

**A STANDARDISED INCORPORATED
PARTNERING MODEL FOR THE UK
CONSTRUCTION INDUSTRY**

by

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the requirements for the degree of PhD at the University of
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ABSTRACT

Partnering is a broad term used to describe an integrated team working approach; and integration means combining various elements into a whole. Partnering became popular within the UK construction industry largely as a result of two distinct 1990 reports (i.e. Latham, 1994 and Egan, 1998). The corollary of this relied to some extent on parties being dependent upon one another for success whether this arrangement was for a one off project or a longer term relationship over a number of projects. Partnering was also proffered as a vehicle for providing greater efficiencies and a higher 'value' through an agreement where a set of actions could help project teams improve their conjoined performance. The partnering approach was seen as an agreement that endorsed better collaboration, engendered mutual trust and team working, whilst also creating a platform for sharing both risk and rewards. Therefore, whilst not meant to be a fixed way of working *per se*, it was acknowledged from the outset that certain cultural, attitudinal and procedural changes would be required throughout the relevant supply chain. This to enable partnering to develop as project teams evolved within their relationships in order to find the most effective ways of achieving agreed objectives. Meaning partnering was about achieving 'best value' for all parties. Yet, while the positive aspects of partnering have been espoused in extant literature, covering various industry sectors, including: manufacturing, retail and construction; there was no explicit definition as to what partnering was [specifically] within the UK construction industry, or what it was supposed to achieve. Considerable debate therefore continues to challenge the partnering paradigm, for as it remains unestablished with limited systematising or standardisation, organisations commonly communicate with those one tier removed. As a result, the UK construction industry remains relatively unchanged despite successive reports, recommendations and potential collaborative solutions. Thus organisations continue to pursue their own self-interests to such an extent that 'true' collaborative working is often rendered impossible to achieve. This has had a negative impact on the industry as a whole, including the supply chain. In summary therefore, the industry still remains fragmented, adversarial and divided, which impedes communication, trust and a willingness to embrace the true 'spirit' of partnering *per se*.

The study, taking a pragmatic post-positivist stance, focuses on four key disciplines (Client, Consultant, Main Contractor and Sub-contractor). The rationale supporting this approach endeavoured to capture actors and context, such that observations

and research findings could be grounded and linked back to theory generation. An explicit mixed method research methodological approach was adopted in this research to purposefully explore phenomena and reason, especially to increase understanding and affirmation in respect of the partnering paradigm. This engaged both quantitative and qualitative approaches which engaged domain practitioners across the four disciplines. Content analysis of that qualitative data provided a vehicle for mapping the fabric, resilience and veracity of the core partnering drivers. This helped develop the second phase of the measuring instrument. Accordingly, theoretical codes were then generated and subsequently administered to 40 individual companies across the four disciplines. Purposive sampling was then used to select two case studies for data capture and model explication. Quantitative data analysis was then used to evaluate a series of drivers and variables. These were then mapped into a conceptual process model using an iterative approach (within the case studies) to affirm process conformity, accuracy and relevance. The model was then tested and validated with independent domain experts to ensure cogency (internal/external), reliability (inter-rater/observer) and homogeneity (consistency).

This work presents a new conceptual model for strengthening and supporting the partnering paradigm; which, it is proffered will open up new discourse in both theory and practice. The philosophical underpinnings of this work support the concepts of sustained partnering growth, through guidance, governance and commonality. It presents stakeholders with a systematised and standardised approach to supply chain collaboration. The conceptual model identifies eight key drivers, the granularity of which highlight dynamic drivers, dependencies and relationships needed to support and promote 'true' partnering. The causal relationships and dependencies embody different organisational 'cultures' where partnering parties can work together regardless of their perceived dominance and/or tier position. Thus, the entire supply chain can be actively and more purposefully engaged in the partnering paradigm the full potential of partnering. Moreover, as the success of partnerships depends to a large extent on selecting appropriate partners; there is a concomitant need to evaluate the 'quality' of these relationships. The conceptual partnering model presented in this thesis offers new insight into these dynamic relationships. In doing so, it offers readers detailed evidence for further reflection – specifically cognisant of partnering organisations' different perceptions, positioning and responsibilities for making the partnering ethos work in practice.

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DEDICATION

Tracy, Jacob and Kayla, I dedicate this piece of work to the three of you by way of an apology for being a virtual husband and father for far too long. As you can see it's now finished, so I'm delighted to say, for better or worse, you now have my undivided attention!!!

ABBREVIATIONS

Abbreviation	Definition
BIM	Building Information Management
BIS	Building Information Services
BSRIA	Building Services Research & Information Association
CII	Construction Industry Institute
CIOB	Chartered Institute of Building
DTI	Department for Trade and Industry
IPS	Incorporated Partnering Standard
PFI	Private Finance Initiative
RICS	Royal Institution of Chartered Surveyors
NBS	National Building Specification
NEDO	National Economic Development Office
SME	Small to Medium Enterprise
TCE	Transactional Cost Economics

GLOSSARY OF TERMS

Term	Glossary
Alliance	A relationship between two or more parties who have aligned commercial interests
Collaboration	Open and inclusive process where a broad array of diverse entities come together to find solutions
Core Group	The projects key stakeholders who are likely to make a significant contribution to the success of joint work
Design and Build	A generic term describing a procurement route in which the main contractor is appointed to design and build
Guarded Adversarial	Specific discrete transactions, limited mutual trust or commitment. Less likely to build and maintain a good harmonious process
Informal Partners	Very little structure, no specific goals, unknown outcomes, self-selection of organisations/individuals and no expert training
Integration	The involvement of key members early, who have long term supply chain relationships, and working together as a team to agree mutual objectives whilst dealing with risks and rewards equitably (Adamson, <i>et al.</i> , 2007)
Model	A system, procedure, etc. as an example to follow or imitate
Non-traditional Contracting	Not traditional routes including design and build, management contract, construction management, etc.
Partnering	A relationship created through an expressed or implied commitment between two or more organisations to cooperate and combine assets in order to achieve common objectives (Bresnen and Marshall, 2000)
Project Partners	More formal, structured, based on specific objectives (which are measured). Organisations brought together based on compatibility therefore working co-operatively to pursue a

	common set of goals
Project Team	Individuals from cross sector organisations assigned to undertake activities for the same project
Traditional Contracting	Competitive tendering, parties in short term, one-off relationships – arms-length approach (sometimes referred to as ‘design, bid, build’)
Transaction Cost Economics	A methodology through which to analyse how the governance of economic organisation affects economic value.

CHAPTER 1: INTRODUCTION

1.1 Background to the Research Study

A 2013 research paper (BIS, 2013) highlighted the sustained fragmentation of the UK construction industry's supply chain. This succeeded previous reports, including those from Latham (1994), Egan (1998 and 2002) and Wolstenholme (2009) which concluded a positive collaborative approach was the key to enhanced performance; and partnering was a means to that end. So with collaboration meaning an open and inclusive process where a broad array of diverse entities come together to find solutions, partnering is a relationship created through an expressed or implied commitment between two or more organisations to cooperate and combine assets in order to achieve common objectives (Bresnen and Marshall, 2000). Yet with a recognised disaggregated supply chain, where price-orientated contracting proliferated, the concern was the industry had not kept sufficient attention focused on the reform agenda. So while a partnered culture was initiated by the publication of the Latham Report (1994), and actively endorsed through Egan (1998) and Wolstenholme (2009), long term win-win relationships never achieved dominance (Phua, 2006; NBS, 2013). Hence competitive tendering, for each individual project continues as that most widely used even though value could be created through collaboration and teamworking, where both risks and rewards would be shared. Meaning the ability and incentive for project supply chains to work collaboratively is reduced even though up to 90% of the total project value is delivered by subcontractors (Hartmann and Caerteling, 2010). So as clients, contractors and sub-contractors each have their own diverse and complex supplier networks, where lowest price invariably wins, and cost reductions are facilitated through downward competitive pressure, this has had a negative effect upon supply chain alignment, and arguably the attainment of best value delivery, due to a lack of wholesale association.

Accordingly, the importance of supply chain management, having been a topic of debate for many years, remains so today (Cheung and Rowlinson, 2011). For with improvement sought through change, which included the performance of the construction supply chain, it is recognised that no clear definition, strategy or template for the effective implementation of partnering exists. Though with no apparent hostility towards collaboration, it is acknowledged only a minority of clients, contractors or consultants routinely work on partnered schemes. Further, those

embracing supply chain developments were considered unlikely to continue the partnership outside that particular project (Gadde and Dubois, 2010), which has meant a gradual decrease over recent years (RICS, 2010). Hence traditional (sequential) procurement continually dominates the UK construction industry. So with a progression of key studies highlighting the inefficiencies of traditional procurement and the benefits of long term relationships, just over half (51%) of clients, consultants or contractors acknowledged the use of some form of partnering. Yet as partnering techniques take various forms, and are said to improve object delivery, the use of single stage tendering also remains familiar (Figure 1.1) (NBS, 2013).

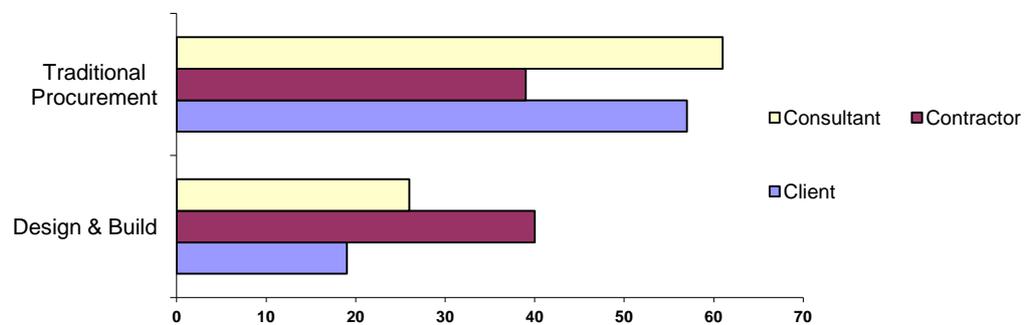


Figure 1.1: Most Frequently Used Procurement Methods

(Source: NBS, 2013)

Therefore partnering, which became popular largely as a result of Constructing The Team (Latham, 1994) that criticised the adversarial approach inherent in traditional construction contracting, was aimed at instilling best practice. For by proactively addressing potential problems, sharing business objectives, communicating openly and working together for common goals, albeit without a clear single definition, the report noted “the only truly effective way of delivering great buildings...was to achieve excellence at both a business and project level through collaboration” (Latham, 1994). So while partnering has been characterised as a continuous, consistent, proactive team approach, and therefore deemed the basis of any interrelated construction project, Tennyson (2011) suggested partnering was easy to talk about but invariably harder to undertake. For the implementation of a partnering relationship was often hampered due to a lip service culture caused by a reluctance to “...focus on defining, identifying and delivering better value rather than low[est] price” (Thomas and Thomas, 2008). Hence given this lack of commitment because partnering requires considerable effort and resource, particularly in the early stages, and the fact self-preservation comes before team formation,

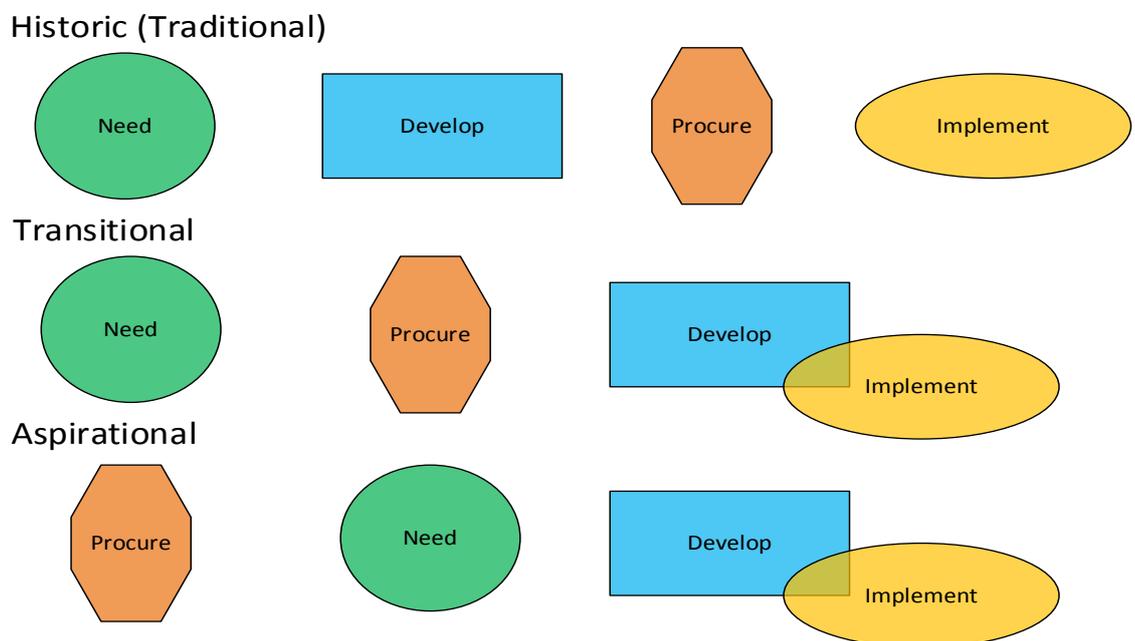
“...integrated working remains an under-utilised concept in the construction industry” (Egan, 2002); where integration means involving key members early, working together as a team to agree mutual objectives, using participants who have long term supply chain relationships and dealing with risks and rewards equitably (Adamson, *et al.*, 2007).

1.2 Outline of the Research Study

1.2.1 Statement of the Research Problem

The UK construction industry continues to push for substantial improvements in quality and efficiency where, through working together, a commitment to change would move beyond the limitations of traditional project relationships. Yet due to the uncertain and competitive nature of construction contracting, where traditional fixed price or lump sum mechanisms continue to be most widely used, conflicting objectives among the different parties remain. So, with the industry’s commitment to reform considered cursory (Crompton, *et al.*, 2014) there remains disparity between the ‘historic’, ‘transitional’ and ‘aspirational’ models of the UK construction industry (Figure 1.2). For while key influential reports endeavoured towards that healthier atmosphere, through fairness, mutual trust and teamworking, where the parties become dependent on each other for success, which requires a change in culture, attitude and procedures (i.e. the aspirational model), the traditional model remains commonplace (Akintan and Morledge, 2013; Eriksson *et al.*, 2007). Thus, with limited opportunity for building working relationships, finding improvements and planning investment, the traditional ‘historic’ route, “remain[s] the most prevalent form of procurement...” (RIBA, 2013). Sometimes referred to as design, bid and build, this traditional route is where the design is fully developed before tenders sought. Furthermore, while ‘transitional’ arrangements i.e. design and build has grown in popularity (RIBA, 2013), there is still no unified understanding of partnering (Bygballe *et al.*, 2010; Nystrom, 2005). For partnering, which is deemed ‘aspirational’ and advocated as a mechanism for developing relationships to improve inter-organisational collaboration (Li, *et al.* 2001) has “...no one single clear definition...” (Bresnen, 2009). So whilst Alderman and Ivory (2007) deems it a key part of “contemporary project management discourse”, Green (1999) contends there is an “iron fist” lurking behind the “rhetoric of seduction”. As a result, there are currently no coherent or explicit partnering related principles that have been developed, managed and/or reviewed across the complete construction industry. Still, having given specific consideration to the increased debate throughout the

construction industry concerning the conditions of ‘traditional’ procurement methods as a result of poor performance and productivity, there has been “little doubt about the positive aspects of partnering” (Thurairajah, *et al*, 2006; Wood and Ellies, 2005). Though whilst debate still exists around its nature and merits (Bresnen and Marshall, 2000; Green, 1999; Bresnen, 2007; Alderman and Ivory, 2007), the concept of partnering is not easily defined (Cheung, *et al.*, 2003) and puzzling in respect of what it is supposed to achieve (Naoum, 2003). Consequently, whilst ostensibly functioning as a means for project participants to “rethink their relationships with one another” rather than “re-casting relations between actors in projects”, this research moves towards the rationalisation for a dominant paradigm.



Source: Strategicforum.org

Figure 1.2: The Changing Model of UK Construction

The 2013 National Building Specification (NBS) survey stated the construction industry was moving (and being moved) towards improved collaboration between all parties throughout the project phases. So whilst accepted as a complex and complicated concept (Nystrom, 2005), those forms of collaboration were said to range from “an ethos of mutual trust and cooperation” to “a formal partnering agreement” (Figure 1.3). However with no consensus about the meaning of partnering, albeit acknowledging it was a multifaceted relationship that needed constant nurturing in order to achieve continuous improvement and maximum benefit, no high level guidance exists. Though as Fleming, *et al.*, (2000) noted,

because the industry continues to suffer from low and unreliable profitability and a lack of customer focus due to the industry's adversarial nature, a profound co-ordination and communication system between the parties was "much needed". So whilst this would help contracting parties develop a supply chain that was informed, experienced and planned (Mignot, 2011), to date the partnering technique remains an estranged accession, due to the difficulties around planning and implementation (Carmichael, 2002). As traditional procurement methods therefore continue to fail across the UK (CIOB, 2010; NBS, 2013), as they engender adversarial attitudes that trigger conflict and dispute, the focus of this study has been to explore the notion that a formal mechanism for 'engineering' collaboration, via a plausible conceptual model was both necessary and achievable. For with Fleming, *et al.*, (2000) recognising one third of major UK clients were dissatisfied with contractor and consultant performance, and Egan (1998) stating the industry's problems typically related to its adversarial nature, no template or set of modelling rules have ever been developed to effectively support the presentation of the partnering process. Thus following the positioning echoed by Bresnan and Marshall (2000) regarding the need for a more pragmatic, instrumentalist view of partnering, there currently is no incorporated standard acting as a prescribed high level blue print that delivers true partnering.

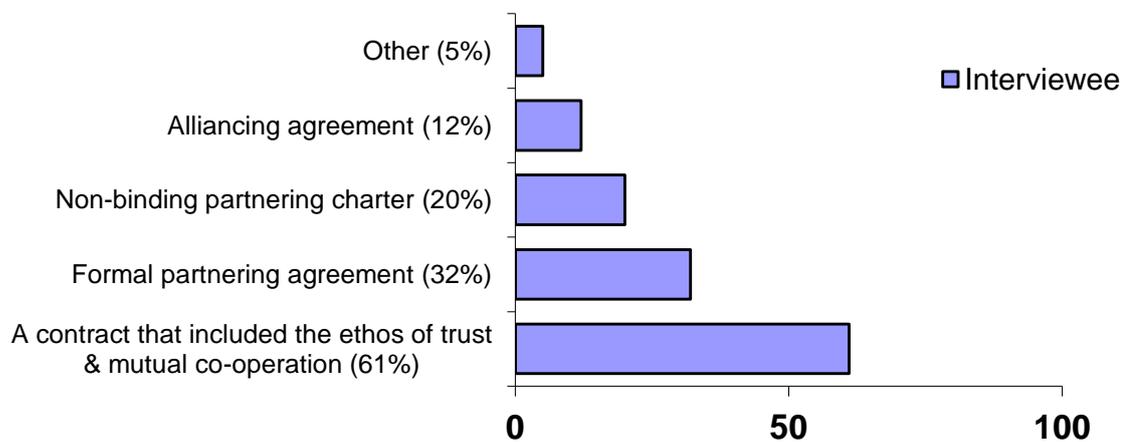


Figure 1.3: The Forms Collaboration Takes

Source: National Audit Office (NBS 2013)

1.3 Research Aim, Objectives, Questions and Assumption.

This research in pushing the boundaries of the on-going debate, aims to introduce a standard model that could be utilised throughout the complete

supply chain in order to realise wholesale partnering. For as Dikmen, *et al.* (2008) notes strategies should be developed by companies intending to engage and manage partnerships, there currently is space for a realistic and tangible conceptual model that recognises the specific activities to accomplish successful (and sustainable) partnering through the utilisation of shared guidance, governance and commonality. Thus, having firstly established the role of partnering in the construction industry, the development of a new generic, adaptable partnering paradigm, that designates a consistent application of partnering principles throughout the complete supply chain, in a repeatable format, is the ambition. For it is believed by focusing on systematising partnering, in order that it becomes a common management process, the development of this conceptual model would help all supply chain members achieve an improved partnering position. Accordingly, in order to deliver practical sustainable partnering benefits, a common model that identifies the various phases of a construction project and the diverse interests of all the parties involved, must be formulated.

As it was anticipated there would be no best way for all circumstances, albeit a philosophy of early entry was considered important, fulfilling this research aim was done by achieving six research objectives as noted below. The related research questions and research assumptions examined in the study are provided in Table 1.1. The objectives were;

Research Objective One - Synthesis seminal literature relating to the various procurement methods, particularly 'traditional', 'non-traditional' and partnering within the construction industry. This to identify, explore and document the main reasons why the sector continues to be perceived as adversarial and so identify the existence of a problem that is not fully understood (Easterby-Smith, *et al.*, 2002);

Research Objective Two - Ascertain if a clear definitive explanation exists for partnering and investigate the contemporary role of partnering within the construction process. Thus provide a more reliable basis onto which to build the research design (Bryman and Bell, 2007);

Research Objective Three - Develop a variance table that captures findings from an analysis of key cross-industry management systems. Thus compare and contrast the various facets of each, albeit with particular regard to their particular

sector of origin and general consumption before considering their suitability in relation to a construction projects topography. That is, could an existing proven management system be integrated into contemporary construction arrangements to realise partnering;

Research Objective Four - Establish whether a solid theoretical foundation in respect of construction partnering actually exists, and whether this procurement method is favoured in practical terms across the four construction disciplines;

Research Objective Five - Identify potential areas of commonality and disparity coupled to each of the eight key drivers, both across and within disciplines, in order to assess and document perceptions;

Research Objective Six - Develop an industry level 'best practice' conceptual partnering model, in order to steer true partnering throughout the supply chain. This to include the establishment and validation of relational norms and skeletons to ensure successful, sustained partnering that produces win-win results for all supply chain members.

Research Objectives (RO)	Research Questions (RQ)	Research Assumption (RA)
<p>RO1. Synthesis seminal literature relating to the various procurement methods, in order to identify the existence of a problem that is not fully understood;</p>	<p>RQ1 What impact have the various government and industry reports had upon an industry judge embattled over the preceding seven decades? RQ2 What are the critical issues associated with the present-day construction industry?</p>	<p>RA1 The industry's negative perception has remained consistent over the years though the recognised ills disproportionately affect supply chain members.</p>
<p>RO2. Ascertain if a clear definitive explanation exists for partnering & investigate this contemporary role within the construction process;</p>	<p>RQ3 Is partnering considered an approach to procurement or a contractual arrangement? RQ4 Across the disciplines is there a consensus that sufficient/appropriate collaborations exist, or is there variance between those termed dominant and those not? RQ5 Does a lack of understanding of how to implement & manage a successful partnering relationship hamper the implementation of a partnering management system?; RQ6 Is it sufficient to say you partner or is it necessary to develop and implement a partnering strategy in order to set out the complete supply chains perspective aims and ideas?</p>	<p>RA2 Different contributors proposing diverse partnering definitions and/or arrangements/solutions have meant no clear established consensus. Thus partnering has not yet recognisably arrived at the moment of convergent evolution.</p>
<p>RO3. Develop a variance table that captures findings from an analysis of key cross-industry management</p>	<p>RQ7 Are management systems recognised and/or regularly employed within the construction industry?</p>	<p>RA3 The industry lacks consensus as to what constitutes an integrated process, because the traditional roles and</p>

systems before considering their suitability in relation to a construction projects topography;	RQ8 Assuming relationships are complex and dynamic within the project environment, do the underlying generic processes remain broadly consistent?	responsibilities characteristically change from project to project
RO4. Establish if a solid theoretical foundation in respect of partnering actually exists and whether this procurement method is deemed favourable in practical terms;	RQ9 Does standardisation ensure continuity and create efficiencies both within and between relationships?; RQ10 Is there a clear understanding across the whole industry as to what partnering is or does this vary according to discipline and/or tier level?; RQ11 Does a methodology currently exist that allows organisations to understand the activities which need to take place across the various phases in respect of supply chain relationships?;	RA4 With no tangible product, the level of involvement of key players in relation to partnering varies according to their perceived status (i.e. tier position). Hence dominant organisations generally pay 'lip service' to the partnering concept.
RO5. Identify potential areas of commonality and disparity coupled to the acknowledged themes (i.e. the eight key drivers) in order to assess and document perceptions both across and within disciplines;	RQ12 Is there general scepticism towards partnering potentially relating to a lack of understanding for those directly or indirectly affected? RQ13 Is there a general lack of enthusiasm between various disciplines to adopt collaborative processes because of the moderate levels of success to date, meaning the focus on self interest remains unchanged?;	RA5 The construction industry currently has no objective way to spread a consistent message as to what partnering is. So no organisation within their relevant supply chain (irrespective of their perceived hierarchal position) is able to plot what partnering actually means to them.
RO6. To develop a conceptual framework, in order to realise true partnering throughout the supply chain that is	RQ14 Are relationships primarily achieved through formal tools & techniques rather than evolution?	RA6 Partnering is the vehicle for change but a generic representation would provide that better wholesale comprehension,

<p>clear to understand, whilst simple to administer and direct.</p>	<p>RQ15 Can partnering be used as a suitable vehicle for change?</p> <p>RQ16 Issuing the conceptual framework to all supply chain members at the outset would obligate the whole project team whilst promoting engagement and control to ensure continuity and create efficiencies?</p> <p>RQ17 Do sufficient opportunities exist in order for this way of working to be implemented successfully?</p>	<p>engagement and control to ensure continuity and create efficiencies both within and between relationships.</p>
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Table 1.1: Research Objectives, Questions and Assumption

1.4 The Research Programme

The programme for this PhD research consisted of four stages as shown in Figure 1.4. Details of these stages are elaborated further in Chapter 4, while the findings from the various stages are given in the subsequent chapters (Chapters 5, Chapter 6, Chapter 7 and Chapter 8).

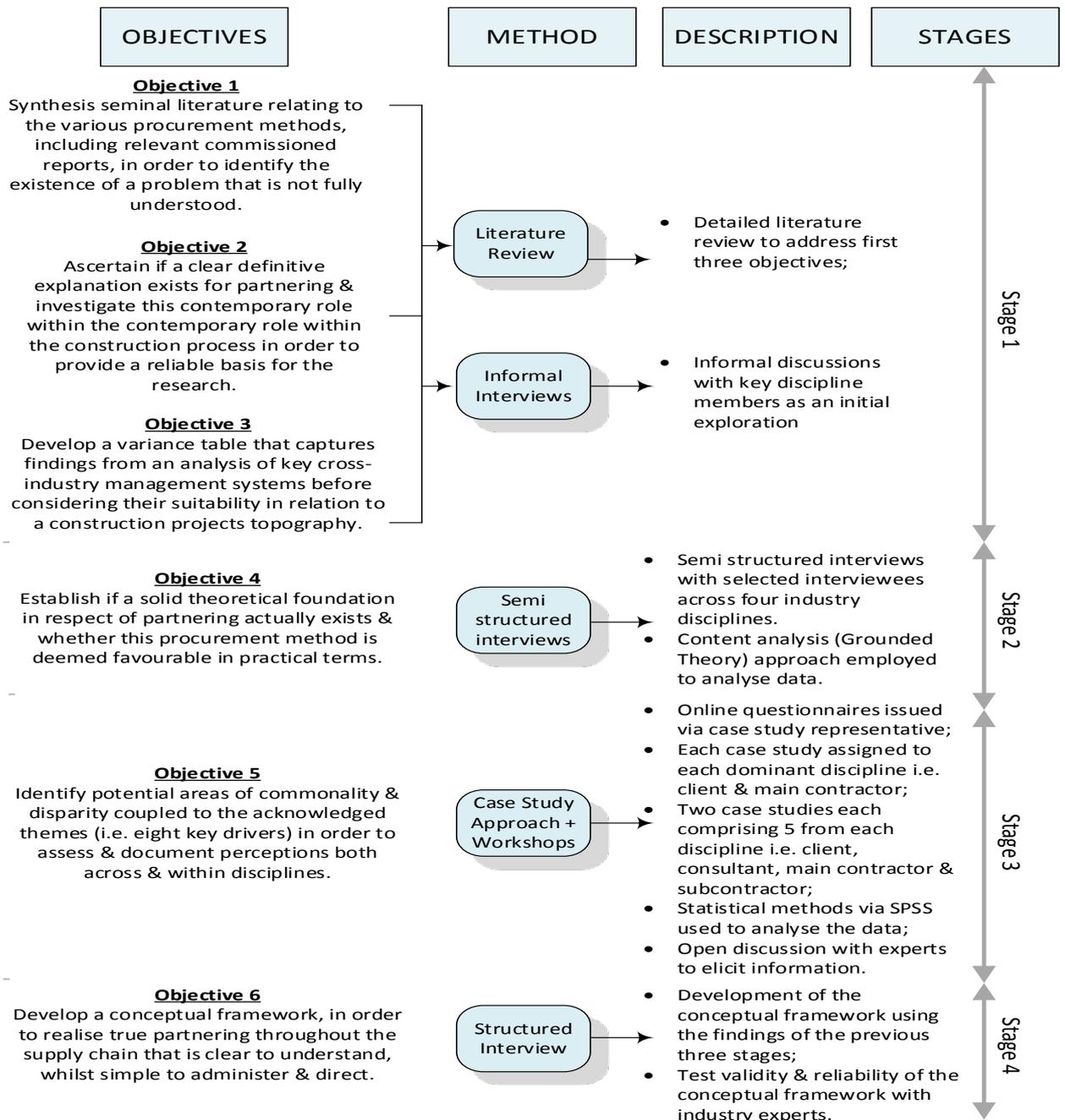


Figure 1.4: Research Programme

1.5 Scope and Limitations of the Research Study

Accepting extensive literature (i.e. books, journal papers, and government/industry reports) existed on the subject of construction collaboration; very little empirical evidence was available to identify first-hand the actual relationships between the various disciplines and organisations. So with the understanding that contemporary partnering in relation to guidance, governance and commonality has received relatively little attention to date; hence this research's contribution to knowledge (Chapter 9), there has been a reliance on pre-existing data. Yet, whilst highlighting the issues associated with the apparent lack of cohesion in the contemporary understanding of the partnering concept, qualitative and quantitative instruments were also employed, which meant this self-reported data had the potential to inhibit the results. For having taken what each respondent said at face value it was accepted several possible sources of bias were likely to exist, although only becoming apparent when incongruent with data from other sources.

The focus of the research was upon the UK construction industry and the organisations purposively selected. Therefore whilst a mixed method approach and workshops (with both internal and external representatives present) were utilised, the potential for generalisability has not been enhanced given the research study did not draw on representative samples. Hence the representatives selected, which were expected to vary along the discipline continuum and so provide insight into the distribution of the phenomenon in a population, do not provide empirical inference through replication (i.e. large scale, representative samples). Yet there is ample scope for a larger empirical study to explore and document the factors that impact the various organisations and individuals across the disciplines and throughout the tiers in respect of the low level of true partnering engagement.

1.6 Structure of the Thesis

The thesis is structured into nine chapters.

This first chapter outlines the background for the research study and discusses the aim, objectives, research assumptions and research questions for the study. The scope of the research and its limitations are also highlighted.

Chapter 2, in identifying past and present concerns associated with project delivery confirms the traditional approach to construction is that most frequently used albeit this procurement method, being sequential means independent firms are brought

together by competitive bidding and tough contracts without any explicit coordination or control (Bennett and Peace, 2006). It also ascertains a number of key themes from the ample literature, which then provides the foundation for the first phase research in respect of the qualitative questions asked. Chapter 2 also addresses the issues around current partnering definitions, how this was intended as the cure to the industry's ills and the impact it has currently had. Consequently, overall, this chapter addresses the first and second objectives of the research study (Table 1.1).

Having identified the industry lacked consensus as to what constituted an integrated process because the traditional roles and responsibilities characteristically changed from project to project, Chapter 3 looks at some existing management tools and models used to ensure an organisation could fulfil all relevant tasks to achieve its particular objectives. For with an apparent need for the UK construction industry to innovate and change its current process management practices because the effective adoption and use of current improvement strategies within construction were considered slow (Tzortzopoulos, *et al.*, 2006), an attempt has been made to critically assess a number of existing cross-sector management tools, models and frameworks in order to establish their potential suitability in respect of partnering. For Nadim and Goulding (2011) noted, the integration of processes and teams is necessary to realise improvements in quality and efficiency, and therefore meet the challenge of delivering projects that predictably fulfil cost, time and quality requirements. As consideration was also given to the definition of strategic management and the associated benefits and barriers, this chapter addresses the third objective of the research study by establishing if an existing proven management system could be integrated into contemporary construction arrangements to realise partnering (Table 1.1).

Chapter 4 outlines the research methodology and research methods adopted in this study. Firstly, epistemological and methodological characteristics of the research area are outlined, as these have an impact on the research design. It then describes the methods used throughout the course of the research project. Modes of data analysis used for the study are also discussed in detail.

Chapter 5 presents the findings from the first phase qualitative research having utilised the detailed interview method, following the completion of semi-structured interviews. The findings which are necessarily comprehensive present a meaningful

abstract summary of the raw qualitative data having utilised focal statistics in order to transcend 'reality' and progress toward the thematic, conceptual and theoretical. Hence with this chapter being more interested in the intricacies of the sample studied rather than making generalisations of the overall population under study, through the utilisation of a suitable measuring instrument i.e. a semi-structured questionnaire conveyed through interview, this chapter provides a literal perspective that shows the smaller pieces of the larger partnering puzzle. Consequently this chapter, being the 'exploratory' (qualitative) first phase, which addresses the fourth objective of the research study (Table 1.1), elaborates implications of and inferences drawn from the analysis of the context-specific, unique survey data.

The sixth chapter presents the findings from the second phase (quantitative) study having built on the results of the qualitative phase by developing a measuring instrument based on an emergent theory or framework (as detailed within Chapter 5). The findings taken from two supply chain studies which comprised four disciplines (i.e. 10no clients, 10no consultants, 10no main contractors and 10no subcontractors) meant forty questionnaires were completed overall. Being presented in a quantitative manner has meant the captured data was analysed with the aid of SPSS (Statistical Package for Social Science – Version 21) and the utilisation of various statistical methods, including the Kruskal-Wallis H test and Spearman's rank correlation coefficient (r_s). This chapter, the quantitative (confirmatory) part of the study, being less flexible, primarily collected highly standardised data, and so addressed the fifth objective of the research study by identifying potential areas of commonality and disparity coupled to the acknowledged themes.

Chapter 7 whilst pulling together the findings from the previous chapters is mainly focused on discussing the main findings from the multi-methodology (mixed methods) research before interpreting and contextualising the findings within the larger body of research relating to construction partnering. With a compositional structure that Yin (2009) terms 'linear-analytic', this chapter judiciously and effectively presents the most relevant evidence by interpreting the results in an objective and critical way. This before assessing their implications and drawing conclusions, given the purpose of this research is to inform action. Consequently Chapter 7 addresses the fifth objective of the research study through the identification of potential areas of commonality and disparity coupled to the

acknowledged themes (i.e. the eight key drivers) in order to assess and document perceptions both across and within disciplines;

Chapter 8 presents the incorporated partnering standard, which was developed due to a perceived need to change the existing, generally ineffective partnering arrangements. For with an overall lack of enthusiasm between various disciplines to adopt collaborative processes, because it was not sufficient to say you partnered, the development and implementation of a partnering strategy was deemed necessary in order to set out the complete supply chains prescriptive aims and objectives. Therefore in accepting the whole construction industry remained committed to the concept of partnering, whilst the complete supply chain would not generally be actively engaged in the partnering ethos, raising awareness throughout the supply chain, as part of this the final output for this research study would be one of the first hurdles if partnering was to be a realistic, sustainable proposition. As this chapter also discusses the results of the two workshops carried out to refine the construction partnering paradigm and the ten structured interviews associated with validation it addresses the sixth and final objective of the research study.

The final chapter, Chapter 9, summarises the research process and presents the key research findings. Having also presented the conclusions derived from the same it discusses the contribution to knowledge. As the conceptual model is a novel interpretation of old ideas fed on the established eight key drivers as a prescribed high level blue print that delivers true partnering. It also provides recommendations to improve the implementation and control of current partnering practices. Areas for further research are also given at the end of this chapter.

CHAPTER 2: CONTEMPORARY CONSTRUCTION

2.1 Introduction

There is increased debate concerning the conditions of 'traditional' procurement methods within the construction industry due to poor performance and productivity. Equally, evidence suggests there is little doubt about the positive aspects of partnering within the construction industry when the collaborative arrangements are palpable. So while the 'imperfect' nature of the industry's market is said to favour the use of more sophisticated mechanisms of relationship governance than mere competitive bidding; as Egan (2002) indicated when he noted integrated teams made up of existing supply chains should be kept together and moved from project to project with their experience and culture of continuous improvement, conventional methods of procurement remain buoyant. With construction partnering advocated as a mechanism for developing and improving inter-organisational relationships, albeit drawing heavily upon lessons learned from other industry sectors including retail and manufacturing, where it was said the critical roles of supply chain collaboration and management had long been recognised, this chapter will look to better understand why the construction industry remains relatively unchanged. Thus by critically reviewing and synthesising seminal literature on 'traditional', 'non-traditional' and partnering exchanges it is intended to catalogue core congruent issues, drivers and agents for change all in the knowledge successive reports had uncovered the same industry ills. Therefore having identified and discussed the numerous reports that span seven decades, Chapter 2 also probes the debate that still exists around the nature and merits of practicable partnering because the paradigm of supply chain collaboration is not easily defined in respect of what it is supposed to achieve. For with no single clear definition, strategy or template to attain effective implementation, while other industries invariably conduct their business with a smaller ratio of strategic partnerships than commonly believed, the question will also be asked as to whether buyer dominance and the continued use of competitive selection methods continue even when a scheme is said to be partnered. Furthermore as this Chapter addresses Objective 1 and Objective 2 of the research study (Table 1.1), consideration will also be given to transaction cost economics (TCE) where the effects of scale, scope, experience and learning plays a role in the decision to make or buy (Nooteboom, 1993).

2.2 The Contemporary Industry

In the UK, the construction industry during 2014 contributed £92 billion in economic output, 6.4% of the total gross value added (GVA) (Rhodes, 2015). So, in spite of the recent economic and financial crisis, which meant returning to recession three times in five years i.e. 2008, 2008 and 2012 (Table 2.1) (Department for Business, Innovation and Skills, 2013), construction remains a crucial sector of the UK economy. Consequently, interest in and expectations of property, construction and buildings continue to rise, while cost and time overruns within the industry are every bit the match of overruns that characterise massive government projects in defence, transport and Information Technology (Woudhuysen and Abley, 2004). So whilst traditional construction contracting remains dominant (Oyegoke, *et al.*, 2009; NBS, 2013), albeit characterised as adversarial and litigious, with conflicts purported inherent in most projects due to problems associated with procurement process integration, innumerable industry studies, including Latham, 1994, Egan, 1998, Wolstenholme, 2009 believe partnering should be the adopted approach for managing construction projects. For as fragmentation and adversarialism can contribute up to 30% of a projects cost (Brown and Beaton, 1990; Li, *et al.*, 2001), this innovative development ostensibly reduces those conflicts (Cheung, *et al.*, 2003; Chen and Chen, 2007; Yeung, *et al.*, 2007). Moreover, whilst Phua (2006) believed the implementation of construction partnering had actually been conservative and patchy, with only varying degrees of international success, Bresnen (2007) stated despite the attention paid to construction partnering, which has been subjugated by autocratic methodologies, "...there is a dearth of critically informed work that attempts to understand the problems and limitations of partnering in practice". Moreover as current publications "...represent only one shade of opinion on the nature and prospects of partnering...[while]...more critical views on the benefits and limitations of partnering tend to get overlooked or ignored" (Bresnen, 2007), many practitioners and researchers vie it is gaining worldwide popularity (Chan, *et al.*, 2002). Hence it is being used more frequently (Ng, *et al.*, 2002; Chan, *et al.*, 2006; Yeung, *et al.* 2007) and it "...overhauls the ethics of traditional contracting with the attendant paradigm shift towards co-operative and caring environments" (Larson, 1995).

Year	£ Billions (2013 prices)	% Change	% of Economy
1998	65.6	6.2	5.7
1999	67.1	2.2	5.6
2000	75.8	13.1	6.1
2001	79.0	4.2	6.2
2002	86.4	9.4	6.6
2003	92.1	6.6	6.8
2004	94.7	2.9	6.8
2005	97.3	2.7	6.8
2006	101.2	4.0	6.8
2007	104.1	2.9	6.9
2008	100.0	-4.0	6.6
2009	88.1	-11.9	6.0
2010	88.3	0.3	6.0
2011	94.7	7.2	6.3
2012	90.3	-4.6	6.0
2013	92.4	2.3	6.1

(Source: ONS, Blue Book, Series ABML & KK13 HMT, GDP Deflator)

Table 2.1: Construction Sector's Contribution to the Economy (GVA).

The UK construction industry, whilst sharing many process similarities with different countries throughout the world and adept in delivering the most difficult and innovative projects to match any other (Egan, 1998), it is professed as having an endemic confrontational culture that inhibits performance improvement. This due to the industry's "...fragmented nature, lack of co-ordination and communication, the informal and unstructured learning process, adversarial contractual relationships and lack of customer focus..." (Barrett, *et al.*, 2007). This in addition to the competitive nature caused by the large number of medium and small sized construction companies who tend to have their own goals and objectives (Latham, 1994; Egan, 1998; Li, *et al.*, 2001; Wolstenholme, 2009). So whilst equating to 3.2% of the world market; and expected to "...register only little growth over the next decade" (Global Construction Perspectives and Oxford Economics, 2009), the UK construction industry has been "...perceived as being in decline" (Bower, 2003) as it under-achieved compared to other industry sectors (Li, *et al.*, 2001) resulting in "...low profitability, low investment in research and development, inadequate training and low client satisfaction..." (Wolstenholme, 2009). Yet traditional contracting, which does not require close joint management between the client and supplier (as in an alliance), the supplier to secure funding and a service following project completion (as in PFI) nor decision and risk sharing, remains "...a tried and tested method of procurement which the market is very familiar with" (Davis, *et al.*, 2008). Moreover, as the client retains responsibility for and control of the design

team, and there is price certainty (as the work is generally fully designed in advance), most if not all employers and contractors would have experience of this method (Yip and Chin, 2011).

Conversely, both Akintoye and Main (2007) and Wolstenholme (2009) talk about the positive impact of construction partnering because it represents a most significant development vis-à-vis project performance and profitability. Therefore with the industry recognised, in a procurement context, for its separation of design from production; which results in transient fragmentation (Holt, 2010), it was again restated, competitive tendering, with the creation of "...a new team for every piece of work" (Wolstenholme, 2009) should be replaced with long term relationships. For it is said this drives innovation and sustains improvement in quality and efficiency which in turn infuses on-going commitments to improve. Thus, from a transaction cost economics (i.e. TCE) perspective, Hill (1990) argued, "in the long term, the invisible hand selects actors whose behaviours are biased toward cooperation". So, as Alderman and Ivory (2007) deemed partnering was "part of contemporary project management discourse", albeit functioning as a means for project participants to "rethink their relationships with one another" rather than "re-casting relations between actors in projects...", Green (1999) stated a "...significant credibility gap existed between the rhetoric of the major clients and the way they behaved in practice". With Bresnen and Marshall (2002) also recognising "...partnering by itself does not necessarily solve some of the problems that it was set up and designed to cope with", debate still exists around its nature and merits (Bresnen and Marshall, 2000) while "...integrated working remains an under-utilised concept in the construction industry" (Egan, 2002).

Extant literature examined the principles, practices, anxieties and limitations of partnering within the construction industry in order to identify prevailing subject matter (Figure 2.1). This along with 'traditional' and 'non-traditional' exchanges in order to ascertain and map the perceived viability, efficiency and worth of each procurement method. Yet as Wolstenholme (2009) continued to address the issues of derisory performance and productivity, because of the continuance of the traditional client-contractor mentality, a move away from models that encouraged short term thinking in favour of ways that incentivised long term value creation was endorsed. However, whilst the project partnering initiative within the construction industry had been the topic of predominantly positive, albeit prescriptive discussion within business press and academia for over two decades (Bresnen and Marshall,

2000; Li, *et al.*, 2000; Nystrom, 2008), Dangerfield, *et al.* (2010) acknowledged the overwhelming tendency had been “...to focus on the barriers to change as if such barriers were static entities”. Still, having been widely advocated to rectify the adversarial contractual relationships that jeopardised the success of many projects, Bresnen (2009) professed partnering was “...by no means as pervasive an approach as many of its early proponents would have liked or predicted” and “...its diffusion not as extensive as expected...”. Therefore research continues to pose the question of what constitutes partnering in the construction industry context and whether or not single project partnering, the dominant mode in practice, makes sense. Nonetheless, Hellard (1995) indicated successful teams were built on the strengths of each member, while successful lawsuits were founded on the capitalisation of their weaknesses.

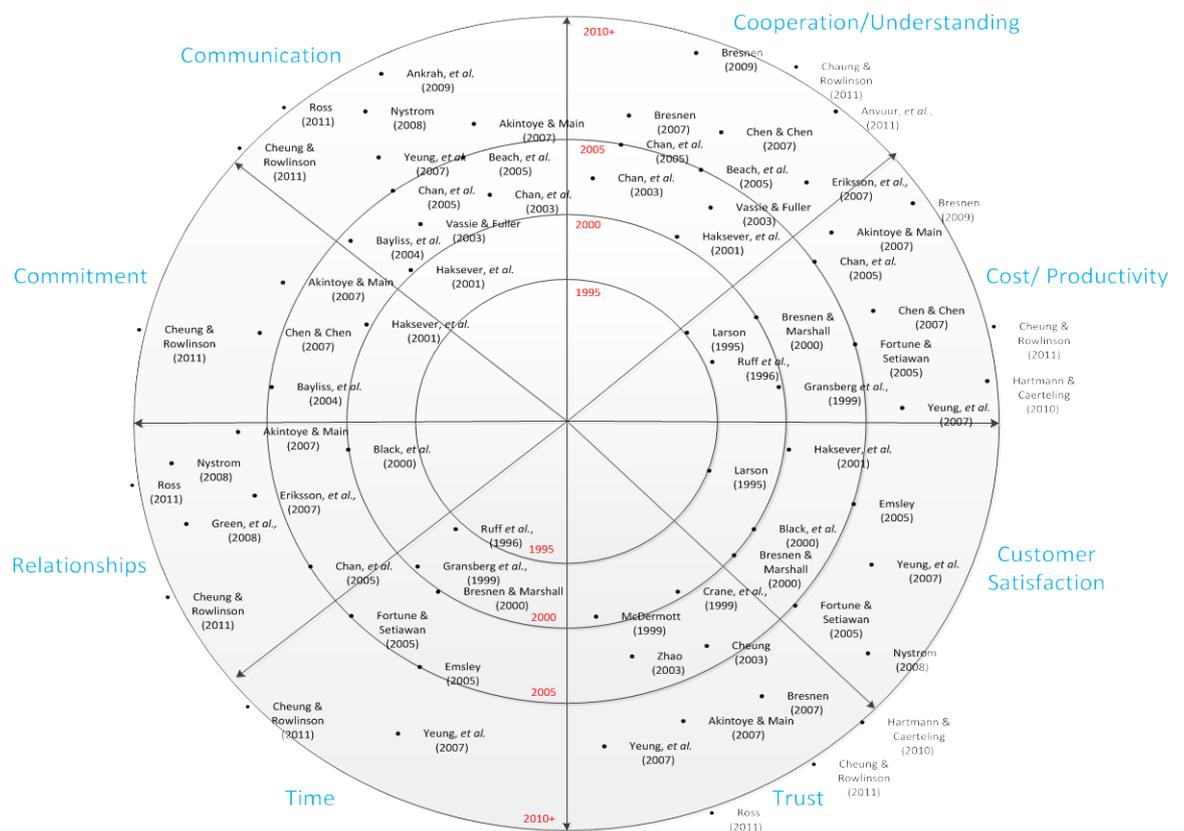


Figure 2.1: Collection of Papers on the Key Aspects of Partnering.

In respect of partnering, it is also professed that construction draws heavily upon lessons learned from other industry sectors (Barratt and Oke, 2007) including retail and manufacturing where the critical roles of supply chain collaboration and

management have long been recognised. Yet with each industry sector having unique characteristics (Burt, *et al.*, 2008; Naoum, 2003), both retail and manufacturing generally conduct their business with a "...smaller ratio of strategic partnerships than commonly believed..." (Bensaou, 1999). So as major retailers publicly talk of developing partnerships with dominant branded manufacturers (Ogbonna and Wilkinson, 1998), but balance a portfolio of different types of relationships, buyer dominance is evident (Simons, *et al.*, 2004). Hence, as the concept for supply chain collaboration is not as well defined as it should be (Holweg, *et al.*, 2005) a deep-seated change in attitude towards partnering has not been realised, rather a more calculated and superficial response to particular market conditions. For underlining the rationale has been the central premise that the chosen governance structure would be the one to minimise transaction costs be that through the coexistence of distinct structures in the same production chain or a standard model that could be utilised throughout the complete supply chain. Hence "...transaction cost economics point[ed] to a trend showing the existence of only one governance structure: the most efficient" (Silva and Saes, 2007).

