducting business, it must follow some definite patterns of

activities such as partnering team building and participation of all team members in identifying different aspects of the project.

2. The length of time taken for developing partnering depends on the level of the familiarity of the partnering team with each other and with the concept of partnering itself. This also depends upon the quality of the relationship between partners and the regular and honest communication among the parties.

3. A clear understanding of the concept of partnering is crucial for business people in establishing successful partnering relationship with firms with which they conduct business. Therefore, partnering team orientation is recommended to be employed in order to assist in better identifying common ground between the partnering parties. The initial partnering meeting must focus on orienting the partners about the new relationship and not about technical issues.

4. Partnering takes time and effort to see its utility and its full benefits. Consequently, the application depends on past experience and so it would be wise for firms that are forming partnering for the first time to benefit from the experience of others. It is also advisable not to start with long-term projects.

5. It is important for partners to develop a shared vision of 'fair dealing' that governs the interaction of participants. Otherwise, parties that feel that others are taking advantage of them will naturally retreat to a more adversarial position. Conversely, parties that believe that their counterparts are dealing with problems in an open and honest manner are more likely to pursue a more collaborative relationship.

6. It is recommended that experts in partnering produce blueprints about their experience in partnering, which can be used as a good example for beginners.
7. Senior management's early involvement is essential since the successful project execution is not executed only by those who perform, but also by the company's key people. This is also essential because it reflects the commitment of the participating executives to the relationship.

8. Partnering requires proprietary information exchange when it is required for the sake of the project development.

9. Partnering is a major strategic change for the entire construction industry. So it will be wise to test partnering on a step-by-step basis, which could lead from project partnering to a long-term relationship. This incremental scenario is a didactic one as both internal teams and external partners have to adopt other attitudes, encouraged by successful limited projects

### 7.4 RECOMMENDATIONS FOR FUTURE STUDIES

Theoretically, specifying the linkages between the characteristics of the partnering relationship and its success, which this research has done, provides a useful framework for further research.

The above conclusions have been drawn from the study of partnering success factors based on fifty-nine cases of construction firms limited to clients, contractors and consultant views.

It is imperative to realise that partnering or 'collaborative ways of working', may not be appropriate for all situations. Therefore, the decision to enter into partnering, especially for firms with little experience in such relations, may represents a major shift in their philosophy.

Management theorists and researchers agree that decision-making represent one of the most common and most crucial work roles of the executive. Nevertheless, companies that ignore their business requirement situation and assume that partnering approach is universally applicable might face ultimate disappointment when applying it. Therefore, it is wise that before committing any organisation to partnering, to make sure that the right decisions have been made for entering into partnering.

While the decision to enter into partnering is not analysed in this research, it is recommended to conduct a research suggesting a model for partnering decision-making process.

This research has demonstrated that partnering is conducted successfully within the construction industry, it would be beneficial to compare the views of different members of the project team to gain a deeper insight into the distribution of benefits and risks of partnering along the entire supply chain.

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