2.3 The Procurement Debate

The construction industry has been continuously criticised for its less than optimal performance and put under sustained and increasing pressure to improve its practices. Still, despite numerous government and institutional reports and over a decade-long programme of change (Anvuur, *et al.*, 2011; Constructing Excellence, 2006), Egan pronounced the industry would only be given four out of ten. For, in a procurement context, it was still recognised for its separation of design from production and the resultant transient fragmentation (Holt, 2010). Consequently, a rethink of those past reviews and recommendations was provoked due to their conceived optimism, realism and/or altruism (Kumaraswamy, *et al.*, 2002; Anvuur, *et al.*, 2011). So while the UK Strategic Forum for Construction (2002) noted "...the industry must replace competitive tendering with long term relationships..."; a notion previously broached by earlier reports including Latham (1994) and Egan (1998), there still remains a "... proliferation of procurement methods used for construction projects..." (RICS, 2010) (Figure 1.1). Further, whilst Greenhalgh and Squires (2011) recognised "...partnering [could] bring significant benefits by improving quality and timeliness of completion whilst reducing costs", Muriro and Wood (2010) stated there was "...no general consensus on the optimum procurement method..." (Figure 1.3). So whilst a much more systematised and integrated project process

was suggested by Egan (1998), which included a reduced requirement for tendering and the creation of long term relationships, a high percentage of contractors continue to be appointed through conventional tendering methods (Akintoye and Main, 2007; RICS, 2010; NBS, 2013). This even though traditional procurement has been characterised as fragmented and adversarial, and can result in cost escalation and productivity regression (Ng, *et al.*, 2002, Vaaland, 2004). For “a team that does not stay together, has no learning capability and no chance of making the incremental improvements that improve efficiency over the longer term” (Egan, 1998).

With reference to contractor selection, given the elementary concept of “...highest quality, at the lowest price and in the shortest time” (Hackett, *et al.*, 2007) remains staunch, traditional competitive selection methods proliferate. Yet whilst contracts are awarded to the lowest bidder, and “many projects experience extensive delays...[which] provide fertile ground for costly disputes and claims” (Odeh and Battaineh, 2002), traditional contracting has remained commonplace whilst reported examples of successful long-term partnering, though held by many as the way forward in construction (Hamza and Djebarni, 1999), have been rare. This despite the fact, the most important causes of delay, from the viewpoint of consultants and contractors, were identified as owner interference, inadequate contractor experience, financing and payment, labour productivity, slow decision making, improper planning and subcontractors (Odeh and Battaineh, 2002). Though as outsourcing was said to lesson costs whilst creating new opportunities through the optimal utilisation of those external resources (Mohmoodzadeth, *et al.*, 2009; IFAC, 2010) value was arguably added through the higher quality available from external sources (Gilley and Rasheed, 2000; Gilley, *et al.*, 2004; Jiang and Qureshi, 2006). Hence a large number of medium and small sized firms remain; each with their own objectives, goals, management styles and operating procedures, that are linked hierarchically by highly restricted contract terms and conditions that typically exist for the duration of a single project (Briscoe and Dainty, 2005). Therefore as a wide range of complex economic transactions occur across the market interface with limited collaboration, the construction industry continues to have deeply ingrained attitudinal and behavioural characteristics (Green and McDermott, 1996; Thurairajah, *et al.*, 2006) and engineering away from such an embedded culture would be difficult (Cobra, 2006). Yet, while there are a limited number of tools available to incite effective agreements that lead to performance improvements (Li,

et al. 2001), as different control structures cohabit due to target markets (Silva and Saes; 2007), the coexistence of governance structures remains feasible. So as external relationships are the general rudiments for organisations not only to survive but prosper, the construction industry continues with complex project relationship structures that are short term interactions between independent organisations (Bech and Pedersen, 2005).

As a presumption exists within the construction industry, both nationally and internationally, that selecting the appropriate procurement system for a project would inevitably lead to a 'successful' project outcome (Tookey *et al.*, 2001) reports continue to question the extent to which the principles and practices of partnering have become institutionalised and internalised by construction companies (Bresnen, 2009; Phua, 2006; Ng, *et al.*, 2002). For as organisations approach the partnering paradigm in different ways, this has resulted in varying degrees of integration (Briscoe and Dainty, 2005). Yet whilst considered a more radical departure from the so-called traditional methods than was non-traditional procurement (Murdoch and Hughes, 2000), Champ, *et al.*, (2007) and Cheung, *et al.*, (2003) believed construction partnering was never intended as an actual type of contractual arrangement or procurement method; rather an approach to procurement that would "overhaul the ethics of traditional contracting [where the] paradigm shift was towards cooperative and caring environments" (Cobra, 2006). Further, this was "emphasized by the local and situated nature of partnering [due to the] very specific manifestation of local practices and the particular combination of tools and techniques; albeit inevitably informed by wider discourse and accepted practice within the sector" (Bresnen, 2009). So as the effects of scale, scope, experience and learning plays a role in the procurement decision, costs involved in establishing safeguards that relate to such market operations, the organisation of contracts or governance structure also affect each particular transaction (Williamson, 1979). Yet with costs viewed as subjective and the procurement method a theory of managerial choice, small and medium sized enterprises (SMEs) are nevertheless considered more vulnerable than larger organisations, because they lack the necessary resources and capability for survival and growth (Gooderham, *et al.*, 2004), albeit bearing the brunt of the larger firm difficulties (OECD, 2009).

As Egan (1998) therefore stated "...formal contract documents should gradually become obsolete [as] effective partnering does not rest on contracts", rather rigorous targets that were performance measured, the circumstance under which a

particular type of contract ought to be used remains ambiguous. As a result, whilst traditional contracts have a functional division of responsibility between design and construction (Bower, 2003; Cooke and Williams, 2004) and are generally characterised by their adversarial practices, traditional procurement methods are often used by default (Akintoye and Main, 2007; Murdock and Hughes, 2008). So whilst disjointed supply relationships are experienced (Briscoe and Dainty, 2005; Holt, 2010), as well as poor service quality and/or substandard workmanship; because the lowest bid invariably wins (Cheung, *et al.*, 2003; Chen, *et al.*, 2007), traditional procurement continues to be selected by countless construction clients whom are not habitual procurers of construction work (Constructing Excellence, 2004). Conversely, while some experienced clients favour non-traditional procurement such as design and build; where the liability for both the design and the build is with the contractor, other experienced clients prefer the traditional route where they maintain control and are able to influence design matters. So as the client retains responsibility and control of the design team, along with price certainty, the traditional method remains that most commonly used (RICS, 2007; NBS, 2013). For many organisations across the four discipline groups prefer the old ways of working, as they remain reluctant to become too involved or make significant investments in transaction-specific assets due to the risk of exploitation as a consequence of opportunistic behaviour. So with its separation of design and construction, use of lump sum contracts and the simplicity involved, has meant traditional contracting is not only the most used but best understood method of procurement (CIOB, 2010). Yet unsurprisingly, as the UK construction industry has a large supply chain characterised by high levels of fragmentation (BIS, 2013), resource gaps are evident. This due to a large number of inexperienced clients and those smaller organisations producing modest volumes (scale) of few products (scope) who have little benefit from economies of experience. Invariably they also have limited capacity for the acquisition of knowledge (i.e. learning). Hence Egan's (1998) aspiration to see long term relationships and an end of contract reliance remains unrealised.

As the term project partnering is said to mean different things to different people, thus rendering it "...multi-faceted..." (Murdock and Hughes, 2008) there is no single unifying practice based theory or approach (Bresnen, 2009). Akintoye and Main (2007) and Davey, *et al.*, (1998) also acknowledged whilst partnering between clients and contractors had become more commonplace, contractors were only

collaborating for fiscal gain (i.e. they welcomed any occasion offered by clients to elude the competitive tendering processes). Thus suggesting while the profession has embraced the principle and generally agreed the core purpose of delivering clients' objectives would be better achieved through working together, disputes continue to increase while partnering does not (NBS 2013). So as partnering, integrated working and collaboration are often used inter-changeably, and sometimes within the same paragraph or even sentence (Carnwell and Carson, 2009), these innovative ways of working remain within the old context, where disciplines are separate groups with their own body of knowledge. Still with a number of interesting similarities and differences between the three (Appendix 1), Carnwell and Carson (2009) go on to explain these as the "...future ways of working together, [although the] old forms of professional education and training need to be reviewed".

2.4 Key Influential Reports

Since the Simon Report (1944), Cooke and Williams (2004) believed government reports intervened in the construction industry, "...because the one mechanism that [could] be used to coerce and direct an industry [was] the publication of formal reports". Yet, whilst accepting the language spanning the reports has changed (Figure 2.2), the UK construction industry has generally been slow to adopt any new principles and practices because cultural change equalled cultural shock. However, it is accepted that the Government reports had in some way encouraged a set of changing relationships between the parties to the construction process (Murray and Langford, 2003). For as identified in Table 2.2., a number of the reports published prior to Latham (1994) did raise similar criticisms and concerns about the customs and practices of the industry. Though whilst having wide spread agreement, only a limited number of recommendations were actually implemented, which meant other problems persisted (Latham, 1994). Consequently those earlier reports; expanded upon within Table 2.2, had "...little influence on either government or the industry over the years" (Cooke and Williams, 2004), which Barrett (2008) endorsed by noting "...none of the reports have been significantly acted upon", although "...a number of recurring themes reflect an industry inflicted with long term illness" (Murray and Langford, 2003).

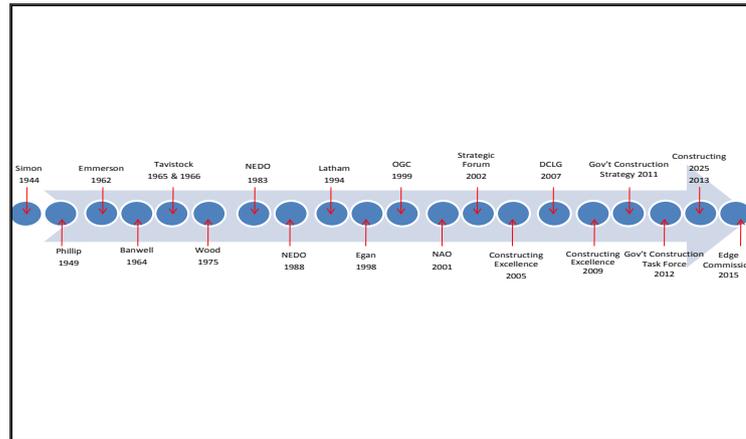


Figure 2.2: Key UK Construction Industry and Government Reports from 1944.

During the 1980's the construction industry profited from exceptional economic growth which resulted in expansion in both size and capacity. A sudden tightening of monetary policy in 1988; that also impacted on the housing and property markets, initiated a deep recession that directly affected the construction industry in 1989/90 (Hillebrandt, *et al.*, 1995). Whilst having an indirect effect on retail and manufacturing due to a lack of customer confidence, a bid low, claim high approach within the construction industry ensued which created an increasingly adversarial and conflict-driven arena and a growing dissatisfaction by many parties, including government. Consequently, another joint government/industry report was commissioned with the rationale to decrease conflict and litigation whilst encouraging productivity and competitiveness. The Latham Report (1994), in reviewing procurement and contractual arrangements, essentially affirmed and emphasised the previous reports. It therefore concluding the "...fragmented nature, lack of co-ordination and communication between parties, the informal and unstructured learning process, adversarial contractual relationships and lack of customer focus..." were what inhibited the construction industry's performance (Barrett, *et al.*, 2007). Equally the report, regarded the most influential of all the reports, stated the endless refining of contract conditions would not solve adversarial problems, and a fresh approach was required in respect of the entire industry and its fundamental struggle. So the thrust was for a more cooperative, less adversarial, efficient and profitable construction industry, with specific, albeit ambitious targets for time and cost savings by set dates. It was therefore argued a healthier atmosphere, with contracts based upon principles of fairness, mutual trust,

and teamwork were key to enhanced performance, rather than the usual adversarial and confrontational lump sum tender (Latham, 1994).

Four years after the Latham Report (1994) described the construction industry as ineffective, adversarial, fragmented and incapable of delivering for its customers, the Construction Task Force, chaired by Sir John Egan was set up. The subsequent report *Rethinking Construction*, albeit generally referred to as the Egan Report (1998), suggested the industry, as a whole, was under-achieving due to low and unreliable profitability and the extensive utilisation of subcontracted labour. The Egan Report (1998), visualising an industry seeking continuous improvement, identified five drivers of change and concluded team integration was vital because of the number of companies that existed. Therefore, in laying new foundations that would make the industry more successful, the report *Rethinking Construction* (Egan, 1998); whilst attracting criticism due to the appointment of 'influential' board members but excluding contractor representation (Green, 1999), spawned more interest and had more written about it than any of those previous. For the Egan Report (1998) argued the industry recognised the need to modernise; despite evidence supporting this view being anecdotal due to the slow pace of change and lack of innovation within the construction industry. The Egan Report (1998) therefore proposed integrated project processes and the replacement of competitive tendering with long term relationships. Thus believing partnering and strategic partnering arrangements; as previously advocated by earlier reports including Banwell (1964) and Latham (1994), influenced project performance, albeit for experienced clients and larger organisations only (Wolstenholme, 2009). Still, as noted, the problems Egan (1998) considered needed a 'make over' were those that had beset the industry for decades, as they had been identified in some manner in previous reports (Table 2.2.). Therefore, the reasons for the sub-optimal performance within the UK construction industry, including the ineffective use of collaborative processes that generate adverse relationships, which negatively influence performance, has remained "...unchanged over the last fifty years" (Chan, *et al.*, 2006). So while "successive reports continue to uncover the same industry ills time and time again" (Murray and Langford, 2003) there remains a "lack of shared understanding of key partnering concepts, missing initial effort to establish shared ground rules, communication difficulties in inter-organisational relationships and unclear [perceived] roles and responsibilities" (Aarseth, *et al.*, 2012). Hence, the "construction industry is not currently optimised for rationalisation of the supply

chain...[and] the existing industry structure has affected previous initiatives to improve performance” (Palacios, *et al.*, 2014). Albeit, the BIS research report (2013) identified “the design of those initiatives had been influenced by the lack of appreciation of the structure and complexity of the supply chain”.

Egan (1998) saw contractual disputes as a consequence of the overall poor level of performance in site based construction (Woudhuysen and Abley, 2004) and argued construction could seek improvement by “...recasting relations between actors in projects...” (Alderman and Ivory, 2007) and by learning as much as possible from others who have done it elsewhere (Egan, 1998). Therefore Egan supposed construction was considered no different from manufacturing, albeit Fox, *et al.*, (2002) contested “...building design is often customer led..” and “customer led design often results in bespoke and tailored goods whereas producer-led design [as manufacturing is] often results in standard and custom goods”. So the UK construction industry was asked not to “look at what it does already and do it better”, but “join with major clients and government to do it entirely differently” (Egan, 1998). Thus, the rationalisation of the supply chain, resulting in an integrated project process, promoting more open, less managerial and less hierarchical relationships would be based on trust rather than resting on contracts. So as preferred suppliers would grow in size by “...hoovering up those competitors who do not make the tender stage...” (Murray and Langford, 2003) it would also mean a radical change from the traditional model of project delivery. For the use of long term relationships would not only reduce the need for tendering and focus clients on requesting value for money rather than lowest tender, but render formal contractual documents obsolete (Egan, 1998). Yet while “a diversity of organisational and procurement methods now exist for construction projects” (Walker and Wing, 2001), consideration must still be given to both transaction costs (project organisation structure) and production costs (design and construction). This because different organisation structures generate different project management approaches (and costs), which then generate different costs for design and construction. Although “higher project management costs may not lead to lower design and construction costs...[albeit] the choice of organisational structure should minimise the sum of project management, design and construction costs whilst delivering a project that meets the clients requirements” (Walker and Wing, 2001).

Report	Procurement			
	Contractor Selection	Nomination	Serial Tenders	Partnering
Simon 1944	Character, ability, responsibility, pride in work; for fair remuneration.	Indefinite relationships between contractor & subcontractors nominated by architect. If integral part of design, STC's placed in advance of main contract.	London County Council's sliding fee scale should be used for continuous programmes of work.	Negotiated contracts with builder establishes relationship based on confidence, assuring consultation with architect and builder. Maybe more expensive.
Phillips 1949	-	Only in exceptional cases (highly specialised work) architect nominates subcontractor or obtains separate tenders for work.	-	-
Emmerson 1962	Review how building contracts placed. Open tenders unacceptable.	Nomination needed in appropriate circumstances.	Serial contracts should be used as they reflect the need for collaboration between designer and subcontractor.	Efficiency in building operation dependent on quality of relationship between building owner, professions, architect, surveyor, engineer, contractor & subcontractor.
Banwell 1964	Character, ability, responsibility, pride in work; for fair remuneration & good service. Removal of open tendering. Early selection need not preclude competition.	If early nomination is part of the specialist work, the main contractor should also join the team early.	-	Negotiated contracts not excluded in public field; methods of contracting should be examined for the value of solutions offered to problems rather than orthodoxy.
Tavistock 1965/1966	-	If main contractor nominated early in the building process, then party to subcontractor nomination.	-	-
Large Industrial Sites 1970	Management contracting preferred; reimbursable & negotiated basis.	Clients better served by greater integration of manufacture & install arrangements for specialist equipment	-	Encouragement for clients & contractors to 'partner' with trade unions for mutual benefit of reduced stoppages & labour controlled casual labour.
Wood 1975	Current practices; open competition 16%; select competition 65%; negotiation 14%; two-stage tendering 3%; serial 1%. Percentage of completed contracts surveyed within 5% of contract sum; open 56%; select 58%; negotiation 66%, two-stage 82%. Open tendering to be abolished.	-	Serial tenders give feedback to design team from earlier contracts; serial or continuity tenders used for house building and schools programmes allowing close collaboration. The disadvantage contractor may not act as he did on first contract.	Pure negotiation is appropriate in certain circumstances, but clients may pay more and it will take greater effort by the client to get value for money.
NEDO 1983	Successful fast contracts when contractor chosen not on price but previous performance, with willingness to accept customer's urgent deadline.	Temptation to nominate STC's for design & supply to reduce workload on the designer may lead to disruption of programme; incompatibilities of STC's identified too late, information cannot be incorporated in design.	-	-
NEDO 1988	Choice of the main contractor usually based on competition.	Majority of contractors appointed the specialists 'named' or 'suggested' in tender documents. The short time available to prepare for site operatives made it impracticable to look for alternatives.	Many regular & major customers had established procurement paths, & the expectation of repeat orders motivated the industry.	Where customers established a firm & well defined context for coordinating the contributions & responsibilities of all main participants, can be accomplished in a spirit of confidence & partnering.

Table 2.2; Reports Prior to the Latham Report.

(Murray and Langford, 2003)

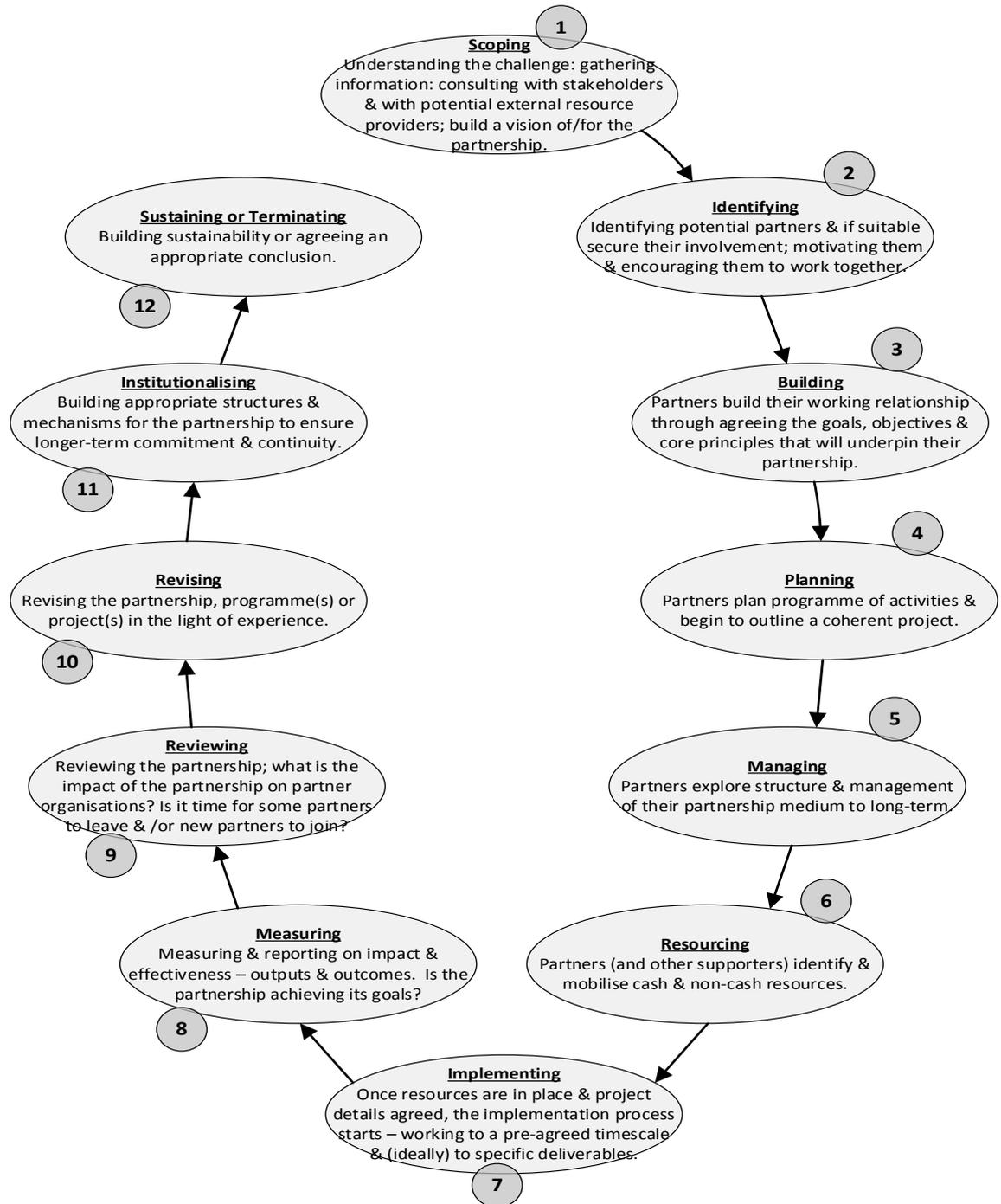
Following the Egan Report (1998), a number of key reports over the subsequent decade presented recommendations for the next phase of change, including *Accelerating Change* (Egan, 2002), which came some four years after *Rethinking Construction* (Egan, 1998). Driven by government, *Accelerating Change* (Egan, 2002), by setting a headline target for 20% of projects to be undertaken by integrated teams and supply chains by the end of 2004 and 50% by the end of 2007, not only sought to tackle the barriers preventing progression but accelerate the rate of change across the industry (Egan, 2002). Therefore whilst not a new initiative, but a vehicle to build upon and reaffirm the principles set out in *Rethinking Construction* (1998), it opened with “change is already underway” (Egan, 2002), but alluded to the “particular strong theme that people often pay lip service to the Egan agenda and fail to engage in the true spirit of the report” (Wolstenholme, 2009). For these attempts did not fully achieve the expected success, “probably because they were frequently superimposed onto environments where adversarial cultures and attitudes still existed” (Baiden, *et al.*, 2006). Seven years after *Accelerating Change* (Egan, 2002) and eleven years after *Rethinking Construction* (Egan, 1998) a new report from *Constructing Excellence* authored by Andrew Wolstenholme was released to again review progress. The report concurred some progress had been made, albeit “...nowhere near enough...” (Wolstenholme, 2009). For whilst the Egan Report (1998) had an impact on the construction industry that still resonated, commitment to the same was considered skin deep as the habitual lip service was being paid. This while organisations cherry picked the behaviours they wished to adopt based on their own self-interest (Wolstenholme, 2009). Therefore as clients continued to reinforce fragmentation by using a sequential procurement process (Cain, 2001; RICS, 2007) and so abandon “...frameworks to go back to lowest price tendering” (Wolstenholme, 2009), business models were again based on short term cycles. Thus companies sought to retain profit for themselves whilst passing risk down the supply chain rather than sharing profit to eliminate risk. Other blockers identified were a fragmented industry, poor integration in the supply chain and a lack of strategic commitment. So as the review also set out a future agenda for UK construction Wolstenholme (2009) believed it was time to abandon existing business models that rewarded short term thinking, because the era of client led change was over. Predictably this was met with a modicum of scepticism (Bresnen, 2009; Ross, 2011).

2.5 Definition of Partnering

Egan (1998) observed contracts added significant costs with no added value for the client, and therefore should become obsolete. Equally, Bresnen and Marshall (2000) accepted a reliance on formal contracts alone would be insufficient to promote the desired changes in attitude, while Clamp, *et al.*, (2007) noted partnering was never intended as a contractual arrangement or procurement method. A division has therefore been recognised between those who saw partnering as an informal and organic development, and those who regarded it as something more formal. Consequently, while there has been broad agreement about the overall philosophy of partnering, the realism as to whether it should substitute contracts, or if contracts ought to remain a crucial safeguard against any breakdown of the partnering arrangement, has meant "...no one single clear definition..." has prevailed (Bresnen, 2009). Therefore, in respect of distinctive practice or managerial rhetoric, semantic ambiguity remains a challenge with varying views on a number of partnering features (Barlow and Cohen, 1996; Hamza, *et al.*, 1999; Green, 1999).

The diversity of partnering practice has been viewed along a continuum from competition to cooperation, collaboration and coalescence (Thompson and Sanders, 1998; Li, *et al.*, 2001). Yet as Cain (2004) agrees there are "...widely diverging views of what is meant by the term partnering", these are invariably strategic or project based. So as partnering is the process that governs the interface between demand-side customers and the fragmented supply-side, partnering is deemed a long term inclusive relationship. This developed between any or all the parties within (and across) the various disciplines in order to work together and meet agreed targets over the course of a series of projects. Yet having accepted multiple partnering is now more common, where a number of parties could be bound under the same agreement (Constructing Excellence, 2004), the discontinuous nature of most demand side customer needs has caused the industry to wilfully twist the purpose of partnering (Cain, 2004). Hence the misconstrued purpose of partnering discounts the general nature of the demand side customer. For they are generally occasional or one-off customers and unable to offer the industry the continuous stream of construction projects that facilitate the staying together of supply-side teams. Thus continuously improve from lessons learned on each successive scheme (Figure 2.3). Moreover, with demand side dominance evident, where customers set up separate contracts with design

consultants (who develop the design in isolation from the construction team) and separate contractors with a construction contractor (once the design is complete), this further restricts the possibility to reduce unnecessary costs, as key stakeholders (i.e. those who could have a significant effect on the project) throughout the supply chain have not integrated.



(Source; Tennyson, 2011)

Figure 2.3; Phases in the Partnering Process

Sims (1999) stated “the most famous buzzword of all, partnering, has been subject to a lot of abuse [and]...hijacked by consultants and corrupted by contractors”, ‘project’ partnering comprises free-standing binding or non-binding ‘partnering charters’ for single projects. Hence as one-off customers believe single-project partnering with a main contractor is all that is required to deliver radical improvements in value for money, albeit devoid of any radical changes in the way project teams are formed, this has weakened the true meaning of partnering within the construction sector. Moreover, as the main contractor still goes to the market on each project to select the firms within the project supply chain based on lowest cost, “albeit the tender price will not be the actual financial outcome at the end of the project” (Wolstenholme, 2009) this exposes a level of delusion and a resistance to change. Thus the isolationist attitude, with project teams existing as individual component units within their organisationally defined boundaries must be replaced with the merging of different disciplines with different goals, needs and cultures into a cohesive and mutually supporting unit (Austin, *et al.*, 2002)

Cain (2004) identifying partnering as a supply-side tool that should operate at a strategic level and so over-arch individual projects; thus being an essential precursor to an open and trusting culture across all firms that need to work together within the entire design and construction supply chain. Jones and Saad (2003) stated the motives for adopting partnering in construction are different from those in manufacturing. For whilst the construction industry emphasis is said to be on ending disputes and improving relationships and trust, in other sectors the main focus was on reducing waste and adding more value. So whilst Table 2.3 definitions show the perception of the partnering innovation has evolved since its introduction into the UK, the lack of a single definition or model of partnering explains the misunderstanding of the concept and the misuse of the term. Therefore as partnering is deemed a confused concept that means different things to different people, the suggestion is, because it obtains different forms i.e. it means a very close, single-sourced relationship to some, while effective project management to others, it is not a unified concept. Nevertheless, as Bygballe *et al.*, (2010) concludes different approaches and applications of the partnering concept have developed, the underlying principles common to all ‘true’ partnering approaches are identified as commitment to promote more positive and collaborative relationships and a common purpose leading to mutual advantage. It must therefore be accepted partnering is not just good project management, rather

the introduction of a new culture based on improved relationships, trust, commitment, better communication, etc. (Figure 2.1). This in turn should lead to win-win situations, due to an increased certainty that the customer's needs are met, whilst those suppliers that have contributed feel adequately rewarded for their efforts (Jones and Saad, 2003). Consequently, in accepting the main objective of construction partnering is improved performance through building better coordination and longer-term relationships leading to greater trust, the Construction Industry Institute (CII1991) developed an early definition of partnering as;

“a long term commitment between two or more organisations to achieve specific business objectives by maximising the effectiveness of each participants resources.....a shared culture without regard to organisational boundaries.....based on trust, dedication to common goals and an understanding of each other's individual expectations and values”.

Though the definition identified by Simpson (2001) has been recognised by some as the clearest partnering definition (Bennett and Jayes, 1997);

“...a structured management approach to facilitate team working across contractual boundaries. Its fundamental components are formalised mutual objectives, agreed problem resolution methods and an active search for continuous measurable improvements”

Egan's report (1998), noticing improvement must be continuous and measurable, defined partnering as;

“...two or more organisations working together to improve performance through agreeing mutual objectives, deriving a way of resolving any disputes and committing themselves to continuous improvement, measuring progress and sharing gains”

The Reading Construction Forum's (RCF 1998) definition was;

“...a managerial approach used by two or more organisations to achieve specific business objectives by maximising the effectiveness of each participant's resources. The approach is based on mutual objectives, an agreed method of problem resolution and an active search for continuous measureable improvements”.

The Construction Industry Board, defined partnering as;

“...a structured management approach to facilitate team working across contractual boundaries.....not to be confused with other good project management practice or long-standing relationships, negotiated contracts, or

preferred supplier arrangements, all of which lack the structure and objective measures which supports partnering”.

So whilst it was noted that partnering must be “...founded on an attitude of mind together with a set of procedures, and it cannot succeed without both” (PSL, Suite of Guides to Partnering -DTI and CBI, 1990), the CII’s definition emphasised ‘long term commitment’ and ‘trust’; both of which have been identified in Figure 2.1, and considered significantly lacking in traditional contracting strategies (Jones and Saad, 2003; Weston and Gibson, 1993). Thus as traditional contracts are deemed adversarial in nature, with contractors selected mainly on the basis of lowest price, Hamel (1989) suggested organisations that entered short term arrangements were aware that their partners were capable of disarming them. Whilst Love, *et al.*, (1999) noted long term alliances (i.e. a relationship between two or more parties who have aligned commercial interests) encouraged partners to commit their resources to the relationships in order to generate mutual learning. So as Peters *et al.*, (2001) suggested partnering relied solely on the commitment of individuals due to the fact the partnering charter was not legally binding, Green (1999) saw partnering as primarily concerned with “maximising effectiveness”, which reflected similar themes to that by Bennet and Jayes (1995). So while implying a deep-seated, uncompromising shift in the traditional business relationship between clients and contractors, the RCF’s proposal was said to provide a more realistic and pragmatic approach to partnering by acknowledging the majority of construction’s clients were infrequent users of its products and services. Hence the RCF’s definition whilst omitting ‘long term commitment’ and the key ingredient of ‘trust’ recognised the importance of mutual objectives and an agreed method of problem resolution which reduced the need for formal controls and any tensions created by short term inequities. Rowlinson and Cheung (2002) nevertheless recognised trust between partners was important as it created an opportunity and willingness for further alignment, whilst reducing the need for partners to continually monitor one another’s behaviour. Though as partnering was implemented by putting a partnering agreement on top of a traditional contract and encouraging each other to address project risks, this meant clients continued to take the role as ‘gatekeeper’, as opposed to being a team member, whilst contractors kept an eye on the conditions and claims whilst going through the partnering process (Rowlinson and Cheung, 2002). The fourth definition attempted to reduce the level of confusion and misunderstanding associated with the concept of partnering by articulating the key

elements of the concept and differentiating it from other approaches. So whilst accepting the various definitions of partnering have strong points and so secure a place in the construction industry, Green (1999) offered a counter view on partnering. For despite the seductive dialogue on “empowerment”, “working together” and “relationships”, the ultimate measure of success was said to centre on cost improvement with each project exceeding the performance of that previous. Yet by pointing out the propagation of partnering in construction was to exercise increased control over the supply chain and so earn “super normal profits rather than serving the interests of their customers” (Green, 1999), the alternative view was that partnering is a single-source, long term relationship (Wood, *et al.*, 2002). So with trust key and a focus on business in order to solve problems rather than simply selling products, partnering encourages parties to adopt higher ethical standards (Rowlinson, *et al.*, 2004). Yet, as Table 2.3 conveys what Stephenson (1996) believed was a micro sense of what partnering was and should have been, Green (1999) offered, the arguments in favour of partnering would seem to owe more to the buying power of its advocates rather than to any independent appraisal. So whilst only the CII definition identified trust, which Wood and McDermott (1999) noted as a key component when a new relationship was developed and the industry moved from competitive and adversarial to cooperative relations based on reciprocity and solidarity, the following definition has been identified for the purposes of this research;

‘Partnering is the long term inclusion of supply chain members, having established mutual objectives, to successfully realise the project’s goals. This through a firm, well defined, and agreed upon approach, that coordinates the contributions and responsibilities of all cross-sectoral participants.

Source	Definition	Original Ref.
Associated General Contractors	Partnering is a way of achieving an optimum relationship between a customer and a supplier. It is a method of doing business in which a person's word is his or her bond and where people accept responsibility for their actions. Partnering is not a business contract but recognition that every business contract includes an implied covenant of good faith.	Partnering: A Concept for Success (1991)
American Society of Civil Engineers	Partnering is an effort that attempts to merge the contractors, the owners and the engineer's interests into a single project goal. Partnering involves cooperative project management among the contractor, the owner and the engineer.	Dispute Avoidance and Resolution for Consulting Engineers (1993)
U.S. Army Corp of Engineers (Definition A)	Partnering is the creation of an owner-contractor relationship that promotes the achievement of mutually beneficial goals. It involves an agreement in principle to share the risks involved in completing the project and to establish and promote a nurturing partnership environment.	Practical, Profitable Partnering – Denver's Team Approach to Urban Reconstruction (1993)
U.S. Army Corp of Engineers (Definition B)	Construction partnering means developing a cooperative management team with key players from the organisations involved in the construction contract. The team focuses on common goals and benefits to be achieved through contract execution and develops processes to keep the team working towards those goals. Partnering means exercising leadership for the entire engineering team.	Construction Partnering: The Joint Pursuit of Common Goals to Enhance Engineering Quality (1991)
American Arbitration Association	Partnering is a synergy – a cooperative, collaborative management effort among contracting and related parties to complete a project in the most efficient, cost effective method possible, by setting common goals, keeping lines of communication open and solving problems together as they arise.	
Stephenson (Conglomerate Definition A)	Partnering is a system of conducting business that maximises the potential for; i) achieving project intent; ii) obtaining specified quality; iii) encouraging healthy, ethical customer-supplier relationships; iv) adding value; v) improving communication; vi) providing methods of project condition measurement and feedback; vii) providing methods of resolving conflicts quickly by non-destructive means at optimal levels of management.	Project Partnering for the Design and Construction Industry (1996)
Stephenson (Conglomerate Definition A)	Partnering is; i) a preventive action to reduce destructive conflict; ii) a pre-design management system to set operating ground rules not covered in the professional services contract; iii) a pre-construction management system to set operating ground rules not covered by the contract; iv) a marketing tool to assist competent planning, design and construction firms in reducing the potential for debilitating competition; v) a pre-program system to set concept, ideas, intent and direction for the internal staff of the owner and client; vi) a revisiting and updating action to validate, confirm, reinforce or revise original operating ground rules that need review; vii) a planning, design, construction and turnover guide for the unspecified, non-contract conduct of the project team.	Project Partnering for the Design and Construction Industry (1996)

Table 2.3: Further Partnering Definitions

2.6 Advantages And Disadvantages Of Partnering

Partnering has been quoted as the “master key” (Hellard, 1995) to initiate the techniques and principles of total quality management to provide customer satisfaction on construction projects. Though with as much as 75-80% of the gross work done in construction by subcontracted services (Eriksson, 2007); although Packham, *et al.* (2003) believed this to be more like 85%, where most major contractors operated as pliant organisations, the industry lacked consensus as to what constituted an integrated process, because the traditional roles and responsibilities characteristically changed from project to project. Thus epitomize the hollowed out structure characterised by extensive outsourcing and an almost exclusive focus on management and coordination functions (Briscoe and Dainty, 2005). Yet partnering would involve substantial, and potentially deep cultural changes within and between organisations in order to move from adversarial, arms-length relationships to those that are more collaborative with greater mutual obligations (Bobby and Macbeth, 2000). Consequently, whilst practitioners and academics, including Cox (2004) and Ross (2011) recognise partnering has been advocated as a way of developing more integration between organisations in order to reduce the distance between firms by improving communications through early collaborative involvement, the establishment of trust and the alignment of systems and processes, many “industry participants adopt a short term view on business development, with little interest in enhancing their long term competitiveness” (Chan, *et al.*, 2006). Therefore with construction supply chains existing for the duration of a single project (Briscoe and Dainty, 2005); which characteristically can deliver substantial benefits; albeit teams learn on the job (Thomas and Thomas, 2005), full benefits which take time and the experience of several projects; ostensibly remain unrealised (Figure 2.3) (Bennett and Peace, 2006). Additionally, as these benefits are rarely filtered down the supply chain to the small sub-contractors (Packham, *et al.*, 2003; Briscoe, *et al.*, 2004), who are unable to increase profit margins by negotiating favourable rates from suppliers, whilst apprehensive of litigation and non-payment by a main contractor (Davey, *et al.*, 1998) and potential exploitation due to risk apportionment, it is said many subcontractors would prefer to “stick to what they know” (Miller, *et al.*, 2002; Eriksson, 2007). This being a reliance on complete contracts rather than cooperative relationships (Pietroforte, 1997; Eriksson, *et al.*, 2007). Consequently, with reference to partnering many sub-contractors remain reluctant to work for main contractors, though would welcome

opportunities to work, and form partnerships, with blue chip companies and public sector clients (Davey, *et al.*, 1998).

As Appendix 2 identifies a number of advantages and disadvantages around partnering, Chan, *et al.* (2006) observed the benefits of partnering were less pronounced for building works. This due to the more standard construction methods and the technology used than civil and mechanical and electrical installation works, which have a more “systematic approach to the implementation of partnering”. Still the top three major benefits of partnering have been identified as;- i) “improved relationships among project participants”; ii) “improved communication”; and iii) “better productivity” (Chan, *et al.*, 2006). Furthermore, whilst Chan, *et al.* (2006) acknowledged the lack of communication was a major potential obstacle, though open communication was a primary strategic weapon in countering problems - to which Nystrom (2008) concurred by identifying partnering showed “...most potential in improving communication and the relationship between parties” the top three major difficulties of partnering were perceived as “dealing with large bureaucratic organisations”; “uneven levels of commitment among the project participants” and “parties being faced with commercial pressure which compromise the partnering attitude” (Chan, *et al.*, 2006). So as Woodrich (1997) and Ng, *et al.* (2002) professed the public sector procedures often worked against open relationships and therefore jeopardised the project objectives originally established, Nystrom (2008) conceded “...half the projects that mentioned partnering in the tendering documents did not include partnering components during the project” and “...no general trend can be seen concerning the outcome in terms of cost, quality, contract flexibility, avoidance of disputes or construction time”. So while the various criticisms of partnering serve as a reminder that it is not an easy option and must be worked at by everyone involved, from the “...suppliers’ supplier to the customers’ customer...” (Wong, 2004; Briscoe, *et al.*, 2004), and throughout the organisation in order to reap the full benefits, Ankrah, *et al.* (2009) declared there was no evidence to suggest the type of procurement route employed had a noteworthy effect on a construction project organisations culture.

The concept of project success has been explored by a number of researchers, including Munns and Bjeirmi (1996) and Lim and Mohamed (1999) with no general agreement attained. Project success means different things to different people and each industry, project team or individual has their own definition of success. Thus owners, designers, consultants, contractors and sub-contractors all have different

project objectives and criteria for measuring success. From the plethora of reports reproaching traditional procurement, which invariably focused upon the client and main contractor interface (Eriksson, 2007), it was stated there is a lack of theoretical and empirical research investigating supply chain relationships in construction (Ross, 2011; Bresnen and Marshall, 2000; Cox, 2004; Thompson, 1997; Cox and Townsend, 1997; Dainty, *et al.*, 2001; London and Kenley, 2001). Whilst Bresnen and Marshall (2000) acknowledged companies may potentially depart from the collaborative ideal, due to an unwillingness to commit fully to closed long term relationships, it is professed the benefits attributed to partnering are equally well provided by different arrangements (Bennett and Peace, 2006; Nystrom, 2008). So as a "...building project is completed as a result of a combination of many events and interactions...with changing participants and processes in a constantly changing environment...that is temporary, fragmented and short term" (Chan and Chan, 2004), the concept of project success remains ambiguously defined; with empirical evidence suggesting no overall trend, because each project has unique results due to the difference in project scope, complexity and procurement methods.

The relevant disciplines and various organisations associated with a construction project are traditionally structured based on the apparent status of the various professions and trades involved, with varying degrees of coordination and control. The industry can appear chaotic through the use of competitive tenders and tough contracts to protect their own interest. Partnering is intended as a conscious move away from the traditional approach, which has been based on 'arm's length commercial and contractual relationships and onerous contract terms. Partnering as a long term business relationship, based on trust and continuous improvement is said to be mutually beneficial albeit, as previously noted a number of organisations remain pessimistic about collaborative procurement strategies and prefer to rely on traditional procurement methods.

2.7 Confrontational Practice versus a State of Cooperation

The Latham Report (1994) was considered construction industry's defining moment because of its fresh approach in tackling the adversarial and conflict driven business environment caused by the 'bid low, claim high' tactic roused during the 1989/90 recession (Murray and Langford, 2003). However, the majority felt the construction process made conflict inevitable in some form and to some extent (Fenn and Gameson, 1992). Clegg (1992) alleged "...the tendency of contracts to generate

dispute because of the externality of interpretation”, the choice of an appropriate procurement method, as an avoidance technique is decisive, because “certain types of procurement method can be said to avoid certain types of conflict” (Rahim, 2002); though argued “...it is not only the type of procurement method selected that may be relevant to conflict avoidance” (UMIST, 1992), but the substance and indeed the spirit of the contract. Cheung and Yiu (2006) accepted certain forms of procurement methods were more prone to dispute than others, because of the underlying allocation of risk Love et al., (2010) and Gardiner and Simmons (1995) identified conflict classifications, while Fenn and Gameson (1997), Revay (1992) and Kumaraswamy (1997) produced lists of the general claim categories including; i) “variations due to site conditions”; ii) “variations due to client changes”; iii) “variations due to design error”, and the most frequent causes for claims including; i) “inaccurate design information”; ii) “ambiguities in contract documents”; and iii) “inadequate site investigation” (Kumaraswamy, 1997).

While a major economic driver, the construction industry still exists within an adversarial society (Fenn and Gameson, 1992; Briscoe and Dainty, 2005) albeit “partnering, framework agreements, joint ventures and consortia are growing in their use...” (Murdoch and Hughes, 2008). Even though the case is argued for improved management practices that result in better integration across all tiers of the construction supply chain, the reality is difficult to achieve (Briscoe and Dainty, 2005). Black, *et al.*, (2000) stated “few industries suffer more from conflict...”. Conflict, whether destructive or constructive (Kumaraswamy, *et al.*, 2007) is seen as inevitable in construction (Kumaraswamy, 1997; Fen, *et al.*, 1997) as their causes are numerous. Trying to identify a specific derivation is not possible due to the complexity associated with construction procurement (Love, *et al.*, 2010). For this reason, Fenn and Gameson (1992) and Kumaraswamy (1997) differentiated between conflict and dispute, and both academia and industry research affirmed the industry, its clients and government, for many years had recognised the need for change in traditional relationships (Black, *et al.*, 2000). As it was deemed a natural constraint to efficiency and innovation as design finished before construction started (Figure 2.3). Moreover despite the fact an organisational structure and relationship pattern was produced, this “...extraordinary diversity of professions, specialists and suppliers” was commonly temporary (Murdock and Hughes, 2008). The fragmentation of construction is an inevitable consequence of the economic, technological and sociological environment. Yet inefficiency within the industry

tends to be the way of life (Murdock and Hughes, 2008) and “...one of the major sources of adversarial attitude within the project team” (Yiu and Cheung, 2006). There are three clear strands to partnering: mutual objectives; problem resolution and continuous improvement, but the fundamental pre-condition is the mindset of the whole team. In order for partnering to work it is said “...the client must have total belief in its principles and processes [whilst] ensuring its views are shared by every member of the contract team” (Kawneer, 2001). Hence it is said the interface between client and main contractor, and the main contractor and subcontractor is vital because this is where traditional construction contracts so often founder, resulting in costly and damaging litigation and financial dispute (Kawneer, 2001).

2.8 Other Sectors and Core Partnering Initiatives

Egan (1998) stated there was a “wish to see...the construction industry deliver its products to its customers in the same way as the best consumer-lead manufacturing and service industries”. Yet the nature of each construction project is considered unique, unlike manufacturing projects such as a car plant or pharmaceutical company (Carnwell and Carson, 2009). Wolstenholme (2009) noted that many industry professionals had struggled with the comparison because the interpretation had been too literal, which lead to the protest “but it’s different for construction”. For whilst “contractor selection methods used are varied [with] selected competition the most common (49%) followed by open competition (37%)...” (RICS – Cobra 2010) there were simply too many trade associations. Hence, Wolstenholme (2009) asserted “construction punches well below it’s weight by comparison with other business sectors”. However, while the “origins of lean [supply operations] are well documented...” (Simons, *et al.*, 2004) in their endeavour to eliminate waste and develop effective, efficient and flexible supply networks that expand beyond the traditional boundaries of a firm. Supply chain integration has the potential to improve profit and competitive position, due to improved supply chain operations over longer periods with fewer strategic suppliers. This could be seen as a potential source of substantial competitive advantage (Dyer, *et al.*, 1998; Sohal, *et al.*, 2002; Esmaeili and Zeepongsekul, 2010). Yet Sohal, *et al* (2002) stated “...the complexity of relationships within a supply chain, and the number of factors that need to be understood and managed in order to improve overall effectiveness, provide a significant challenge”. So although there was evidence of benefits accruing to proponents of close relationships, initial attempts did not always bring the expected prizes (Lamming, 1996) albeit supply

chain management was costly to set up and maintain while potentially reducing the customers ability to switch away from inefficient suppliers. Donaldson (1996) stated supply chain management practices within manufacturing were widely used, Holweg, *et al.* (2005) debated main stream implementation across industry sectors had been much less prominent than expected, with research suggesting a “one size fits all” strategy for procurement was ineffective. Empirical studies show the supply chain decisions and behaviour of Japanese firms including Toyota and Nissan, who have realised the benefits of both partner and arms-length models by strategically segmenting their suppliers in this way; which converge with those of their U.S. counterparts. These countries have managed a portfolio of relationships (Bensaou, 1999) in order to deal with the relevant individual settings that the supply chain had to deal with, and in terms of dispersion of retailers and supplier plants, as well as the product characteristics (Holweg, *et al.*, 2005). Whilst dual or multiple sourcing was a common business practice (Tang, 2006) good practice meant properly balancing a portfolio of relationships adapted to product and market conditions whilst effectively managing each type of relationship as “...organisations cannot manage with only one design for all relationships” (Bensaou, 1999).

Lean supply within the various sectors including manufacturing and food retail rely on the key variables of trust; which is “earned over time evolving slowly as a result of a successful history of performance” (Hoyt and Huq, 2000). Hence Simons *et al.* (2004) suggested whilst “...buyer dominance is evident...the way this power is wielded and the resultant effects can be quite dissimilar”. In the automotive sector; and in particular Toyota, high levels of trust have developed over many years and this has led to low levels of buyer opportunism while a history of opportunistic buyer behaviour within the food retail sector has resulted in low levels of trust, coupled with low contract complexity (Cox, 2001). Hence, whilst Tang (2006) identifies four types of supplier relationships, some company policies still require the implementation of a tender bidding process, but whilst “suppliers in general accept the tendering position and attempt to build relationships after the contract is won” (Donaldson, 1996) this conflicts with the ethos and operation of relationship building.

2.9 The Role of Partnering

Despite a long stream of UK government backed reports, criticising the construction industries “less than optimal performance” (Barrett and Oke, 2007) and highlighting

the need for “improved relationships between project participants” (Bresnen and Marshall, 2000), the reports published during the 1990’s recession (Latham 1994; Egan 1998) are the ones that symbolise the cooperative environmental strategy that strives for the amicable completion of construction projects. Consequently, with conflict, adversarial attitudes and mistrust deemed intrinsic to the traditionally procured construction project pre 1994, when the prevailing view was of an ever increasing failure rate of major projects, Murray and Langford (2003) believed there had been an overwhelming failure to act upon the recommendations made in those previous reports, even though the industry was habitually seen as embattled (Barrett and Oke, 2007). Furthermore, whilst Egan (1998) stated the construction industry rather than improve was to do things entirely differently by revolutionising its current practices by entering into long term partnering relationships throughout the supply chain, this was said to rest heavily on its metaphorical properties and represented a particular language (Alderman and Ivory, 2007). So whilst accepting all construction projects are different and have diverse configurations in relation to features like size, location, performance ethos, participants involved and their level of influence, complexity, level of subcontracting as well as the number of variations (Ankrah, *et al.*, 2009; Ross, 2011) partnering has remained universally undefined (Bresnen, 2009) while the definitions academics and professionals imposed to classify procurement routes were too prescriptive to be meaningful (Tookey, *et al.*, 2001).

Having expounded construction partnering it is accepted, like all major changes, that it does provoke criticism from practitioners and academics, whilst acknowledging “partnering may [actually] represent nothing more than a return to good relations, honesty, integrity and cooperation...” (Hellard, 1995). Yet Figure 2.4 maps an initial stylised model from the discussions drawn throughout the chapter; which includes the tangential influences that strive for successful, inclusive and incentivised supply chain collaboration, along with the encumbrances. Though it is also recognised changing commercial pressures in the context of an already fragile relationship could nonetheless lead to the abandonment of partnering (Alderman and Ivory, 2007). Furthermore, whilst Radeneck (2008) believed the UK construction industry had never really existed as a coherent entity, with a combination of traditional and non-traditional procurement routes continuing to dominate the industry (RICS, 2007); each with their own proponents and inherent strengths and weaknesses (Tookey, *et al.*, 2001); though the primary selection

mechanism remains price (Davey, *et al.*, 1998), it was purported hybrid organisational structures were becoming increasingly common for experienced clients. For while academic descriptors and expectations do not adequately conceptualise reality, no individual procurement system appears uniquely suited to deliver the necessary controls and best practice arrangements in modern construction (Tookey, *et al.*, 2001). Therefore whilst awarding contracts to the company who offered the lowest price encourages firms to submit a low bid only to claw back profit, which increases the likelihood of litigation and a breakdown of trust in the current and any future relationships, the challenge remains to incite a healthier atmosphere throughout the supply chain; for this is key to enhanced performance because “as a whole, the industry worldwide continues to perform unsatisfactorily” (Yoe and Ning, 2002). So while construction partnering has been identified as a means to this end (Murray and Langford, 2003), the object of getting a procurement system that delivers project requirements in spite of the problems imposed by the procurement route remains. For the development and operation of an organisational structure comes about in spite of the selected procurement route rather than because of it (Tookey, *et al.* 2001).

2.10 Summary

This chapter reviewed extant literature on ‘traditional’, ‘non-traditional’ and non-market exchanges; particularly through partnering, and acknowledged conceptual and stylized models of partnering in theory do not necessarily provide realistic models that clients and/or contractors can readily implement in practice. Regarding transactional cost economics, it was also acknowledged increased project management costs would only be justified if design and construction costs were reduced without affecting the projects effectiveness (Walker and Wing, 2001). So having substantiated the construction industries project partnering initiative has been the topic of predominantly positive, albeit prescriptive discussion within business press and academia for over two decades and widely advocated to rectify the adversarial contractual relationships that jeopardise the success of many projects, it attests the continuance of a traditional client-contractor mentality because most experienced clients remain satisfied with their own alternative ways of distributing risks (Oyegoke, *et al.*, 2009). This regardless of the fact key influential reports continued to address the issues of derisory performance and productivity, by endorsing a “...move away from models that encourage short term thinking...in favour of ways that incentivise long term value creation”

(Wolstenholme, 2009). Still as regards clients who are not habitual procurers of construction work the traditional methods of procurement remain the most commonly used (RICS, 2010; NBS, 2013) although conflict, adversarial attitudes and mistrust are deemed intrinsic. Therefore having explored the anecdotal and limited empirical evidence accumulated as a result of this literature review, and accepting whilst there exists an emphasis to harness greater efficiencies through management and incentivised compositions, partnering remains a confused concept were the more powerful partner; generally the larger players whom have an information advantage dictate terms and conditions to weaker partners who depend on them for future work.

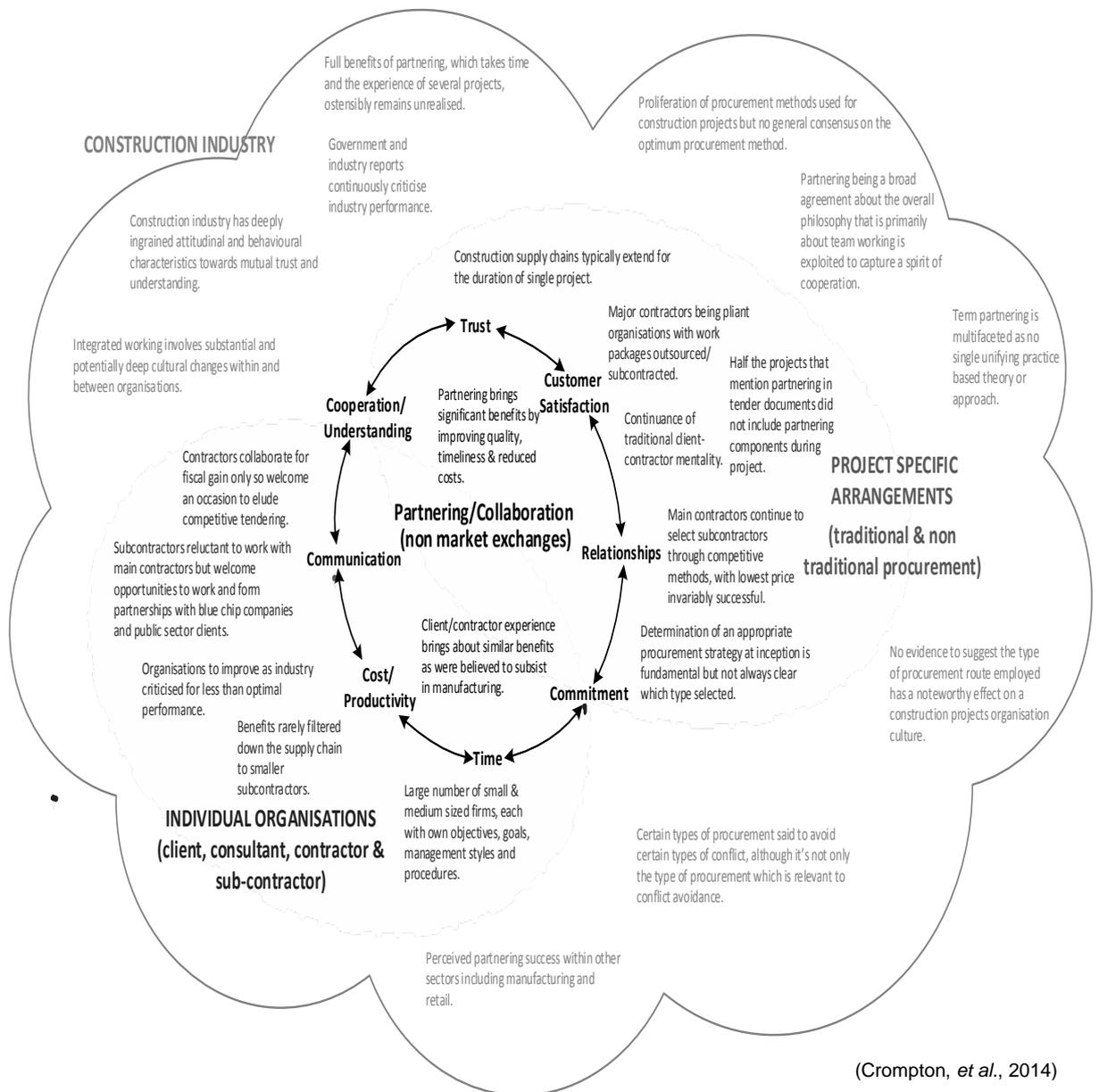


Figure 2.4: Stylized Model of the Contemporary Construction Industry

With reference to Figure 2.4, where the two ellipses converge and is entitled 'Partnering/Collaboration', this represents the rationalisation for construction partnering. In turn, this convergence has been delimiting by the eight mutually inclusive dominant partnering drivers (Figure 2.1) that have been identified as essential ingredients that must be presented in order to successfully influence the implementation of tangible partnering. Therefore, having understood the 'what', and in order to develop this initial knowledge, the next step will be to place more emphasis on exploring the 'how' and 'why' (Saunders, *et al.*, 2007). For as construction partnering is not currently a favoured procurement method the facts, theory, alternatives and ideas will now be compared and contrasted as part of the next stage of this research in order to gain a better understanding of empirical partnering. Hence supplementary exploration, by utilising a combination of inductive search and deductive reason (Orton, 1997), will "...conceptualise the context within which change is instigated and focus on continuous processes of flux and transformation..." (Green, *et al.*, 2009). For this will establish, with the greatest possible certainty, the researcher's knowledge of reality and the status of that knowledge in respect of practical partnering.

CHAPTER 3: CONSTRUCTION MANAGEMENT SYSTEMS

3.1 Introduction

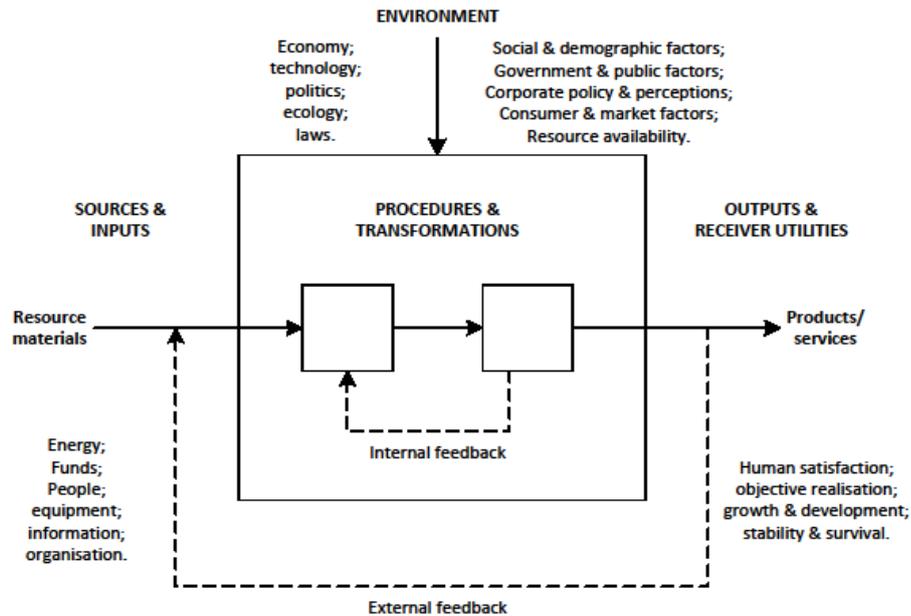
The need for improvement to the conventional design and construction process is well reported within the construction industry as articulated in the preceding chapter. For as construction projects grow evermore complex, the industry is said to continue to employ disengaged, ad-hoc methods in respect of co-ordination, management and control, thus divesting repeatability in respect of process execution. Meaning the same mistakes occur time and again (Cooper, *et al.*, 1998) while no clear management system prevails. Yet with design and construction process intricacies seen as the primary reason why the formerly identified government and industry reports failed to instigate any significant improvements (DTI, 2002; Fairclough 2002, Sheath, *et al.*, 1996) it was nevertheless accepted whilst relationships could be complex and dynamic within the project environment, the underlying generic processes remain broadly consistent (Mill and Ion, 1994; Kagioglou, *et al.*, 1998); similar to other industry sectors i.e. manufacturing. Moreover, Luck and Newcombe (1996) initially identified the industry lacked consensus as to what constituted an integrated process, because the traditional roles and responsibilities characteristically changed from project to project. This chapter therefore looks at some existing management tools and models that are said to facilitate improved operational performance within other industry sectors, while assessing their potential to accomplish construction partnering. For whilst Kagioglou, *et al.* (2000) asserted pre-construction activities of most projects were quickened to reach the construction stage; just as post-construction activities were often marginalised in order to move to the 'new job', Nadim and Goulding (2011) noted the integration of processes and teams along with improvements to quality and efficiency were necessary. So as Kvint (2009) defined strategy as "a system of finding, formulating and developing a doctrine that will ensure long-term success if followed faithfully", Griffith, *et al.*, (2014) identified management functions, systems and procedures were essential to project success. Though with numerous management tools developed to assist in the strategic decisions within the context of complex environments and competitive dynamics (Rigby, 2013), the effective adoption and use of current improvement strategies within construction; an environment associated with the formation of a new team for the delivery of each project and very high levels of competition in supplier selection (BIS, 2013), has been slow

(Tzortzopoulos, *et al.*, 2006). In this regard, with an apparent need for the UK construction industry to innovate and change its current process management practices in order to meet the challenge of delivering projects that predictably meet cost, time and quality requirements, this chapter critically assesses numerous management strategies. For by considering the various cross-sectoral strategic management processes; said to have become a common part of general organisational life, within a construction partnering setting, this chapter addresses objective 3 of the research study (Table 1.1).

3.2 Management Systems

The term management system has a variety of meanings in different contexts, but one definition of management is ‘the guidance and control of action’, whilst system is ‘a set of components interconnected for a purpose’ (Chartered Quality Institute). It is therefore argued a management system is ‘a set of components, interconnected for the guidance and control of action’. An alternative definition of a management system is that it is a set of interrelated or interacting elements to establish policy and objectives...and then achieving those objectives (ISO 9000:2000). Yet as Anderson (2005) identified a management system as a framework of processes and procedures used to ensure an organisation fulfils the tasks required to achieve its objectives, PAS99 (the first specification for integrated management systems) states ‘a management system comprises the elements of policy, planning, implementation and operation, performance assessment, improvement and management review’. Thus emphasising the link between where an organisation wants to get to and how it deems to get there, a management system is the framework of processes and procedures used to ensure that an organisation can fulfil all tasks required to achieve its objectives (Anderson, 2005). Hence a set of tools for strategic planning and tactical implementation of policies, practices, guidelines, processes and procedures would be used in the development, deployment and execution of business plans, strategies and all associated management activities. Moreover, in respect of construction organisations, specific projects and partnering, as all managed organisations as part of the relevant supply chain, would utilise systems that shared certain conceptual elements, including input, process, output and feedback (Figure 3.1), Smith (1982) identified management systems could either be simple or complex and may involve either limited or extended functions, processes and situations. So recognising larger organisations were deemed more likely to record procedures to ensure

understanding than some smaller organisations (SME's); and suppliers to larger companies may be obliged to implement the management systems of the ascendant organisation, whether simple or complex, they were said to provide a composition for doing things properly. Though within construction, as identified previously, it had never really existed as a coherent entity (Radeneck, 2008).



(Source: Smith, 1982)

Figure 3.1; Conceptual Elements Strategic Management

By attempting to systematise and standardise whatever was possible in order to do it efficiently and effectively through the use of validated methodologies, organisational systems were said to consist of a number of interconnected subsystems and activities (Figure 3.2). These subsystems and activities, comprising various disciplines and organisations when considered in relation to a construction project, and all with their own specific purpose, would facilitate realising the complex whole and so achieve the overall goal (i.e. partnering throughout the supply chain). Therefore whilst striving for continuous improvement, the feedback loop would identify stakeholder satisfaction, objective realisation, growth, etc. and so implement recurrent development within each organisation and across the complete supply chain (Figure 3.3). Yet as ownership of the overall system lies with those who would be held accountable i.e. top management and/or the core group, each subsystem (or discipline) must interconnect its activities with the activities of the

other subsystems (disciplines) because there would be no provision for a totally independent subsystem. So as running an organisation or project requires defined objectives and strategy, with processes in place, resources allocated and risks identified, the core group and/or managers would be tasked to coordinate each relevant part and plan future activities. Thus a management system, being a set of modelled parts, each with its own properties (i.e. technologies, strategies and structures), forms a whole that has emergent properties albeit determined by the nature and properties of those subsystems (disciplines). So as the parts of a system can be complex, and the managerial role of each should be seen in its relationship to the total phenomenon, as disciplines and organisations do not work in isolation toward achieving identified objectives (i.e. true partnering), Yolles (1999) noted organisational systems are open to their environment. They must therefore be monitored in order to adapt to any changes (Figure 3.1 and 3.3). Thus with systems in a dynamic relationship with their environment, whilst importing inputs, exporting outputs and interpreting the feedback received from the same, any lack of engagement from the various disciplines and/or organisations, as part of each particular supply chain can cause a huge amount of loss regarding lost work time and productivity.

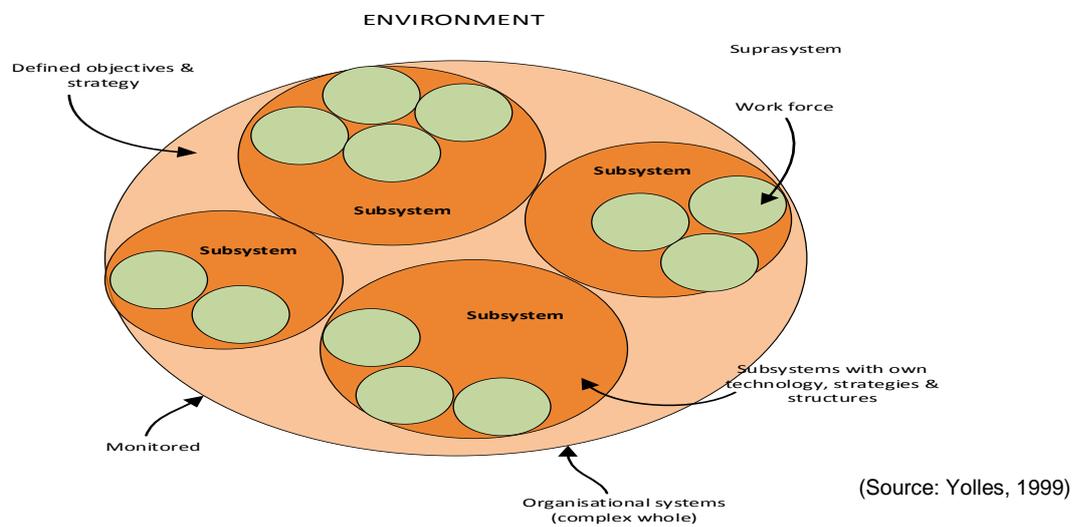
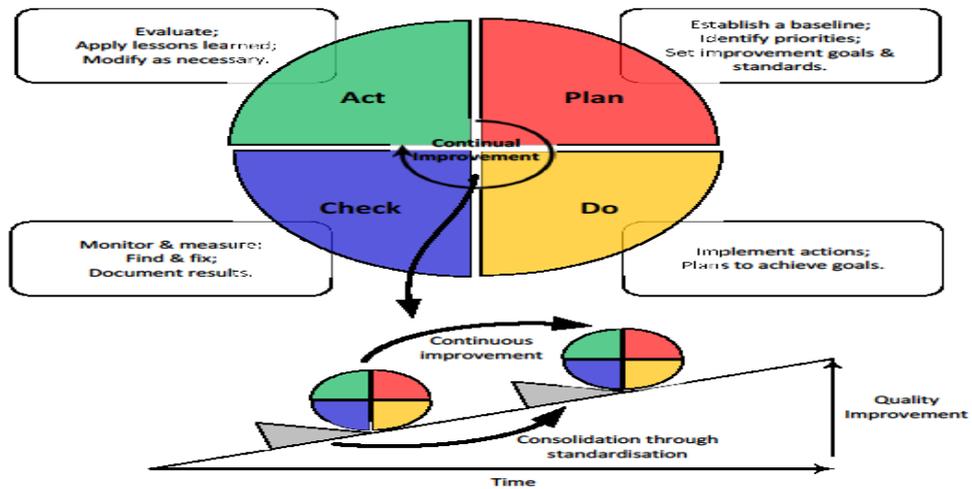


Figure 3.2; Interconnecting Subsystems forming Organisational System



Source: Screenivasna & Airayan, 2008)

Figure 3.3; Continual Improvement

As the ISO standard mentions top management shall ensure policy is communicated and understood within each organisation, it is accepted there is a market need for separate management system standards addressing different aspects, issues or risks that organisations need to manage (ISO, 2008). Therefore management systems, established as “key tools by which managers change behaviour” (LRQA, 2007), provide structure to a set of disciplines and organisations interconnected for the guidance and control of action. Yet whilst categorised as the theoretical designs and actual practices by which disciplines and organisations manage their operational effectiveness and efficiency, it has been suggested there remains a long way to go before the potential of a well-designed management system could contribute fully to the management and continual improvement of a business or project. For having made the strategic decision to introduce a management system, the potential of the business or project asset making a major impact on an organisations performance is frequently forgotten. In contrast, disciplines, organisations and/or project arrangements implementing fragmented management systems can potentially encumber sustainability and improvement because of silo management which can result in duplication and barriers to improvement (Dalling and Holt, 2012). So whilst it remains important that disciplines and organisations appreciate the potential of the various management systems that not only include the structure, organisation and policies but also the way in which day to day business is carried out, integration of the same is said to streamline the way organisations operate. This by aligning processes and procedures into one holistic structure that enables disciplines, organisations and

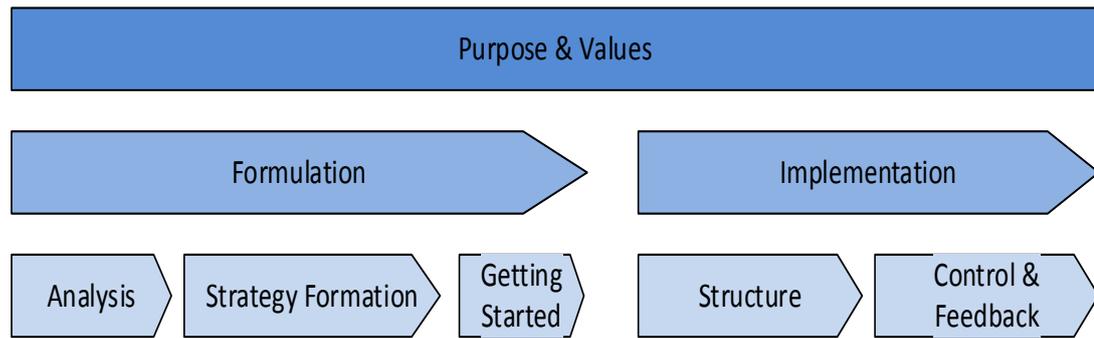
project arrangements run more effectively and so achieve the set objectives. Consequently with the various risk areas i.e. health and safety, quality and environmental management being viewed as necessary themes, but not directly related to either each other or to the core business activities, the benefits of viewing individual standards and procedures as an integral component of project arrangements has been recognised (Dalling and Holt, 2012). For as the various supply chains have both structure and dynamics, which are generally described in terms of systems and processes that determines a disciplines or organisations multifaceted performance, Dalling and Holt (2012) recognised that it was logical and pragmatic to manage the same “via a single set of integrated management arrangements”. Therefore as Dalling (1997) published a unified model of management to support integration whilst defining the context of an integrated management system and other principal elements of an organisation (Appendix 3) the objective was to identify a universal top level generic partnering model with subordinate models covering each of its elements.

3.3 General Definition of Strategic Management

As strategic management processes are therefore recognised as planned, David (2011) identifying them as the “...art and science of formulating, implementing and evaluating cross-functional decisions that enable an organisation to achieve its objectives”. Thus the strategic management process is deemed the final stage of strategic planning, which involves the formulation and implementation of major goals and initiatives, having firstly considered resources and both internal and external environments within which the organisation competes (Nag, *et al.*, 2007). So by providing overall direction to the enterprise, strategic management focuses effort, defines and clarifies organisations while providing consistency and guidance in response to the environment. As a result, without a clear and robust strategic plan, the implementation of any management process could lead to frustration and disenchantment with the overall management strategy.

The purpose of strategic management is to understand and achieve an organisations ability to better align its resources and activities with that planned intent. While this entails the continuous process of creating, implementing and evaluating decisions, the designed result would be business success. Yet in relation to construction partnering, which is without a robust system of strategic management (Barlow and Cohen, 1996; Green, 1999), individual partnering

processes are habitually undermined; which invariably engenders cynicism. So while conceding there are diverse definitions of strategic management (Ansoff, 1984; Bowman and Asch, 1987; Fellows *et al.*, 2002; Jeyarathnam, 2008), Johnson and Scholes (1999) have defined strategy as; "...the direction and scope of an organisation over the long term, while achieving advantage for the organisation through its configuration of resources within a changing environment, to meet the needs of markets and to fulfil stakeholder expectations". As a result, having acknowledged an organisations structure should facilitate strategy implementation i.e. the strategy 'generally' determines the structure and not the other way around (Johnson *et al.*, 2008), strategic management is a comprehensive collection of on-going activities and processes that organisations use to create competitive advantage. So while models are not static in nature, as they often include a feedback loop to monitor execution (Hill and Jones, 2012), numerous cross-sectoral models have been developed to assist in strategic decision making in the context of complex environments and competitive dynamics (Ghemawat, 2002). Though to sustain competitive advantage, while Porter (1996) argues this is not achievable through operational effectiveness alone, it is acknowledged various conceptual models and/or methodologies have been developed that have differing focuses, albeit a number of common themes. Still, with no absolute rules regarding the right model, most follow a similar pattern and have common attributes such as defined start and end dates and prescriptive sequential steps (Vakola, *et al.*, 2000) (Figure 3.4). Thus by concentrating on creating change rather than managing change as a continuous event and focusing on results, strategy implementation needs to be understood as an organisational change process (Tzortzopoulos, *et al.* 2006; Makin, *et al.*, 1996; Stickland; 1998). By integrating existing organisational systems and aligning the organisation around strategy, with individuals and groups being capable and motivated to change their behaviour and so allow its adoption (Burnes, 2000), the attributes of a good model are that it is simple to administer, is clear to understand and direct, while delivering practical benefits over the long-term through learning and feedback i.e. continuous lasting improvement.



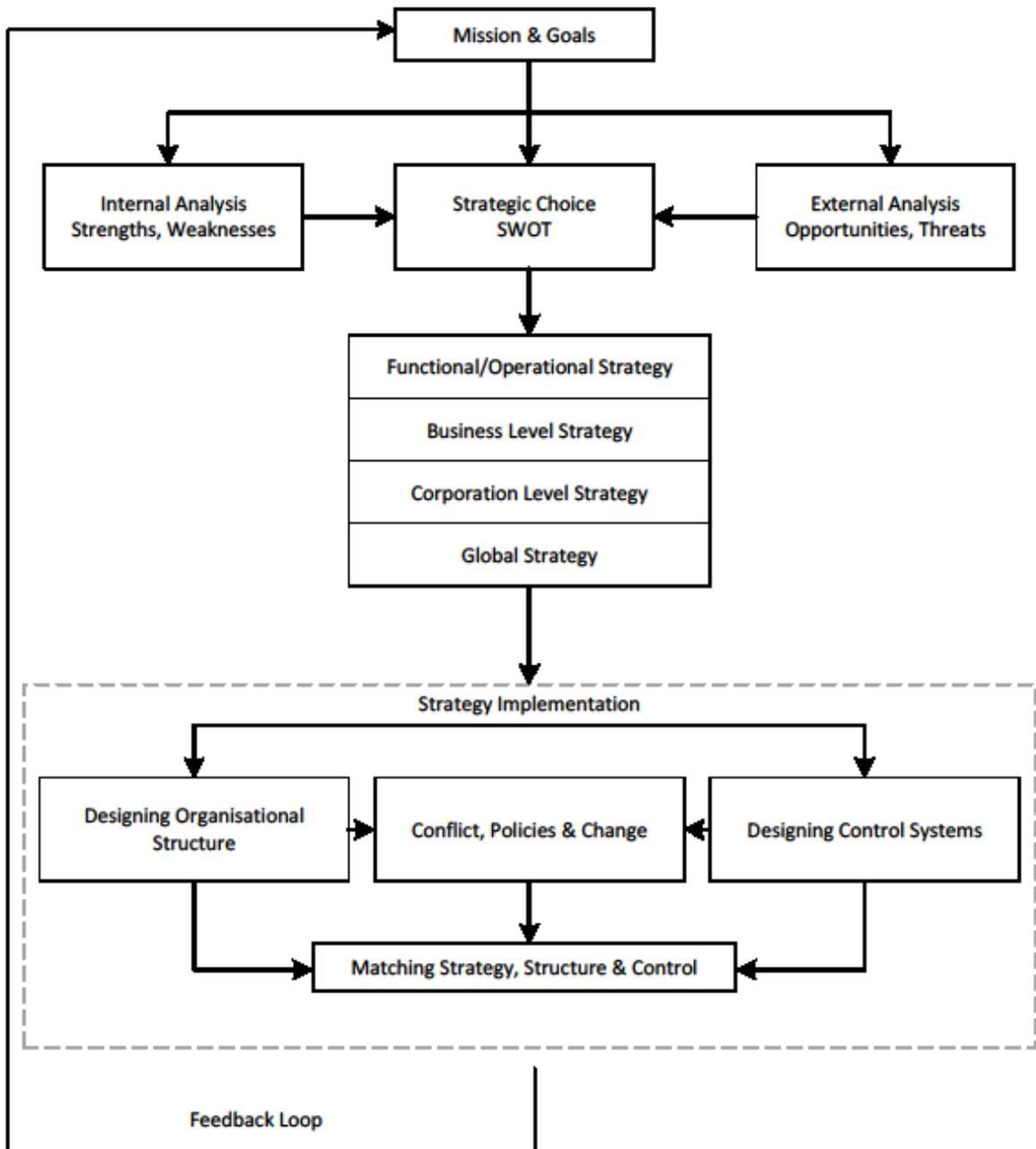
(Source; Vakola, *et al.*, 2000)

Figure 3.4; Strategic Management Framework Concept

3.4 Strategy Levels

Strategic management provides overall direction by comprising a series of steps and sequences to deal with the complexities and constraints of business management whilst targeting organisational growth. Consequently this systematic process, defined by the development and execution of plans and activities pertaining to the vital and pervasive matters of the organisation, achieves efficiency through a broad concept that encompasses all the business functions and integrates unique ideologies within the assorted functional areas of management. Moreover, with organisational control being a process that incorporates both company goals and the management strategies used in which to pursue them, efficiency is achieved through monitoring global, corporate, business and functional/operational processes in a strategic manner (Figure 3.5). In this regard, global strategy, as relevant, should address the questions; 'what must be (versus what is) the extent of market presence'; 'how to build that necessary presence' and 'what must be the optimal locations for the various value supply chains'. Corporate strategy involves answering the key questions; 'where is the organisation today'; 'where does it want to be'; and 'how is it to get there'. Business strategy involves answering the question 'how shall the organisation compete in this business' (Chaffee, 1985). Functional/operational management is concerned primarily with improving efficiency and controlling costs within the boundaries set by the organisations strategy. Consequently whilst focussing on the whole organisation as a single unit, management need to pay individual attention to each smaller activity performed by many smaller units within the organisation or project. Hence the classification of strategic management in respect of an organisations massed performance can be defined on a continuum of management levels ranging from global strategy on one end to functional/operational strategies at the other.

Therefore with strategy formulated and operated on four different levels a clear understanding by all supply chain members would help set realistic objectives, develop plans for achieving them and ensuring the project team (and more specifically each organisation) remained sustainable.



(source: Jeyarathnam, 2008)

Figure 3.5; Strategic Management Process

3.5 Strategic Management and Construction

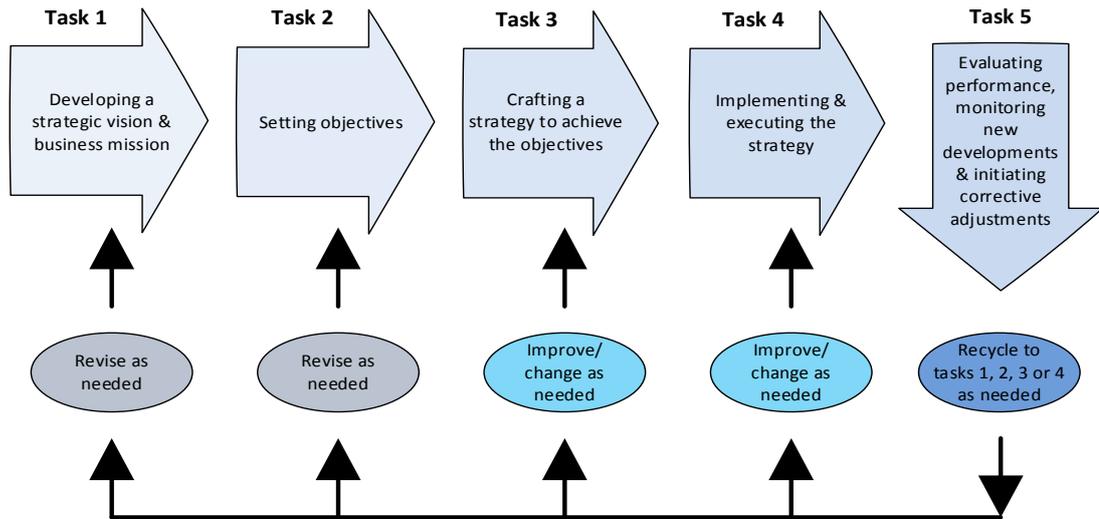
Critics dwell on the perceived problems of fragmentation and compartmentalisation (McGeorge and Zou, 2012). So while the conclusions of numerous government and institutional reports (DTI, 2002; Fairclough, 2002) endorsed the development and introduction of innovation and change in process management, the industry remains beset with problems that have not disappeared over the years; though the field of strategic management was said to have grown quickly following its formal inception in the 1970's (McGeorge and Zou, 2012). Consequently, as current management support services were said to underpin the success of construction projects, which invariably means the core business of the parent organisation (Griffith, *et al.*, 2014), Price and Newson (2003) concluded the success of most construction organisations depends on business strategies that are based on an optimal balance within identified paradoxes (Table 3.1).

As strategic management is not about predicting the future, rather preparing for the same and knowing what detailed steps a company must take to implement its strategic plan (Blatstein, 2012), the general purpose of strategic management is to combine the energy from an organisations functional areas into one focusing effort to achieve superior performance (Figure 3.6). So whilst the various benefits and limitations of strategic management are discussed below, the increased need to collaborate in many different project tasks in modern society, including construction where “all projects involve a large number of low value transactions...” (BIS, 2013), underscores the importance of management models that facilitate collaboration. Therefore accepting “a strategy is a unified, comprehensive, and integrated plan that relates the strategic advantages...” (Barnet, 2014) and partnering is “hardly passed from project to project or person to person” (Lee and Dale, 1998), the basic steps associated with strategic management are observed through the use of models. Yet while there is generally a large quantity of literature on generic strategic management, where different tools, methods, techniques and models are explained and discussed there are a limited number of publications on strategic management within the construction sector (McGeorge and Zou, 2012) and none on the implementation of partnering.

Paradox	Reasoning
Logical (rational) -v- Creative (generative) Strategies	<p>Construction organisations beginning to take a more structured and logical approach in their decision making of development of business (and project) strategies. Yet this approach often only brings about incremental change. Radical step changes may only be achieved by moving away from conventional thought and taking a more creative approach. If construction organisations are to develop successful strategies, they need to adopt the most appropriate combination of logic and creativity suited to the prevailing circumstances. It is essential that an organisations processes and culture are compatible with the desired combination of logic and creativity within the strategic process.</p>
Intended (deliberate) -v- Realised (emergent) Strategies	<p>Construction organisations must develop an effective strategic planning process that involves monitoring current and emerging situations with sufficient flexibility to permit regular updating of the organisations strategic direction. This should help construction organisations to develop effective business strategies based on a balanced approach to intended and realised business strategies.</p>
Revolutionary -v- Transformational Strategies	<p>If the construction industry is to reap the rewards to be obtained from radical step changes, there has to be greater emphasis on revolutionary strategies, which tend to be highly innovative and are thus inherently more risky than transitional strategies. This will require a blame-free culture and new ways of managing risk.</p>
Strategic Fit -v- Strategic Stretch	<p>Construction organisations need to develop the combination of environmentally-led fit and resource led stretch strategies that are going to provide the best results. The resource-led stretch approach will require construction organisations to identify their core competencies and downsize accordingly, while environmentally-led fit strategies could include selling one part of the business to create a more focused organisation.</p>
Strategy -v- Organisational Effectiveness	<p>Construction organisations have focused on delivering construction projects in a very turbulent and changing business environment. Traditional approaches to project delivery have been highly fragmented and confrontational. This has resulted in construction organisations concentrating on organisational (i.e. project) effectiveness at the expense of long-term business strategies. To be successful in the future, construction organisations need to supplement their current short-term approaches taken through improving organisational effectiveness with more long-term investment, long term relationships and rewarding those who innovate.</p>

(Source; McGeorge and Zou, 2012)

Table 3.1: A balanced Paradox



(Source:drawpack.com)

Figure 3.6; Five Tasks of Strategic Management

With the underlying process of construction also being broadly consistent, although relationships are complex and dynamic (Mill and Ion, 1994; Kagioglou, *et al.*, 1998) any strategic planning and management process around partnering would also need to consider the larger whole of management accountability for each organisation, discipline and project. So with clear delegation for specific aspects of any management strategy, the development and implementation of a ‘partnerised’ system would still need to be a standardised administrative modus operandi that addressed management concepts embedded in the processes of multi-discipline projects (Ulrich and Eppinger, 2000; Cooper, 2001; Griffith, *et al.*, 2014). Though by incorporating a consistent management system, that includes specified project phases and associated checkpoints (Wheelwright and Clark, 1992; Cooper 2001); which is then replicated throughout the complete supply chain, would help reduce cycle times, costs and increase the possibility of achieving better value for money (Gray and Hughes, 2001). Therefore my implementing a strategic management model, having identifying the specific concepts of partnering strategy and the elements necessary for developing the same, would provide a roadmap to support the project team realise collaborative working throughout the project supply chain. Yet, whilst claimed the long term survival of construction depended upon effective strategic management, based on sound strategic thinking and planning (Junnonen, 1998; Betts and Ofori, 1994), there is currently limited evidence to show relevant organisations have adapted any formal processes to develop long-term partnering strategies (McGeorge and Lou, 2012).

3.6 The Benefits and Barriers of an Integrated Management System

Strategic management involves formulating and implementing major goals and initiatives by a company's top management, which is based on resources and an assessment of internal and external environments within which the organisation competes (Figure 3.7) (Nag, *et al.*, 2007). Mulcaster (2009) argued while much research and creative thought had been devoted to generating alternative strategies, too little work had been done on what influenced the quality of strategic decision making and the effectiveness with which strategies were implemented. So within the context of the complex construction environment where competitive dynamics dominate, only ambiguous signs of improvement have resulted from the various solutions available (Austin, *et al.*, 2000). Yet as a large group of theorists felt the area where western business was most lacking was product quality (Deming, 1982; Juran, 1992; Crosby, 1979), Heskett (1986) and Kingman-Brundage (1993) felt poor customer service was the problem while Hammer and Champy (1993) noted resources needed restructuring. Conversely, Mckeown (2012) argued over-reliance on any particular approach to strategy was dangerous, for as the word 'strategy' could mean different things to different organisations; as there are uniquely different strategy types within the domain of a well-defined strategy (i.e. Product Quality, Customer Service Management, Process Management or Reengineering), each organisation would invariably end up developing its own strategy. For as strategic choice not only involves generating a series of alternatives in light of internal strengths and weaknesses and external opportunities and threats, this evolves at functional, business, corporate and global levels, by building on an organisation's strength to exploit opportunities and set right weaknesses and minimise threats. Thus the number of specific configurations that could be employed is virtually limitless; therefore no one single clear strategy yet prevails.

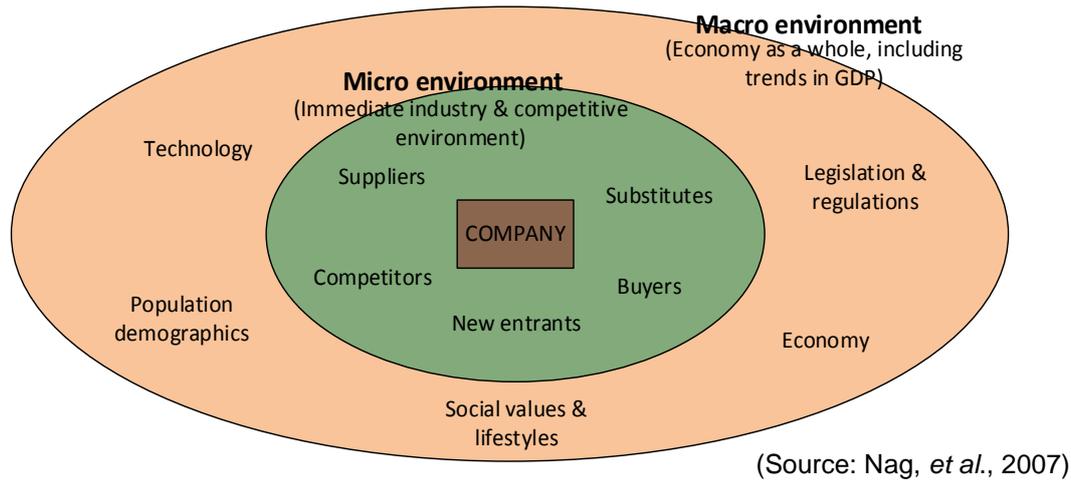


Figure 3.7; A Company’s Macro & Micro Environment

As a common thread relating to business success runs through the various existing approaches in respect of managing the assorted fragmented subsystems, organisations and arrangements, these were generally documented separately in a non-uniform style and under the control of separate managers. Consequently while generally complying with discrete parcels of standards and legislation, these multiple management systems were considered supplementary rather than part of a common management approach that was integral to strategic and business planning. Therefore as Dalling’s (1997) unified model transcended and embraced all disciplines, organisations and project arrangements in order to improve product quality and reliability, a common management system was said to provide benefits that were either strategic or operational in order to improve effectiveness and efficiency (Figure 3.8). Hence, the development of an integrated management system requires careful preparation due to the number of potential barriers whilst also identifying a number of common causes where integrated systems have failed.



Figure 3.8; Benefits and limitations of strategic management

There are several ways in which an organisation can develop and implement an integrated system i.e. totally new integrated system, extending an existing system that is currently used for a single discipline, organisation or arrangement or by merging two or more discipline, organisations or arrangements that already have individual management systems (Delling and Holt, 2012; Holdsworth, 2003). Further, as Delling and Holt (2012) identified a number of key steps that needed to be addressed in order for a management system to be totally integrated, the ultimate goal would be achieved when the management of partnering was

standardised and amalgamated within the UK construction industry. For with a totally inclusive focus on the needs and aspirations of all disciplines, organisations and project stakeholders the management approach is seen as part of the way the supply chain conducts the sum of each project in order to function optimally as a coherent whole, rather than separate disciplines or organisations. Hence the management of the whole is said to deliver more than the management of each separate discipline. So with stakeholders throughout each organisation understanding the needs, expectations, benefits and the part they play in such a system, the key to achieving a holistic application of opportunity is to understand how the functions can contribute to the overall project objectives. Yet this could only be realised if the individual organisation objectives, irrespective of their tier were fully aligned with the overall project objectives, which were then recognised at all levels from top management to the operatives on the ground. So as senior managers are to understand the value of well managed functions and demonstrate how their objectives add value to each discipline, organisation and project teams are to feed on the eight key drivers i.e. commitment, communication, cooperation/understanding, cost/productivity, customer satisfaction, relationships, time and trust. Hence whilst acknowledging a number of general models have been advanced in various industry sectors to capture numerous continuous and dynamic processes, where each element interacted with other elements simultaneously, Mintzberg (1994) wrote it was more about synthesis (i.e. “connecting the dots”) than analysis (i.e. “finding the dots”).

3.7 Management Systems, Tools and Techniques

Dalling and Holt (2012) noted many organisations merge fragmented management systems into one that is integrated, though Berry, *et al.*, (1995) stated it was inescapable that the application of a systems methodology for organisations was dependent upon the subjective judgement of the analysis. It was therefore argued a systems approach carried within it a conservative ideology (Lilienfeld, 1978) as the analysts worked within a framework of co-operative people who co-operated with the ends of the system. So as an organisationally controlled or project based approach would seek to locate control in that context, albeit in various different ways, this must take into account the subsystems, disciplines, organisations, arrangements and people connected to them, along with the environment within which the venture operates. Meaning whilst the various approaches give different emphasis to the various elements, the remainder of this chapter, whilst not providing

any prescription as to a 'best' way to operate systems of control, sketches an outline of the diverse approaches that have been adapted across industries to theorise control in organisations. So whilst various concepts such as Total Quality Management, Six Sigma, Kaizen and many others are based on the principle that the quality of a product and the consistency with which it is produced result in a process that strives for continuous improvement, a "common thread running through the approaches" is the fact all are considered aspects of a successful business (Dalling and Holt, 2012).

Referred to as "vertical integration", Delling and Holt (2012) stated this could only be achieved if there was clear communication and exchange using integrated structures, common methodologies and measures across and at all levels of the supply chain. Consequently, (generally larger) organisations often employ standard models for strategic planning, including Six Sigma, Balanced Scorecard, Kaizen, etc., which can also be used at functional level due to better implementation and return from the initiatives. For not only can the requirements be fully embedded in a management system designed to guide and control the business processes some of the tools which are associated with a particular system can be applied to the other disciplines in addition to the common factors incorporated in the various management systems.

With various universal management principles identified within Table 3.2 and detailed within Appendix 4, because they must be understood by the whole organisation and/or project team, Holdsworth (2003) notes many organisations intending to implement a formal management system do not fully realise the organisational implications to transition from a more casual management approach to a 'documented' (formal) approach. So whilst a more effective formal approach must be carefully planned and organised with clear goals and objectives set, Holdsworth (2003) establishes the "transition is difficult, if not impossible, without a team effort". So as Tzortzopoulos, *et al.* (2006) finds considerable endeavour applied to develop process models for product development in manufacturing and construction, the literature relating to process model implementation was said to "...lack integration and cohesion". Yet with strategic modelling considered the organisational motivation, model integration was said to "extend the scope of model management to include the dimension of manipulation as well" (Dolk and Kottemann, 1993).

	Redesign of existing organisation processes	Standardised framework/systematic approach	Requires major organisational shift (culture/attitude)	Implementation costs (H/M/L)	Complex system	Labour intensive (highly disciplined/skilled)	Improves communication/ cross functional team integration	Early involvement (reduces design changes/rework)	Performance measured	Comments
Six Sigma		✓	✓	H	✓	✓		✓	✓	Each project must align with the organisations strategy and enterprise goals. The project must be quantifiable. Highly disciplined structured programme aimed at delivering near perfect products & services i.e. 3.4 defects per million opportunities.
Balanced Scorecard		✓		L			✓		✓	About choosing measures and targets with financial and non-financial measures that drive strategy.
Kaizen		✓	✓	L			✓			Works in conjunction with standardised work i.e. part action plan part philosophy. A relentless process which is a way of thinking rather than a project to complete.
IDEF0		✓		H	✓	✓	✓			Family of modelling languages in field of systems. Only an aid for the analyst. Number of tools used to support IDEF0. Requires consistency between different levels of modelling - difficult to maintain;
BPR	✓	✓	✓	H	✓	✓	✓			Reduces organisational complexity by eliminating unnecessary activities.
CMMI		✓	✓	H		✓	✓	✓		Only helps if put into place early in the development process. Not processes or process descriptions so do not specify a particular way of achieving goals.
QFD					✓	✓	✓	✓	✓	Can be either too internally or externally focused. Analysis performed on a subjective (qualitative) basis
GDCPP		✓		L			✓		✓	Using manufacturing principles as a reference point, a framework of common definitions documents and procedures developed.

Table 3.2; Variance table showing characteristics of key strategic management systems

So as management systems were said to have established themselves as significant tools by which managers changed behaviour, this would not just be across individual organisations but right across their supply chain networks and ultimately within the economic and social fabric of which they form part. Therefore with the construction industry challenged to deliver predictability in respect of cost, time and quality, having understood customer requirements (Egan, 1998; DTI, 2002) and how tough and competitive the construction industry remains, the residual challenge is how mechanisms, contractual or otherwise, can be created and/or improved to provide a model for collaboration (NBS, 2013). Accordingly as planning for the future is indispensable for the development and maintenance of an organisation, with copious generic solutions available eight formal management systems from across the spectrum have been documented within Appendix 4.

3.8 Discussion

As identified by Goldenson and Gibson (2003) serious process improvement of any kind requires a considerable investment of time and money on the part of the organisations that decide to pursue it. It is also clear that good processes are not the only thing needed to succeed, albeit a necessary element for that success (Garcia and Turner, 2007). So whilst the primary components of business performance; which are in flux, must be synchronised if the particular organisation and/or project supply chain is/are to operate successfully. Yet with numerous process based improvement approaches available (Garcia and Turner, 2007; Mutafelija and Stromberg, 2009), there are two major strategies for improving performance, i.e. framework based and principle based. Framework based uses models and standards, as best practice arrangements, to identify what processes and systems should be implemented in a successful grouping. It identifies what to do but generally not how to do it, nor does it recognise performance levels for specific tasks (Paulk and Hyder, 2007). Yet collectively, these documents provide structure for capturing concepts, therefore practices and relationships are termed frameworks. So whilst they provide both models and standards, each framework typically includes training material, interpretation guidance and audit or appraisal approaches. Moreover, as frameworks often address similar topics, they present information in different ways, address different disciplines and use different language. Yet there is often some degree of overlap even when frameworks are primarily focused on different topics (Mutafelija and Stromberg, 2009). The second

is principle-based, where the processes and systems are measured and compared to business and improvement objectives to identify needed improvements.

As Mutafelija and Stromberg (2009) identify care must be taken not to address too many changes concurrently or in too short a time period, as every organisation has a different culture; some organisations can welcome change more easily than others, but none have unlimited capacities. So as changing one set of processes typically affects other concurrent and interacting processes, which means the ripple effect should be considered, process management research in providing “valuable insights on the benefits and possible outcomes from applying process in practice...implementation issues are inadequately described” (Tzortzopoulos, *et al.* (2005). Yet a specified model or framework, whether a precondition to conducting business or in the absence of contractual requirements, is because they represent a structured distillation of best practice, with international standards and de facto standards such as those noted above developed over many years using thousands of hours of expert analysis. So whilst implementation occurs through a set of steps or activities defined at management level and conducted at its operational level, the resources used to examine actual results, build models, define interfaces and develop examples are almost always far greater than any single organisation can bring to bear. Therefore as Tzortzopoulos, *et al.* (2005) identifies most of the literature on implementation describes “...generic guidelines and prescriptive models, generally approaching change as a one off activity” rather than an on-going event, with standards written to be broadly applicable, any organisation can, and indeed must, develop implementation guidance that matches the needs, priorities and constraints of its environment. Hence Tzortzopoulos, *et al.* (2005), albeit with specific regard to the construction industry, identified “the adoption and use of process models had been limited”, with perceived benefits ranging from ambiguous (at best) to none existent. This was reflected by NBS (2013), in respect of the Government Construction Strategy’s intention to require all central government projects to utilise 3D BIM (Building Information Management) by 2016 as a tool for collaboration, when its results concluded “it isn’t the norm for BIM to be referenced in contracts, with fewer than a quarter agreeing they reference BIM or adopted [it] in their contracts”. Further with the effective adoption and use of process models considered low (Tzortzopoulos, *et al.*, 2005) Hammer and Champy (2001) identified, in respect of Business Process Reengineering (BPR) that the implementation of new or redesigned processes failed in 50 to 70% of cases. With regard to

manufacturing and product development process modelling, Smith and Morrow (1999) inferred models failed on the principle of project applicability, though Lawson, *et al.* (2003) noted model failure occurred because of poor motivation, which meant process maps remained unused on the shelf regardless of the time, knowledge and/or effort invested in their development.

So while management systems led to projects that were “...not as successful as expected” (Tzortzopoulos, *et al.*, 2005), because the assumption was generally made that change or proposed innovation would be beneficial regardless of the type of organisation and/or project to which it is applied, without an arrangement of how an organisation worked, which functions it needed and how those functions interact, it would be difficult to lead efforts to improve. Therefore a management system gives an understanding of discrete elements in an organisation and helps formulate language and discussion of what needs to be improved and how such improvement might be achieved. Thus a management system offers the following benefits but must have clear direction and a strong change management ‘wrapper’ where senior leadership help to inspire change and then keep that inspiration alive. For with several gaps in the understanding of process model implementation, due to an excessive focus upon design; even though the core aim of modelling is ‘real life’ utilisation “...a better conceptualisation of implementation as a practically oriented phenomenon is clear” (Tzortzopoulos, *et al.*, 2005). Having therefore articulated what was wrong and what ‘better’ would look like, by improving delivery rigour and operational discipline (then finding and sharing around the good things that were already being done), the general returns for a successfully implemented process model, are;

- Provides a common model and language to help communicate;
- Leverages years of experience;
- Helps users keep the big picture in mind while focusing specifically on improvement;
- Often supported by trainers and consultants;
- Can provide a standard to help solve disagreements.

Finally, as organisations need to achieve integration between units to remain a whole, with the above management tools attempting to reduce defective products or poor service within a supply chain while improving customer satisfaction, Table 3.2

has summarised the key characteristics of each of these specialised tools derived from seminal literature. So whilst Demings (1982) philosophy of Lean Production encouraged organisations to reduce waste by empowering employees with the ability to positively affect process change, Reich (2008) suggested “transferring knowledge from one project to another could offer enormous benefits”. Though whilst survey findings found 62% had formal procedures for learning from projects only 12% adhered to them.

3.9 Conclusion

This chapter has identified a considerable amount of literature relating to the various process modelling implementation strategies. A variance table has also captured the findings from an analysis of key cross-industry management systems (objective 3 - Table 1.1).

The chapter also acknowledges strategic planning and control is concerned about longer-term organisational goals and objectives. Yet, having accepted divisionalisation allows larger organisations to be structured in a series of smaller units that organise their own activities to an agreed extent, (albeit still accountable to the parent organisation), it is acknowledged there are many different approaches to considering control. So whilst relationships are agreed as complex, although within construction the design and construction processes are considered generic and consistent; even though the industry lacks consensus as to what is an integrated process, different approaches are said to lead to the creation of diverse structures within organisations (i.e. unitary, multidivisional, matrix or organismic structures - Berry, *et al.*, 1995). So whilst the traditional roles and responsibilities characteristically change between projects and the success of most construction organisations rely upon a paradoxical balance (i.e. strategy v organisational effectiveness), a large number of existing management systems and/or tools are available to facilitate improving operational performance. However given current improvement strategies within construction are considered adhoc and slow due to issues around industry complexities and competitive dynamics, numerous different generic models and frameworks are said to underpin the success of construction projects. Hence facilitating strategy implementation through a comprehensive collection of ongoing activities and processes, albeit in the knowledge there are no absolute rules regarding the right model or framework. So as this chapter considered the differing focuses of a number of generic systems, it recognised

culture and strategy must align in order to create that needed change, with strategy implementation being understood as an organisational change process that requires both individuals and groups (both within and external to the respective organisation) to motivate and change their behaviour and so support the adopted strategy. Further, having considered the eight strategy management systems, and believing any adopted model or framework would need to be simple to administer and have continuous lasting improvement because of a large number of specific configurations in relation to an organisation's internal strengths, weaknesses, external opportunities and threats the number of specific configurations that can be employed are virtually limitless. Thus agreeing GDCPP was the only construction specific arrangement detailed, the chapter also concluded the overall goal would be the implementation of a systematised and standardised partnering paradigm, being a modelling part with its own properties and dynamic relationship with the other organisational components and external environment. Therefore streamlining the way the organisations and project operate in respect of partnering bolsters the notion of management control systems, and so promotes success in respect of the eight key drivers (Figure 2.1).

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter discusses the research design, methodology and data collection procedures to answer the research questions of the study. It outlines the adapted methodology in order to explore the relationships between the dependent and independent variables of this research. It also explains the reasons why these methods and procedures were selected having conceded no one research method is unsurpassed. The chapter also presents the characteristics, attributes and the activities of the selected areas in detail, but starts with a brief description of the philosophical position adopted, and the theoretical and methodological framework that guided this study.

4.2 Research Philosophical Positioning

Central to all research projects is the relationship between the questions posed and the methodology used. For as the literature review synthesised relevant work on construction partnering and informed the research through understanding and insight (Chapter 2), the methodology delineates how this particular research conundrum was systematically investigated. So having selected a would-be topic worthy of exploration, and acknowledging Creel's (2001) suggestion philosophy has numerous distinguishable facets, this social research has a specific purpose, from a particular position that aims to persuade readers of the significance of the claims (Clough and Nutbrown, 2012). Still, whilst remaining an interconnected whole in passionate pursuit of knowledge there is no official definition of philosophy, and because it is such a broad topic neither is there consensus among philosophers about exactly what the subject is (Harrison-Barbet, 1990; Hughes and Sharrock, 1997; LeBon, 2001). Indeed, philosophers disagree about the specific content, goals and methods of philosophical questioning (Finn, *et al.*, 2012). As an activity of thought it is therefore deemed unsafe to assume to know what philosophy is all about because it is what is done when the facts do not fit the solution. Hence Hughes and Sharrock (1997) noted philosophy had become more focused as a metaphysical endeavour by attempting to answer two basic questions in the broadest possible terms (i.e. what is ultimately there and what is it like). Meaning philosophical thinking, which is not related to questions that the senses or science could answer in a laboratory setting, requires a vast amount of consideration in

order to establish what we really may believe. For this reason, as practical inquiries into the nature of the universe have become the province of the natural sciences, philosophy is left with questions that are not experimental in character (i.e. those not tested with a suitable experiment). Thus facts are no longer enough and, with the principles of reasoning central, it is objectionable to identify a position as true unless there is good reason to think it so (Creel, 2001). Therefore philosophy is not a method, subject matter or data set, but an academic discipline concerned with making explicit the nature and significance of ordinary and scientific beliefs and investigating the intelligibility of concepts that are of particular interest (Wilkins, 2011). As a result, by being engaged in philosophy, or reasoning about reasoning (being 'meta'), the theory, the alternatives and ideals associated with the implementation of an integrated partnering standard have been documented as part of this research.

Philosophy is the rational investigation of resource and knowledge limitations, the nature and structure of reality and the principles and impact of moral judgement or value. Therefore the aim here is to differentiate reality from theory and belief, and so determine the truth from that which is false in respect of the construction partnering paradigm. So accepting research approaches and techniques often develop through the implementation and rationalisation of philosophical preconceptions, reasoning and argument have been utilised to answer the questions associated with this pre-scientific thought, rather than mere assertion, observation or experience. Therefore in an endeavour to create knowledge by understanding reality, the case has been made for raising and systematically answering the philosophical question around a standardised, multi-tiered partnering approach as opposed conventional supply chain relationships within the UK construction industry. Still, philosophical questions, which are not simply obtained by empirical tactics, but based around reason and logic, are often open-ended and require a non-factual response. Thus with philosophy not necessarily being about discovering all the answers to life's toughest questions, this open-ended innovative premise, which is forever discovering new areas of study and new methods of enquiry, actually renders it impossible to draw four sides around philosophy and say 'this is it'. Therefore, whilst the philosophical issue relates to a generic representation of partnering in order to provide better wholesale comprehension, engagement and control, it resists any attempt of being answered in a definitive manner. Thus philosophy, while willing to ask questions and follow them through to

conclusion by utilising the various branches (Finn, *et al.*, 2012) (Table 4.1), fields (Creel, 2001) or pillars (Miller, 1998), remains notoriously inconclusive; which makes it virtually impossible to give one universally acceptable definition of the same.

As research approaches and techniques are often developed as implementations and demonstrations of philosophical preconceptions, epistemological issues are commonly regarded as the first preliminary ones needing to be addressed (Hughes and Sharrack, 1997). So with epistemology being the study of methods adopted to acquire knowledge in order to determine truth from falsehood, this research answered the question of know how within the construction partnering concept. Therefore through the determination of a proper evaluation method, this research obtained and used knowledge from various organisations across the identified disciplines to distinguish substance from idealism. With reason as the method of gaining knowledge and acquiring understanding, and the belief the findings from this research were productive or correct, the theoretical perspective of this research was concerned with establishing how the researcher knew what was known and the methods employed to test the validity of that knowledge. Therefore as Crotty (1998) acknowledged textbooks expounded several epistemological positions, there was a need to identify, explain and justify the epistemological stance adopted here; as it bore mightily on the way this research was tackled. So as modern epistemology generally involved a debate between rationalism (*a priori*) and empiricism (*a posteriori*), this research has taken the position that knowledge can only be acquired after experience (i.e. empirical evidence or *a posteriori*). Meaning, when it came to the theory of knowledge, the truth claims associated with the construction partnering paradigm would be accompanied by clear and convincing evidence that had been studied and tested.

Branch	Area	Question	Brief Outline
Metaphysics	Study of existence & the nature of reality.	What's out there?	Responsible for the study of existence, "first principles" and "being" (ontology). As the study of the most general aspects of reality, such as substance, identity, the nature of the mind and free will, it is the foundation of a worldview and answers the question "What is?" It encompasses everything that exists, as well as the nature of existence itself. It says whether the world is real, or merely an illusion. A fundamental view of the world around us.
Epistemology	Study of knowledge & how & what we know.	How do I know about it?	Dealing with the nature, origin and scope of knowledge and love, it studies our method of acquiring knowledge. It answers the question, "How do we know?" It encompasses the nature of concepts, the constructing of concepts, the validity of the senses, logical reasoning, as well as thoughts, ideas, memories, emotions and all things mental. It is concerned with how our minds are related to reality, and whether these relationships are valid or invalid.
Ethics	Study of how people should act & what is good and valuable.	What should I do?	Deals with what is the proper course of action for man. It answers the question, "What do I do?" The study of right and wrong in human endeavours. At a more fundamental level, it is the method by which we categorise our values and pursue them. The study of moral values and rules.
Politics	Study of how people should act & what is good & valuable.	What actions are permissible?	Politics is ethics applied to a group of people.
Aesthetics	Study of basic philosophical questions about art & beauty.	What can life be like?	Includes what art consists of, as well as the purpose behind it. Does art consist of music, literature, and painting? Or does it include a good engineering solution, or a beautiful sunset? These are the questions that aimed at in esthetics. It also studies methods of evaluating art, and allows judgments of the art. Is art in the eye of the beholder? Does anything that appeals to you fit under the umbrella of art? Or does it have a specific nature? Does it accomplish a goal?
Logic	Study of good/correct reasoning by valid inference & demonstration.		Originally meaning the word or what is spoken, but coming to mean thought or reason. Whilst most often said to be the study of arguments.

(Source: Fin, *et al.*, 2012)

Table 4.1: Main Branches of Philosophy

Accordingly, as this research studied whether organisational relationships could primarily be achieved through formal tools and techniques, rather than evolution within a social/cultural aspect, a pragmatic post-positivist approach was employed. For while epistemology relates to the rules for discovering what exists, pragmatism, as a form of empiricism, is one of the various types of reasoning chains

epistemologists studying justification argued for (Table 4.2). Thus simply identified as the combination of deductive (quantitative) and inductive (qualitative) orientations, which Cupchik (2001) concluded was possible, meant a greater prominence towards the strengths of data-collection and data-analysis techniques was recognised (Bryman, 2008). So having acknowledged the emergence of numerous epistemology branches over the more recent decades; included Creswell's (2003) offering of four 'schools of thought' (i.e. postpositivism, constructivism, advocacy/ participatory and pragmatism), a reconciliation of quantitative (positivist) and qualitative (constructivist) could only be accomplished by eliminating the arbitrary boundaries and assumptions that separated them. Therefore, having acknowledged quantitative and qualitative research is associated with distinctive epistemological (and ontological) assumptions (Table 4.3), Easterby-Smith, *et al.*, (2002) recognised many researchers adopted a pragmatic view, as the links were not viewed as fixed or inescapable. Moreover, accepting the researcher has theories, background, knowledge and values that could influence what is observed, this research accepts knowledge is based on conjecture, albeit warranted. So whilst reality exists, albeit deemed imperfect and probabilistic (Lincoln and Guba, 2000), this work took a post-positivism stance and so critiqued and amended positivism. For as theory and practice cannot be kept separate, by being meta-theoretical, this research not only set problems, answered questions and indicated causes but also led to further empirical work.

While Bernstein (1986) illustrated labels in philosophy could "poison and kill" or "remedy and cure", they have nevertheless been used to help identify a style, a temperament, a set of common concerns and emphases. As a study for truth and justification this research, which has a vision that has determinate shape within the contemporary social science practice, aimed to understand and enlighten rather than proffer shorthand solutions. The search for truth was therefore more akin to perpetual striving for additional insight than for the final word on matters coupled to supply chain collaboration. Thus being absolutely committed to the truth, this work has dealt with the philosophical questions previously identified (Table 1.1) that may not engender complete answers or essentially remain unanswerable. Accordingly, having a post-positivist stance where truth has been constructed through dialogue, valid knowledge claims have emerged through deductive logic or warrants that support theory generation, albeit recognising all theory is revisable. For if the questions were capable of definite answers, or capable of being turned into

scientific truths, they would be placed in the sciences as fact. Thus Gettier (1963) declared knowledge was a justified true belief (Figure 4.1), and so the method for discovering the truth around engineered partnering was rational argument as opposed scientific experiment or mystical intuition. Meaning, with accomplished supply chain collaboration as the philosophical approach that provided a basic viewpoint and guided action, the primary epistemological concern associated with this research has been practical knowledge (also known as ‘knowledge how’ where $2 + 2 = 4$). For epistemology is concerned with the nature and scope of knowledge such as the relationships between truth, belief and theories of justification, which are distinguished from ‘knowledge that’ and ‘acquaintance knowledge’ (Bengson and Moffett, 2011). So as Table 4.4 briefly outlines each knowledge type, epistemology illuminated the fundamental questions about partnering within the UK construction industry. Though it is accepted this practical approach does not provide a complete picture – if indeed there could be such a thing (Warburton, 1995); rather a foundation for what is considered true knowledge. Thus, as objectivity remains the ideal, it can only be approximated, as the adopted research method (i.e. post-positivist), in its endeavour to practise social construction, conducts “research among other people, learning with them, rather than conducting research on them” (Wolcott, 1990).

Chain Type;	Brief Outline
Foundationalism	Rationalists are usually foundationalists, who affirm there are first principles of knowledge, without which no knowledge is possible. For a rationalist, reason arbitrates truth, and truth is objective. Hence the response to the regress problem is to assert that certain basic beliefs or foundations, whilst supporting other beliefs, do not themselves require justification. These beliefs might be justified because they are self-evident, infallible, or derive from reliable cognitive mechanisms.
Infinitism	Typically take the infinite series to be merely potential, and an individual need only have the ability to bring forth the relevant reasons when the need arises. Therefore, unlike most traditional theories of justification, infinitism considers an infinite regress to be a valid justification.
Coherentism	Holds that an individual belief is justified circularly by the way it fits together (coheres) with the rest of the belief system which it is a part, so that the regress does not proceed accordingly to a pattern of linear justification.
Instrumentalism	The methodological view that concepts and theories are merely useful instruments, and their worth is measured by how effective they are in explaining and predicting phenomena. Instrumentalism therefore denies that theories are truth-evaluable.
Pragmatism	Similar in concept to instrumentalism, so holds that something is true only insofar as it works and has practical consequences.
Foundherentism	A position which is meant to be a unification of foundationalism and coherentism.

(Source: Bryman, 2008)

Table 4.2: Epistemological Reasoning Chains

Characteristic	Quantitative	Qualitative
Principal orientation to the role of theory in relation to research;	Deductive; testing of theory.	Inductive; generation of theory.
Epistemological orientation;	Natural science mode, in particular positivism.	Interpretivism.
Ontological orientation (main philosophical assumptions);	Objectivism (Positivist).	Constructionism (Constructivist).
Definition;	The numerical representation & manipulation of observations for the purpose of describing & explaining the phenomena that those observations reflect.	The non-numerical examination & interpretation of observations, for the purpose of discovering underlying meanings & patterns of relationships.
Nature of research;	'Count the beans'.	Provides information as the "which beans are worth counting".
Type of Reasoning;	Deductive (a theory testing process); objective; Causation.	Inductive (a theory building process); Subjective; Meaning.
Strategies of Enquiry;	Surveys; Experiments.	Phenomenology; Grounded Theory; Ethnography; Case Study; Narrative.
Methods used for data collection;	Close-ended questions; Predetermined approaches; Numeric data.	Open-ended questions; Emerging approaches; Text or image data.
Sample size;	Should be more than 30 (at least).	Not a concern; seeks information rich samples.
Nature of problem;	Explanatory research; Body of literature exists; Know variables; Existing theories.	Exploratory research; Context important; Variables unknown; May lack theory base for study.
Advantages;	Aggregate data from large samples; Compared to qualitative methods, can be easily generalised; Objective; Impersonal; Uses variables which can be measured; Economical.	Can generate new theories; In-depth examination of phenomena; Not limited to rigidity definable variables; Examine complex questions that can be impossible with quantitative methods; Deals with value-laden questions; Explore new areas of research; Helps people see the world view of studies; Attempts to avoid pre-judgement.
Disadvantages;	Limited to rigid definable variables; Less helpful in generating theories; Attempts to make pre-judgements, at times (hypothesis testing); Impose researcher's own categories to build questions; Mostly deal with closed-ended questions.	Less easily generalised; Difficult to aggregate data and make systematic comparisons; Subjectivity leads to procedural problems; Researcher bias is built in and unavoidable; In-dept, comprehensive approach to data gathering limits scope.

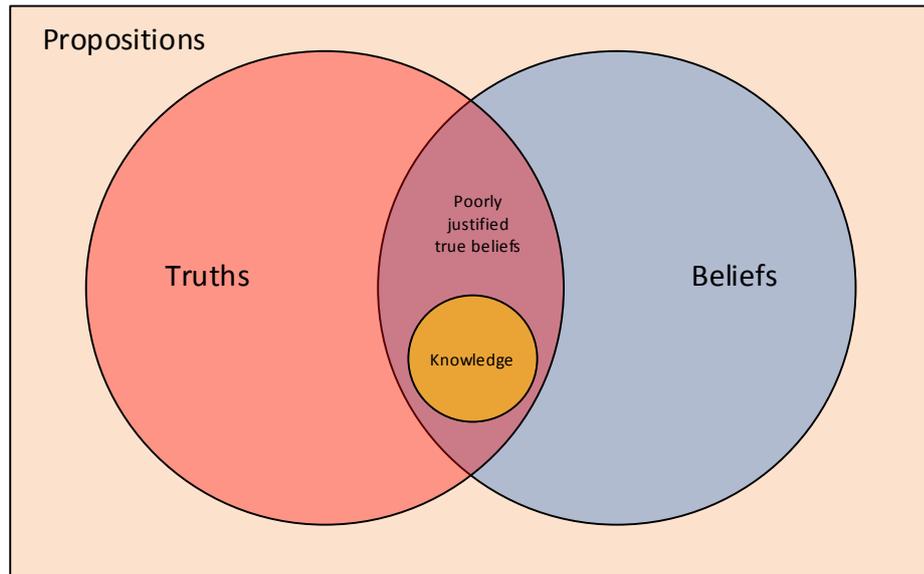
(Source: Creswell, 1994; Casebeer & Verhoef, 1997; Kato, 2002 & Bryman, 2008)

Table 4.3: Reviewing Quantitative and Qualitative Research Strategies.

Knowledge Type;	Brief Outline
'That'	Propositional knowledge is descriptive, declarative or propositional knowledge.
'How'	Practical knowledge or 'know-how' is often tacit knowledge. Concerned with the knowledge of how to go about adding two numbers
'Acquaintance'	Obtained through a direct casual (experience-based) interaction between a person and the object that person perceives i.e. being directly aware of a thing, without any inference

(Source: Bengson and Moffett, 2011)

Table 4.4: Knowledge Types



(Source: Gettier, 1963)

Figure 4.1: Definition of Knowledge

4.3 The Methodological Approach

With reference to epistemology, whilst there are fundamentally two contrasting research strategies associated with how social science research should be conducted (i.e. constructivism/qualitative or positivism/quantitative), it has often been observed that no single resource methodology is intrinsically better than another (Benbasat, *et al.*, 1987). Yet, whilst Partington (2002) stated a good deal of management research was conducted in the positivist tradition, many authors called for a combination of research methods in order to improve the quality of research (Kaplan and Duchon, 1988; Tashakkori and Teddlie, 2010). Thus whilst there had been a trend towards the positivist tradition since the late 1970's (Dickson and DeSanctis, 1990), it would have been arduous to identify any philosopher who ascribed to all aspects of one particular view (Easterby-Smith, 2002). For the key issue differentiating the two is the nature of the data, as qualitative research is open and interactive because observation precedes theory, while quantitative research is structured and theory precedes observation. Accordingly, quantitative data is considered hard, objective and standardised whilst qualitative data is soft, rich and deep (Corbetta, 2003). Thus both types of research have different purposes, with quantitative research being statistics-based and involving questions that can best be answered in numbers. Qualitative research is description-based and involves observing events or interviewing people before analysing the findings through qualitative methods. Both research strategies involve looking for trends, although only quantitative researchers conduct experiments or carrying out surveys prior to

analysing the data with statistical models. Therefore as qualitative and quantitative research can be used in positivist or constructivist studies, the quantitative methods tend to be favoured by positivists whilst qualitative methods support constructivism.

Within the social sciences there has been considerable debate regarding the relative merits of the two paradigms in respect of theory development. The positions taken by individual researchers vary considerably, from those who see the two strategies as entirely separate and based on alternative views of the world, to those who are happy to mix the two strategies within their research projects. For example, Bryman (1998) argued for a “best of both worlds” approach and suggested that qualitative and quantitative approaches should be combined as did Best and Khan (1989) who stated both types of research were suitable, effective and not mutually exclusive. Therefore while possible for a single investigation to use both methods, Hughes (1997) warned such technicist solutions underestimated the politics of legitimacy that were associated with method choice. In particular quantitative approaches were seen as more scientific and objective. So as Seymour, *et al.*, (1997) suggested methodological purity was required, as the social world had within it social actors that required interpretive approaches, the polemicists in the long running debate nevertheless claimed superiority for their particular paradigm. Thus a more central perception was suggested by Creswell and Clark (2011) who noted “...the complexity of our research problems call for answers beyond simple numbers in a quantitative sense or words in a qualitative sense”. Yet Raftery, *et al.*, (1997) urged researchers not to engage in “turf wars” regarding methodologies, as a pragmatic approach should be taken given the shortcomings of the two paradigms. This approach had therefore received support from many researchers within various fields of enquiry who suggested it was difficult to argue in favour of one single approach based purely on epistemological grounds (Bergman, 2008; Cassel and Symon, 1994; Dixon, *et al.*, 1987). For it was claimed a mixed method paradigm could bridge epistemological, ontological and axiological differences between qualitative and quantitative methods thus providing a commanding road to true knowledge as derived from empirical research (Bergman, 2008).

4.4 A Mixed Method Approach

The mixed method approach, or “third methodological movement” (Tashakkori and Teddlie, 2010), will combine a qualitative and quantitative component in order to

bring together two sets of data that tells the story. Hence, a comprehensible post positivist approach to inquisition, where participatory methods have been used to best answer the research question in relation to supply chain collaboration within the UK construction industry. For unlike mono method studies i.e. quantitative or qualitative approaches, the mixed method approach provides “multiple ways of seeing and hearing” (Green, 2007). Therefore having been successfully used in a number of recent studies, it was considered an acceptable research instrument here. So as the basic premise of combining the two approaches provided a better understanding of the construction partnering quandary, it was also accepted there had been a tremendous increase in the popularity of mixed method research over recent years (Matthews and Ross, 2010).

A mixed method approach, being more than the inclusion of a few unconnected expert interviews within a quantitative survey design, is therefore justified by explaining the strengths of each paradigm and clarifying what was actually involved in mixing, integrating, combining, meshing, etc. those combined strengths into a single research design. So while Bergman (2008) identified mono could sometimes be best, Table 4.5 illustrates the value this mixed method approach adds that qualitative or quantitative approaches do not individually provide. Meaning the combination of qualitative and quantitative methodologies has been utilised while studying the construction partnering phenomena, in order to achieve triangulation and so improve the study design (Denzin, 1978; Kelle, 2001). For what was identified as important, was not the combination of different kinds of data *per se*, but rather the attempt to relate different sorts of data in such a way as to counteract various possible threats to analysis validity (Fielding and Fielding, 1986). Accordingly, the main advantage was combining independent yet complementary research methods that ultimately resulted in a stronger research design and more valid and reliable findings (Jacobsen, 1999). Rather than the quantitative and qualitative methodologies being viewed as different ways of examining the same research problem (Gray and Densten, 1998).

Quantitative, Mixed and Qualitative Methods.		
Quantitative Methods	Mixed Methods	Qualitative Methods
<ul style="list-style-type: none"> • Pre-determined; • Instrument based questions; • Performance data, attitude data, observational data & census data; • Statistical analysis; • Statistical interpretation. 	<ul style="list-style-type: none"> • Both pre-determined & emerging methods; • Both open & closed ended questions; • Multiple forms of data drawing on all possibilities; • Statistical and text analysis; • Across databases interpretation. 	<ul style="list-style-type: none"> • Emerging methods; • Open ended questions; • Interview data, observational data & audio-visual data; • Text & image analysis; • Themes, patterns interpretation.

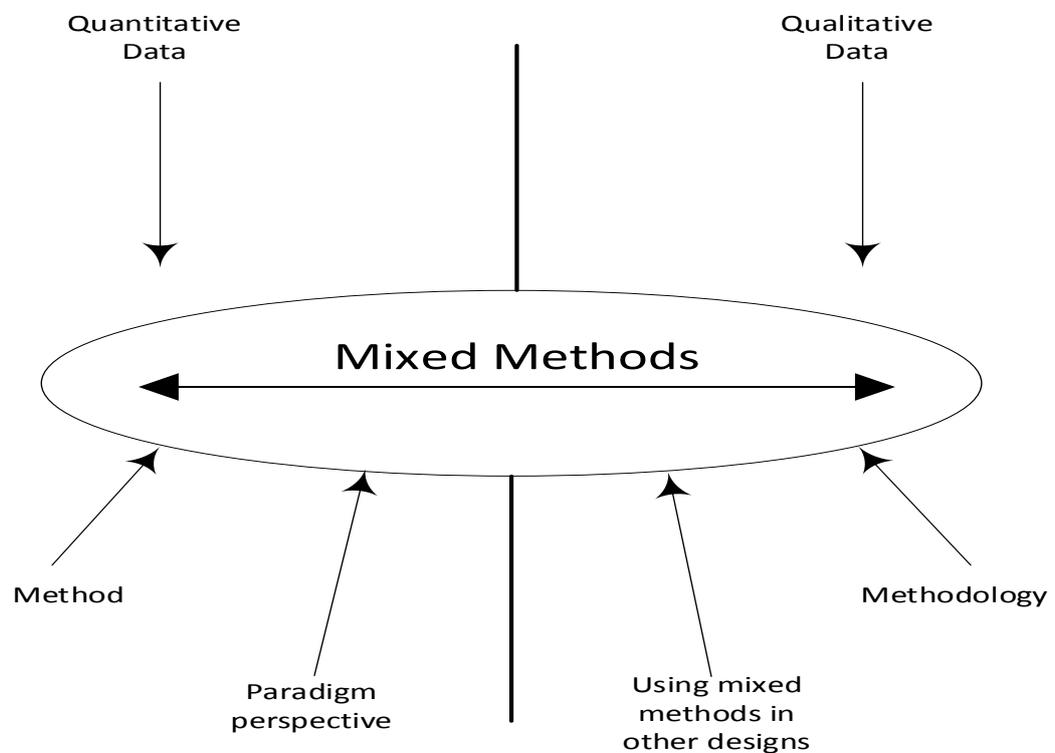
(Source: Creswell, 2009)

Table 4.5: Data Collection Possibilities

The idea behind combined methodologies was to select that deemed most appropriate rather than choosing whatever seemed adequate. So with its roots in pragmatism, it was assumed that most comprehensive research had a combination of quantitative and qualitative methods within each particular study. For based mainly on the context of the research questions, the mixed method approach strengthened the research claims in respect of validating the conclusions drawn. Therefore without subscribing to any single philosophy and utilising assumptions from both quantitative and qualitative paradigms, because a post positivist approach advocates methodological pluralism (Wildemuth, 1993), this research also embraced the concept of multiple realities. Thus by recognising there are differences between the two methods, combining the methods realises breadth and depth (Fielding and Fielding, 1986). Though by building theory and conducting research in a way that enhances objectivity that leads to an accurate explanation, it was also accepted the differences between the two methods could involve trade-offs. For as Patton (2002) explained qualitative methods permitted inquiry into selected issues in great depth, with careful attention to detail, context and nuance, this data collection method was constrained by predetermined analytical categories. This contributed to the breadth of the qualitative inquiry. In contrast, the quantitative method asked standardised questions that limited responses to predetermined categories (i.e. less breadth and depth). Moreover, while the definition of a quantitative method broadly related to an approach that expanded the extent of the research study, by using a comparatively larger sample, Fielding and Schreier (2001) suggested adding more did not necessarily add accuracy.

The mixed method approach has experienced a tremendous increase in popularity over recent years, while the focus and orientation of the definition has materialised

(Bergman, 2008, Bryman, 2008, Leech and Onwuegbuzie, 2009). So as the post positivist stance meant theories would provide general explanations that went beyond the observations of individual events, the aim for this mixed method research was to move beyond quantitative versus qualitative methodologies. As it was recognised both were important and useful, the goal was not to replace either approach but draw from the strengths and minimise the weaknesses of each in this single research design (Figure 4.2). For by mixing the datasets, a better understanding of construction partnering would be provided than if either had been used alone (Creswell and Plano Clark, 2007; Tashakkori and Teddlie, 2010). Or as identified by Johnson and Omwuegbuzie (2004) “a key feature of mixed methods research is its methodological pluralism or eclecticism, which frequently results in superior research”. Still, in recognising research designs are procedures for collecting, analysing, interpreting and reporting data in research studies, which represent different models for doing research, it is acknowledged there are a large number of mixed method design types (Tashakkori and Teddlie, 2010; Creswell, 2003). Yet a scant but functional classification of four major types of mixed method design have been identified (i.e. triangulation, embedded, explanatory and exploratory designs) - albeit with variants (Creswell and Plano Clark, 2007).

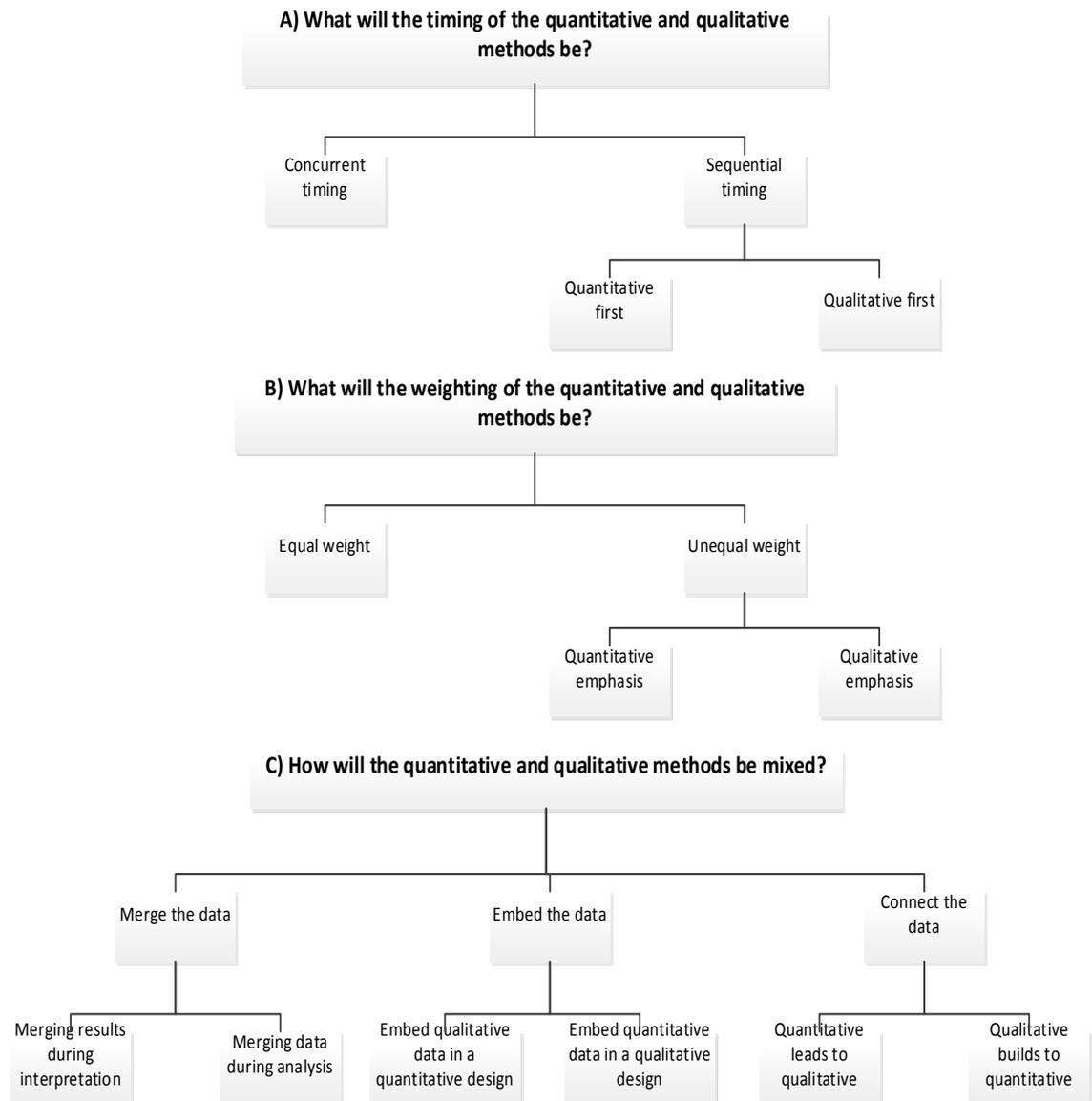


(Source: Tashakkori and Teddlie, 2010)

Figure 4.2: The Essence of Mixed Methods Research

Recognising researchers on occasion want to use more than one of the four designs in a particular study (i.e. triangulation, embedded, explanatory and exploratory designs), or blend different aspects of the design together, a single design has been selected here that best matches the research problem (Creswell and Plano Clark, 2007). So in selecting an appropriate research design to make the study more manageable and simpler to implement and describe, consideration was firstly given to the diverse ways of combining qualitative and quantitative methods. For by providing a framework and logic that guided the implementation of the research methods, albeit relating to the criteria of time, weighting and mixing (Figure 4.3), an understanding of the characteristics of the four major mixed method design types helped provide the rationale for the option selected. So whilst the strategy of assigning priority to one method and the tactic of sequencing two methods have been included in numerous statements about combining qualitative and quantitative styles (Srnska and Koeszegi, 2007; Creswell, 1994; Greene, *et al.*, 1989; Miles and Huberman, 1994; Morse 1991; Sieber, 1973) the essence of the approach selected integrated the complementary strengths of a qualitative and a quantitative method, albeit for different and well-coordinated purposes.

Accepting it is not enough to collect and analyse quantitative and qualitative data, as they need to be 'mixed' in order to form a more complete picture of the partnering problem, Figure 4.4 identifies the three ways of doing this. Yet as this mixed method study involved collecting and analysing qualitative and quantitative data within a single study, the first research-design decision in this approach concerned the sequence, order (Morgan, 1998) or timing (Creswell and Plano Clark, 2007) in which the qualitative and quantitative approaches were used. So whilst timing (sequencing or ordering) refers to the temporal relationship between the quantitative and qualitative components within the study (Greene, *et al.*, 1989) it also described the order in which the data was used within this work. Hence whilst Morgan (1998) identified the sequence decision as the "...second design decision...", timing related more to when the data was analysed and interpreted than when the data was collected, although these times are often interrelated. Therefore as qualitative and quantitative operate according to very different timelines, and using both methods simultaneously would be difficult, the most practical strategy was to use the two methods in sequence. Meaning "...what is learned from one adds to what is learned from the other" (Morgan, 1998) (i.e. connect the data).



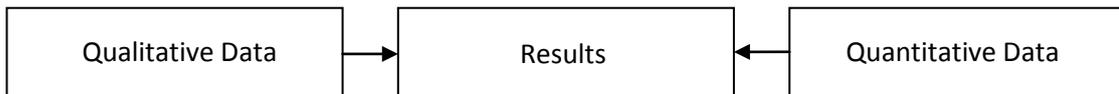
(Source: Creswell and Plano Clark, 2007)

Figure 4.3: Decision Tree for Mixed Methods Design Criteria for Timing, Weighting and Mixing

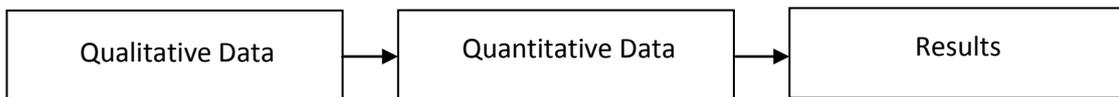
The second question (question b), as identified by Figure 4.3, but was considered the main concern by Morgan (1998), related to the relative importance, priority or weighting of the qualitative and quantitative methods as the principal tool for gathering the projects data. For with the obvious but impractical option being the two methods had equal priority, a more viable strategy was to designate one of the methods as the principal means of data collection. Thus, as this division of labour could either use a qualitative or quantitative technique as principal, the primary data collection method was selected on the strengths considered most important to this

project's goals. The second step was therefore the selection of a contrasting complementary method that offered a set of strengths that could add to the research design's overall ability to meet the projects goals. Thus projects that were principally qualitative could be strengthened through a well-selected set of complementary quantitative methods (Creswell and Plano Clark, 2007), while a quantitative project could be supplemented by the strengths of the qualitative method, as in this particular research project (Figure 4.5).

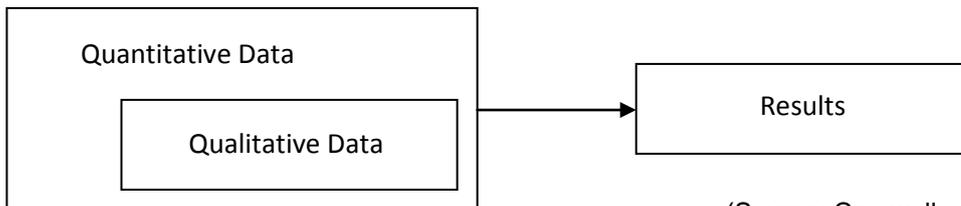
i) **Merge the data** - by bringing them together;



ii) **Connect the data** - one builds on the other;



ii) **Embed the data** - one type of data provides a supporting role for the other dataset;



(Source: Creswell and Plano Clark, 2007)

Figure 4.4: Three Ways of Mixing Quantitative and Qualitative Data.

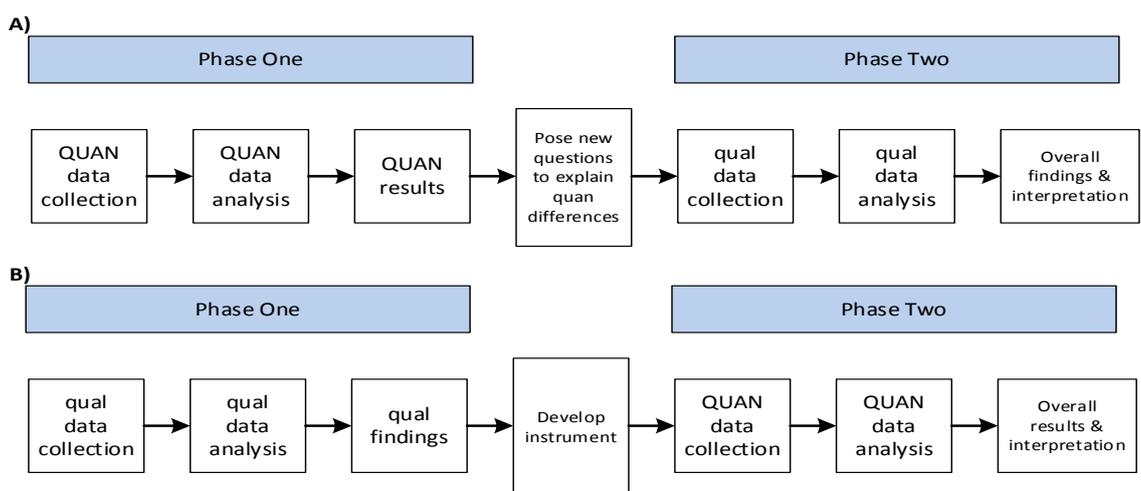


Figure 4.5: Measuring exploratory qualitative results with quantitative data.

4.5 The Basic Design

Morgan (1998) believed the priority and sequencing decisions led to four fundamental relationship designs because of a dependence on what the principal method was and whether the complementary procedure was introductory or a follow-up phase. Therefore taken collectively Figure 4.6 identifies the two-by-two priority-sequence model where the principal method appears in capital letters, and the ordering of the two methods, joined by an arrow, shows the sequence in which they are used. Thus with each cell named for the use of the complementary method associated with that cell, this research project has the first cell containing a qualitative preliminary study that contributed to a study that was principally quantitative (Morgan, 1998); which was also identified as the “...most frequently used design...” (Morgan, 1998). For a smaller, preliminary qualitative study provided complementary assistance in developing a larger quantitative study. Therefore this study being principally quantitative research, exploited qualitative methods to improve the effectiveness of the same by undertaking exploratory (qualitative) work to help ensure the quantitative survey not only covered the important topics but also asked about them in an appropriate fashion.

		Priority Decision	
		Principal Method; Quantitative	Principal Method; Qualitative
Sequence Decision	Complementary method; Preliminary	Design 1; qual → QUANT e.g. to generate hypothesis, develop questionnaire.	Design 2; quant → QUAL e.g. to generate purposive sampling, identify areas to pursue in depth.
	Complementary method; Follow up	Design 3; QUANT → qual e.g. help to interpret poorly understood results, help explain divergent findings.	Design 4; QUAL → quant e.g. to generalise results to other settings, test elements of emergent theories.

(Source: Morgan, 1998)

Figure 4.6; Mixed Methods – Priority Sequence Model

The third procedural consideration, having identified a sequential study that was principally quantitative was how the quantitative and qualitative methods would be mixed. For whilst researchers could choose any combination of timing, weighting

and mixing (Myers and Oetzel, 2003; Rogers, *et al.*, 2003; Jenkins, 2001; Aldridge, *et al.*, 1999) Creswell and Plano Clark (2007) believed these criteria were best used in certain combinations. So as Table 4.6 summarises the four major designs and their corresponding timing, weighting and mixing decisions, the choice of design for this study was considered exploratory. For one phase followed another, and the first phase was qualitative and connected to the second by the development of an instrument based on the results of the first. Hence as Figure 4.5 illustrated, the study began with a qualitative exploration of the dimensions of organisational assimilation through one-to-one semi structured interviews with twenty participants that generated two types of qualitative data: interviewer field notes and transcripts of the interviews. Having then created the measuring instrument from the preliminary reported interpretations (qualitative phase), because suitable measures and instruments were not available (Creswell, *et al.*, 2004) the study moved into the second, quantitative phase. This allowed the testing of the specific emergent theory (Morgan 1998; Creswell and Clark, 2007) and so generalised results in relation to the previously identified eight key drivers (Morse, 1991; Creswell and Clark, 2007). So whilst recognising the inconsistency between Creswell and Plano Clark (2007) and Morgan (1998) in relation to the importance of the qualitative first phase, whilst believed supplemental here it nevertheless enabled the measuring instrument to be administered to forty individual companies across four disciplines via two purposively selected case studies, as noted within Appendix 3 – case study structure.

Design Type	Variants	Timing	Weighting	Mixing	Notation
Triangulation	Convergence; Data transformation; Validating data; Multilevel.	Concurrent; quantitative & qualitative at same time.	Usually equal.	Merge the data during the interpretation or analysis.	QUAN + QUAL
Embedded	Embedded experimental; Embedded correlational	Concurrent or sequential	Unequal	Embed one type of data within a larger design using the other type of data.	QUAN (qual) or QUAL (quan).
Explanatory	Follow up explanations Participant selection.	Sequential: Quantitative followed by qualitative.	Usually quantitative	Connect the data between the two phases.	QUAN → qual
Exploratory	Instrument development; Taxonomy development.	Sequential: Qualitative followed by quantitative	Usually qualitative	Connect the data between the two phases	QUAL → quan

(Source: Creswell and Plano Clark, 2007)

Table 4.6; Major Mixed Methods Design Types

4.6 Phase One – the qualitative method

4.6.1 The Interview Approach

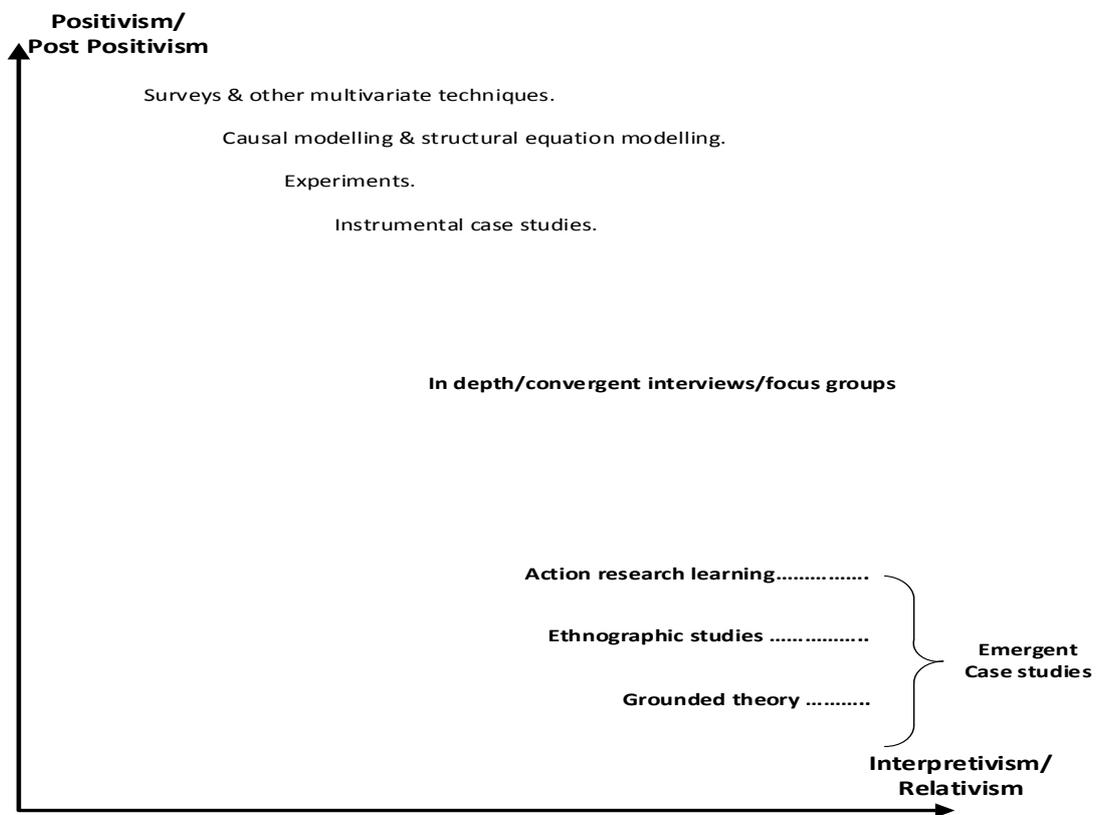
Qualitative research is a research strategy that usually emphasises words rather than the collection and analysis of data (quantitative) so as previously identified, qualitative research differs from quantitative research in several ways. Yet as a field of inquiry in its own right that crosscuts disciplines, fields and subject matter it is a complex, interconnected family of terms, concepts and assumptions (Denzin and Lincoln, 2005). As a research strategy it is inductivist, constructionist and interpretivist, and whilst researchers do not always subscribe to each feature (Bryman, 2008), the features of qualitative research are considered noteworthy (Tables 4.3 and 4.5).

While Silverman (2010) stated "...the 'so-called 'norm', at least for now, was quantitative", qualitative research, in attempting to make sense of, or interpret, phenomena in terms of meanings that people bring, begins by accepting there is a range of different ways of making sense of the world. It is therefore concerned with discovering the meanings seen by those who are being researched and with understanding their view rather than that of the researcher. Hence, whilst helping to perceive how general forces play out in specific circumstances and asking questions that cannot easily be put into numbers, qualitative research focuses attention on the contingent nature of social reality. For in allowing the research questions to adjust with new information, which Becker (1970) refers to as accuracy, helps attain what the research alleged it would attain. In short, qualitative research allows a focus on how things happen and how general forces and individual wills play out in a specific situation. Hence, this first phase (qualitative), with an endeavour to create understanding from data as the analysis proceeds, does not start with an awareness to be tested (Richards, 2006). So rather than analysing a hypothesis, qualitative research is engaged in a much more dialectic process between the questions asked and the data observed; which cannot easily be put into numbers.

Yet this interpretivist first phase, which sought to build theory as a result of empirical insight, is based upon a critical review of literature (Chapters 2 and Chapter 3) as a foundation that guided and loosely framed this study. Thus this initial phase, which was not about testing any prior knowledge but seeking an actual reality in respect of construction partnering and the previously identified eight key drivers, achieved

substantive meaning and understanding to ‘how’ and ‘why’ questions in relation to the phenomena under investigation. For interpretive qualitative research, which “...is often predominantly semi-structured...” (Carson, *et al.*, 2001), and contrasted with positivism research (Figure 4.7), has been defined by Van Maanen (1979) as “... an array of interpretive techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world”.

- Emphasis on theory testing & measuring;
- Prior theory used to generate hypotheses;
- Deductive;
- Relatively structured;
- Researcher objective, external perspective.



- Emphasis on theory building, meaning & understanding;
- Prior theory may be used at various times;
- Inductive;
- Relatively unstructured/semi-structured;
- Researcher involvement as instrument.

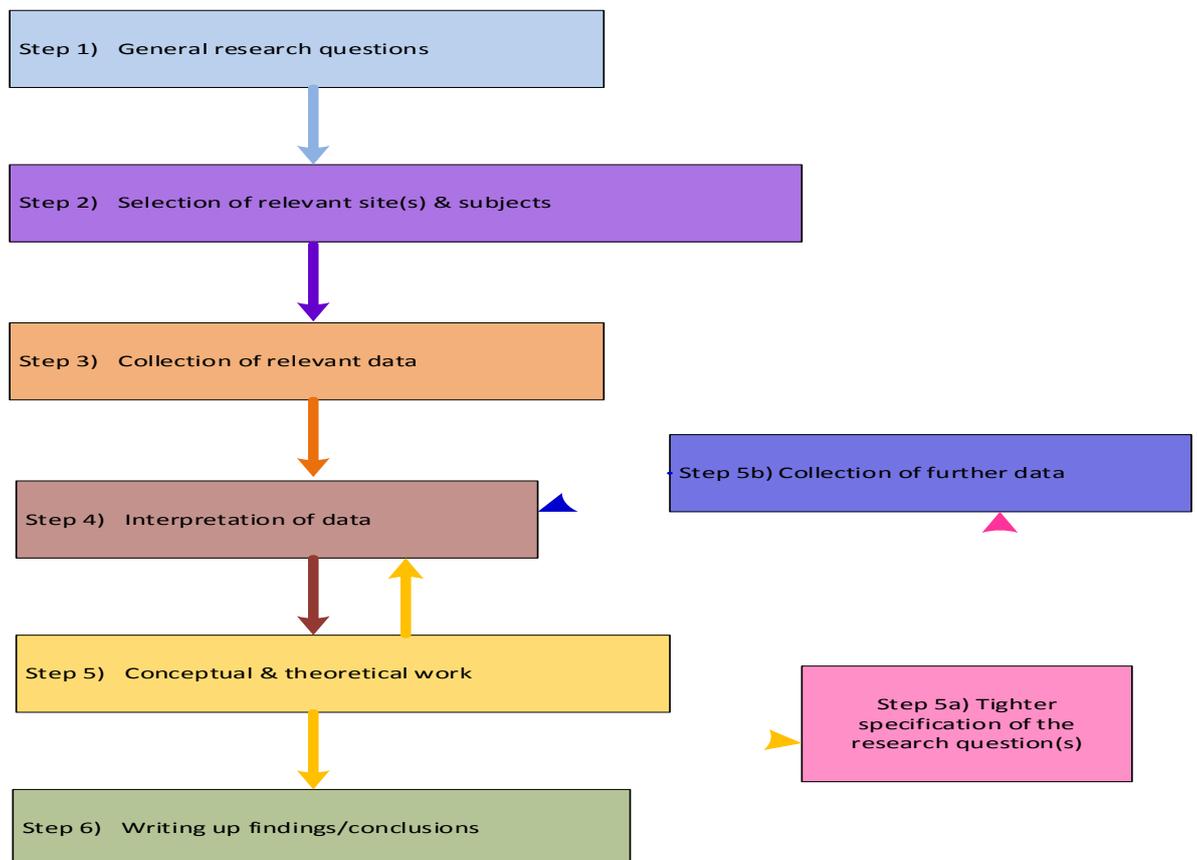
Figure 4.7; Methodologies in the Context of Research Philosophies

The focus of this phase was therefore on unfolding the process rather than the structure. As interpretive studies, whilst involving some inductive reasoning based on prior studies, but not constrained by the same in the production of serendipitous findings, combined a rational with an intuitive approach to knowledge. The aim was

therefore to gain an in-depth understanding of the current partnering situation by immersion into the phenomena, gathering data which provided a detailed description of current events, situations and interaction between people and organisations whilst providing depth and detail (Patton, 1980). Consequently phase one was concerned with things that really happened as each representative across the four disciplines experienced them, which could not be adequately studied in neatly arranged compartments in isolated and artificial settings (Carson, *et al.*, 2001). So as quantitative research is associated with features like 'hard', 'fixed', 'objective' and 'thin', qualitative research tends to be characterised as 'soft', 'flexible', 'subjective' and 'rich' (Robson, 2003; Silverman, 2010). Consequently, qualitative approaches tend to be more open and primarily collect non-standard data while quantitative approaches are less flexible and primarily collect highly standardised statistics (Losch, 2006).

Figure 4.8 provides a representation of how the qualitative research process can be visualised, given the first step in this study of construction partnering correlates to the general enquiry associated with the level of project fragmentation. For it is argued here that over the years with different contributors proposing diverse partnering definitions and/or arrangements/solutions, and no clear established consensus, partnering has not yet recognisably arrived at the moment of congruent evolution. It was also noted because the partnering ethos offered inconsistent possibilities it could be a long time before the construction industry did, if ever, in light of the moderate levels of success to date. Therefore a general set of concerns revolving around eight previously identified key drivers were formulated, primarily from the review of literature undertaken in Chapter 2. So while both stages of the exploratory design are discussed in more detail below, a systematic, inductive and comparative approach, where there was a persistent interaction with the data collected, made the emerging analysis progressively more focused. Thus, with interviewing being the most widely used and popular qualitative research approach across a wide range of disciplines and subject areas (Gill, *et al.*, 2008), the purpose of the research interview was to explore the views, experiences, beliefs and/or motivations of selected individuals on specific matters around construction partnering. Hence, in providing a deeper understanding around the social phenomena meant the questions asked were to yield as much information about the studied experience as possible whilst addressing the aims and objectives of the research. The qualitative (first) phase therefore comprised less structured

interviews at the early stages of this research, which allowed interviewees to focus on what they thought was most relevant to the question posed. So whilst far more than a handful of interviews at the early stage of this research, the approach was considered valuable in this context, given little was known about wholesale supply chain collaboration. Further, this first phase used formal and systematic methods of data collection and analysis not only to ensure that the trustworthiness of the work was unassailable (Shah and Corley, 2006) but to develop and implement a quantitative instrument based on the qualitative findings. Therefore the research initially explored the topic qualitatively with five participants from each of the four disciplines (i.e. client, consultant, main contractor and sub-contractor – Appendix 5, figure a) being purposively selected in order that the findings would guide the development of items and scales for a quantitative survey instrument. Accordingly, with the “qualitative and quantitative methods being connected through the development of the instrument item” (Creswell and Plano Clark, 2007) this variation of the exploratory design (i.e. instrumental development model) emphasised the quantitative aspect of this study.



(Source: Bryman, 2008)

Figure 4.8: The Main Steps of Qualitative Research

4.6.2 Sampling Technique

It is realised random sampling is not the only sampling method available (Anderson, *et al.*, 1991), albeit this probability technique, in its various forms, is a method of sampling that utilises some form of chance selection. So as Appendix 6 (Table A) compares various probability sampling techniques including simple random sampling, stratified random sampling, cluster and systematic random sampling, it is acknowledged a process or procedure that assures the different units within the population have equal probabilities of being chosen must be set up. For random sampling provides "...a statistically representative sample..." (Arthur, *et al.*, 2012) that can be used to estimate the equivalent parameters for the whole population. This in turn applies some standard statistical analyses in order to indicate the precision of those estimates, having firstly defined the wider group or population and listed its members (the sampling framework). Thus random sampling, being when individuals are chosen entirely by chance from a group of subjects (the sample) that have been taken from a defined larger group (the population), is a technique where the probability of getting any particular sample may be calculated whilst reducing the likelihood of bias. Yet Arthur, *et al.* (2012) believed a [non-probability] purposive sample was more appropriate if the aim was to promote insightful and deep understanding of a particular context, having firstly made sense of the interpretations and constructions from the respective interviewees. For a non-probability approach, which draws generalisations (e.g. proposes new theory or proposes policy) is more suitable for in-depth qualitative research in which the focus is often to understand complex social phenomena (Marshall, 1996; Small 2009). Therefore, as Table A (Appendix 6) also compares various non-probability sampling techniques including opportunistic sampling, snowball sampling and stratified (purposive) sampling, and Table B (Appendix 6) contrasts probability and non-probability characteristics, it is a purposive approach that was used during phase one of this research study i.e. stratified purposive sampling.

From the review of literature (Chapter 2 and Chapter 3) it was evident that a better conceptualisation of partnering within the construction industry was required in order to build on the results of the qualitative phase by "...developing an instrument, identifying variables or stating propositions for testing based on an emergent theory or framework" (Creswell and Plano Clark, 2007). Therefore during the development stage, in an effort to better understand partnering practice across the industry's disciplines (i.e. clients, consultants, main contractors and sub-contractors), and their

relationship with the eight dominant drivers previously identified (Figure 2.1), a purposive sampling technique was deemed appropriate because it provided reliable and robust data (Tongco, 2007). For as identified within Appendix 6, this non-probability technique would be most effective when studying a certain cultural domain with knowledgeable experts, because the reliability and competence of the informant could be ensured. So acknowledging the choice of a purposive sample was fundamental to the quality of data gathering (Tongco, 2007), its use with a number of techniques in data gathering was also accepted (Godambe, 1982). Yet with the emphasis being on in-depth understanding of how, why and in what context certain phenomena occurs, the strength of the method has intentional bias (Bernard, 2002; Lewis and Sheppard, 2006). For unlike random sampling, which is not always feasible or efficient; non-probability methods such as purposive sampling are biased because informants may be chosen out of convenience or recommendations of knowledgeable people (Lopez, *et al.*, 1997; Seidler, 1974, Smith, 1983). Consequently, as a recognised tool in the social sciences (Tongco, 2007), purposive sampling is considered more efficient than random sampling in practical field circumstances (Bernard, 2002; Karmel and Jain, 1987). Still this would be dependent on the question(s) being asked and the objectives to be met (Kenkel, *et al.*, 1989). Therefore, as the random member of the sample may not be as knowledgeable or as observant as an expert informant (Tremblay, 1957), which is especially important as resources are limited (Karmel and Jain, 1987; Topp, *et al.*, 2004), this arguably made purposive sampling more realistic than randomisation. So coupled with the time, effort and costs needed in finding random informants (Seidler, 1974) and because explanations and understanding of behaviour or activities mattered more than specific measurements, a purposive sampling technique was employed as part of this research.

4.6.3 Interview Implementation

Face-to-face interviews were said to be the dominant interview technique in the field of qualitative research (Opdenakker, 2006). So as this approach was used with “carefully select[ed] subjects based on study purpose [and] the expectation that each participant would provide unique and rich [valuable] information...” (Suen, 2014), the method took advantage of social cues, and the same open-ended questions being asked of all those interviewees (Appendix 8 - Figure a). Further, with no significant time delay between question and answer, this made the interviewee’s answers more spontaneous, which facilitated faster interviews that

were more easily analysed and compared due to a lack of reflection time. Accordingly, as a powerful data collection strategy, the semi-structured open-ended interview questions would generate considerable information that could lead to reconceptualising the construction partnering paradigm. Hence, the research practice of data sampling, data analysis and theory development, whilst not seen as distinct and discrete (separate) stages, were nevertheless different steps to be repeated until it was possible to describe and explain the phenomenon that was partnering within the construction industry. Therefore while not testing a hypothesis, the adopted methodology, through observation, conversation and interview, developed theory inductively from data rather than beginning with a theory that the research attempted to prove or disprove. In starting with an area of study and allowing what was relevant within that area to emerge, interviews allowed for the materialisation of original and rich findings that were closely tied to the data. Thus as Wisker (2008) pointed out the value of interviewing meant capturing opinions, feelings and practice, experience, atmosphere and context, as positivistic inductive research this would build theory.

As an interpretive based method with continuum, interviewing has no clear best way for it to be conducted (Greenfield, 2002). Therefore a semi-structured method was chosen here, as it provided interviewees with the freedom to express their opinion, concerns and feelings whilst having been specifically targeted. So whilst a flexible technique for small scale research (Drever, 1995) a general structure was set up by deciding in advance the ground to be covered and the main questions to be asked. For Shah and Corley (2006) stated researchers were not to venture into the field of study lacking literature comprehension or the theoretical question to be addressed. "In fact, researchers must be intimately familiar with the content, nuances and weaknesses of existing theories..." (Shah and Corley, 2006). Yet Glaser and Strauss (1967) proposed data collection and analysis should occur before conducting a literature review. As they believed researchers should not see their data through the lens of earlier ideas and become biased by any pet theoretical ideas or received theories. But, a growing number of researchers disputed the belief they should enter the field 'tabula rasa' (with a featureless mind). This includes Anfara and Mertz (2006), who contended it was impossible to observe and describe the way things really were, free of any prior conceptual scheme or theory. Bryant and Charmaz (2007) also advised "...generalisation from observable data by researchers who have freed their minds from any theoretical preconceptions

whatsoever before collecting empirical data manifests a rather outmoded view of scientific inquiry". Hence this research, as Wolcott (2005) remarked, organised orienting ideas into a conceptual framework to guide (but not dictate) and clarify observations, collect data and analyse results. Therefore with a perspective to help see relevant data and abstract significant categories from the data scrutinised, this research has not approached reality as a tabula rasa (Glaser and Strauss, 1967). Hence, as Charmaz (2006) noted, the *modus operandi* was to use the literature review but without letting it stifle creativity or strangle perceived theory.

All interviewees were asked the same questions in the same order (Appendix 8 – figure a). For while each interview unfolded in a conversational manner, the findings would be reliable, comparable qualitative data. Thus whilst reflecting what was already known, the semi-structured interview provided an opportunity for learning. For the information obtained from those interviewed not only presented answers in respect of the standardised stimulus (Smith, 1975; Abrahamson, 1983; Mann, 1985), but the reasons for those answers. So while evaluating the validity of respondent answers by observing non-verbal indicators (Barriball and While 1994), it offered the researcher the opportunity to explore the particular issues through stimulated feedback. Yet with sufficient interviews undertaken in order to ensure general comparisons, the semi structured method endorsed any respondent differences were due to disparity among the interviewees rather than in the questions asked.

4.6.4 Quantitative Measures in the Qualitative Phase

Kirk and Miller (1986) identified "...qualitative research does imply a commitment to field activities. It does not imply a commitment to innumeracy". Further, Silverman (2006) noted some qualitative researchers believe they should not "...dirty their hands with numbers". This a sentiment that, on occasion, has been supported by "...sound critiques of the rationale underlying some quantitative analysis" (Blumer, 1956; Cicourel, 1964). Yet it is identified a qualitative research study recognising social processes share a single defect, which is the scepticism around the persuasiveness of claims made on the basis of a few selected examples (Silverman, 2006). Thus, as pointed out by Mehan (1979), the very strength of qualitative research (the ability to give rich descriptions of social settings) can also be its weakness. For many scholars consider qualitative techniques as unsystematic and not rigorous enough to provide reliable results (Richards, 2004),

with the researcher selecting only the fragments of data supporting the rationale has been countered by an appropriate method of validating this first phase study which is based on qualitative data.

In considering whether the researcher's interpretation of data (in this instance grouping of the various themes relating to each particular question) has been persuasive, plausible, reasonable, convincing and representative of the data as a whole, validation was deemed necessary. For as Silverman (2010) documents, few current social scientists are contented with the naturalist assumption that credibility is guaranteed, provided "...one hangs out' with the relevant tribe or subculture group and returns with authentic accounts of the field". Therefore to bring together ideas and perceptions, the approach adopted offered a systematic method of analysing textual data by breaking the text down into meaningful units and developing a category system and grouping together ideas of a similar sort. Hence the interview data was to be characterised in order to look for patterns which Burnard (1994) recognised was comparable to phenomenological analysis, although having much in common with content analysis. So as the process began by cleaning up the text, which involved removing any material that did not directly relate to the question in hand or was repetitious or peripheral, each transcript was carefully divided up into meaning units. As this conveyed an idea or related set of perceptions (Mostyn, 1985) the meaning units, whilst standing on their own, albeit related to other units, were themselves summarised by category. Therefore by choosing the unit of analysis (i.e. a category system where meaning units were grouped together) the process meant "...structuring and condensing the data by grouping the qualitative material in theoretically insightful ways" (Mayring, 2002).

In respect of the qualitative data, which was a generalisation design study where qualitative material was inductively explored (informed by extant theory via the semi-structured interview process), numerical information was also added. For whilst a quantitative analysis of qualitative data, did not allow any real test of the major thrust, it offered a clear and true representation from the overall findings, having broken the interview transcripts into meaning units and subsequent categories i.e. initial coding, focused coding and theoretical coding (Appendix 9). So as Creswell (2009) explained the intent of a qualitative research inquiry was not to generalise findings to individuals, sites or places outside those under study, the illustration of particular points, ideas or perceptions in respect of supply chain collaboration were possible. Or as Flick (2002) summarised, with the purpose of

isolating causes and effects, operationalising theoretical relations, measuring and quantifying phenomena, the generalisation of findings is allowed. So in order to "...simply seek to produce a set of cumulative generalisations based on the critical sifting of data" (Silverman, 2006), a simple counting technique has been utilised as a means to survey the whole corpus of data, some of which would ordinarily have been lost in the intensive qualitative research. Thus instead of taking the researchers word, the reader has a chance to gain a sense of the flavour of the data as a whole. This inclusion also enabled the researcher to test the accuracy of the impressions about the data and revise generalisations as necessary, as well as removing the researchers (and reader's) misgivings around the accuracy of their impression about the data. For the aim, whilst not providing any real test of the major thrust of this argument, was to demonstrate that the qualitative analysis was reasonably representative of the data as a whole. Hence with coding devised that enabled the researcher to collate a number of crude measures that enabled a simple quantitative assessment, it offered a summary measure of the characteristics of the total sample that allowed closer specification of features of supply chain collaboration.

4.7 Phase Two – the quantitative method

Having used the qualitative inductive approach to generate substantive codes from the data, and accepting the developing theory suggested where to go next in order to collect data and which, more focused questions to ask, a quantitative second phase was adopted. So as this was the deductive phase of the mixed method process, where quantitative data collection techniques were used to provide fuel for deductive data analysis, there are many contexts where qualitative and quantitative methods have been used in conjunction to build and refine theory (Fine and Elsbach, 2000; Jick, 1979; Weick, 1979).

The purpose of the quantitative phase, generated from qualitative data was to engender conceptual theory. Hence the second phase was to generate not test or correct embryonic theory, therefore add to, transcend and modify extant theory. So as Shah and Corley (2006) identified an increased use of multiple methods was deemed necessary to build an accurate, generalisable and practically useful theory in a field that was inherently complex, Bergman (2008) provided justification for combining qualitative and quantitative methods. Van Maanen (1979) also supported the fact qualitative and quantitative methodology were not mutually

exclusive while Jick (1979) demonstrated the usefulness of including a more systematic approach to qualitative work, with a more observational approach to survey-research, provided a more complete picture of a phenomenon than either methodology could accomplish alone.

The quantitative (confirmatory) part of the study, being less flexible, primarily collected highly standardised data, while the qualitative (exploratory) data was more open and less standardised. So with questions having been asked of qualitative data because the reliability of the interpretation of the data meant there was no standardised method of analysis (Robson, 2003), Silverman (2010) noted "...simple quantitative measures are a feature of some good qualitative research...". For having completed the exploratory qualitative phase, in order to generate theory, the second (quantitative) phase was employed to build upon, verify and generalise the findings from phase one. Thus as a complement to the qualitative (first phase) material, the quantitative second phase involved focusing the inquiry on a discrete set of variables to test the specific theories produced in the first phase. So by gathering data quantitatively, this enables a better insight into supply chain collaboration by again exploring the phenomenon from a 'user' perspective. This second phase was therefore undertaken to further address the relevant research objectives from Table 1.1, having considering each relevant question, including;

RQ3 Is partnering considered an approach to procurement or a contractual arrangement?

RQ8 Is there a clear understanding across the whole industry as to what partnering is?

RQ13 Do sufficient opportunities exist in order for this way of working to be implemented successfully?

As shown in the adopted research framework (Figure 4.3, 4.4 and 4.5) this second stage of the study adopted a quantitative approach. This taking the form of a comprehensive questionnaire survey, based on the theory generated from the 20no phase one respondents; including those who believed they partnered and those that did not. For surveys, as a very popular quantitative method in social science (Creswell, 2003; Saunders, *et al.*, 2007), maximised the likelihood of discovering variations among concepts and consolidated categories in terms of their properties

and dimensions (Glaser, 1978). This by getting feedback from a greater number of real life participants across the population on the items detailed within the measuring instrument. Yet the surveys were much more than the mere compilation of data, as the data was analysed, interpreted and evaluated. Thus the survey data was used to explore the aspects of partnering, or to seek explanation and provide data for testing assumptions (Oppenheim, 1966).

With a number of methods to carry out surveys, Creswell (2003) acknowledged a survey design provided a quantitative or numeric description of trends, attitudes, or opinions. Yet a multi-stage cluster sample survey was selected for this research (as opposed a census – which involves looking at the entire group under the area of the research study). Thus with limitations around time and cost, a portion of the population under the area of research were examined, with information inferred about the population as a whole. For in contrast to probability sampling, purposive sampling could occur at the initial stage or at multiple stages within a research study (as is the case in this particular project). For as Creswell (2005) identified multistage cluster sampling occurred when the population was complex or extremely large. Yin (2009) noted multi-case sampling or cross-case sampling led to replication and added various analytical levels. Miles and Huberman (1994) stated using this approach increased the researchers' level of confidence pertaining to the interpretation of findings.

With the common types of surveys identified as mail, telephone, online and in person (interview), given the advantages and disadvantages of each (Appendix 7) an online questionnaire survey was chosen as the mode for the data collection process. Further as the approach adopted was intended to be similar to that employed in case study logic, two supply chains (i.e. 1no Client and 1no Main Contractor) were purposively selected. So as Robson (1993), Bryman (2012) and others explained this meant the researcher identified and made initial contact with one or more (a small group) of people who were relevant to the research topic (i.e. 1no Client and 1no Main Contractor) these, and their supply chains, were used as informants. Hence, as each supply chain was a bounded entity that formed the main area of analysis, with each supply chain comprising four disciplines (i.e. clients, consultants, main contractors and sub-contractors), the adopted design was a common multiple case design. Thus the initially identified client and main contractor then established and make contact with others from their pertinent subpopulations (stratum) or supply networks. Hence, with four different levels

(strata) involved in the population of this particular research study (Appendix 5 – figure b) and given the sampling from each subset or segment was non-probability (i.e. purposive – with selection based on judgement and/or convenience), stratified purposeful sampling was considered the most suitable approach (Tashakkori and Teddlie, 2010). For in order to assure cases were representative of specific characteristics (e.g. discipline type – client, consultant, main contractor or subcontractor), and thereby enhancing “information representativeness” (Sandelowski, 2000), the researcher subdivided a sampling frame into strata. This to obtain relatively homogeneous groups, before selecting purposeful samples from each stratum, which allowed comparative analysis to be conducted across the various cases (Miles and Huberman, 1994; Patton, 2002; Tashakkori and Teddlie, 2010). Therefore, through analysing the relevant data obtained from a subset of elite informants who were representative of the sample from which they had been selected, the researcher formulated internal statistical generalisations.

4.7.1 Data Collection – online questionnaire survey

The measuring instrument, in the form of a questionnaire was developed to reflect the research questions and key issues associated with the qualitative first phase. The questionnaire, (Appendix 8 – figure b) consisted of eight elements that reflect the eight key drivers as previously identified (Figure 2.1)

Close-ended questions, which were multiple-choice in nature, were generally used for the questionnaire, in order to avoid any complications during the data reduction stage. A Likert scale or ‘yes’ and ‘no’ answers were used for the majority of questions. The Likert scale, essentially being a ‘multiple-indicator’ of a set of attitudes relating to a particular area, measured intensity of feeling about the area in question through a series of statements that focused on the above issues/themes (Bryman, 2012). Hence, in order to indicate the level of agreement a five-point scale going from ‘strongly disagree’ to ‘strongly agree’, with a middle point of ‘split/mixed’ was identified;

1. *Strongly Disagree* 2. *Disagree* 3. *Split/mixed* 4. *Agree* 5. *Strongly Agree*

Each relevant question was therefore scored and the scores for each item aggregated to form an overall total. The scale, which measures intensity (i.e. a score of 1 for very strong negative feelings about an issue and a score of 5 for very positive) is a widely used format (Bryman, 2012). For each statement/item on the

scale had equal 'attitudinal value', 'importance' or 'weight' and so did "...not measure attitude *per se*" (Kumar, 2011). Rather it helped place different respondents in relation to each other in terms of the intensity of their attitude towards an issue. It therefore showed "the strength of one respondent's view in relation to that of another and not the absolute attitude" (Kumar, 2011). So acknowledging within quantitative research there are a number of methods and procedures to measure attitude (i.e. semantic differential scales, Likert scales, etc.), each respondent was asked to answer the same questions. Thus, with the same wording used, the questions were asked in the same order, with the same set of answers available. Accordingly, with the questionnaire designed to gather already structured data, while ensuring adequate coverage of the issues, the initial draft questionnaire was evaluated by the research supervisor. This to ensure the instrument actually measured that intended (validity) and would be interpreted consistently across different situations (reliability). The draft questionnaire was also scrutinised by one academician and one representative from each of the four identified disciplines (i.e. client, consultant, main contractor and sub-contractor) in order to ensure understanding, applicability, clarity and question demonstrability. The professionals contacted during this questionnaire piloting were all known to the researcher and whilst a number of modifications were considered necessary, due to comments around question comprehension, the modified set of questions formed the final, second phase quantitative questionnaire. The pilot also revealed that the process of completing the questionnaire would take approximately 20 to 30 minutes.

The final version of the self-administered, structured questionnaire was emailed direct to the relevant sample member; be they client, consultant, main contractor or subcontractor, having firstly liaised with the relevant initial contact from each of the two case study (i.e. 1no client and 1no main contractor) who selected a total of 20no supply chain members from across the four disciplines within their organisations database. Consequently a total of 40 questionnaires were issued, each of which were coded according to their particular discipline and the initial contact utilised (Appendix 5 – figure b). This reflected the purposive sampling scheme chosen (i.e. stratified purposeful sampling) as well as the samples characteristics. So whilst the level of support given by the client and main contractor interviewees was immeasurable in this process, the following criterion was implemented when selecting the relevant discipline samples from their respective resources;

- Choosing the sample respondents in an unbiased way, although accepting the sample group would be partitioned into 4 subgroups in order that each survey variable was homogenous. This a requirement that needed to be established prior to the sampling process commencing as this group of people are to reflect the same characteristics as the overall population;
- Whilst diverse sites generally valued higher than less diverse sites (albeit diversity can refer to a range of different features and can be measured in a variety of ways), it was essential to clearly define the intended sample;
- Acknowledging surveys that were based on non-probability samples often failed to represent the people in the target population, so whilst stratification is intended for increased precision, confirmed the goal was to obtain inferences about the strata;
- The number of stratifying variables and the number of categories per stratification variable should not be too large and once the list is compiled, this to be reviewed to make sure it remains appropriate/suitable.

Overall a total of 40no completed and usable questionnaires were received. For as Guest, *et al.* (2006) noted the “gold standard” was saturation, this meant the researcher collected and analysed cases to the point that sampling additional cases would not provide any new information (i.e. information redundancy) (Tashakkori and Teddlie, 2010). Tashakkori and Teddlie (2010) also noted to achieve this standard could be difficult and decided on numbers by factors such as data quality, sample diversity and resources, including the number of individuals analysing and interpreting the data. Hence as Guest, *et al.*, (2006), Miles and Huberman (1994) and Sandelowski (1995) stated the larger the degree of sample diversity the larger the number of cases recommended. Though the type of purposive sampling also influenced the sample size (Sandelowski, 1995), in the context of this mixed methods design inadequate sample sizes would limit the degree to which appropriate meta-inferences could be drawn from conclusions based on both phases of the study (Tashakkori and Teddlie, 2010). Accordingly, in this sequential design, where quantitative followed qualitative, which led to dependency between

both components, it was acknowledged a small qualitative sample limited the types of analysis that could be conducted in the quantitative data analysis phase. Hence, Creswell (2005), Creswell and Plano Clark (2007) and Teddlie and Tashakkori (2009) identified the minimum sample size for qualitative was between 15-20, 20-30 and 20-50 respectively. As regards this the second (quantitative) phase as Matthews and Ross (2010) noted when a random sample was not used the groups that were to be compared must be included in sufficient number to draw inferences about the groups from which the samples were drawn. Yet Bryman (2010) decided there was no definitive answer and although the population of each strata was considered homogeneous in respect of the characteristics under study, Kumar (2011) accepted the larger the sample size the more accurate the findings. Hence a sample size of 40no was ultimately considered acceptable because no new information was being provided albeit providing a reasonable level of accuracy. Consequently, while the sample size of the second (primary) phase was eventually double the supplemental (qualitative) phase, the standard principle followed was that the size of the quantitative sample was larger than the qualitative sample (Creswell and Plano Clark, 2007).

4.7.2 Data Analysis – Online questionnaire survey

The data from the returned questionnaires were initially entered onto a spreadsheet (Microsoft Excel software) before transferring to the Statistical Package for Social Science (SPSS - Version 21). This ensured easier handling of the large amount of data, whilst speeding up the manual data entering process, which theoretically allowed greater efficiency in respect of data organisation. Yet as each column of the spreadsheet represented a variable in the database, while each row characterised a record, given the amount of data was comparatively large, each column was coloured differently to avoid confusion/faults. Still the most difficult part was completing the data entry process and proof reading the same, which included checking the data randomly against chosen questions. This was time-consuming, although worthwhile to ensure data accuracy.

At the end of the data entry process, dealing with missing data was also given due consideration. For according to Robson (1997), whilst missing data was often inevitable, the most acceptable solution to the problem was not to have any. So having received questionnaires with missing data from the four disciplines i.e. client, consultant, main contractor and sub-contractor, the amount of missing data from the

client discipline was most and comparatively high compared to the other three. Generally this could have been because a number of questions referred to 'upstream' representatives i.e. is the organisation committed to partnering upstream, and therefore left blank due to the relevant clients having no upstream supply chain members. Coding such missing data was therefore needed to make a distinction between the missing data and the previously mentioned Likert five-point scale responses and/or the 'don't know' or 'not applicable' responses. So whilst coded missing data could be done in many ways those considered most common included zero (0) (Robson, 1993), hyphen (-) or by using a full stop (.) (Bryman and Cramer, 2005). Yet with most of the data entered using the ordinal scale of 1 to 5; where 1 was the lowest and 5 the highest, the use of the hyphen (-) within the spreadsheet would be considered unsuitable, as it could potentially cause confusion by being similar to the minus sign. As the same applied to zero, given the mean factor distribution was also used as one of the statistical analysis methods, the use of 'full stop' was considered the most suitable method.

The entered data was then analysed, using SPSS software. Identifying the type of data was crucial at this stage, in order to devise the correct method(s) to be used for the analysis. According to the American Psychological Association (1994), the type of data could be identified in four main ways, depending upon the scales and measurements. The scales and measurements were commonly broken down into four types i.e. nominal, ordinal, interval and ratio. The four types identified above could also be categorised into two groups: categorical and continuous scale data. Nominal and ordinal scales were categorical data: interval and ratio scales being continuous data (Cho, 1997). Categorical data, having unordered scales were called nominal scales. A person's name is a good example of the nominal scale. Categorical data, having ordered scales, were called ordinal scale (e.g. the degree of satisfaction ranking being an ordinal scale). Continuous data, having intervals and an absolute zero point are called ratio scales (Lee, 1999). As Cho (1997) describes, the reason for the type of data in the dataset is that the data analysis method differs according to the scale of measurement. According to the American Psychological Association (1994), categorical scale data use nonparametric measures, such as logistic regression models and log linear models. Continuous scale data use parametric measures such as t-test, ANOVA, regression, etc.

In this study, the data gathered from the questionnaire survey were categorical data. They were mainly ordinal and nominal data. Given the research questions to be

answered, and the nature of variables (i.e. independent or dependent), both descriptive statistics (mainly mean value comparison and cross tabulation) and inferential statistics (e.g. spearman's correlation, Kruskal-Wallis, etc.) were used for the data analysis. Herein, descriptive statistics generally characterise or describe a set of data elements, by displaying the information graphically or describing its central tendencies and how it is distributed. On the other hand, inferential statistics try to infer information about a population by using information gathered by sampling. The levels of significance used throughout the analysis were 5% (0.05) and 1% (0.01). Using the aforementioned two classifications (i.e. descriptive and inferential statistics), the tests/methods adopted for the study are given below;

- Kruskal-Wallis test; As noted by Hinton (2004) when the data for analysis is not from an interval scale or the assumptions of the ANOVA are not met, a non-parametric test needs to be performed. Therefore given the samples are independent (i.e. they are not related) a Kruskal-Wallis test being a one-way analysis of variance by ranks is performed. For unlike standard Analysis of Variance (ANOVA), to which Kruskal-Wallis is the “counterpart” (Field, 2009) it does not assume normality and it can be used to test ordinal variables. Thus, with non-normally distributed data, in order to test for differences between the several independent variables, a Kruskal-Wallis H-test was used to test the hypothesis that the responses from four types of respondents (i.e. client, consultant, main contractor and sub-contractor) did not vary by comparing the median ranked scores of the four groups of individual factors;
- Post Hoc Tests; As a follow up to the Kruskal-Wallis test when it shows that the test is statistically significant (i.e. $p < .05$); thus indicating the distribution (median rank) of at least one group is different from the distribution (median rank) of another group. Therefore with an interest to explore the data for any between-group differences (between medians), as the Kruskal-Wallis H test does not inform which groups differ from each other, these tests were carried out as part of the quantitative data analysis in order to discover which group(s) were different to which other group(s). Yet as SPSS provides no less than 18 post hoc procedures (Field, 2009), the Post Hoc tests ran was the Pairwise Comparison, which is designed to compare all different combinations of the treatment groups in order to identify differences between the relevant samples;

- Fisher's exact test; Field (2009) notes the one problem with the chi-square test comes when small samples are utilised. Therefore as the chi-square test has an approximate sampling distribution (i.e. the larger the sample, the better the approximation) in small samples the approximation is inferior, which makes significant tests of the chi-square distribution inaccurate. Accordingly with an expected cell frequency greater than 5, when a lower frequency is expected (i.e. 5 or less) which renders the chi-square distribution of no use, Fisher's exact test is normally used as "it was designed to overcome the problem of small samples..." (Field, 2009);

Apart from the non-parametric tests noted above, a number of other examinations were carried out in order to measure associations. These statistical tests (detailed below) were therefore used to determine whether an association existed between two or more variables and if such an existence did exist, measure the strength and direction of that association. So as the word 'association' is on occasion replaced with the word 'relationships', the variables used for this study, in relation to this group (i.e. 'associations/relationships') are nominal and ordinal. Hence as Bryman and Cramer (2005) suggested, the following rules of thumb were used for this study in order to examine the relationships between the same;

- Nominal – nominal; Cross tabulation was used in conjunction with chi square as a test of statistical significance. Cramer's V or Phi was used to test for strength of association between the variables, where the former was used for larger tables in which the number of both rows and columns exceeded 2;
- Ordinal – ordinal; Spearman's rank-order correlation (often abbreviated to Spearman's correlation) and its associated significant tests;
- Nominal – ordinal; Same as above (Spearman's correlation).

The following paragraphs explain the various methods of exploring possible associations between variables;

- Crosstabulation; As a joint frequency distribution of cases on two or more categorical variables cross tabulation is a type of contingency table. A powerful technique that helped describe the associations/relationships between categorical (nominal or ordinal)

variables. As part of this research crosstabulation produced the following statistics;

- observed counts and percentages (within discipline and overall);
- expected counts and percentages (within discipline and overall);
- Chi-square; The Chi-square test, in looking at associations/relationships between two categorical variables, compares the observed frequencies (rather than scores or ratings) in certain categories to the expected frequencies within those same categories. So as the expected frequencies are generally those found when the hypothesis is true, albeit this doesn't have to be the case (Hinton, 2004), this goodness-of-fit test analyses "...how well a model fits the data from which it is generated" (Field, 2009) or as noted by Robson (1992) either all categories contain the same proportion of values, or that each category contains a user-specified proportion of values (Robson, 1992). In this study, the Chi-square test procedure was utilised to tabulate the variables into categories and test the assumptions in respect of whether these observed frequencies differed from the values expected;
- Phi; According to Field (2009), 'phi' is a chi-square-based measure of association that involves dividing the chi-square statistic by the sample size and taking the square root of the result. Phi statistic's interpretation is the same as Pearson's r in that it varies between 0 and plus or minus 1 to provide an indication of the strength of an association/relationship between two categorical variables. A relationship of -1 or +1 would indicate a perfect relationship between the variables, albeit negative or positive respectively. A complete absence of an association/relationship would engender a computer r of zero, therefore the closer r is to zero, the weaker the association/relationship. So whilst used with 2 x 2 contingency tables (tables which have categorical variables and each variable has only two categories) Coben and Holliday (1982) suggest the following for a large correlation ≤ 0.19 is very low; 0.20 to 0.39 is low; 0.40 to 0.69 is modest; 0.70 to 0.89 is high; and 0.90 to 1 is very high. Though as Bryman and Cramer (2005) note, these are rules of thumb and should not be regarded as definitive indicators, since there

are hardly any guidelines for interpretation over which there is substantial consensus;

- Cramer's *V*: This a measure of the strength of association/relationship between two categorical variables used when one of these has more than two categories. Again based on chi-square, this test provides results that vary between 0 and +1 albeit a variant of *phi* and used when one or both of the categories variables contain more than two categories, as *phi* would fail to reach its minimum value of 0 (Field, 2009) (indicating no association/relationship);
- Spearman's correlation coefficient; This a non-parametric statistic which so can be used when the data has violated parametric assumptions such as non-normally distributed data (i.e. not measured on an interval scale). Hence by ranking each set of data separately from lowest to highest, and utilising a one-tail test, a correlation can be performed on the ranks using a Spearman correlation coefficient test.

4.7.3 Reliability and validity of the findings from each questionnaire

The various methods to be adopted in relation to this study would allow comprehensive cross-case analysis which in turn should produce robust results from which conclusions, relating to the eight key drivers in respect of establishing and sustaining supply chain collaboration could be inferred. However, as regards the integrity of all conclusions generated from a piece of research, validity, in its various forms i.e. measurement validity, internal, external and ecological validity, the variables must be measured accurately in order to minimise measurement error and so determine properties of the measure are doing their job, which in turn gives confidence. Hence with the first property being validity, which fundamentally refers to whether "...an instrument measures what it was designed to measure" (Field, 2009, Kumar, 2011), validity is defined as the degree to which the researcher has measured what he/she has set out to measure (Smith, 1991). Still, as Kumar (2011) goes on to discuss the differences between quantitative and qualitative validity and reliability due to quantitative data collection methods being defined and established whilst in qualitative where feelings, experiences, perceptions motivations and/or stories are being explored concepts cannot be rigorously applied in the same way due to flexibility, freedom and spontaneity. Still, whilst important to

remember the concept of validity is only applicable to a particular instrument, albeit the researcher aims for ideal states, the types of validity being considered are;

- **Measurement validity;** While Bryman (2008) notes it is “the degree to which a measure of a concept truly reflects that concept”, it is also often referred to as construct validity and primarily applies to quantitative research and to the search for measures of social scientific concept.
- **Internal validity;** This form of validity relates mainly to the issue of causality i.e. a concern with establishing causal connections between variables, rather than mere relationships between them. Internal validity being concerned with the question of whether a conclusion that incorporates a causal relationship between two or more variables holds water.
- **External validity;** A concern with the question of whether the results of a study can be generalised beyond the specific research context in which it is conducted;
- **Ecological validity;** Relating to whether social findings are applicable to peoples everyday, natural social settings, or as noted by Field (2007) “evidence the results of a study, experiment or test can be applied and allow inferences to real world conditions.

Bryman (2012) defined reliability as “the degree to which a measure of a concept is stable”, so greater the degree of consistency and stability within an instrument greater its reliability (Kumar, 2011). Thus “a scale or test is reliable to the extent that repeat measurements made by it under constant conditions will give the same result (Moser and Kalton, 1989) or put another way, with ‘error’ being a reflection of an instruments unreliability, ‘reliability is the degree of accuracy or precision in the measurements made by a research instrument. However by accepting that in the “social sciences it is impossible to have a research tool that is 100% accurate (Kumar, 2011), there are a number of ways to determine the reliability of an instrument, and these are;

- **External consistency procedures;** Compares findings from two independent processes of data collection with each other as a means of verifying the reality of the measure. The two ways this can be done are test/retest method and parallel forms of the same test;

- **Internal consistency procedures;** This were items or questions measuring the same phenomenon, if reliable indicators, should produce similar results irrespective of their total number in an instrument. Hence even if the number of items or questions are reduced, as long as they they reflect some aspect of phenomenon, this lesser number of items can provide an indication of the reliability of the instrument.

4.7.4 Derivation of Results – online questionnaire survey

The final stage of the questionnaire survey was to derive results/conclusions using the aforementioned data analysis process. Conclusions were drawn using the main findings of the data analysis. Overall, this stage of the study assisted in deriving results in relation to each of the eight key drivers in respect of construction partnering across the disciplines and throughout the various tiers (Chapter 5 and Chapter 6). Consequently, the findings of this stage also acted as the basis for developing the conceptual model as the final output of the research study. Hence the content analysis method adopted for the first phase allowed a comprehensive cross discipline analysis to be done with robust results providing the foundation for the second phase measuring instrument. However, as in most of the data analysis methods, content analysis also has problems of reliability and validity. As Weber (1990) notes, reliability problems usually grow out of the ambiguity of word meanings, category definitions, and/or other coding rules. The obvious result is that the reliability coefficient they report is artificially inflated (Krippendorff, 1980). Gottschalk (1995; as cited in Colorado State University, 2003) points out that the issue of reliability may be further complicated by the inescapably human nature of researchers. For this reason it is suggested coding errors can only be minimised and not eliminated, with 80% as an acceptable margin for reliability.

Validity of the content analysis study refers to the correspondence of the categories to the conclusions, and the generalisability of results to a theory (Colorado State University, 2003). Shapiro and Markoff (1997) assert that content analysis itself is only valid and meaningful to the extent that the results are related to other measures. Accordingly to the Colorado State University (2003), the overarching problem of content analysis is the nature of the conclusions reached by its inferential procedures. So whilst content analysis suffers from several disadvantages, both theoretical and procedural (Colorado State University, 2003),

given the context of this research and considering the advantages, it is concluded the advantages overshadow the disadvantages.

4.8 Summary

The stance of this research is pragmatic post-positivist, and this chapter widely accepts there is no typology of mixed method sampling strategies (Teddlie and Tashakkori, 2009). So given sophisticated users of non-probability survey sample tend to view the survey as an experimental condition rather than a tool for population measurement, “the well-known basic mixed methods sampling technique [known as] stratified purposive sampling” will be used (Teddlie and Tashakkori, 2009). For having firstly identified the sub-groups of the population of interest and selected the cases from each subgroup in a purposive manner, this allowed the researcher to discover and describe in detail characteristics that were similar or different across the strata. Patton (2002) described this technique as “selecting samples within samples”. Yet in non-probability samples whilst the relationship between the target population and the survey sample is immeasurable and potential bias is unknown, this survey sampling was about choosing a representative group from a target population and drawing conclusions from that sample which would be applicable to the target population. Further the mixed method selected being qualitative before quantitative and one of the various recognisable combinations (Matthews and Ross, 2010) enabled the researcher to explore the concept in more depth with the research participants around the previously identified eight key drivers before developing a commonly understood and meaningful instrument that would capture more structured data. As the context of the research also helped identify and check the key aspects of the topic in relation to importance and meaning it also provided the ideas for developing assumptions and subsidiary research questions, whilst flagging up issues of sampling, the relationship between the researcher and subject and validity and reliability. The different data analysis techniques employed in the study were also documented, together with detailed justification of their employment in the study.

CHAPTER 5: PRELIMINARY INVESTIGATION INTO THE PARTNERING EIGHT KEY DRIVERS

5.1 Introduction

The value of interviewing means a deeper understanding around the social phenomena that is partnering, and so the number of variables measured here has been extensive. For in providing an in-depth insight into construction partnering, with particular regard to the previously identified eight key drivers, this chapter allows for the materialisation of original and rich findings that correlates with that original qualitative data. Hence while methodical, the preliminary investigation presents a meaningful abstract summary of the raw qualitative data having utilised focal statistics in order to transcend 'reality' and progress toward the thematic, conceptual and theoretical. Yet as the results interpret a "move from evidence to ideas and theory, [albeit accepting] there can be no set formulae, only broad guidelines, sensitive to specific cases" (Okely, 1994) it is acknowledged this chapter is more interested in the intricacies of the sample studied than making generalisations of the overall population under study. Nevertheless, through the utilisation of a suitable measuring instrument i.e. a semi-structured questionnaire conveyed through interview, this chapter provides a literal perspective that shows the smaller pieces of the larger puzzle.

5.2 A Qualitative Approach

Like each qualitative study this 'exploratory' first phase, being an analysis of the survey data is context-specific which in turn makes the data unique. Yet in acknowledging the "search for one perfect method of data analysis is fruitless" (Coffey and Atkinson, 1996) semi-structured interviews enabled this researcher to seek specific information from informants, while maintaining flexibility to explore important issues or themes. Thus in providing a comprehensive overview of the key issues, as identified by the survey participants, the order in which the questions were organised, provides a common agenda for discussion. Moreover, conducting semi-structured interviews was also useful, given the different levels and professional groupings of the numerous participants. So with each group having a legitimate, but different interpretation of the area under study, capturing these different views, as Keen and Packwood (1995) suggested, is often best achieved by using semi-structured interviews. For having sought to ascertain how the eight key drivers were interpreted, by intimating any potential cross-cutting themes that had a

direct effect on a projects outcome, the findings from this first phase, which bridged the four disciplines, either suppressed or promoted collaborative working while ascertaining any potential hierarchical link. Hereafter, by drawing on the results of this initial phase in order to develop the second phase measuring instrument, the analysis was pursued by a quantitative data collection and analysis phase. Thus by introducing the information in phases, with the qualitative data collection proceeding quantitative, the intent was to first explore the problem under study and then follow up on the exploration with quantitative data. This to form a more complete picture of the challenges associated with partnering throughout the construction industry's supply chain.

Yet whilst qualitative research is recognised as a prominent strategy in the social sciences, albeit accepting a dependence upon circumstances and conditions, it is recognised the very strength of qualitative research (i.e. the ability to give rich descriptions of social settings) can also be its weakness. Therefore, in an effort to ensure reliable results, given the tendency towards an anecdotal approach when using qualitative data in relation to conclusions or explanations, an appropriate method of quantification has also been included to validate the primary phase. Thus in considering whether the researcher's interpretation of data has been persuasive, plausible, reasonable, convincing and representative as a whole, validation has taken a tabulated form. For this simple counting technique enables the reader to gain a sense of the flavour of the accumulated data that may ordinarily be lost during the intensive qualitative research. Thus instead of taking the researchers word this inclusion enables the reader (and researcher) to test the accuracy of the impressions about the data and revise generalisations as necessary.

A summary of the qualitative analysis findings, as taken from the twenty semi-structured interviews across four disciplines, are included at the end of this chapter. So with a sampling strategy identified as stratified purposive, the key to understanding the format of this chapter and therefore the analysis is as follows;

- i. The passage through the chapter follows the format of the semi-structured questionnaire (Appendix 8, figure a). Therefore each question presented as a verbatim representation and identified in bold, are in sequence under the relevant key driver sub heading i.e. commitment, communication, cooperation/understanding, cost/productivity, customer

satisfaction, relationships, time and trust. The pertinent question precedes the narrative which is a blend of content and thematic analysis of the raw data associated with each particular enquiry. Hence the narrative, which is grounded in the data and so data-driven (Glaser and Strauss 1967, Kearney, *et al.*, 1994) is both efficient and reliable whilst involved and nuanced;

- ii. During the analysis process each question, whilst including extracts from various interviewee transcripts, concludes by means of a theoretical code. For each theoretical code derived from counting explicit words or phrases (content analysis) or the identification and description of both implicit and explicit ideas (thematic analysis) has been established following the completion of the appropriate coding exercise i.e. initial, focused and theoretical codes;
- iii. In order to present the data within a scientific construct a quantification exercise was also undertaken for each question. So whilst there are no missing responses and all percentages are quoted as valid, interpreting raw text data into numbers and looking for emerging patterns helps compose a comprehensive answer that illustrates and interprets each particular question beyond its narrative layering and textual meaning. Figures and frequency tables that graphically display salient findings have also been included where appropriate;
- iv. Each subsection concludes with an initial summary setting out the early findings, across the four disciplines in order to better understand the affiliation between the four previously identified sub-groups. These findings, whilst relevant to each key driver ultimately form part of the chapters overall conclusion;
- v. The chapter concludes with a cross-cutting analysis of all initial summary findings. For in this data driven approach, as each interview transcript has been copiously read and probed collectively in order to find keywords, trends, themes, ideas, frequencies and relationships this first phase helps outline the analysis prior to the second quantitative phase. Hence the analysis categories have not been determined a priori, but will be done so having considered the data obtained.

5.3 Respondents Details

5.3.1 Personal and Organisational Characteristics

The twenty interviewees (i.e. 5no clients, 5no consultants, 5no main contractors and 5no sub-contractors) were requested to provide personal information relating to their position within the company, how long they had worked with their current employer and their general experience within the construction industry. The respondents were asked these specific questions in order to ascertain the interviewee's familiarity with their own organisational practices allied to their level of seniority. Table 5.1 indicates the roles of those interviewed and the respective number of years each interviewee has had within their current employment. It is therefore acknowledged that each of the four disciplines were represented by five sufficiently senior members of staff who were capable of providing clear succinct answers relevant to their company's position within the supply chain because of their industry experience and length of service with current employer. It is also acknowledged, albeit for information purposes only that 95% of those interviewed were male.

Each interviewee was also asked to categorise his or her organisations core business, identify the average annual turnover of the company and how many staff were directly employed. In the first question, whilst a purposive sampling technique meant five interviewees were selected from each of the four disciplines, six categories including a category of 'other', allowed the respondent to classify, without bias, their area of operation. The second question asked interviewees to identify their respective organisations turnover in the last financial year. Categories were identified as \leq £2.8M, between £2.81M and £11.2M, between £11.21M and £500M and $>$ £500M, which generally followed the Department for Trade and Industry's definition of a small and medium enterprise (SME), albeit recognising other turnover categories have been extensively used in surveys of this kind (Akintoye and Fitzgerald, 2000; El-Ghandour and Al-Hussein, 2004). The third question then requested interviewees to identify how many staff were directly employed by the company with categories identified as \leq 9, between 10 and 49, between 50 and 99, between 100 and 250 and $>$ 250, which again generally aligned with the Department of Trade and Industry's definition (for statistical purposes) of a SME.

Demographics	Categories	N=20	Valid %
Role	Director	9	45
	Dept. Head	2	10
	Ops. Man.	1	5
	Business Man.	1	5
	Associate	4	20
	Senior Project M	1	5
	Project Man.	1	5
	Key Acc. Man.	1	5
Total		20	100%
Tenure within current role	<5	0	0
	5-10	10	50
	11-15	5	25
	16-20	1	5
	>25	4	20
Total		20	100%

Table 5.1; Demographic Characteristics of Respondents

Table 5.2, identifies the main core business types selected for each organisation, reverted to type. Hence the interviewees selected through the stratified purposive sampling method, essentially undertook the role from the four disciplines for which they were selected. Table 5.3, which recognizes the Department for Trade and Industries (DTI) financial criteria for SME's and the category selected by each interviewee, indicated the principal category for organisational turnover was £11.21 to 50M. This category having been chosen by 8 out of 20 interviewees (40%) meant each of these organisations exceeded the SME definition for a medium sized company. Nevertheless the second largest category, with 7 out of 20 (35%), was within the £2.8 to £11.2M bracket and therefore met the financial criteria for medium sized organisations. Furthermore, as Table 5.4 identifies the same interviewees, and groupings for the numbers employed (including the DTI criteria for SMEs) and the category selected by each interviewee, this category also met the second (DTI) criteria by not employing more than 250 employees (Table 5.4). This meant these companies were by definition medium sized. The third category, with 5 out of 20 (25%) were companies that had a turnover of > £50M; hence these too were considered large organisations in respect of turnover. Inadvertently this meant none of those interviewed satisfied the category for a 'small' enterprise i.e. a turnover of not more than £2.8M. It can also be seen that the thirteen companies that met the financial criteria for a 'large' company i.e. a turnover of > £11.2M also exceeded the medium sized employee requirement as each of them employed >250 staff.

Discipline Type	Core Business			
	Client	Consultant	Main Contractor	Sub-contractor
Client 1	✓			
Client 2	✓			
Client 3	✓			
Client 4	✓			
Client 5	✓			
Consultant 1		✓		
Consultant 2		✓		
Consultant 3		✓		
Consultant 4		✓		
Consultant 5		✓		
Main Contractor 1			✓	
Main Contractor 2			✓	
Main Contractor 3			✓	
Main Contractor 4			✓	
Main Contractor 5			✓	
Sub Contractor 1				✓
Sub Contractor 2				✓
Sub Contractor 3				✓
Sub Contractor 4				✓
Sub Contractor 5				✓
Total	5 (25%)	5 (25%)	5 (25%)	5 (25%)

Table 5.2; Area of Operation

Discipline Type	Turnover (£)			
	≤2.8m	2.81m-11.2m	11.21m-50m	>50m
Client 1			✓	
Client 2				✓
Client 3			✓	
Client 4		✓		
Client 5				✓
Consultant 1		✓		
Consultant 2			✓	
Consultant 3			✓	
Consultant 4		✓		
Consultant 5			✓	
Main Contractor 1				✓
Main Contractor 2		✓		
Main Contractor 3				✓
Main Contractor 4			✓	
Main Contractor 5				✓
Sub Contractor 1				
Sub Contractor 2			✓	
Sub Contractor 3		✓	✓	
Sub Contractor 4		✓		
Sub Contractor 5		✓		
Total	0 (0%)	7 (35%)	8(40%)	5 (25%)

Table 5.3; Organisational - Turnover

Discipline Type	Employed				
	<10	10-49	50-99	100-250	>250
Client 1					✓
Client 2					✓
Client 3					✓
Client 4		✓			
Client 5					✓
Consultant 1		✓			
Consultant 2				✓	
Consultant 3					✓
Consultant 4					
Consultant 5			✓		
Main Contractor 1					✓
Main Contractor 2					✓
Main Contractor 3			✓		
Main Contractor 4					✓
Main Contractor 5			✓		
Sub Contractor 1					✓
Sub Contractor 2					✓
Sub Contractor 3		✓		✓	✓
Sub Contractor 4			✓		
Sub Contractor 5					
Total	0 (0%)	3 (15%)	4 (20%)	2 (10%)	11 (55%)

Table 5.4; Numbers Employed

In summary, the interviewee respondents occupied relatively senior positions within their respective organisations and had been with their current employers for an average of 12 years (Table 5.1). All twenty interviewees were therefore judged to have had a good understanding of their organisations practices and procedures as well as a lucid knowledge of the construction industry generally. The data analysis also indicated those organisations were broadly split between medium and large enterprises as defined by the Department of Trade and Industry. Thus no companies were defined as 'small' i.e. a turnover of not more than £2.8M, or employing more than 49 personnel (Table 5.3 and Table 5.4). Yet the spread of results across the four disciplines was considered representative of the UK construction industry. For whilst diverse and complex "...all projects feature a large number of tier two suppliers...[with] between 50% and 75% of the total value of work accounted for by a small number of major sub-contractors..." (BIS, 2013). Further as it is recognised tier two suppliers or sub-contractors can also have a large and complex network of suppliers or sub sub-contractors this arguably means they too can be a larger management organisation with construction work delivered at tier three (BIS, 2013). Hence while the work is amassed at tier two it is then broken down into smaller packages to achieve delivery at the lower tier (tier three).

Yet as the BIS research paper concedes, sub-contractors working for a tier two sub-contractor i.e. tier three, often employ sub-contractors and suppliers themselves and so generally do not represent the final layer of the supply chain.

5.4 General Perception

5.4.1 What is your perception of the construction industry?

The survey sought data from the twenty interviewees on their perception of the construction industry. For whilst the literature review included within this study focused on numerous reports and surveys that wanted to drive improvement within the UK construction industry through change, findings suggested working practices did not reflect theory. Hence as identified within Appendix 8 (Figure a) numerous single words or short phrases were listed adjacent to appropriate tick boxes with the instruction that respondents ticked all those considered amenable. An additional box identified as 'other', was also included which allowed each respondent to augment their perception of the industry without bias, if descriptors beyond those listed were deemed necessary. The results, whilst graphically illustrated within Figure 5.1 show the overall perception of the construction industry, across the four disciplines, was negative (Table 5.5). Further, with Table 5.5 identifying each positive and negative single word or phrase, and those selected by each of the 20no interviewees, the highest scoring negative perception, and identified by 16 out of 20 (80%) of those interviewed, was 'low profit margins' with all but 1no client, 2no main contractors and 1no sub-contractor selecting the same. The second highest negative perception at 13 out of 20 (65%), was 'cost cutting' and this was selected by 3no clients, 3no consultants, 3no main contractors and 4no sub contractors.

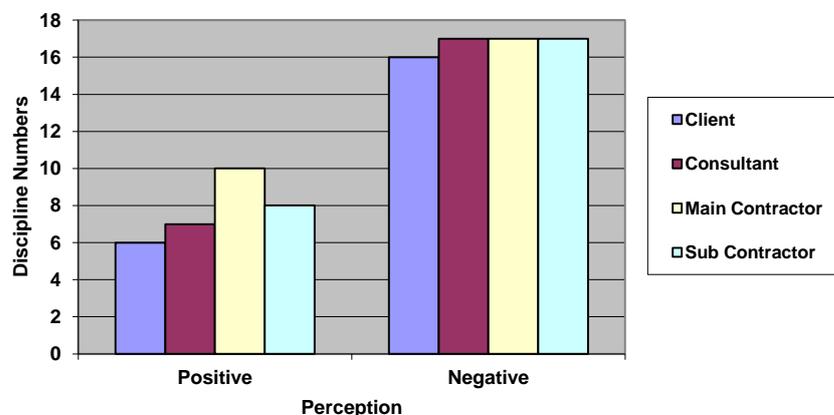


Figure 5.1: Current Industry Perception as Perceived by Each of the Four Disciplines

From a positive perspective Table 5.5 indicated the most popular response was 'customer focus'. For 7 out of 20 (35%) respondents, comprising 2no clients, 2no consultants and 3no main contractors recognised customer focus was important, as without it "...no repeat business" (Client 4). The equal second most accepted positive perspective was 'dynamic', 'innovative' and 'meeting client expectations', with 5 out of 20 (25%) of those interviewed selecting each. Yet on closer analysis of the seven who recognised 'customer focus' as a positive judgment, only two believed the industry 'met client expectations' i.e. Consultant 3 and Main Contractor 4. It was therefore construed the interviewees who identified a focus upon the customer acknowledged the industry frequently failed to deliver what was expected. Conversely, as Table 5.5 illustrates, the one client (Client 1) who perceived the industry 'met client expectations' did not select 'customer focus' as a positive perception, but did consider the industry to be successful. So with only Client 3 and Client 4 selecting 'customer focus' (but not 'meeting client expectations'), Client 3 stated "...I think its customer focused because they are desperate for the business"; thus bolstering that stated by Client 4 (Appendix 9, Figure a). With reference to the remaining four positive perceptions, 3 out of 20 (15%) selected 'good communication', 2 out of 20 (10%) identified 'creative', a further 2 out of 20 (10%) identified 'successful' and 1 out of 20 (5%) picked 'mutually beneficial'. Still in relation to the findings from the twenty interviews a graphical analysis of the frequencies has been produced to illustrate the comparative data. For whilst the qualitative research element was designed to explore similarities and differences between each of the twenty respondents across the four disciplines, via the semi structured interview, Figure 5.2 compares and highlights the potential themes and trends that relate to the general perception across the same. So as simple line graphs identifying discipline perspectives, any conception of prevalence from the thematic responses will be demonstrated. Hence an expressive way to illustrate similarities and differences between participants derived from MacQueen, *et al.*, (2001) and utilised by Guest, *et al.* (2005).

Interviewee	Perception																						
	Dynamic	Successful	Innovative	Inclusive	Creative	Customer focused	Meets client expectation	Good communication	Mutually beneficial	Litigious	Parochial	Adversarial	Slow to Change	Low Profit Margins	Poor Productivity	Under Performs	Corner Cutting	Transient	Fragmented	Uncoordinated	Cost cutting	Other.....	
Client 1		1					1					1		1							1		
Client 2			1							1		1	1	1	1								
Client 3						1						1		1								1	
Client 4	1					1						1		1		1			1		1		
Client 5																							
Consultant 1						1							1	1					1				
Consultant 2			1											1							1	1	
Consultant 3						1	1	1				1	1	1									
Consultant 4													1				1					1	
Consultant 5			1		1							1	1	1					1		1		
Main Con. 1	1					1							1	1		1						1	
Main Con. 2	1					1					1											1	
Main Con. 3	1	1			1							1		1	1	1		1	1	1	1	1	
Main Con. 4						1	1		1					1			1		1				
Main Con. 5																							
Sub. Con. 1	1		1				1	1				1		1							1	1	
Sub. Con. 2														1			1	1			1	1	
Sub. Con. 3			1				1	1				1		1				1	1			1	
Sub. Con. 4														1							1	1	
Sub. Con. 5																							
TOTAL	5	2	5	0	2	8	5	3	1	1	1	9	5	16	2	3	3	3	6	5	13		
%	25	10	25	0	10	40	25	15	5	5	5	45	25	80	10	15	15	15	30	25	65		
	Positive Perception										Negative Perception												

Table 5.5; An Industry’s Perception of the Construction Industry

With reference to Figure 5.2, the survey findings show the relative number of participants, from the four disciplines, who collectively expressed key themes. So by using a graphic-theoretic technique this helped understand the bigger picture and how this related to each subsequent theme and code as the chapter progressed. For in providing a broader more holistic perspective, and so identifying a category structure that fits the collection of observations, this allowed the analysis to identify

the natural groupings within the data set when each of the twenty interviewees were asked to categorise their perception of the construction industry. The evidence from the analysis therefore suggests;

- The key pressure is financial with the stimulus remaining lowest cost. 'Low profit margins' and 'cost cutting' have therefore been identified by the majority of respondents which reinforces "...downward competitive pressure through the supply chain facilitates cost reduction...[whilst] very high levels of competition in supplier selection are seen to be having a negative effect..." (BIS, 2013);
- The construction industry is not considered 'inclusive' or 'mutually beneficial' and whilst it has been branded 'adversarial' and 'fragmented', 'good communication' was poorly represented by all disciplines. For with the premise 'lowest price wins' "...price trumps performance in winning bids [whilst] very high levels of competition in supplier selection are having a negative effect on established supply chain relationships, which are at risk of breaking down" (BIS, 2013);
- There is an amount of 'customer focus' but this is not paralleled by the positive perception 'meets client expectation' albeit this surpasses the positive perception of 'successful', as only one client and one main contractor believes it is;
- The perception is the construction industry is less 'litigious' albeit remaining moderately 'adversarial'. For whilst considered 'slow to change' by some, procurement approaches are yet to fully embrace collaborative principles. Therefore incidences of poor performance continue as the main contractor – subcontractor relationship, which are habitually under traditional construction procurement arrangements, experience friction because main contractors are primarily concerned with maximising their profit (Dainty, *et al*, 2001; Tommelein and Ballard, 1998).

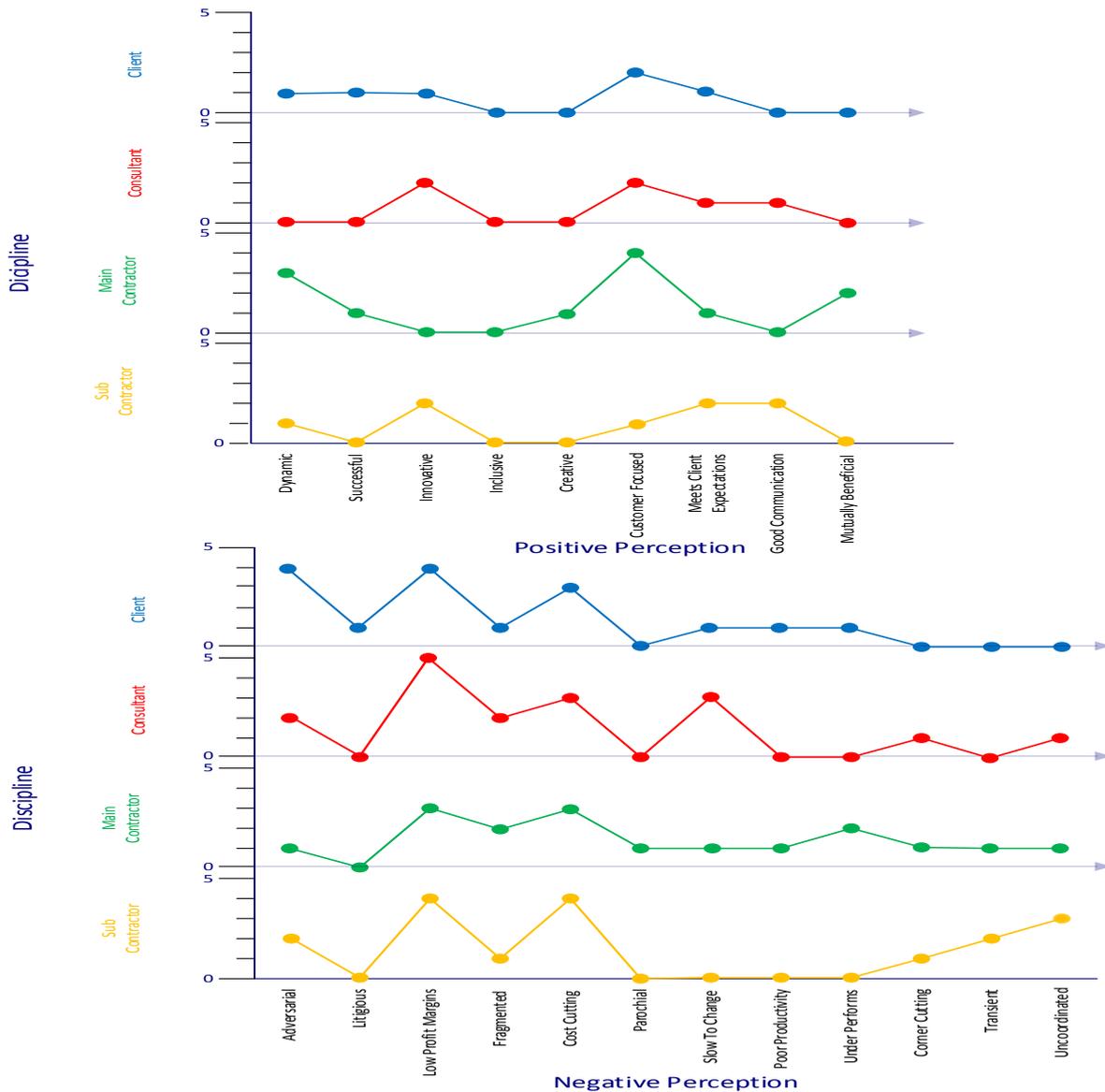


Figure 5.2; Graphical Display – General Industry Perception Across the Four Disciplines.

5.4.2 A Company’s Preferred and Most Frequently Used Strategy for Construction Procurement.

The two questions in relation to a company’s preferred and most frequently used construction procurement strategies were analysed together in order to make a direct correlation between the two. In so doing, the abstract has observed whilst Partnering/Frameworks were mentioned most frequently across the four disciplines, and in particular by both main and sub-contractors, there was no unanimous agreement on the preferred procurement strategy (Figure 5.3 and Table 5.6). As Figure 5.3 graphically illustrates the overall perception of each disciplines preferred

strategy for construction procurement and Table 5.6 identifies each interviewees response, 3no Clients, 2no Consultants, 3no Main Contractors and 4no Sub-contractors identifying partnering as their preferred approach. For it built long term relationships, and therefore was less adversarial, and/or had a better chance of being within budget due to the anticipated levels of communication. Though as 8no interviewees did not identify partnering as their preferred procurement strategy for various reasons including the limitations associated with a client’s ability to transfer risk (Consultant 1), competitive tendering was accepted as the main focus by all twenty interviewees. Therefore, as competition remained central to realising lowest price at day one, the findings associated with the most frequently used procurement strategy were, in part, at odds to that preferred (Figure 5.4 and Table 5.7).

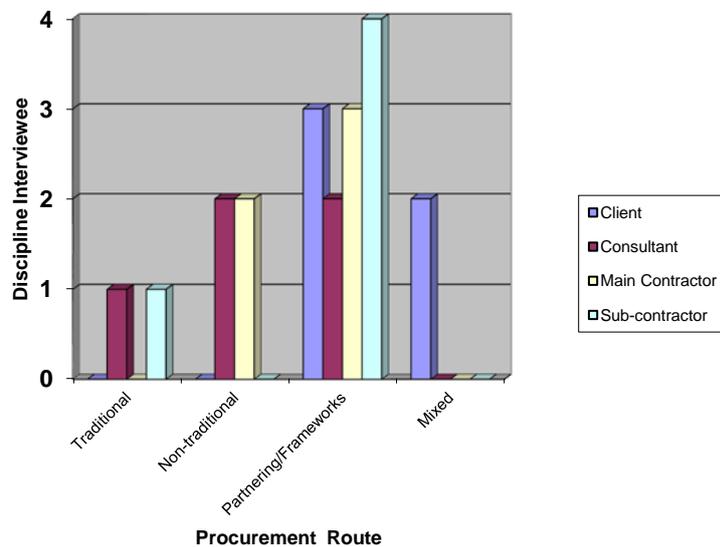


Figure 5.3: Preferred Strategy for Construction Procurement Across the Four Disciplines.

	Clients					Consultants					Main Contractor					Sub Contractors				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Traditional	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Non-Traditional	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0
Partnering/Frameworks	1	1	1	1	1	0	0	1	0	1	0	1	1	1	0	1	0	1	1	1

(yes=1, no=0)

Table 5.6: Binary Matrix Illustrating Individual Responses Across Four Disciplines to Preferred Construction Procurement Strategy.

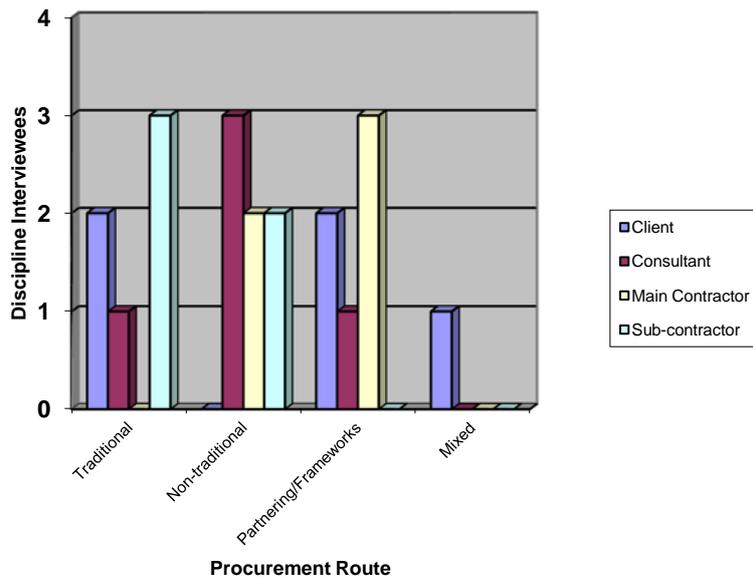


Figure 5.4: Most Frequently Used Construction Procurement Strategy.

	Clients					Consultants					Main Contractor					Sub Contractors				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Traditional	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	1
Non-Traditional	0	0	0	0	0	1	1	0	1	0	1	0	0	0	1	1	0	1	0	0
Partnering/Frameworks	0	0	1	1	1	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0

(yes=1, no=0)

Table 5.7: Binary Matrix Illustrating Individual Responses Across the Four Disciplines of Most Frequent Construction Procurement Strategy.

Whilst Figure 5.4 illustrates the overall perception of each disciplines most frequently used construction procurement strategy and Table 5.7 identifies each interviewees response, it is recognised the use of frameworks are primarily within the public sector because it is a public sector initiative (Main Contractor 2). Therefore Main Contractor 4 noted “...they use the procurement methods they are told to use by central government, rather than thinking it is the most appropriate...”. So as various main contractors “...concentrate on government funded procurement” (Main Contractor 4), the organisations that matched preferred with the most frequently used were those considered dominant, i.e. clients and main contractors. Thus the client’s and main contractors preferred and most frequently used procurement strategies were generally unvaried. So as Client 2 noted “as a rule,

[their] *preferred* [procurement strategy]...*was the most frequently used...*", it was also theorised that any procurement strategy implemented was dictated by the dominant (upstream) discipline - who then generally promoted harsh competition downstream. For whilst the initial data established partnering was a good way forward for a sub-contractor, "...*if you were the one partnering*" (Sub-contractor 4), it was recognised that there were very few opportunities to secure long term contracts due to a lack of loyalty, as previously noted. This inevitably meant whilst "*there are theories of partnering within the industry, i.e. [sub-contractors] partnering with a contractor who partners with their client, a lot of the time [this is said to be]...lip service*" (Sub-contractor 3). Thus with 3 out of 5 main contractors frequently securing work through competitive frameworks (set up by public sector bodies) 5 out of 5 sub-contractors frequently secured their work traditionally or non-traditionally. Hence interview findings also identified "*clients don't generally get involved with the relationships between main contractor and sub-contractors...as this gives the main contractor as much flexibility and scope to offer best possible prices, given the main contractor is far better at negotiating the supply chain...*" (Client 4). As a result, with partnering practices generally viewed along a continuum from competition to cooperation, collaboration and coalescence, there was mutual comprehension that schemes in the main were individually tendered throughout the supply chain, albeit labelled partnering/frameworks upstream and select lists downstream. Comments included; "...*frameworks [mean]...a restricted group of four contractors, so mini competition*" (Main Contractor 2); "...*typically these days on frameworks it is very rare that we get direct allocation. We still have to go into competition so...you might be against 6 or you may be against 2 or 3 but there is usually quite a few to go against on a job*" (Main Contractor 3) and "...*we are not necessarily their only one but they only go to four...therefore you have a better chance of getting the job...*" (Sub-contractor 4).

Whilst a company's hierarchal position within the supply chain has been identified as significant in respect of their preferred and most frequently used procurement strategy, a promoted step change away from competition towards integrated mechanisms that incite collaborative working has not been realised. Yet, while high levels of competition in supplier selection is said to have had a detrimental effect on the establishment of supply chain relationships (BIS, 2013), unreceptive comments opposing partnering ranged from; "...*design and build is preferred...as the contractor carries the risk*" (Consultant 4) and "*we would always tend to go down the*

design and build route because we are there to protect the clients' interests..." (Consultant 1); to *"...we traditionally tender all our programmed and small project works up to half a million.."* (Client 3); *"...my own personal view is that a traditional form of competitive tendering would actually bring better prices..."* (Client 4); and *"from a client perspective traditional contracting....as partnering is good in theory but not in practice"* (Consultant 2).

Sub-contractor 3 also suggested whilst framework arrangements were in place it was not uncommon for clients (and/or main contractors) to go *"...back to the contractors [or Sub-contractors] and say I know we have a framework agreement but we want your best price. In other words give us a better price than what you've already done"*. This statement is also supported by the BIS Research Paper (2013) which asserts there has been a *"...shift in bargaining power within the supply chain, [and this] has been used to push down prices..."* because of high levels of competition and low initial margins that are expected to be increased through post tender rebidding of sub-contract packages. Sub-contractor 2 also noted *"...once under the main contractors umbrella, having initially competed for the work, they dictated terms and conditions"* so *"...it depends on how you look at partnering..."*. In addition Sub-contractor 4 identified the payment of a 1.5% annual payment to a particular main contractor in order to be (and remain) on their select list. Hence, as Figure 5.3 and Table 5.6 identify the sub-contractors who selected partnering/frameworks as their preferred procurement strategy, Figure 5.4 and Table 5.7 illustrate a definite shift away from partnering in respect of that most frequently used. Furthermore where framework arrangements are said to be in place the benefits of the extended relationship does not necessarily flow down to the lower tiers of the supply chain as Sub-contractor 2 and Sub-contractor 4 identified by stating; *"...this term partnering - we have gone into several partnering agreements but I have never seen the benefits of them..."* and *"...they have the pain/gain type contract sometimes but you certainly do not get any gain..."*.

5.4.3 General 'Industry' Consensus When a Particular Procurement Method Should Be Used

Quantitative analysis approaches are particularly helpful when the qualitative information has been collected in a controlled way i.e. a semi-structured interview. Therefore having completed the qualitative coding process a quantitative analysis approach was adopted that would summarise the data from the twenty interviews.

For as data summarisation implies common features emerge across such repetitions, the value of this quantitative analysis has been realised as it has been possible to identify features that frequently occurred across the participatory discussions in respect of a consensus. Hence the binary variables ‘yes/no’, along with a graphical presentation were deemed sufficient to ensure the essential features of the data were depicted (Figure 5.5 and Table 5.8).

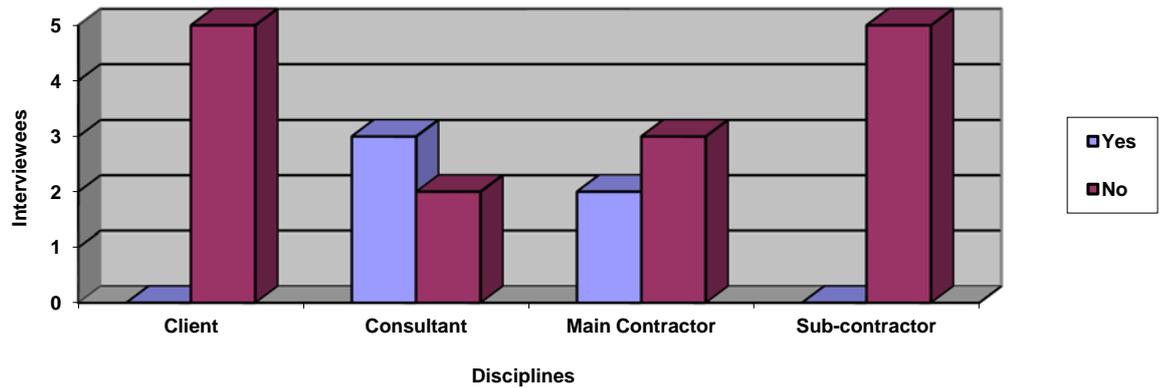


Figure 5.5: Interviewee Responses - Is There a General Industry Consensus to a Particular Procurement Method (a graphical display)

	Clients					Consultants					Main Contractor					Sub Contractors				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Consensus	0	0	0	0	0	1	0	1	1	0	1	1	0	0	0	0	0	0	0	0

(yes=1, no=0)

Table 5.8: General Industry Consensus to a Particular Procurement Method

With Figure 5.5 illustrating discipline perception as to whether a general industry consensus exists in terms of a particular procurement method and Table 5.8 confirming each interviewee’s response, this form of summary is considered rational because there was no requirement to extend the results beyond the sampled units. Thus it is concluded there is no industry consensus when a particular procurement method should be used. For whilst the vast majority of the procurement approaches were financially driven, as previously identified (6.3.1 and 6.3.2), 75% (15 out of 20) of those interviewed gave an emphatic ‘no’ in respect of an industry consensus. Their comments included; “no I don’t think you are going to find a consensus across

the whole industry. I think it does change from sector to sector. Sometimes it changes whether it's private work, whether you've not got the same restrictions in terms of... the demonstration of best value" (Client 1); *"I don't think there is a consensus, it depends on what the client wants. I think most of the procurement methods that you've got are risk driven – what's the flavour for risk and certainty, and we would rather, as a business generally...I wouldn't say we pay more, though we pay a slight premium, but we deliver certainty"* (Client 2); and *"I think it depends on what type of client you are working to..."* (Client 4) (Appendix 9, figure b). Of the remaining 25% (5 out of 20) who thought there was a general industry consensus when a particular procurement method was to be employed, 10% (2 out of 20) looked for design and build in the first instance, *"...because of the issues around risk and risk transfer"* (Consultant 1) and the remaining 15% (3 out of 20) agreed partnering was *"...the best method [as it meant] collaborative working which prevents the adversarialism you get with single stage traditional contracts"* (Main Contractor 1). Still 35% (7 out of 20) of those interviewed believed the particular procurement method used depended on the sector and client organisation including Main Contractor 4 who confirmed their work was generally from government funded sources, which meant the procurement methods used were those endorsed by central government i.e. partnering/frameworks. So whilst *"...partnering is driven...through the public sector"* (Client 2), larger private sector organisations have more autonomy than the public sector and operate without the same restrictions in terms of procurement regulations or the need to demonstrate best value. Thus they were more likely to turn out relatively similar projects on mass whilst having a continuous workload (Client 1). Conversely the public sector rarely had two projects the same, nor was their capital programme continuous. This made it difficult to specify a particular process and then state it would follow through for a subsequent number of schemes.

5.4.4 A Shift from Promoting Broadest Competition Towards Integrated Supply Chain Mechanisms That Encourage Mutual Benefit

Through the use of the in-depth interviewing (qualitative) approach the initial conclusion was that there was a shift from promoting broadest completion towards integrated supply chain mechanisms that encouraged mutual benefit. However while Figure 5.6 and Table 5.9 graphically illustrate this preliminary finding, where integrated supply chain meant a close alignment and coordination within a supply chain, further analysis recognised this positive response was itself built up of

various facets. Hence the adoption of a quantitative analysis that counted words and/or phrases within the relevant data set provided a better, more in-depth understanding of the thematic frequencies across the twenty interviews i.e. it identified repeated observations, ideas, thoughts, etc. relating to the larger body of text. Hence the simple key text quantification substantiated the existence of a divide via the code-by-code similarity matrix adopted for each interview. As this probed beneath the initial results displayed in Figure 5.6 and the first row of Table 5.9 ('consensus'). So allowing the separation of data into relevant groups and so ascertaining the number of interviewees across the four disciplines in which two codes co-occurred, Table 5.9 (row 2, 3, 4 & 5) go on to illustrate the degree of natural association rather than determining simply whether the selected codes individually co-occurred.

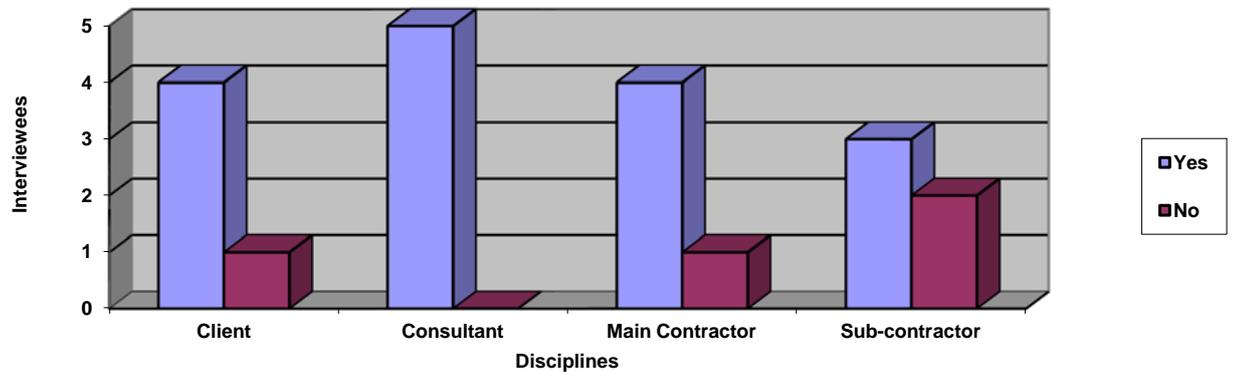


Figure 5.6: Has the Company Noticed a Shift Towards Integrated Supply Chains

ROW		Clients					Consultants					Main Contractor					Sub Contractors				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Consensus	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1
2	Sector specific	0	0	1	1	1	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0
3	Still harsh competition	0	0	0	0	1	1	0	1	1	0	1	0	1	0	1	1	0	0	1	1
4	Future work dependent	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0
5	Smaller supply chains	0	1	1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0

(yes=1, no=0)

Table 5.9: Has the Company Noticed a Shift Towards Integrated Supply Chains

With reference to Table 5.9 (row 2, 3 and 4) the effect of a shift from promoting broadest completion towards integrated supply chain mechanisms that encouraged mutual benefits appeared limited with only conical supply chains and public sector frameworks identified across the four disciplines. So with integrated supply chains referring to the involvement of key members, who have long term supply chain relationships, and who work together as a team to agree mutual objectives, 35% (7 out of 20) of those interviewed referenced lessened supply chains. Some of the more constructive comments included; *“we used to have a very wide supply chain – huge supply chain, and over the last five years it’s been narrowed down to half a dozen...in each package...”* (Main Contractor 1); *“...I think the contractor supply chains strike me as being a lot tighter than they used to be”* (Client 2); and *“...trying to promote things through the construction hub so you try to narrow down who you are tendering to”* (Client 3). Yet from those interviewed who believed the shift had come in the form of narrowed supply chains, concern was also expressed because; *“the current economic climate has meant going back out to the open market in order to reduce costs to ensure [the company] remained competitive”* (Main Contractor 1) (Appendix 9, figure c). Therefore *“...in the current market, with more emphasis on costs, harsh competitive tendering [had] returned”* (Consultant 4). This meant, whilst a move from promoting broadest completion towards integrated supply chain mechanisms was recognised, aggressive competitive tendering has resulted in a *“...number of frameworks [that] had previously been set up not being renewed...[and ultimately this was signifying] a return to traditional methods”* (Consultant 4).

The second split of 40% (8 out of 20) stated there had been a swing towards frameworks particularly within public sector bodies. Though whilst Client 4 mused there were doubts as to whether some of the arrangements experienced actually provided the cost benefits professed, Client 3 identified frameworks saved time because they negated going to the open market. Yet Main Contractor 2 noted this shift was *“...within sectors [as] local authorities [where] definitely more towards partnering, as it seem[ed there was] almost a central government dictation that they have to go down that route.....”*. Thus all 8no interviewees who stated there had been a swing towards frameworks acknowledged these were in the public sector. Further whilst the public sector frameworks took into consideration corporate responsibility, environmental and quality management, Consultant 1 believed lowest price remained *“...the determining factor”*. For as previously discussed, the majority

of frameworks involved competition and Sub-contractor 1 stated “...people are becoming more and more cost conscious and [this] goes back to harsh competitive tendering and nothing but”. This was also reflected in that noted by Client 2 who ruminated “...partnering [was] driven...through the public sector... [and while] the public sector loves the idea of partnering, they are caught up in best cost [which] partnering doesn't necessarily give you...at day one. Therefore it doesn't work [as all the] rules and regulations are driven towards competitive lump sum tendering, [therefore] you never get the opportunity to partner”. Ten out of the 20no interviewed stated harsh competition was normal.

Whilst 20% (4 out of 20) stated there was no noticeable move towards integrated supply chains that encouraged mutual benefits as “...it is hinted at regularly by purchasing bodies but how you actually deliver on it always seems to be the sticking point...” (Main Contractor 4). So as nobody seems to have come up with a way to deliver, Client 1 notes “...I don't think we have noticed [a shift, albeit] there are a number of principles around the way in which you can procure”. Yet in terms of future work Client 4 stated it depended on what sort of client the organisation was working for “as framework agreements are fantastic because whilst there is no guarantee of work they have got their foot in the door...”

The findings identified reflect that theorised in 5.3.1 and 5.3.2 above in so much as the key pressure is financial with the stimulus remaining lowest cost. So whilst reiterating the lean is towards smaller contractor groups through the adoption of public sector frameworks or refined select lists as opposed to open market tendering, “...lowest price [still] wins...” (Subcontractor 2). Therefore as “...partnering doesn't necessarily give you best cost at day one” (Client 2) there is no evidence to suggest a significant step change towards integrated mechanisms that incite collaborative working. For as main contractors remain concerned with maximising profit and therefore select sub-contractors on the basis of lowest price (Akintan and Morledge, 2013; Dainty, *et al.*, 2001; Tommelein and Ballard 1998) this is not an effective mechanism to sustain business transactions (Kale and Arditi, 2001).

5.4.5 The Company Driver on Procurement Strategy

The analysis process as part of the qualitative detail interview process has identified a divide between disciplines in terms of what drives the company on procurement strategy. For in respect of Clients, accountability is key whilst Main Contractors and

Sub-contractors must compete to secure future work. Yet bridging the split are consultants who, whilst competing for future work themselves, also advise the Client and therefore are accountable.

Initial analysis of the Client data identified; “*value for money which is linked to an element of quality, whilst remaining publically accountable...[due to being] very open and transparent about what we do*” (Client 1); “*...driven by complying with audits to make sure standing orders followed*” (Client 3); and “*value for money is probably the biggest driver but it isn’t all about getting the cheapest cost*” (Client 4). Yet whilst both value for money and public accountability are significant factors, there is a slight tilted towards accountability because “*...the decisions taken around procurement must not lead to any legal challenges as a result of freedom of information requests*” (Client 4) and “*...from our point of view as a Public Sector Organisation you have to be whiter than white*” (Client 3). On the opposing side, the initial analysis for the Main Contractor and Sub-contractor identified; “*...[a drive] towards frameworks and partnering. For securing enough frameworks are the company’s building blocks that offsets overheads*” (Main Contractor 2) and “*the key thing in the current climate is getting on the list, for the more lists the more chance of getting the work*” (Sub- contractor 4). This ultimately means the theoretical code concludes the need to secure future work drives both the Main and Sub-contractor companies on procurement strategy. Linking the two, as noted above were consultants who, whilst competing for their future work also hold an advisory role which means they are both accountable and under pressure to secure future work. So as Consultant 5 stated; “*...we advise the client, [but] it’s not our strategy...*” Consultant 4 identified; “*the company will negotiate...the right method for the client whilst achieving a continued involvement, therefore it’s what suits our needs best as an inter-discipline company*”. Consequently, as Consultant 1 noted they predominantly looked for full (or appropriate) risk transfer in order to ‘*...protect the client’s interest*’, this results in increased levels of risk being held by the supply chain. So as construction involves high levels of risk due to a combination of ‘one-off’ design and construction, site-based works, fixed-price contracting and supply chain fragmentation, the progressive transfer of risk from client through main contractor to the supply chain may not result in optimal outcomes. Thus the qualitative and quantitative methods adopted here illustrate there is no overall agreement on an explicit procurement strategy - though a discipline perspective has been acknowledged.

5.4.6 Key Findings Associated with General Perception

As a result of data analysis, whilst the key findings from the twenty interviewees in relation to their general perception of the construction industry have been graphically displayed, with effort made to illustrate parity and/or disparity between the four discipline groups, it is summarised as follows;

- The clients preferred procurement method is their most frequently used. For whilst this might have been determined by central government, initiated to realise lowest cost at day one or because of their inclination to transfer risk, the Client remains dominant (even if they seldom engage in construction) because they initiate the scheme. Therefore whilst consultants should “...advise the client on the best procurement route...people jump into it without actually going through the analysis first [by saying things like]...this has got to be design and build because I don't want any risk” because of issues around accountability;
- The main contractors preferred procurement method is also their most frequently used. Hence 3 out of 5 Main Contractors identified partnering/frameworks as their preferred, and this was emulated in that most frequently used. For being responsible for the construction of projects they are able to opt for a particular sector having a foregoing knowledge of the general procurement methods being adopted i.e. “...most of the work in this business unit is through frameworks and partnering” (Main Contractor 3); and “...I'm speaking because we concentrate on government funded procurement, which is the majority of our work...” (Main Contractor 4). Yet, with an eagerness to work with a particular client, the utilisation of a certain procurement strategy and an indication of the overall demand levels, which are all strong determinants, high levels of competition between general contractors nevertheless result in low initial margins;
- A consultant's preferred procurement route is not necessarily their most frequently used although as members of the construction team, they are likely to experience the least direct impact from partnering. Though as Consultant 2 identifies “...I think it depends when we are brought into the process, for if we are brought in late...[and] there is a M&E sub-contractor already on board...we don't get involved in relationships with the main

contractor, which is frustrating...but if we are brought in early enough then we can establish a relationship all the way through the supply chain". Still as Consultant 4 accepted it was what suited their needs best, and if there was a procurement route that favoured their continued involvement then *"...unfortunately that would influence the way forward";*

- No sub-contractor's preferred procurement route was that most frequently used. A noteworthy difference was therefore identified at Sub Contractor level where 4 out of 5 stated partnering/frameworks as their preferred, but 0 out of 5 confirmed it as their most frequently used. For as the Main Contractor is dominant downstream, albeit reliant upon Sub-Contractors to execute the work, competition remains key. Further whilst Sub-Contractors are selected on the basis of lowest price, "re-bidding" is also said to inhibit effective collaboration (BIS, 2013). For owing to the large number of small sized Sub-Contractors, work is generally delivered at tier three through a *"...high number of low value transactions within the supply chain"* (BIS, 2013). Hence the current structure not only facilitates high levels of competition in order to secure lowest price, but post tender engineering. As there is an expectation amongst Clients that initial margins amongst Main Contractors have been increased, whilst the sub-contractors are *"...desperate for the work"* (Client 3);
- There is no industry consensus as to when a particular procurement route should be used. Yet following the industry-led and government-commissioned enquires previously identified (Chapter 2) there is a general understanding that frameworks have been embraced by public sector bodies rather than private organisations. Hence Client 1 observed *"...we are publically accountable [and therefore must] account for the decisions we take around procurement"*, whilst Main Contractor 1 stated *"in the current market...going back out to open market in order to reduce costs to ensure they remain competitive"*;
- The analysis shows a shift from promoting broadest competition towards integrated supply chain mechanisms that encourage mutual benefit was generally noticed across the four domains of enquiry. Albeit this was confined to conical supply chains and public sector frameworks;

- There are contrasting perceptions in relation to what drives the company on procurement strategy. For whilst clients need to attest accountability the constructor disciplines (i.e. main contractors and sub-contractors) self interestingly strive to secure future work. Bridging the two are consultants, for whilst they too must secure future work in order to survive and prosper, they are nevertheless answerable for the counsel given.

While the sample was small and purposively selected, the correlation between the disciplines was considered statistically significant. Hence it is suggested relations between variables is dependent upon the disciplines dominance. Yet, as traditional, non-traditional and partnering and/or frameworks were each identified by 35% (with one being split) as those most frequently used this too reflects that previously theorised. Hence there is no general consensus on the most advantageous procurement method. Therefore the industry continues its association with traditional and non-traditional procurement. Furthermore having analysed the two questions together in order to make a direct correlation between the preferred and most frequently used procurement strategies it also became apparent, in respect of partnering, that the number of companies across the four disciplines who identify partnering as the inclusion upon a framework were each project was competitively secured was high. So as Egan advocated long term relationships would replace competitive tendering and single project partnering, because a model that encouraged short term thinking did not make sense when compared to ways that incentivised long term value creation, irrespective of the procurement method utilised, this would customarily be competitively driven. In addition, whilst it is to be reasoned corroborative relationships and early involvement are enablers of high performance, albeit generally associated with reduced levels of completion, there is a disincentive for a sub-contractor to support a main contractor, as it is generally accepted work packages would be retendered once the project was secured by the main contractor.

5.5 Relationships

5.5.1 Companies engaged in partnering

Here three questions were analysed collectively as the survey sought data on whether a company engaged in partnering, and if so how and to what extent. Therefore in looking for a direct correlation across the multi-question assessment, the analysis concluded a significant number of supply chain members did

pronounce to adopt partnering; although the terms ‘partnering’ and/or ‘partnering arrangements’ were freely used to describe a variety of associations. Hence Figure 5.7 and Table 5.10 graphically illustrate the preliminary results from this the initial (qualitative) phase.

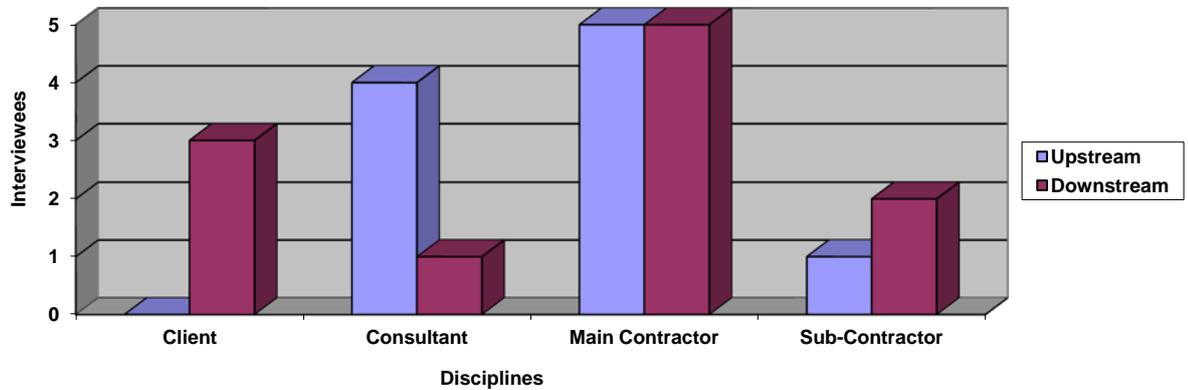


Figure 5.7; Partnering arrangements (formal and informal) up and down stream.

Description	Does your company engage in partnering?			
	Client	Consultant	Main Contractor	Sub Contractor
Upstream;	0 (0%)	4 (20%)	5 (25%)	1 (5%)
Downstream;	3 (15%)	3 (15%)	5 (25%)	2 (10%)

Table 5.10; Disciplines engaged in partnering (formal or informal) up and down stream.

From the data observed across the four disciplines within Figure 5.7 and Table 5.10, a large number of companies agreed they partnered, be that formally or informally. And whilst Main Contractor 2 believed their inclusion on formal frameworks was “...partnering in its purest sense” and Sub-Contractor 4 supposed “...a main contractor being on a framework, meant they were too”, the adopted quantitative method of data analysis demonstrated 50% (upstream) and 55% (downstream) accepted their company’s engaged in partnering (Table 5.10). Yet a closer analysis of the data recognised the term ‘select list’ was also commonly used. Therefore from the given percentages the partnering discussed by the main contractors and sub-contractors, both up and downstream where either framework based or approved/select lists. Table 5.11 therefore provides a clearer picture of the categorical data that demonstrates the interchangeable terminology used i.e. ‘formal’ partners, ‘informal’ partners and ‘select lists’. Nevertheless all three

frequently remained competitive, as Main Contractor 4 quoted “...we have to go to the market place. For under the arrangements of the [framework] we have to produce three prices for each subcontractor...”. Further, as documented in the previously discussed theoretical coding process, other initial codes relating to this question state; “...we don’t have formal relationships with any of our contractors. We have a select list of informal partners...” (Client 2); “...we are one of their partnering contractors. They have about 5 and all the big boys are probably on it...[but] there not formal...” (Main Contractor 1); “...[engaged in] partnering frameworks..., where we’ve been given jobs direct as well as entering into mini competitions...” (Main Contractor 2); and “...we are one of their favourites, but they don’t just come to us they tender it...” (Consultant 4).

		Clients					Consultants					Main Contractor					Sub-contractors				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Upstream	Formal Partner	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	0	0	0	1	0
	Informal Partner	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0
	Select List	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Downstream	Formal Partner	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Informal Partner	0	0	1	1	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0
	Select List	0	1	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	1	0

(yes=1, no=0)

Table 5.11: Cross tabulation of companies engaged in a partnered approach (up and down stream)

On closer examination of the main contractor and sub-contractor associations having previously acknowledged any procurement strategy implemented would be dictated by the dominant (upstream) discipline, 4 out of 5 main contractors understood their upstream partnering arrangements as formal (Table 5.11). The fifth main contractor stated “we are one of their partnering contractors...[albeit] not formal because [whilst] there is a partnering agreement it’s not a contract, [rather]...an informal agreement...” (Main Contractor 1). Yet 4 out of 5 main contractors confirmed their downstream arrangements were via select lists with the fifth noting a “combination of formal and informal arrangements [where used albeit]...dependent upon the particular framework arrangements” (Main Contractor

2). Whereas upstream only 2 out of 5 sub-contractors accepted they partnered with the main contractor, and whilst Sub-Contractor One stated this was informally they were “...on their approved list and more than that they put together a team and if they win the job you are part of that team” (Sub-Contractor 1). Furthermore, as depicted by Table 5.11, of those ‘formal’ and ‘informal’ arrangements a large proportion acknowledged the relevant discipline formed part of a select list, where tendering was rarely evaded. So as Main Contractor 1 recognised Egan’s (1998) aspiration of partnering as ‘utopian’, where contracts would not be required, the current ‘formal’ and ‘informal’ partnering designations appear more loose than Egan’s initial objective of replacing “competitive tendering with long term relationships...” (Egan, 1998). Consequently, as previously noted, all main and sub-contractor representatives acknowledged partnering was fundamentally driven by competition on a project by project basis. Therefore with competition remaining central in order to realise lowest price at day one the ‘formal’ and ‘informal’ partnering arrangements have themselves been identified as “...little more than an expensive select list” (Main Contractor 4); for “...there are very few opportunities to forge long term arrangements” (Sub-contractor 3); because “...there is little [opportunity for] favouritism, because the [industry] is cut throat, meaning if you are the cheapest you get the job” (Sub-contractor 2).

From the consultant’s perspective, as illustrated, 4 out of 5 consultants recognised they partnered upstream. However, only Consultant 3 and 5 acknowledged this as formal partnering via frameworks. The other two accepted they had informal arrangements as they were either “a preferred consultant...[as the client] comes to us for every job albeit there is nothing official” (Consultant 2); or relationships had been formed with other consultants in order to get onto public sector frameworks i.e. “it’s an informal relationship...were we go and do work for them under their name on the...framework” (Consultant 1). Consultant 3 also acknowledged they endeavoured to achieve partnering relationships with developers in the private sector, as “...the public sector tended to go for frameworks...”, whilst Consultant 4 accepted partnering work had dramatically dropped off as “we used to do an awful lot with various organisations...in the past...but either the frameworks have come to an end or the work has tailed off”. Consultant 1 noted “nothing written down in a formal sense, but...other organisations, of various sizes, we know we can trust and therefore can work with”. Downstream 3 out of 5 consultants had arrangements in place that were generally informal in that “as a consequence of the recession [the

organisation had] *to be diverse*. [Therefore] *had to sub-consult with specialists...[albeit] not in a formal sense*" (Consultant 1) and "*it's a strange relationship...for we do hold building surveyors but we (sub-consult) as we don't hold them locally*" (Consultant 5). Yet, Consultant 5 accepted on occasion their downstream informal arrangements were formalised as a result of the procurement methods selected; "[named job] *was a formal agreement because that was part of the PSP contract*". Yet 2 out of 5 consultants stated they had no downstream partnering relationships because either "*everything is in house*" (Consultant 2) or "*it's just the way the business is at the moment*" (Consultant 4).

With respect to clients it was accepted there is no upstream but downstream Client 3, 4 and 5 had formal and informal arrangements in place. Those arrangements were stated to be with a variety of organisations within various disciplines including main contractors and consultants as; "*we have a contractor framework set up so on the small capital programmed works we have four stands...*" (Client 3); and "*the main partnering arrangement we have in place is with...but we also have partnering arrangements with... a firm of quantity surveyors, building surveyors and architects...*" (Client 4). Client 2 confirmed they "*...don't have formal relationships with any of [their] contractors*" but recognised they "*have a select list of informal partners*". Therefore when procuring a project, the same four contractors, who had previously agreed to the client's terms and conditions, would be approached to submit a proposal under a Design and Build arrangement. Client 1 utilises a more traditional approach and invariably goes to the open market as they "*...rarely have two projects the same and.... [their] capital programme isn't continuous anyway so they don't have their own framework in place for consultants or contractors...*" (Client 1).

5.5.2 Top Five Critical Factors Influencing the Success of Relationships within Partnering

The results from the survey are inconclusive in respect of there being a clear definitive agreeable order for the top five critical factors from the four disciplines. However, with only 55% (4 out of 5 Clients; 2 out of 5 Consultants; 4 out of 5 Main Contractors; and 1 out of 5 Sub-Contractors) actually identify a full five critical factors, the following matrix (Table 5.12) shows what was selected by the relevant discipline member. Yet to draw meaningful results from the body of qualitative data, a quantitative analytical approach in the form of a ranking exercise was also adopted to support summary findings and identify their perceived importance. The

digits 1, 2, 3, 4 and 5, whilst having little numerical significance, were therefore allocated to each interviewees identified critical factors in order to rank the same in descending numerical order. Further, in order to give an overall ranking of the five critical factors across the twenty interviews from the four disciplines a simple procedure was then adopted to give the individually ranked critical factors i.e. 1, 2, 3, 4 and 5 corresponding scores of 5, 4, 3, 2 and 1. As the resulting sets of scores were then ranged in order to realise the area of variation between the high and lower limits on this particular scale, an inclusive critical factor ranking was realised, as Table 5.12 represents. Again this form of summary was considered sufficient at the first phase of this research because there was no requirement to extend the results beyond the 20 interviews in order to generalise the wider population.

Interviewee Critical Factors (Ranked)	Critical Factors																					
	Trust	Risk	Transparency	Customer Focus	Communication	Performance	Value for Money	Respect	Culture & Willingness	Understanding	Shared Values/ Common Goals	Ability to Listen	Commitment	Finances	Incentive	Relationships	No Changes	Inclusion	Accountability	Innovation	Health & Safety	
Client 1	1	2	3	4	5																	
Client 2	1					2	3									4						
Client 3									1	2	3	4	5									
Client 4	2				4									1	3	5						
Client 5																						
Consultant 1		1		2												4	3					
Consultant 2	3		2		1													4				
Consultant 3					1	5				2	3					4						
Consultant 4					1	5				2	3					4						
Consultant 5					1	2										4				3		
Main Con. 1					5	3				1			4			2						
Main Con. 2	3		5						1	4								2				
Main Con. 3	1		2		3						4										5	
Main Con. 4					1					2	3											
Main Con. 5																						
Sub. Con. 1			2			5	3				1					4						
Sub. Con. 2										1	2											
Sub. Con. 3																						
Sub. Con. 4				2										1								3
Sub. Con. 5																						

Table 5.12: Top Five Critical Factors from the 20 Interviewees (Ranked)

As Table 5.13 indicates, across the whole twenty companies sampled, 50% acknowledged ‘communication’ was the main critical factor that influenced the success of relationships within partnering. So as Chapter Two identified partnering was advocated as a way of developing more integration between organisations in order to reduce the distance between firms by improving communications, the comments identified as part of the initial qualitative coding included; “*communication has to be the first...*” (Main Contractor 4); “*...the top one has to be communication*

really” (Consultant 4); and “*communication is absolutely vital...*” (Client 4). Furthermore those who identified ‘communication’ as a critical factor, because it influenced the success of relationships within partnering, included; 2 out of 5 Clients, 3 out of 5 Consultants, 2 out of 5 Main Contractors and 1 out of 5 Subcontractors. Hence these findings augment that previously discussed in respect of the eight key drivers (Chapter Two) and that identified by Awodele and Ogunsemi (2007) who concluded good and effective communication must be realised if project partnering is to succeed. For a lack of communication is a fundamental reason partnerships falter.

The second critical factor as ascertained by the initial coding, and therefore listed within Table 5.13 was ‘understanding’. Whilst this too was recognised as one of the eight key drivers in order to realise partnering success (Chapter 2), understanding was identified by 35% of those interviewed including 1 out of 5 Clients; 2 out of 5 Consultant; 3 out of 5 Main Contractors; and 1 out of 5 Sub-contractors. The most noteworthy statements included; “*...a partnership really is about that core group and their involvement from the very beginning*” (Main Contractor 3); “*...a need to listen and understand each other’s objectives and have the ability to compromise*” (Client 4), and “*...try and understand where everyone is coming from...as it’s not just about I want this and you want that because there are other factors you have to bring in. [For] a partnership really is about that core group right at the beginning and that early involvement. ...*” (Main Contractor 2). Yet Main Contractor 4 acknowledges “*I’m not saying we always do it but you have to try to understand where everybody is coming from*” whilst Sub-contractor 2, believed “*...smaller cogs in the machine get railroaded into the partnering agreement...[whilst] not getting the benefits*”. Hence the second critical factor needed to realise partnering success is a clear understanding as to why each supply chain member is embarking upon the proposed partnered strategy before agreeing an encompassed set of goals and expectations. This, whilst based on real agreement and understanding rather than false assumptions, must be clearly articulated and extended throughout the supply chain. So whilst the principles of partnering are understood, evidence suggests “*some people win more than other people...*” (Sub-contractor 2). Thus a reluctance is said to exist in respect of replacing lowest cost tendering (as the main procurement tool) with “*...integrated teams of experts involved in continuous improvement in customer satisfaction, productivity, safety and value for money*” (Egan, 2002).

Interviewee	Critical Factors (Scored)																						
	Trust	Risk	Transparency	Customer Focus	Communication	Performance	Value for Money	Respect	Culture & Willingness	Understanding	Shared Values/ Common Goals	Ability to Listen	Commitment	Finances	Incentive	Relationships	No Changes	Inclusion	Accountability	Innovation	Health & Safety		
Client 1	5	4	3	2	1																		
Client 2	5					4	3									2							
Client 3									5	4	3	2	1										
Client 4	4				2									5	3	1							
Client 5																							
Consultant 1		5		4												2	3						
Consultant 2	3		4		5	1				4	3				2				2				
Consultant 3					5	1				4	3				2								
Consultant 4					5	1				4	3				2								
Consultant 5					5	4										2				3			
Main Con. 1					1	3				5			2			4							
Main Con. 2	3		1						5	2								4					
Main Con. 3	5		4		3						2												1
Main Con. 4					5					4	3												
Main Con. 5																							
Sub. Con. 1				4		1	3				5					2							
Sub. Con. 2										5	4												
Sub. Con. 3																							
Sub. Con. 4					4									5									3
Sub. Con. 5																							
Total	25	9	12	10	36	14	6	-	10	28	23	2	3	10	7	13	3	6	3	1	3		
Range	2	1	3	2	4	3	0	-	0	3	3	-	1	0	1	3	-	2	-	-	-	-	-
Overall Rank	3	9	7	=8	1	5	=11	-	=8	2	4	13	=12	=8	10	6	=12	=11	=12	14	=12		

Table 5.13: Top Five Critical Factors from the 20 Interviewees (Scored)

Third was ‘trust’ with 30% identifying this as a critical factor. So as Table 5.13 identifies 2 out of 5 Clients; 1 out of 5 Consultants; and 2 out of 5 Main Contractors noted trust, it also illustrates that no Sub-Contractors believed trust to be a critical factor, for; “...you don’t trust them but you have to work with them” (Sub-Contractor 2). So as Main Contractor 1, Main Contractor 3 and Client 1 respectively identified, “no, you’ve got to be open, [for] if you always thought the other party was trying to hide something, ...how could you ever get the right outcome...”; “...if there is no trust there is no relationship”; and “no [but] if it does then it’s luck”, this corroborates the findings identified in item 5.5.1 below. So as Chapter 2 stated the construction industry with its deeply ingrained attitudinal and behavioural characteristics opposing mutual trust and understanding because of its endemic confrontational culture that inhibits performance improvement due to the industry’s “...fragmented nature, lack of co-ordination and communication, the informal and unstructured learning process, adversarial contractual relationships and lack of customer focus” Client 2 stated “it’s trust...and that’s both ways. [For] they have to trust us in the same way we trust them” because without it “...you are going to get a very adversarial natured project” (Consultant 1).

The next two most prevalent factors that were identified as critical in influencing the success of partnering were 'Shared Values/Common Goals' (4th) and project 'Performance' (5th). Respectively these two critical factors were identified by 35% and 30% of those interviewed including 1 out of 5 Clients, 2 out of 5 Consultants, 2 out of 5 Main Contractors and 2 out of 5 Sub-contractors, and 1 out of 5 Clients, 3 out of 5 Consultants, 1 out of 5 Main Contractors and 1 out of 5 Sub-contractors. In both instances the identified critical factors were themselves not regarded as key drivers *per se* (Chapter Two) although it is considered reasonable that time, cost/productivity and customer satisfaction (as key drivers) could generally encompass the critical factor labelled performance, as "...it's [about] *giving the client more than they anticipated*" (Consultant 5). Equally the critical factors identified as 'Shared Values/Common Goals' and 'understanding' could reasonably be encompassed within the key driver identified as 'Cooperation/Understanding'. For with cooperation/understanding said to be about a more cooperative, less adversarial, efficient and profitable construction industry, with contracts based upon principles of fairness, mutual trust, and teamwork (Latham, 1994) some of the initial codes included; "...they have to have the same shared values" (Main Contractor 3); and "*the establishment of common goals is key...*" (Main Contractor 4). Still, as Client 3 admits "...an understanding of each other's objectives, the ability to compromise, an ability to listen to what other people's needs are and an enthusiasm to make it happen..." is crucial, Sub-contractor 1 stated "...from our point of view we need to make sure [suppliers] are conforming to our standard procedures", whilst Sub-contractor 2 asked "*why aren't any partnering benefits passed on. Why don't we get some of that win?*"

With reference to 'relationships', whilst identified as one of the eight key drivers this, as a critical factor was ranked sixth. The initial codes read; "*there are far more things go wrong due to individual personalities clashing than is capable of going wrong in the contractual arrangement*" (Consultant 1); "...there has to be a willingness to work together and we have to be part of the team..." (Main Contractor 2) and "...if you get the right people it's easier, because that's what we deal in, as we don't provide any products as it were - its people that we serve. Hence personal relationships are probably the main one" (Consultant 5). Therefore as previously identified (Chapter 2) team integration was vital due to the number of companies that existed and the significant number that employed fewer than eight people

(Egan, 1998; Egan, 2002), which was reflected in the Supply Chain Analysis Report (RICS, 2103) when it stated the key characteristics of patterns included;

- The large number of sub-contractors and suppliers involved in the delivery of a typical construction project;
- The presence of a large number of small value sub-contractors as part of the main contract and sub-contract supply chains.

Table 5.13 identified 1 Client, 1 Consultant and 2 Main Contractors recognised 'transparency', though this varied in importance with a range of three. Again whilst not specifically identified as one of the eight key drivers albeit defined as plain, evident, clear, frank and sincere (Cassell, 1997) this ostensibly could be associated with both 'cooperation/understanding' and 'commitment'; as could 'customer focus' which was selected by 1 Client, 1 Consultant and 1 Sub-Contractor. As regards the critical factor 'culture and willingness', whilst itself not a key driver, as it was also equal eighth albeit with a range of 0 and a score of 10 and acknowledged by 1 Client and 1 Main Contractor, it was considered reasonable to contain this within the key drivers 'cooperation/understanding' and 'commitment'. The third equal eighth critical factor, with an equal score and range as 'culture and willingness', was finance as this was selected by 1 Client and 1 Sub-Contractor, with comments including; "...*absolute critical is economic fee level [for]...what has been happening in the market recently [is that] competition has just become absolutely intense...where on a framework tender we had fee quotes of below 1% which are just not real...*" (Client 4). Yet whilst 'finances' is a critical factor but not a key driver, albeit 'cost/productivity' is, it is believed rational to encompass 'finances' within 'cost/productivity'.

Consequently, the theoretical coding confirms the top five critical factors vary within and across disciplines because of the apparent lack of commonality in the contemporary understanding of the partnering concept (Appendix 9, figure d). Whilst this has resulted in ambiguity when attempting to produce a single concise, industry acceptable list it can be demonstrated that the top ten critical factors documented (Table 5.14) can objectively be encompassed within the eight key drivers previously identified (Chapter 2). Therefore by categorising a cross cutting scored and ranked list of identified critical factors into the dominant eight key driver paradigm, which catalogues issues around relevant contemporary practices and

literal apprehensions, has helped to identify routines, establish patterns and discover derivation.

Critical Factor	No. of Interviewees	As a percentage %	Score	Rank
Communication	10	50	36	1
Understanding	7	35	28	2
Trust	6	30	25	3
Shared Values/ Common Goals	7	35	23	4
Performance	6	30	14	5
Relationships	6	30	13	6
Transparency	4	20	12	7
Customer	3	15	10	=8
Focus	2	10	10	=8
Culture & Willingness	2	10	10	=8
Finances	2	10	9	9
Risk	3	15	7	10
Incentive	2	10	6	=11
Value for Money	2	10	6	=11
Inclusion	2	10	3	=12
Commitment	1	5	3	=12
No Changes	1	5	3	=12
Accountability	1	5	3	=12
Health & Safety	1	5	2	13
Ability to Listen				
Total	68/120	-	223	-

Table 5.14: Critical Factors from the 20 Interviewees (Scored & Ranked)

5.5.3 An Organisations Position Concerning Partnering Relationships

Through analysing interview data all four disciplines want to work without adversarialism or litigation and it is believed informal partners would generally provide an acceptable (and achievable) balance in terms of supply chain collaboration. So whilst informal partnering has very little structure, no specific goals, unknown outcomes, self-selection of organisations/individuals and no expert training or support, “the parties are more likely to procure a high[er] degree of collaborative working because projects are normally procured in a collaborative way with parties in long[er] term relationships” (Wu, *et al.*, 2008). Accordingly, taking the results as a whole a generally positive picture is painted with all interviewees across the four disciplines looking to work more collaboratively. The results of the quantitative rationale (Figure 5.8 and Table 5.15) therefore confirmed 55% (11 out of 20) believed their organisation was an informal partner with clients, contractors, main contractors, sub-contractors and/or suppliers. Thus as they understood and

cooperated with parties with fewer disputes, 3no Clients, 2no Consultants, 3no Main Contractors and 3no Sub-Contractors all provided assured dialogue including; *“I’d like to think we are informal partners in that we try and co-operate [as] no one wants disputes...”* (Sub-Contractor 4). In addition, as Figure 5.8 depicts, 20% of those interviewed, comprising; Client 4, Consultant 5, Main Contractor 3 and Main Contractor 5 judged their organisations as working co-operatively to pursue a common set of goals, and so they approved project partners. For with project partnering considered more formal and therefore structured, as it is based on specific objectives which are often measured, with organisations brought together on the basis of compatibility, their comments ranged from; *“with all these framework jobs where its equal partners working co-operatively to pursue a common set of goals...everybody wins”* (Main Contractor 3); to *“I think it depends on whether you are dealing with a client or a contractor [and] I am sure the client would say we are non-adversarial...[but] let’s say on the two recent projects we were project partners...”* (Consultant 5). As Larson (1995) identified the four groups (i.e. adversarial, guarded adversarial, informal and formal) the remaining 25% (Client 1, Consultants 3 and 4, and Sub-Contractors 2 and 3) recognising they were guarded adversarial. Thus, with specific discrete transactions where there is limited mutual trust and commitment they stated; *“I would say guarded adversarial [for] of course we will do our best, [and we can] recognise a different position but that is probably not informal partners as far as that goes [because] we are not that jolly”* (Client 1); *“I think we would like to position ourselves as informal partners [as] that is where we try to get to but...I think we are guarded adversarial as we have to protect our own position in terms of fee agreements and that type of thing”* (Consultant 3). Therefore, as Wu, *et al.* (2008) considers this group less likely to build and maintain a good or harmonious process it is also less likely for the relevant discipline members to make the current concession for future benefits.

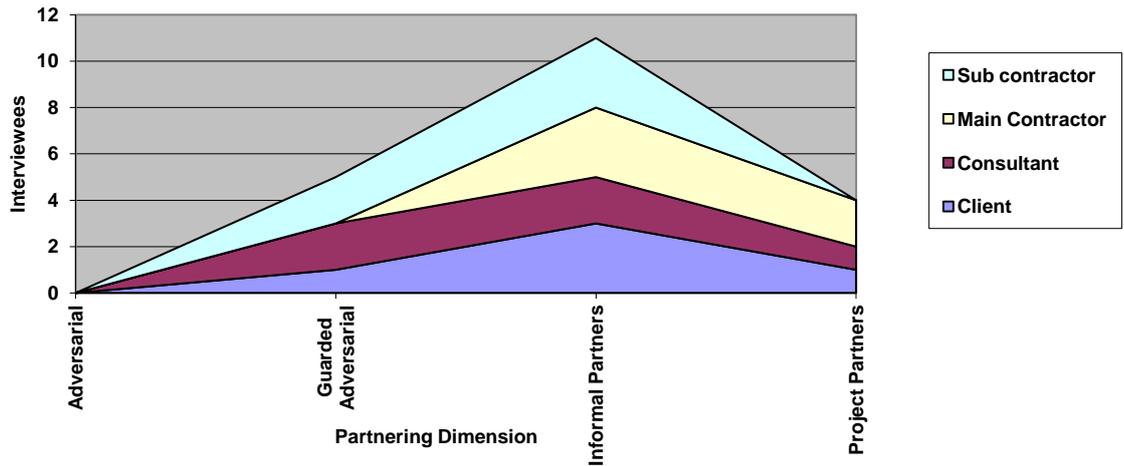


Figure 5.8: Partnering as a Dimension

Description	Utilising the four dimensions, indicate where your organisation positions itself?				Total
	Client	Consultant	Main Contractor	Sub Contractor	
Adversarial;	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Guarded Adversarial;	1 (5%)	2 (10%)	0 (0%)	2 (10%)	5 (25%)
Informal Partners;	3 (15%)	2 (10%)	3 (15%)	3 (15%)	11 (55%)
Project Partners.	1 (5%)	1 (5%)	2 (10%)	0 (0%)	4 (20%)
Total	5(25%)	5(25%)	5(25%)	5(25%)	20(100%)

Table 5.15: Partnering as a Dimension

5.5.4 Key Findings Associated with Relationships

Client 4 recognised they had “...been partnering with [a particular] contractor for seven years...” which, under the partnering banner, made it “...a very successful partnership”. Yet the research findings have shown this to be an exception rather than the rule. For whilst Chapter 2 noted the ‘imperfect’ nature of the industry’s market was said to favour the use of more sophisticated mechanisms of relationship governance, the evidence deduced from the analysis having completed the coding process, is summarised as follows;

- Whilst the term partnering has a loose connotation and fundamentally driven by competition on a project by project basis, there is disparity between perceived upstream and downstream arrangements;

- There is ambiguity when attempting to produce a single concise, industry acceptable list of the top critical factors that influence the success of relationships when partnering. Still it has been demonstrated that the top ten critical factors documented as part of this research (Table 5.14) can objectively be encompassed within the eight key drivers previously identified (Chapter 2);
- With reference to partnering relationships a generally positive picture is painted with all interviewees across the four disciplines looking to work more collaboratively. Thus over half of those interviewed believing they operated as informal partners and so understood and cooperated with the complete supply chain with fewer disputes.

5.6 Trust

5.6.1 Trusting Other Members of the Supply Chain

In relation to trusting other up and downstream members of the supply chain, the two questions were analysed together in order to make a direct correlation between the four disciplines and their position on trusting other members of the up and/or downstream supply chains. In so doing, having completed the qualitative coding process the abstract observed no substantial upstream mistrust until the sub contractor level was reached. Equally, downstream mistrust was strongest at Client level though, in both cases this was very much depended on the individuals involved.

	Clients					Consultants					Main Contractor					Sub Contractors				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Up	n/a	1	n/a	n/a	n/a	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1
Down	1	1	0	0	1	1	n/a	1	n/a	1	1	1	1	1	1	1	0	1	1	1

(yes=1, no=0)

Table 5.16: Disciplines Perception of Trust Both Up and Down Stream.

Again the focus codes and quantitative validation have been bound separately, but Table 5.16 illustrates not only that the overall response was positive for both upstream and downstream but how each individual responded. Yet with 70% (14 out of 20) of those interviewed confirming they did trust other members of the

upstream supply chain, this was nevertheless qualified with statements such as: “yes, *most of the time*” (Main Contractor 2); “...yes, *we trust the clients but we don't always trust developers [as] they always think we've got more money in it...*” (Main Contractor 1); and the most popular assertion around the fact partnering success depended on the individuals involved “...*because everyone has their own agenda [and] there is no black and white...*” (Sub-Contractor 3). Conversely, as 4 out of 5 clients (20%) stated it did not apply to them, 2 out of 5 sub-contractors (10%) pronounced they did not trust other members of the upstream supply chain. As Table 5.16 identifies the two who responded adversely were Sub-Contractors 2 and 4 who commented; “*you don't trust them but you have to work with them...*” (Sub-Contractor 2); and “*not a chance [albeit] it depends on the quantity surveyor and site team...*” (Sub-Contractor 4). Further, Main Contractor 4 also noted they trusted their “...*clients as they are government financed with generally a better take up of the partnering ethos...*” but not the larger main contractors. For experience of main contractors, even when partnering, meant they “...*still have a big stick to beat you*”.

Fifteen of the twenty interviewees (75%) confirmed they trusted other members of the downstream supply chain. Again as the data analysis illustrated this was qualified with statements such as: “*you have to...because they win you work in very lean times...but you have to be incredibly selective...*” (Consultant 1); “*yes to some degree, but the paranoid in me says they are trying to make a little bit more out of the job*” (Sub-Contractor 1); and “*I think you need to have that relationship, but I wouldn't say we have 100% trust*” (Sub-Contractor 3). Also, as illustrated within Table 5.16, of those fifteen, twelve had already conveyed their commitment to trusting other members of the upstream supply chain. Yet the Sub-Contractor who acknowledged they distrusted the upstream supply chain members but trusted those downstream commented; “*no, as generally main contractors dictate terms and conditions, albeit depending on individuals involved [and downstream]...yes, but you have to be very selective who you team up with. Although once selected it's easier to police because the reason you're using them is because you trust them*” (Sub-Contractor 4). It is also worth noting that Consultant 2 and 4 identified “*no downstream*”, as they believed the downstream supply chain did not apply to them as a service provider.

In summary, having amassed the interviewee responses for both the upstream and downstream questions, the discipline with the most positive score was the main contractor with 10 out of 10. Yet as low initial margins amongst main contractors

resulted in an expectation that these would be increased either by post tender rebidding sub-contractor packages or through contract provisions associated with recovering costs due to change (BIS, 2013) this meant sub-contractors were less willing to trust the respective upstream main contractors. For only 2 out of 5 recording they were able to trust members of the upstream supply chain, albeit the research paper identified “most construction work is delivered at the tier 3 level or below (i.e. sub-contractor level)...meaning there are two tiers of management activity, procurement, etc. above most construction activities” (BIS, 2013). In turn, whilst this study identified only 3 out of 5 Clients trusted the downstream supply chains, because the industry’s culture is driven by economic forces this means relationships are neither broad nor deep and clearly defined reasons for embarking upon a partnering strategy have generally not been ascertained (Question 2.3).

5.6.2 Working Upstream or Down Without Formal Contracts Being In Place

Interviewees were asked to respond to whether they would be prepared to work for an upstream and/or downstream organisation without formal contracts being in place. As displayed in Table 5.17, having taken the two distinct questions as a whole, five respondents (25%) acknowledged they would be prepared to work for an upstream and a downstream supply chain members without any formal contracts being in place. The five respondents conceded; “*do it all the time...don’t think we’ve worked for any local authorities were we’ve necessarily had the contract documents in place*” (Main Contractor 2); “*...yes, we have and do*” (Main Contractor 4); and “*...most of our work doesn’t have a signed contract in place until the end of the pre-construction period*” (Consultant 1).

Across the disciplines in respect of those who would only work for an upstream supply chain member without a formal contract being in place 2 out of 20 (10%) identified they would. The two respondents were a Consultant who qualified their affirmative response by stating “*yes, if we had an order*” (Consultant 2) and a Sub-Contractor who stated “*yes [due to] years of repeat business [given] a good 95% or more of our work will be repeat business*” (Sub-Contractor 1). A further four clients responded not applicable, due to having no upstream supply chain, while Sub Contractor 3 confirmed they “*...just supplied on orders*”. Thus whilst 7 out of 20 (35%) identified they would work for an upstream supply chain member without a formal contract in place and a further 5 (25%) believed it not applicable, data analysis identified most organisations were not prepared to work for an upstream

supply chain member without formal contracts being in place. Furthermore, those seven who responded positively also affirmed some form of written documentation confirming their appointment was still necessary.

	Clients					Consultants					Main Contractor					Sub contractors				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Up	n/a	0	n/a	n/a	n/a	1	1	0	0	0	0	1	0	1	1	1	0	n/a	1	0
Down	0	0	1	0	0	1	n/a	0	n/a	1	0	1	0	1	1	0	0	1	1	0

(yes=1, no=0)

Table 5.17: Disciplines Perception of Contract Use Both Up and Down Stream.

Ten out of twenty (50%) confirmed they would not be prepared to work for a downstream supply chain member without a formal contract being in place. The most popular statements being; “...I don’t think any company would, because you always need it there as things do go wrong” (Main Contractor 1); “no, as company requirement that there is some form of agreement in place...” (Main Contractor 3); “the official stance is no they would want a contract in place but we work in the real world [hence] corporately no but reality yes” (Consultant 5); and “...no I don’t think we could, we would have to have some formality to that...even if you say the formality is a fixed price or rate for a certain period of time...” (Sub-Contractor 3). As Consultant 2 and 4 responded not applicable the residual 40% (8 out of 20) therefore identified yes with comments such as; “yes until they let us down...” (Main Contractor 1); “yes, you have to and it’s about prompt payment and you not being adversarial with them, just because they are at the bottom of the food chain...” (Main Contractor 2) and “yes we do and it’s the performance that influences our opinion and lack of claims from the sub-contractors, when they are engaged on a partnering supply chain basis...” (Main Contractor 3); and “yes I think we do. We are very keen as part of tender evaluation and as part of the interviewing process that we will go through on projects to understand downstream supply chain...” (Client 1). Thus the theoretical coding for potentially working downstream without a formal contract being in place was again no, and like the upstream supply chain members who responded in the affirmative an order would at the very least be necessary.

5.6.3 Working Collaboratively Without Trust

An overwhelming 90% (18/20) stated a collaborative working relationship did not work without trust as trust was fundamental if a collaborative working relationship was to be effective. Some of the more comprehensive explanations were; “...there has to be an element of trust, for whilst you have to be tied into a contract, it starts with trust” (Consultant 3); “no, you’ve got to be open. For if you thought the other party was trying to hide something...then how could you ever get the right outcome - you can’t” (Main Contractor 1); and “...how can it. For you are not collaborating if you don’t trust them...” (Sub-Contractor 3). Of the two interviewees who identified a collaborative relationship could work without trust they noted; “I think the only way it does work without trust is if you have a very detailed set of legal documents to actually cover it...[as] it is very difficult to actually rely on trust in a long term relationship because people change all the time” (Client 4); and “I suppose it just depends on who you are working for again. You always start out on a job hoping everything will go right but it doesn’t necessarily mean that you trust them” (Sub Contractor 4). Consequently from the survey results the findings indicated trust was fundamental to a collaborative working relationship, because without trust partnering does not work effectively (Figure 5.9 and Table 5.18).

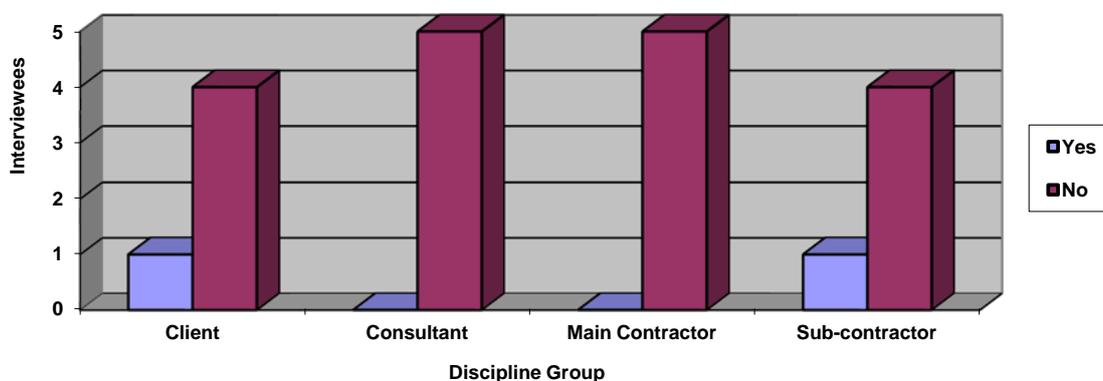


Figure 5.9: Collaboration without Trust – a discipline perspective

Clients					Consultants					Main Contractor					Sub-contractors				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

(yes=1, no=0)

Table 5.18: Disciplines Perception of Collaboration without Trust .

5.6.4 Key Findings Associated with Trust.

As Awodele and Ogunsemi (2007) confirmed infrastructural construction projects were hindered by several factors including limited trust, only 35% (7 out of 20) of those interviewed identified trust as one of the top five critical factors that influenced the success of relationships within partnering. So whilst a shift away from a project culture that was blighted by relationships characterised by defensiveness and adversity (Constructing Excellence, 2006) the evidence from the analysis deduced from the various coding processes previously identified, and based upon the sample of twenty interviewees across four disciplines, can be summarised as follows;

- In respect of trusting other members of the upstream and downstream supply chains, the overall response was positive. The discipline with the most positive score was the main contractor whilst sub-contractors were less willing to trust the respective upstream main contractors;
- The industry's culture is driven by economic forces which means relationships are neither broad nor deep so clearly defined reasons for embarking upon a partnering strategy have generally not been ascertained;
- Overall across the four disciplines and both up and downstream the majority of interviewees would not undertake work without a formal contract being in place. Further, of those that stated they would, an order would be a minimum requirement in order to initiate activity;
- The survey results indicate trust is fundamental to a collaborative working relationship because without trust, partnering does not work effectively.

5.7 Commitment

5.7.1 Partnering As An Informal Ambition Or Something More Formal

On balance, having analysed the interview responses from the twenty interviewees in respect of partnering being an informal ambition that developed and strengthened over time or something more formal that was actively engineered from the outset, survey findings identified good partnerships developed over time (Table 5.19). So whilst ideologies could be set from the outset, with documentation in place setting parameters and principles, a lot of learning was to be done before the supply chain was genuinely partnering. Hence 65% (13 out of 20) of all those interviewed believed partnering was an informal ambition that developed and strengthened over time. So whilst "*...partnering frameworks are set out from day one... there's not*

always the understanding from all parties what their roles are so it is about developing it over time” (Main Contractor 2). Client 4 substantiated the same by stating; “...[partnering] *develops over time but can get off to a good start provided contract documentation is robust and is clearly set out to achieve a common set of objectives and goals*” (Appendix 9, figure e). Hence whilst Cheung and Rowlinson (2011) acknowledge “...nuances in procurement methods and the differing internal workings of firms can enhance or retard the development of sustainable supply chains”, it has been established without a clear understanding from all parties as to what their roles are, “...*there is no instant initial partnering [because]...there is still a lot of learning to do*” (Main Contractor 2), even though documents may have set parameters. Thus as Main Contractor 2 concludes “*good partnerships develop over time...*” Client 1 is in accord by stating “*partnering will only be demonstrated once you are walking the walk...and everybody feels they are getting their correct balance of the partnering*”. From the perspective that partnering develops over time other comments included; “...*it goes back to trust doesn't it – if you don't trust someone from the outset you need to earn that trust. So I think you set out saying it is partnering but it does take time to get into a true partnership because you always look a bit guarded*” (Consultant 5); “...*I think no because what you have to do early on is you have to develop that trust...and to know the people on the other side want to achieve the same things as yourselves [so]...you have to get to know people and [that]...they are in it for the right reasons...*” (Client 3); and “...*it develops over time but can get off to a good start providing the contract documentation is robust and is clearly sets out to achieve a common set of objectives and goals*” (Client 5).

Description	Is partnering an informal ambition that develops and strengthens over time or something more formal that can be actively engineered from the outset?			
	Client	Consultant	Main Contractor	Sub-contractor
Informal ambition (over time);	5 (25%)	4 (20%)	2 (10%)	3 (15%)
Either (project dependent)	0 (0%)	0 (0%)	1 (5%)	0 (0%)
Formally engineered (from outset);	0 (0%)	1 (5%)	2 (10%)	2 (10%)

Table 5.19: Partnering – An Informal Ambition or Contract

Orientating away from an informal ambition that develops and strengthens over time, Main Contractor 4 acknowledged “*it could be either...*”. For on some projects sufficient time would be endorsed prior to a scheme commencing in order for the

team to engineer that relationship through workshops, etc. While other schemes, where time was more limited, relationships would build over time as the scheme(s) progressed. Hence, Main Contractor 4 comments *“I think if you have a big project where you can bring a team together and talk, and perhaps have various workshops prior to commencement you can sit down and engineer that relationship. But some partnering relationships build over time”*. This observation is something that has also been picked up by the BIS (2013) research paper as it states “early contractor engagement is favoured because it enables greater supply chain involvement in solution development [and]...the regular engagement of contractors in the context of settled relationships is seen by the supply chain as a positive...”.

The remaining 25% (1no Consultant, 2no Main Contractors and 2no Sub-Contractors) believed partnering could be actively engineered from the outset. So whilst acknowledging none were clients comments included; *“...with the right people and the right attitude yes there is no reason at all why it can't work straight from the start”* (Consultant 4); *“I think it can [be formally engineered from the outset] because you set out your objectives to them and say here's what we want...[and] you could formalise it to a lesser or greater degree from the start”* (Sub-Contractor 3); and *“yes it can be more formal and actively engineered from the outset [for] what we do with our business and our teams is we engage on a partnering basis on any job regardless of the conditions of the contract”* (Main Contractor 3).

5.7.2 Senior Management Support and The Ethos of Partnering

Of the twenty respondents only one client (Client 1) and one consultant (Consultant 5) did so negatively in terms of sufficient senior management support in favour of long term relationships (Figure 5.11 and Table 5.20). Therefore the inferred theoretical code was that the partnering ethos cascaded from senior management level, which in turn helped prospects for future work, because partnering builds relationships. Yet Client 1 noted *“we'd find it difficult to incentivise long term relationships...because we are not in a position where we will deliver three schools this year, three more next year and three the year after...”*. Consultant 5 also confirmed within their organisation, with specialism's working within different environments including management services and engineering and upon various different projects, some of which were already set up with a particular framework structure, there was no internal strategy or values in respect of favouring long term relationship incentives. Yet the same organisation accepted *“...they want to*

partner...but drive for customer satisfaction rather than procurement strategy” (Consultant 5).

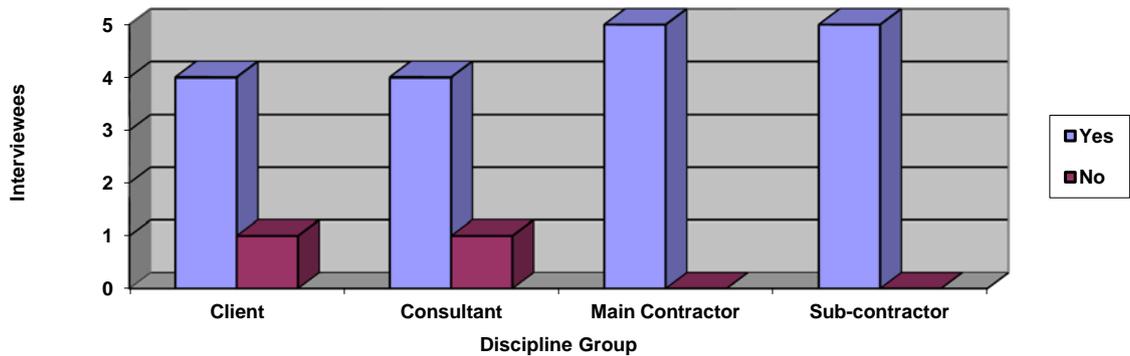


Figure 5.10: Sufficient Senior Management Support In Respect of Partnering

Clients					Consultants					Main Contractor					Sub-contractors				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1

(yes=1, no=0)

Table 5.20: Sufficient Senior Management Support In Respect of Partnering

Consequently 90% acknowledged there was sufficient senior management support towards the partnering ethos with comments ranging from; *“our ethos is to partner with people and make everyone take the benefits of it”* (Sub-Contractor 1); *“yes there is very senior support and when we see a framework opportunity, if it’s the right one, we will go for it because we can see the benefit of frameworks even if it’s not an immediate short term gain...”* (Main Contractor 3); *“...yes, as 80% of our work is repeat business”* (Consultant 2); *“yes from the chairman right down that’s key to our business ethos”* (Main Contractor 4); and *“...before the onset of formal partnering...we tended to work with a common set of consultants and contractors anyway...”* (Client 3). Yet with reference to Consultants, Main Contractors and Sub-Contractors it is nevertheless acknowledged partnering is a commercial endeavour, for having previously accepted the loose partnering terminology, which fundamentally remains driven by competition on a project by project basis comments range from; *“...yes we would be in favour of that....it’s good for business, it gives us stability, it gives us confidence...”* (Sub-Contractor 3); to *“...that’s our ethos all the way through [the company] partnering as that means repeat business”*; and *“...frameworks provide the building blocks that cover our overheads...”* (Main Contractor 2).

From a client perspective, with 4 of out 5 acknowledging there was sufficient senior management support to move towards long term relationships, Client 3 recognised procurement was via competitive frameworks on a project by project basis. While Client 4, who accepted there had been a culture of using the same contractors on a repeat basis, “...prefers working to establish long term relationships...” and believed they were already doing it “...before Government thinking came into play”. Thus Client 4 affirmed they had partnered with the same framework contractor for seven years, which was “...a formal arrangement that includes a pain/gain mechanism and various key performance indicators”. Client 2 also acknowledged partnering was backed by senior management support albeit there was no framework just “...a very small list of 4no contractors... [who] know what we do, [so]...we would take the design to a reasonable distance and do a big two stage tender with large first stage and almost clarification for the second...”.

5.7.3 Filtration of the Partnering Concept to All Levels of the Supply Chain

With reference to Table 5.21, as the survey sought data as to whether the partnering concept filtered down to all levels of the supply chain, having completed the qualitative coding process and quantitative analysis, the theoretical code documented ‘no’. Albeit it was said to depend “...on the companies upon the supply chain [and] their own ethos and approach to business” (Main Contractor 4).

Clients					Consultants					Main Contractor					Sub-contractors				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
0	0	1	0	0	1	0	0	1	1	0	1	1	0	0	0	0	1	0	0

(yes=1, no=0)

Table 5.21; Does the Partnering Concept Filter Throughout the Supply Chain

Seven out of twenty interviewees (35%), across 4no disciplines answered ‘yes’ in respect of the partnering concept filtering down to all levels of their supply chain. Of those 7no the two main contractors commented; “...we hold workshops with our supply chain” (Main Contractor 2); and “...when they work with us on those schemes, they understand the necessary pain/gain arrangements, including the OGC fair payment Charter...which amongst other things helps lead to a good supply chain...” (Main Contractor 3). The other positive responses came from Client 3, Sub-Contractor 3 and three Consultants who stated; “...we would choose an architect not only on their capability but have they done partnering before,

because it is a slightly different way of working...” (Consultant 5); *“I believe it does as it has the same advantages to them as we have got having a relationship with our customers...”* (Sub-Contractor 3); and *“you have to get on, the recession has taught us...to be more diverse, [so] you have to team up with people...and go where the work it...and if that’s partnering in its current modern day form then that’s what everybody’s doing”* (Consultant 1).

Five further respondents (2no Clients, 1no Consultant, 1no Main Contractor and 2no Sub-Contractors), who also answered ‘yes’, qualified the same by stating partnering filtration was limited. Hence comments generally identified each discipline tended to liaise with a single tier, i.e. *“...as long as the main contractor has a good understanding...we do not say well lets liaise with your sub-contractors”* (Client 1); and *“primarily it is with the main contractors...because we want to give [them] as much flexibility and scope to offer us the best possible prices and they are far better at negotiating the supply chain than we are”* (Client 4). Sub-Contractor 1 also stated their sub-contractors did, but it was unclear if that concept *“...filters down to the sub-sub-contractor, as you get down to the guy who, the more he does the more of what he does stays in his pocket”*.

The remaining seven (2no Clients, 1no Consultant, 2no Main Contractors and 2no Sub-Contractors) did not believe the partnering concept filtered down to all levels of the supply chain. Thus whilst Consultant 2 believed it depended when they were brought into the process, (i.e. if they were brought in as an M&E contractors designer this meant they did not get involved in relationships with the main contractor), the lower tiered sub-contractor, having provided a price for a particular scheme did not receive any of the partnering benefits. Moreover, they were subject to intense *“...negotiations toward the end of various schemes in respect of that original price, and those negotiations tended to be favourable upstream...”* (Sub-Contractor 2).

5.7.4 Company Culture in Respect of Developing Effective Partnering Relationships

The data analysis documents a company’s culture enhances the development of effective partnering relationships through the integration of supply chain mechanisms, as illustrated within Table 5.22. Hence, as 17 out of 20 interviewees (85%) agreed the culture of their company promoted the integration of supply chain mechanisms, only three respondents believed their respective company’s hindered

the same. With Consultant 5 observing “...our directors want to go to the open market or select lists, but....if I’ve used someone before and to be honest they made me look good I am going to use them again”. Yet with reference to the two distinct factions’ and accepting a general lack of elaboration, comments in the positive ranged from; “it helps, it certainly has to, for we rely on referrals...as people are far more selective on whom they use...” (Consultant 1) to “it is not a partnering agreement...but it is a service” (Sub-Contractor 3). However, whilst one of the main contractors responds was positive this came with a qualification, as it was noted “...it’s going to become difficult because the market is changing...and [they are having] to move away from [their] supply chain subcontractors [towards the open market] due to single stage tendering” (Main Contractor 1).

Description	Does the culture of your Company enhance or hinder the development of the effective partnering relationships?			
	Client	Consultant	Main Contractor	Sub Contractor
Enhance;	4 (20%)	4 (20%)	5 (25%)	4 (20%)
Hinder;	1 (5%)	1 (5%)	0 (0%)	1 (5%)

Table 5.22: An Organisations Culture in respect of Partnering

5.7.5 The Tools and Techniques Adopted, Developed and/or Implemented in Order to Establish/Maintain a Partnering Arrangement

Having analysed the responses from the relevant interviewees representing the four disciplines the findings conclude there were very few, if any, companies that had suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership. Yet as the quantitative validation identified (Figure 5.11 and Table 5.23) 7 out of 20 (35%) of those interviewed confirmed they did adopt, develop and/or implement some tools and techniques in order to establish/maintain a partnering arrangement. These seven comprising 2no Clients and 5no Main Contractors acknowledged they; “tended to set aside half days with the main contractor to revisit the initial objectives” (Client 1), “...hold workshops and always have a framework/partnering manager...a person outside the day to day...” (Main Contractor 2); “...have a suite of key performance indicators, performance management and measurement techniques that includes customer satisfaction documentation” (Main Contractor 3) and use tools “...for monitoring...[their]

performance with end users to see if there are any issues that need addressing” (Main Contractor 4).

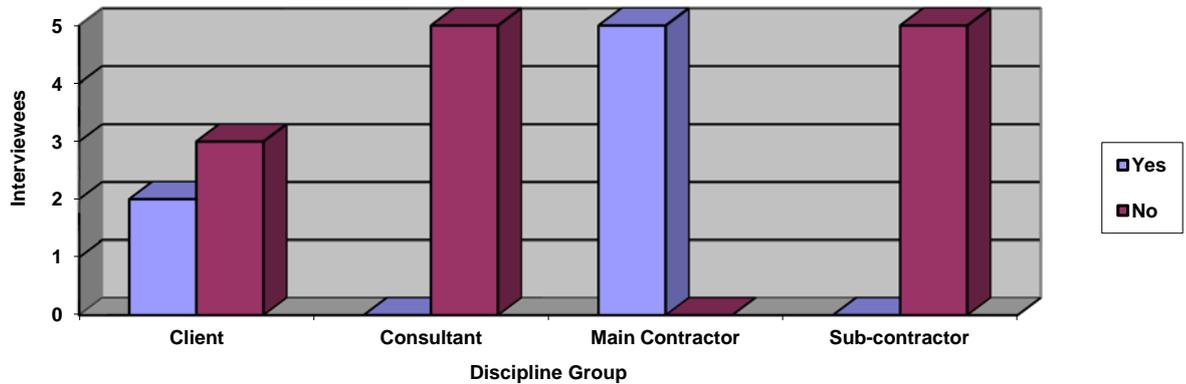


Figure 5.11: Tools/Techniques Employed To Establish/Maintain Partnering

Clients					Consultants					Main Contractor					Sub-contractors				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
0	0	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0

(yes=1, no=0)

Table 5.23: Tools/Techniques Employed To Establish/Maintain Partnering

The remaining thirteen (65%) of respondents (3no Clients, 5no Consultants and 5no Sub-Contractors) confirmed their organisations did not adopt, develop and/or implement tools and techniques in order to establish/maintain a partnering arrangement. For data analysis identified sub-contractors found it “...very difficult...”, (Sub-Contractor 1); and therefore “...relied on the main contractor to deal with that...” (Sub-Contractor 4). With particular reference to the three clients and five consultants who did not believe tools and/or techniques existed within their organisations, it was noted; “...there is no magic procedural protocol” (Consultant 1); “at company level no tools or techniques...” (Consultant 5); “it’s just regular informal updates, with my boss [who has] quarterly reviews at their level...” (Client 2); and “the only think we have in place is the fact we are a federated structure...so we tend to share good practice across the group” (Client 4).

5.7.6 Key Findings Associated with Commitment

Whilst most disciplines believe their company enhanced the integration of supply chain mechanisms rather than promoting broadest completion, reference is made to Cheung and Rowlinson (2011) who ascertained staff commitment levels were

directly affected by the level of mismatch between organisational culture and structure. Still with the theoretical codes associated with questions around time discussed above, albeit based upon the sample of twenty interviewees across four disciplines, this can be summarised as follows;

- Sixty five percent of all those interviewed believed partnering was an informal ambition that developed and strengthened over time;
- The analysis showed the interviewees believed there was sufficient senior management support towards the partnering ethos, which was said to be key to the business ethos, right from the chairman down (Main Contractor 4) (Appendix 9, figure f);
- Whilst dependent on the ethos of the companies within the supply chain it was shown the partnering concept did not filter down to all levels. For if a company identified yes to filtration it was established each organisation tended to liaise with a single tier;
- It has been documented that overall the culture of the interviewees company's enhanced the development of effective partnering relationships through the integration of supply chain mechanisms;
- There were very few, if any, companies that had suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership. Yet with reference to item 5.6.3 and those interviewees acknowledging arrangements were in place, the general discernment in their adoption, development and/or implementation was the preservation of the client and main contractor link.

5.8 Time

5.8.1 Completing Construction Projects On Time

Figure 5.12 and Table 5.24 depicting the survey findings in respect of whether the construction industry was considered successful in relation to finishing construction projects on time, illustrates 85% (17 out of 20) of the total respondents across 4no disciplines believed the construction industry was unsuccessful. Comprising 4 out of 5 Clients, 4 out of 5 Consultants, 5 out of 5 Main Contractors and 4 out of 5 Sub-

Contractors, their comments ranged from; “*no it is not and there is a perception out there that it is not*” (Main Contractor 3); to “*I think most people would think contractors don’t finish on time and when you get down to the small guys they probably don’t. But most major contractors...finish on time or there will be a client change which justifies the delay*” (Sub-Contractor 1) and “*I don’t think it’s as bad as people perceive...[though] it’s easier to finish a project on time when you don’t have as much work on...when you can actually plan the close out*” (Consultant 1). So as the ability to introduce change is the industry norm, albeit compared to other industries too easily accommodated which makes change a major source of waste (BIS, 2013), time was identified as a defensible disquiet and so interviewees noted the need for a realistic programme. Hence with statements such as “*...it was all last minute.com...*” (Sub-Contractor 2) and “*they want you to start a lot of the time when they have not got things in place...*” (Sub-Contractor 4), the general consensus related to an organisations early involvement and putting time and effort into actually planning a realistic programme rather than just assuming the scheme would finish on a particular date “*...because that’s what the programme says*” (Consultant 1).

The remaining 15% (3 out of 20) believed the industry was successful, and so held construction projects generally finished on time. Client 1 also acknowledged “*the industry has improved significantly, although it is well worth spending the time at the tender evaluation stage to look at a contractors initial programme to ensure it [reflects] a real effective delivery rather than [something unachievable]*”. For “*...good programming was seen as critical to co-ordinate the activities of multiple suppliers and to accommodate the results of change*” (BIS, 2013). So whilst extended project lead times provided more time to build good project team relationships other positive comments included; “*to a large degree I’d say yes albeit you are always going to get the unforeseen problems, especially upon refurbishment projects, but on new builds we tend to be there or thereabouts*” (Consultant 4); and “*yes I think it is because penalties for not doing so are so stringent that you wouldn’t be in business*” (Sub-Contractor 3). Yet the theoretical code presented here is that the industry is not considered successful in respect of projects finishing on time. For whilst “*the high profile ones always seem to go wrong...there is a lot more pressure...to deliver things in a shorter time period [and whilst] a lot of the up-front stuff takes a lot longer the construction period gets squashed as the end date never moves...*” (Consultant 3).

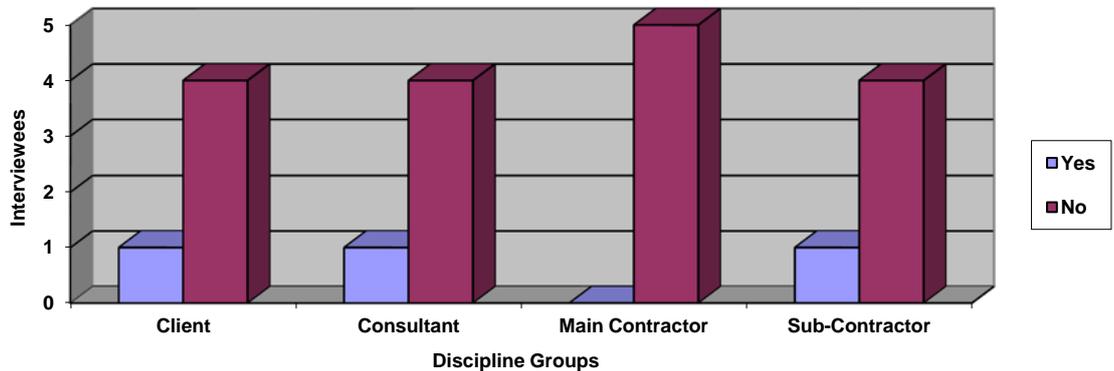


Figure 5.12: The Success of the Construction Industry in Terms of Projects being Finished on Time

Clients					Consultants					Main Contractor					Sub-contractors				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0

(yes=1, no=0)

Table 5.24: The Success of the Construction Industry in Terms of Projects being Finishing on Time

5.8.2 The Tools and/or Techniques Employed to Incite Effective Agreements That Lead to Performance Improvements

Fourteen out of twenty (70%) of those interviewed confirmed procedures, tools and/or techniques were employed by their organisation to incite effective agreements that led to performance improvements. Those procedures, tools and/or techniques ranged from the implementation of key performance indicators, that were monitored (Client 3) to the inclusion of specific team engineers who technically vetted schemes to ensure viability (Sub-Contractor 2), the appointment of a clerk of works (Client 4) or a business support manager (Main Contractor 2). These fourteen, as identified within Table 5.25 acknowledged; “*continual monitoring is in place*” (Main Contractor 4); “*we do have weekly management meetings internally*” (Sub-Contractor 4) or “*...we have a standard set of reporting and monitoring criteria and ask the same five questions in every site meeting*” (Client 2). Yet whilst the initial coding identified the five questions asked by Client 2, the overall responses were generally considered vague and primarily directed upstream as there was an eagerness to continue working with the dominant supply chain member for “*...whilst there is no guarantee of work...once you have won a building contract providing you deliver and you keep the customer and client happy there is then the opportunity to*

repeat business" (Client 4). The interview analysis also identified 1no Client, 4no Consultants and 1no Sub-Contractor did not acknowledge the employment of procedures, tools and/or techniques to incite effective agreements that led to performance improvements. Furthermore when enquiring why this was the case responses ranged from; "...our biggest incentive is there will be more projects to follow if [the contractor is] successful" (Client 1); "...just using the contractual rules that you have on the traditional and design and build projects" (Consultant 4); and "...we do customer surveys with our clients, but nothing downstream" (Consultant 5).

Description	Are procedures, tools and/or techniques are employed to incite effective agreements that lead to performance improvements?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	4 (20%)	1 (5%)	5 (25%)	4 (20%)
No;	1 (5%)	4 (20%)	0 (0%)	1 (5%)

Table 5.25: Tools and/or Techniques Employed To Realise Partnering

Consequently, as there was an identified lack of suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain (item 5.6.6) and the semi-structured interview process documented none of the identified procedures tools and/or techniques in respect of performance improvements were particularly innovative or new, the theoretical code concluded the arrangements did not incite effective arrangements throughout the supply chain. Therefore as the supply chain did not perform as well as it could due to continual competitive tendering (fragmentation), 're-bidding', a lack of incentives and poor risk and payment terms; which the report for the Construction Industry Strategy (BIS, 2013) confirmed as "unsustainable", has contributed to these reduced levels of cohesion.

5.8.3 Procurement Method Scoring in Relation to Schemes Completed On Time

With reference to Table 5.26, taking all interviewee responses from all four disciplines, the highest score and therefore the procurement method considered the most ineffective in respect of schemes finishing on time was traditional. Further, as traditional was the only procurement strategy to be scored by all twenty discipline members, with a range of three, this was considered the most reliably 'ineffective'. Therefore having scored 58 out of 100 and with seven interviewees scoring this

method as ‘ineffective’ or ‘very ineffective’ the main feature of the procurement method is that the design process is kept separate from the construction process, contra to the collaborative philosophy. A further five believed the traditional procurement method as ‘immaterial’ when it came to schemes completing on time whilst six identified it as ‘effective’, albeit only truly effective when full documentation (including the design) is in place before the contractor can be invited to tender for carrying out the work. Still as Chapter 2 noted the traditional sequential procurement process was continually utilised, this has been strengthened by Akintan and Morledge (2013) who documented “to date, it remains the dominant procurement strategy in the UK...[albeit] mostly preferred by one-off clients, who seldom engage in construction”. Conversely the most effective method of procurement in respect of schemes finishing on time was partnering with a score of 41 out of 100, whilst Design and Build came second with 46 out of 100.

	Clients					Consultants					Main Contractor					Sub-contractors					Total
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Traditional	2	3	3	4	4	5	2	4	2	2	5	3	2	4	4	4	5	2	3	3	66
Design & Build	2	2	3	2	2	2	2	2	2	2	3	3	1	2	2	1	5	2	?	3	46
Partnering	1	1	2	2	2	3*	3	2	2	3	3	2	1	2	2	2	3*	3*	1	1	41
Management Contracting	3*	4	3	2	2	3	3*	3*	1	3*	3	3	3	3*	3	3	3*	3	3*	3	57
Construction Management	3*	4	3	3*	2	3	2	2	3	3*	3	3	3	2	2	4	3*	3*	3*	3	57
Other	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

(* denotes no score given by interviewee due to lack of understanding/use)

Table 5.26: Schemes Completed on Time In Respect Of the Relevant Procurement Route.

Management contracting and construction management, as the two most unfamiliar procurement methods meant a number of interviewees had no understanding of the procurement method and so were unable to provide a balanced judgement. Yet for consistency reasons, a ‘no score’ procurement method meant a default score of 3 was inserted due to this being the median value. Hence as Table 5.26 shows a number of interviewees had experienced management contracting and/or construction management, which were duly added to the 7 and 6 ‘no scores’ respectively, each had a score of 57 and were positioned equal third.

With reference to each of the four disciplines, with traditional procurement considered the most ineffective it was the sub-contractors who gave it the most

negative score with 17 out of 25. Accordingly 2 out of 5 respondents identified 'very ineffective' or 'ineffective' and a further 2 identified 'immaterial'. By contrast, clients gave traditional procurement the most positive score (12 out of 25), with 1 client considering traditional procurement as 'effective', whilst 1 judged it 'ineffective' and 2 believed it 'immaterial'.

Whilst partnering was considered the most effective procurement method in respect of schemes completing on time, it was again clients who gave the most positive score (6 out of 25) with all five considering it 'very effective' (2) or 'effective' (2). Main contractors came second with a score of 8 (out of 25) with 1 noting 'very effective', 2 'effective' and 1 'immaterial'. Sub-Contractors were third with a score of 12 whilst consultants came fourth with 13.

5.8.4 The Meaning of Project Success

As interviewees were asked to provide data on what project success meant to them and their organisations, the data analysed identified a clear split across the disciplines in terms of what success meant. Clients judged a project as successful in terms of best value (i.e. time, cost and quality) whilst consultants, main and sub-contractors measured success by profit, returns and future work. For as Main Contractor 1 recognised project success meant money "*...because there [was] no point doing any of it without forecast returns...*". Other interviewees also acknowledged the same with comments such as; "*...profitability, for without it we don't exist*" (Main Contractor 2); "*...in a business world it is all about making money*" (Sub-Contractor 2); "*...making a profit and developing the potential for long term business...as the companies that we are dealing with aren't tomorrow going to sell ice-cream...they are going to be doing another project*" (Sub-Contractor 3). Hence, as noted, a number of contractors and consultants also recognised that it was "*...about repeat business and no [negative] legacy issues*" (Main Contractor 1) as "*it's not only about created and maintained relationships but fashioning future opportunities...*" (Main Contractor 2). For "*any organisation that has a high level of repeat business is going to survive even the toughest times*" (Consultant 1). Though in order to secure repeat business the client must be satisfied, which in turn hopefully leads to clients "*...staying loyal...[rather than] moving it around to get the best price...*" (Consultant 1).

From a client perspective, as previously noted, the study has established that a different perspective exists. For whilst item 5.3.5 identified a clear split between the

client and the other disciplines on what drives a company on procurement strategy, the same split exists in terms of project success as the client is driven by best value rather than profit. Hence as identified by Client 2 a project has to be *“on time, to budget and to quality. [For] if the quality isn't there or the value of the product is reduced, or if you're late your income stream is affected/delayed and if it's over budget then your returns are reduced”*. Restating the same Client 3 noted *“...a successful job means we do not get any complaints, it is within budget and it doesn't interrupt the service we deliver and it enhances the business”* and Client 4 confirmed *“completion on time, either on or within the contract sum [and being] a high quality product that everybody is happy with...”* is what drives project success.

5.8.5 Key Findings Associated with Time

As there is said to be 'plenty of evidence that the industry has 'returned to type' [and so] become more adversarial and less integrated...' (RICS, 2013) albeit Egan (2002) proposed an annual reduction of 10% in construction time, which would be realised through developed, collated and shared tools, the results from the supply chain analysis in respect of time highlight;

- The industry is not considered successful in respect of projects finishing on time;
- Over half confirmed procedures, tools and/or techniques were employed by their organisation to incite effective agreements that theoretically led to performance improvements. Yet the analysis concluded the arrangements did not incite effective arrangements throughout the supply chain and therefore were deemed ineffective;
- The procurement method considered the most ineffective in respect of schemes finishing on time was traditional. The most effective method of procurement in respect of schemes finishing on time was partnering
- There was a clear split across the disciplines in terms of what success meant. As clients judged a project successful in terms of best value (i.e. time, cost and quality) whilst consultants, main and sub-contractors measured success by profit, returns and future work.

5.9 Communication

5.9.1 Defining Partnering as a Coherent Strategy That Involves the Deployment of a Universal Set of Systems, Practices and Procedures

The interview results show 60% believe it is not possible to define partnering as a coherent strategy that is realised through the deployment of a universal set of systems, practices and procedures (Table 5.27). For it is said to depend “...on the work being done and who that is with” (Consultant 2). Hence, as “...there is such a vast array of different products each with different needs” (Sub-contractor 1), it is not possible to “...pull partnering off a shelf and make it work”, given there “are many different variations of what partnering can be and different people who have deployed it through different contractual terms...” (Client 1). Yet Main Contractor 2 states “...whilst Egan was probably a bit too idealistic in his view, the principle is about working together as a collective to decide how best to deliver the partnership going forward”. Hence, 1no Consultant, 4no Main Contractors and 2no Sub-contractors generally acknowledged “you can put together a procedure for dealing with partnered work” (Main Contractor 3) albeit “it’s a platform to move beyond the principles of partnering” (Sub-contractor 3). Therefore from a theoretical perspective partnering is not the deployment of a universal set of systems, practices and procedures, but a coherent approach to collaborative success. Other comments relating to this blue print for development include; “...I think you can get a standard framework and develop your procedures from there...but that will be wrapped up in a very tight...contract” (Consultant 1); “...you could have an outline but don’t think you could say you do A, B, C & D because as soon as you involve all the parties it changes...” (Main Contractor 4); and “...it’s a loose framework rather than a prescriptive way of working...” (Consultant 5). Therefore whilst 35% responded positively their replies, as identified within the initial coding process were nevertheless moderate because partnering is an informal ambition that develops and strengthens over time and reliant on the ethos of the companies within the supply chain (item 5.6.6).

Description	Is it possible to define partnering as a coherent strategy that involves the deployment of a universal set of systems, practices and procedures?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	0 (0%)	1 (5%)	4 (20%)	3 (15%)
No;	5 (25%)	4 (20%)	1 (5%)	2 (10%)

Table 5.27: The Possibility of Deploying a Universal Set of Systems To Define Partnering As a Coherent Strategy

5.9.2 Improving Inter-organisational Relationships Through Partnering Arrangements

Following the qualitative coding process and the quantitative analysis Table 5.28 illustrates 18 out of 20 (90%) of the interviewees initially identified a partnered approach improved inter-organisational relationships. For as the initial codes identified “...people who sign up to those arrangements have to look at their own performance and meet and review that” (Main Contractor 3) and, as noted previously “...people are involved as they have the desire to be there” (Sub contractor 1). Hence only 2 out of 20 (10%) of those interviewed believed partnering did not improve inter-organisational relationships. The two negative responders were Consultant 5, who stated “...it varies the work output, but does it improve inter-organisational relationships...it probably doesn't” and Sub-contractor 2 who “...would prefer to work traditionally” which, in fact, was the response reiterated throughout the interview. Yet whilst 7 out of 20 respondents gave an explicit ‘yes’, 11 out of 20 give a more reticent impression. Thus from an initial and predominantly positive perspective, as the early analysis leaned towards partnering arrangements improving inter-organisational relationships, closer analysis recognised an unease within a number of the responses given. For example Main Contractor 2 responded to the question by stating the partnering arrangement “...did not generally concern the relationships downstream, because they were already in place...but upstream with the client”. Other qualifications included; “...it does if it's done properly” (Client 5); “...in theory it should but not necessarily because of the partnering contract, but the people involved” (Consultant 2); and “companies do say they are partnering just to win work” (Sub contractor 1). Consequently there is an argument to split both the ‘yes’ and ‘no’ categories noted below (Table 6.26) in order to create a further category that would be identified as ‘Qualified’. Thus with the initial scrutiny complete, this addition provided a more realistic finding which led to a revised theoretical code. Therefore a partnered approach did improve inter-organisational relationships, but only if effectively employed throughout the supply chain; meaning all parties were to implement and maintain the partnering philosophy.

Description	Does a partnering arrangement improve inter-organisational relationships?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	5 (25%)	4 (20%)	5 (25%)	4 (20%)
No;	0	1 (5%)	0	1 (5%)

Table 5.28: Does a Partnering Arrangement Improve Inter-organisation Relationships

5.9.3 Inclusion of Partnering in Tender Documentation but Failure to Deliver During the Project

With reference to the research findings, as Table 5.29 illustrates, the findings note whilst an organisations hierarchical position within the supply chain plays a key role, with an emphasis on the upstream relationship i.e. “...whilst the main-contractor is willing to partner with the client not convinced they then partner with the sub-contractors” (Main Contractor 1), the survey has found half the respondents noted whilst partnering was frequently identified within tender documentation it was seldom delivered in practice. Their comments included; “...it gets rolled out every time...but rarely delivered...” (Consultant 2); “...unfortunately old habits die very hard, so whilst you talk partnering with the contracts manager, having the same old site agents and sub-contractors mean it falls back to traditional when on site” (Client 5); and “partnering is more and more mentioned...and tender documentation coming with PQQ’s... where they ask about your partnering and how you deal with it...but it only takes one component not to be on board and it fails” (Main Contractor 2). Similarly Consultant 3 states “...it’s all very well until things start to go wrong and money becomes an issue...for when one party starts to lose money, partnering goes out the window...”. So whilst partners are supposed to embrace the partnering methodology and abide by the rules on which they are based, once a scheme becomes problematic partnerships are habitually abandoned. For as Main Contractor 4 explained “...people are driven down a particular procurement route as a result of central government or terms and conditions on the release of funds, but they don’t actually embrace or take them on board”. So as Client 2 commented “...partnering was driven through the public sector”, Sub-contractor 1 goes on to say “...on a main contract where it’s traditionally tendered it may mention partnering but invariably they don’t mean it as they are after the most cost effective price”. Hence, whilst the “...public sector like the idea of partnering...” they remain mired by “...best cost at day one...” (Client 2) and this compels them towards competitive lump sum tendering. Client 2 goes on to say, with partnering possibly realising best

cost at the projects end it does leave public bodies open to criticism because there are no upfront checks and balances, which invariably “...*detract from partnering...as the rules and regulations are driven towards lump sum tendering*” (Client 2). Thus the opportunity to partner within the public sector is rare, as partnering does not necessarily realise best cost at day one.

Description	How often do projects mention partnering in tender documentation but fail to include partnering components during the project and why?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	2 (10%)	2 (10%)	2 (10%)	4 (20%)
No;	3 (15%)	3 (15%)	3 (15%)	1 (5%)

Table 5.29: Inclusion of Partnering In Tender Documentation But a Failure To Deliver

Conversely, 10 out of 20 thought if the scheme started on the partnering route it was a strategy that continued throughout the projects duration. Or as Client 1 notes “...*if you are going to set down a partnering route, then all your documentation is going to be based around the partnering approach – if you have set out on a partnering approach but then you have just gone for a standard JCT contract then you are not doing partnering*”. Also “...*on the framework jobs...whilst the clients may be interested in some if not all the outcomes they are nevertheless guided by the relevant framework [consultant]*” (Main Contractor 3). Furthermore, as partnering is “...*a strategy right from the start, in theory, if it starts down that route it doesn’t change from a partnering route to non-partnering...*” (Consultant 5). Yet Consultant 5 goes on to say “...*what the contractor does within his environment is different. For whilst the contractor will generally partner [upstream]...whether he then partners with his own subcontractor is questionable*”, which arguably is reflected in the fact 4 out of 5 sub-contractors responded negatively to the initial question. Thus with double the negative responses as any other discipline their comments included; “*in the main I would say all the time - in most cases [for]...on a main contract where it’s traditionally tendered it may mention partnering but invariably they don’t mean it as they are after the most cost effective price*” (Sub-contractor 1). Main Contractor 1 also notes partnering is “...*something of a side issue...[therefore]...it’s something which isn’t part of the tender documentation*”. So whilst a partnering ethos does exist “...*the agreement...is a separate document*”. Therefore “*it’s got to be something you buy into and you can’t do it over night*” (Main Contractor 2) as item 5.6.1 previously documented.

5.9.4 Key Findings Associated with Communication

As previously identified, partnering is about managing relationships, which must include open communication, and so the sharing of resources and experiences (Figure 2.1). So as “certain players, generally the larger players, will have an information ‘advantage’...[and so] the development of a sustainable supply chain depends, in part, on the transfer of knowledge...from these players down the chain” (Cheung and Rowlinson, 2011) the analysis from the supply chain, in respect of communication, highlight;

- The majority of those interviewed (65%) believed it was not possible to define partnering as a coherent strategy that could be realised through the deployment of a universal set of systems, practices and procedures. Though it was acknowledged a procedure for dealing with partnered work, in the form of a platform to move beyond the principles of partnering could be instigated as a coherent approach to collaborative success;
- The research findings have established a partnered approach does improve inter-organisational relationships but only if effectively implemented throughout the supply chain with all parties employing and maintaining a partnering philosophy;
- The analysis recognised disparity in terms of partnering being frequently identified within tender documentation but seldom delivered in practice. For whilst the Client, Consultant and Main Contractor disciplines tilted ‘no’ all but one Sub-contractor answered in the affirmative when asked how often did projects mention partnering but fail to deliver.

5.10 Co-operation/Understanding

5.10.1 A Mis-match Between Confrontational Practice (win/lose mentality) and the Intended State of Cooperation (win/win)

Eighty percent acknowledged there was disparity between confrontational practice and the intended state of cooperation within the industry (Figure 5.13 and Table 5.30). The theoretical code therefore identified a definite mis-match within the construction industry, between confrontational practice (win/lose) and the intended state of cooperation (win/win). But as noted by Sub-contractor 2 partnering would only be accepted if it is a definite win for the dominant upstream supply chain

member or as Client 2 notes “...win/win is good when we win gold and you win silver”. For “...this is the culture of the industry...and whilst there are exceptions...it generally talks the talk but operates in a very traditional adversarial way...particularly with suppliers” (Client 4). This was elaborated upon by Main Contractor 2 who cited “...we are in such choppy seas at the moment...there is a tendency to try and win work at all costs...which then creates confrontation down the line when they worry how they’ll make money”. Sub-contractor 2 also states “...money is a win/lose thing..”, to which Consultant 2 agrees but only when it comes to “...less reputable contractors paying...”. Equally Main Contractor 4 accepts “when partnering is put in place and done properly it definitely is a win/win situation...but only if done correctly and everybody’s following the ethos and is signed up”. Yet with Sub-contractor 2 stating “it’s big win no win, rather than a win/lose mentality and we’ve given you the job [so] be happy with that”, Sub-contractor 3 believes the win/lose mentality is becoming more prevalent “as the market gets more competitive...and those with a large contract can afford to be very dictatorial as to how it will operate”. In addition, Consultant 5 agrees there is a win/lose mentality with “partnering upstream but not down...and this will always happen because this way any gain share doesn’t get split, but sticks with the main contractor”. For having agreed a maximum price with the client on a particular scheme the main contractor then tenders the sub-contractors package in order to reduce those costs. “In other words they go back to the sub-contractors and [state they] want 10% off their costs...which [to the Main Contractor] equates to a 5% gain share” (Consultant 5) which is bolstered by the BIS Research Report (2013) as it stated whilst “current pricing levels are unsustainable, in that price reductions have been achieved through price cutting rather than cost reduction”.

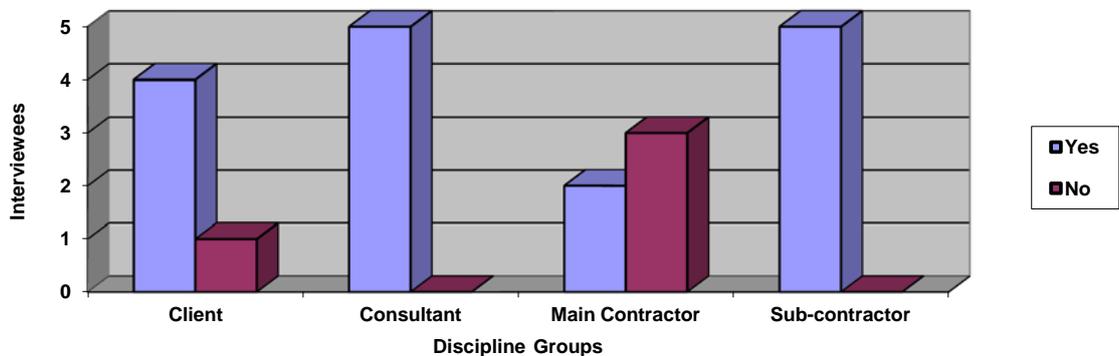


Figure 5.13: Mis-match Between Confrontational Practice and The Intended State of Cooperation.

Description	Is there a mis-match between confrontational practice (win/lose mentality) and the intended state of cooperation (win/win)?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	4 (20%)	5 (25%)	2 (10%)	5 (25%)
No;	1 (5%)	0 (0%)	3 (15%)	0 (0%)

Table 5.30: Mis-match Between Confrontational Practice and The Intended State of Cooperation.

The four interviewees who believed there was parity (1no Client and 3no Main Contractors) noted the philosophy was to win/win. For mistreating supply chain members “...leads to a bad job” (Main Contractor 3), which means “...you end up losing due to the associated aggravation...” (Main Contractor 1). In turn, given any particular project involves an investment from both sides it nevertheless goes back to the fact the industry’s culture is driven by economic forces; for if a profit is not made by a particular company it goes out of business. Hence “...it works both ways” (Client 2) “...as the client gets the regular constructor, the regular constructor doesn’t go bust because they get the regular work, which they are focused on delivering” (Main Contractor 2) and all the contracting parties are said to make money.

5.10.2 Experience/understanding of Partnering within the Construction Industry

The survey sought data on the number of interviewees who believed that there was sufficient experience/understanding of partnering within the construction industry. The results are indicated in Table 5.31 and display a division between the interviewees in their response to the question. Yet as 12 out of 20 (60%) identified ‘no’ and 8 out of 20 (40%) noted ‘yes’ there was sufficient experience/understanding of partnering within the construction industry, the theoretical response tilted towards there being insufficient experience/understanding of partnering within the construction industry (Appendix 9, figure g). As Table 5.31 also illustrates this split is not consistent across the four disciplines, some of the more negative comments including; “...no there isn’t sufficient understanding as a lot of project managers believe partnering is the supply chain doing as their told..” (Sub-contractor 1); “...I don’t think it was ever identified...[albeit] very philosophical to lay down those imperial ideals” (Consultant 1); “no I don’t think there is and that’s the problem” (Sub-contractor 2); “the word partnering is over used whilst partnering is used in the wrong way” (Main Contractor 2); and “no, not true partnering, they probably get 70%

of it..." (Main Contractor 1). Further, whilst interviewees were asked a specific 'yes' or 'no' question as previously identified a number of the initial positive respondents qualified their riposte in so far as "*I think we like to think we do...*" (Main Contractor 4); "*certain elements will, but not all...for when you get down the supply chain it's less and less*" (Sub-contractor 3); "*yes there is within the industry as a whole...but not so with smaller companies*" (Client 3); and "*I think everybody thinks they know what it means but I don't think everybody embraces it fully*" (Consultant 2). This in turn, whilst less comprehensible bolsters the abstract that there is insufficient experience/understanding across the industry disciplines, although pockets of upper stream expertise exist.

Description	Is there sufficient experience/understanding of partnering within the construction industry?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	5 (25%)	2 (10%)	1 (5%)	0 (0%)
No;	0 (0%)	3 (15%)	4 (20%)	5 (25%)

Table 5.31: Experience/understanding of partnering within the construction industry

From the positive perspective, partnering was well recognised and the various disciplines were getting more and more intelligent around the partnering initiative. Comments included; "*if you want to get into partnering there is enough experience out there [given] there are enough consultants [willing] to advise on how to do it right and enough contractors prepared to try...*" (Client 1); and "*yes, the contractors are all geared up for it and the consultants are also getting more and more familiar with partnering*" (Consultant 5).

5.10.3 Partnering, as a Contractual Arrangement or Procurement Method, Rather Than an Approach to Procurement?

The data displayed in Figure 5.14 and Table 5.32 illustrates there was a general consensus in respect of partnering being intended as a procurement method rather than a contractual arrangement. So whilst comments ranged from "*I believe it was intended as a procurement method, to get best value*" (Main Contractor 2); "*..it was always intended as a way of working*" (Main Contractor 4); and "*I'd probably say an approach to procurement...to make the contracts more understandable and to try and reduce the amount of adversarial involvement*" (Consultant 3) to "*...it was intended as an actual contractual type*" (Client 3) and "*I think they wanted to turn it*

into a contractual arrangement but I think the partnering contract 2000 was doomed from the start....because the basis of it is...completion” (Consultant 1) the responses were split 90% to 10%, in favour of partnering as a procurement approach.

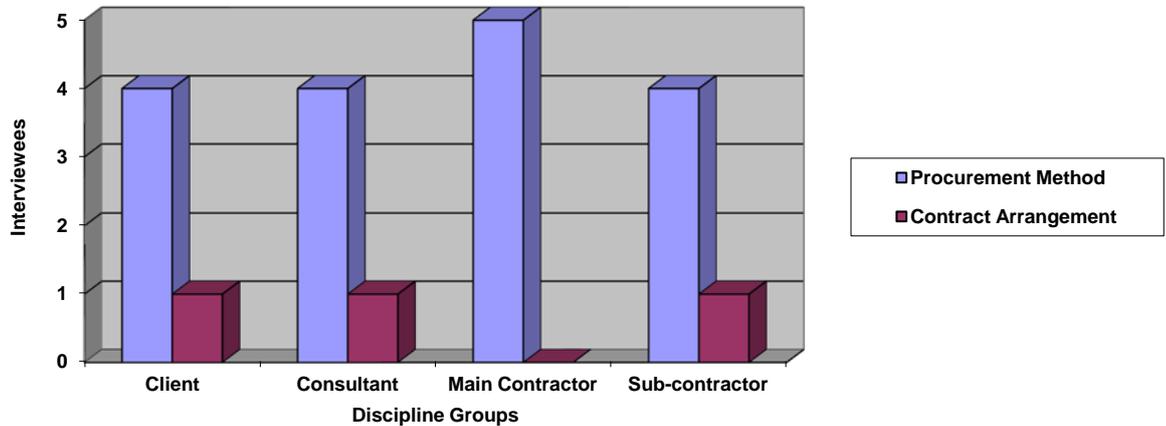


Figure 5.14: Was Partnering Meant To Be Contractual Or An Approach To Procurement?

Description	Was partnering intended as an actual type of contractual arrangement or procurement method, rather than an approach to procurement?			
	Client	Consultant	Main Contractor	Sub-contractor
Procurement Method;	4 (20%)	4 (20%)	5 (25%)	4 (20%)
Contractual Arrangement;	1 (5%)	1 (5%)	0 (0%)	1 (5%)

Table 5.32: Was Partnering Meant To Be Contractual Or An Approach To Procurement?

From the respondents who identified partnering was intended as an approach, it was noted by Sub-contractor 1 that contractual arrangements still had to be in place for when “...something went wrong”. Therefore partnering is an approach “...on the basis everyone sits round the table and come to a set of principles that all parties sign up to...[Therefore it is] where you start from before the move into formal contract arrangements” (Main Contractor 4); and “I think the intention was to work better, smarter and together....but the consequence of that was they had to write contractual arrangements around it” (Consultant 5). Hence the data suggests whilst it was accepted that an element of collaborative working has always existed as a contractual aid, “...if this cultural shift to move away from the traditional, conflict, adversarial approach...[is not] enshrined in robust contractual documentation it loses its clout...” (Client 4). Thus this overarching partnering culture to “work

collaboratively, to bring in the supply chain earlier and get the contractor involved has meant wrapping a load of contracts around it' (Consultant 5). Hence as Egan (1998) noted alliancing was fundamental to what was tantamount to a manifesto for change, and that "partnering on a series of projects [was] a powerful tool...which does not rest on contracts", item 5.5.2 and 5.5.3 identified overall across the four disciplines, and both up and downstream, the majority of interviewees would not undertake work without a formal contract being in place.

In respect of the interviewees who noted partnering was originally intended as a contractual type, Main Contractor 3 recognised partnering was "...*intended as a contractual arrangement to start with...[but is now] used over a number of contracts via add on clauses [as] partnering additions*". Yet Consultant 1 noted whilst intended as a contractual type it was destined to fail because the basis of it remained competition and therefore, even on frameworks where a particular contractor is one of a number, "...*they are not guaranteed one penny of that work*" (Consultant 1). Consultant 1 goes on to say "...*it could only work where there is absolute guaranteed work with one contractor, one team and that work continues for as long as the team perform to the partnering contract*" – which as previous data indicates is rarely the approach adopted. Other comments relating to partnering being intended as a contractual arrangement included; "*I don't think [Egan] just intended it as holding hands...for some of the concepts around savings being attributable to client and contractor meant the right sort of contractual arrangements had to be in place*" (Client 1); and "*I don't believe it was meant as a contract, more an gentleman's agreement rather than something formal*" (Consultant 2).

5.10.4 The Beneficial Impact of Partnering on Mutual Cooperation and Understanding?

Interviewees were asked if the introduction of partnering had had a beneficial impact on mutual cooperation and understanding and the data, as Table 5.33 illustrates, identified a 95% positive riposte. Hence the only rebuff to this apparent faultless score was Sub-contractor 2 who stated there had not been a noticeable difference in respect of cooperation and understanding since the initiation of partnering. Yet on closer analysis, whilst the comments from the positive respondents included; "*yes definitely...you work together so you understand and relationships build up...*" (Main Contractor 1); "*definitely and I think a lot of supply chain contractors that come into these arrangements have seen the benefits...*" (Main Contractor 3); and

“...it has tended to change/moderate behaviour and so there has been a definite beneficial move...” (Client 4), the data shows restraint. For with comments such as; “I think there are a few examples where it has worked really well...” (Consultant 3); “...it’s a question of all the parties involved...signing up to it...” (Main Contractor 4); and “...it depends on the individual again if they want to take it on board and understand the way it should be done and buying into that and actually practicing it” (Sub contractor 3), the theoretical code illustrates partnering enhances mutual cooperation and understanding, but to achieve win/win the complete supply chain must be unswerved on relationship building. Thus across the four disciplines, as the coding process indicates, from the above preliminary score, there were around 7no. tempered responses, which included: “...not a new concept as we were always trying to do it, but must have buy in” (Consultant 2), “...where it works then yes definitely, but it’s a long slow game as you can’t partner on one job, you have to partner on a whole series of projects” (Sub-contractor 1) and “believe so, but as subcontractor we don’t get involved with many partnering contracts directly” (Sub-contractor 4).

Description	Has the introduction of partnering had a beneficial impact on mutual cooperation and understanding?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	5 (25%)	5 (25%)	5 (25%)	4 (20%)
No;	0	0	0	1 (5%)

Table 5.33: Has the introduction of partnering had a beneficial impact on mutual cooperation and understanding?

5.10.5 Creating Effective Collaboration in the Short Term

Thirteen stated it was possible to create effective collaboration in the short term (Table 5.34). Still, with 65% stating ‘yes’, it was identified whilst feasible it remained very difficult and must have the right people, who have the right attitude and experience for it to work i.e. “I think yes you can from the start if the intent is there” (Consultant 5); and “it is possible but very difficult” (Sub contractor 1). Moreover, while it was stated “long term is better” (Main Contractor 3), because short term collaboration “...has less meaning” (Client 2), concern was also raised due to the recent financial difficulties that have resulted in most of the partnering rules being abandoned (Client 1). So whilst seven pessimistic respondents reasoned partnering was something that developed over time and there had to be willingness

because “*it’s something that has to be bought into...*” (Main Contractor 2) due to the fact “*you’ve got to build relationships...*”(Consultant 2) even the respondents who identified positively acknowledged “*...the right sort of client and the right sort of contractor [had to be involved in order to] improve relationships from partnering*” (Client 1). Hence, having analysed the relevant data, speculation suggests partnerships develop over time, but if there is a wholesale willingness throughout the supply chain collaboration can be realised very quickly. Therefore for short term partnering to be effective the right people, with the right attitude, who understand partnerships, must be involved throughout, as the data suggests this makes short term collaboration possible, albeit difficult.

Description	Is it possible to create effective collaboration in the short term?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	4 (20%)	3 (15%)	2 (10%)	4 (20%)
No;	1 (5%)	2 (10%)	3 (15%)	1 (5%)

Table 5.34: Is it possible to create effective collaboration in the short term?

5.9.6 Key Findings Associated with Co-operation/Understanding

As Crompton, *et al.*, (2014) noted a team that did not stay together had no learning capability and therefore had no chance to make the necessary incremental improvements that improved efficiency over the long term, the results from the supply chain analysis in respect of cooperation/understanding ascertained;

- From the twenty interviews a definite mis-match within the construction industry was acknowledged between confrontational practice and the intended state of cooperation;
- There is insufficient experience/understanding of partnering within the construction industry;
- There was a general consensus that partnering was intended as a procurement method rather than a contractual arrangement;
- The introduction of partnering has had a beneficial impact on mutual cooperation and understanding;

- Having analysed the relevant data, speculation suggests partnerships develop over time, but if there is a wholesale willingness from all parties' collaboration can be realised in the short term. Although to be effective the right people, with the right attitude, who understand partnerships, must be involved.

5.11 Cost/Productivity

5.11.1 Cost and/or Productivity Achievements within the Construction Industry

Twelve stated the construction industry under achieved in respect of cost and/or productivity, whilst Consultant 4 was undecided (Table 5.35). Consultant 5 states the industry is “...recognised as under achieving in cost and productivity because of low margins and the building of bespoke one-offs”. Main Contractor 1 having noted “...everyone thinks it does...” enquires “...is that just the nature of the industry - is that the best it can be”. Main Contractor 3 whilst also agreeing the industry “...probably does still under achieve” also acknowledges “...open book partnering arrangements achieve what they should do [in terms of cost and productivity whilst] a competitively tendered job is generally won below cost”. The consequence of which, as “partnering is driven through the public sector, and [whilst] the public sector love[s] the idea of partnering, [given] they are so caught up in best cost [which]...partnering doesn't necessarily give you at day one...[though] we'd argue you get best cost at the end”, leads to reduced productivity levels because the supply chain, having not been fairly paid or treated, generally counter with improvident productivity. With reference to under achieving in respect of cost and/or productivity Client 4 and Main Contractor 4 also state; “Yes without a doubt – I walk around on site and the amount of waste in the Construction Industry is absolutely staggering” and “that's most defiantly a yes, [as] we have to be the most inefficient industry going”, respectively.

Clients					Consultants					Main Contractor					Sub-contractors				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	1	0	1	1	0	0	1	?	1	0	0	1	0	1	1	0	1	1	1

(a binary recorded response where yes=1, no=0)

Table 5.35: Does the construction industry under achieve in respect of cost and/or productivity?

Client 1, agrees with Main Contractor 3, in that “projects that stand the greatest chance of having positive outcomes for all are those that set about a partnering relationship...”. For “...one of the advantages of partnering are the client benefits from a faster procurement process due to contractor incentives rather than traditional methods, which are invariably better for the contractor, albeit dependant on how they are being paid...” (Main Contractor 3). Client 2 also thinks project complexity has a bearing with office developments generally under achieving because of the number of trades involved whilst the much mechanised shed with standard cladding sheets, standard steel frame, etc. offers a certain degree of cost and productivity improvement.

5.11.2 General Trend in Relation to the Outcome of Each Partnered Scheme e.g. Cost, Productivity, Quality, etc

As indicated by Figure 5.15 and Table 5.36, 14 out of 20 (70%) respondents believed there was a recognisable link between schemes partnered and its overall outcome in respect of success. Even so initial coding accepted “...*everyone must be in it for the right reasons and they are all getting something out of the project*” (Sub-contractor 3). Hence whilst it must be “...*done properly*” (Main Contractor 2) in order that “...all sides know what success means” (Client 2) it is to be accepted the partnering ethos is not just about achieving a financial win/win but learning how to do it better through shared ideas (Sub-contractor 3). Therefore the positive respondents, believing projects that stand the greatest chance of achieving a positive outcome for all are those that have set about a partnering relationship, comment; “*the outcomes will be improved because everyone has bought into partnering...*” (Main Contractor 3); “...*it does lend itself to delivering once you’ve got a collective understanding as to where you’re taking the project and what the outcomes are*” (Main Contractor 4); “...*yes if everyone is in it for the right reasons and they are all getting something out of it, then it has to do because you learn things as you go along*” (Sub-contractor 3); and “*the outcome is more consistent, quality is almost always better, and I’d say the added benefits are people being happier*” (Sub-contractor 1).

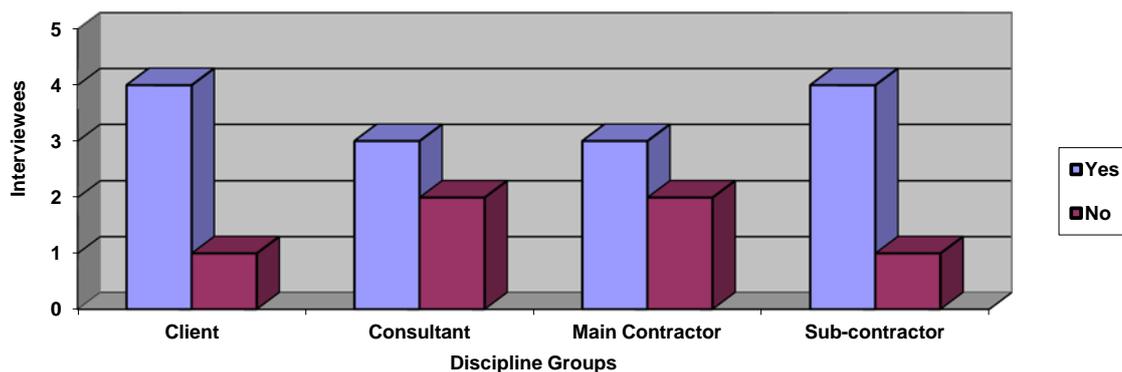


Figure 5.15: Is there a general trend in relation to the outcome of each scheme e.g. cost, productivity, quality, etc?

Description	Is there a general trend in relation to the outcome of each scheme e.g. cost, productivity, quality, etc.?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	4 (20%)	3 (15%)	3 (15%)	4 (20%)
No;	1 (5%)	2 (10%)	2 (10%)	1 (5%)

Table 5.36: Is there a general trend in relation to the outcome of each scheme e.g. cost, productivity, quality, etc?

The six (30%) respondents who thought negatively in respect of partnered schemes equate to success, expressed it was down to individuals and not the procurement route (Client 3). For if one of the collaborators is not buying into the partnering ethos, which includes passing benefits throughout the supply chain, this potentially has a negative effect on the scheme. Moreover, Main Contractor 1 noted there was a definite lack of repeat partnered schemes which meant the opportunities to learn from previous mistakes was negligible “...as there’s no way a contractor would share a good idea with you if he is only on one job [as opposed] to partnering with them...” (Sub-contractor 3). Whilst Consultant 4 agrees “...it just depends on the team and how much they buy into [partnering]”, Sub-contractor 2 accepting the idea of partnering states “...the big boys get it but they don’t pass it on down the line”, therefore it never comes to fruition. Consultant 3 remaining neutral stated “...it just depends on the team and how much they buy into [partnering]”.

5.11.3 Has Partnering Initiated a Move Away From Adversarial, Arms-length Relationships to More Collaborative Arrangements?

The interviewees from the 4no disciplines believed by a majority of 14 (70%) that partnering has initiated a move away from adversarial, arms-length relationships to more collaborative arrangements. As Figure 5.16 and Table 5.36 shows the 17no

positive respondents comprised 4no clients, 3no consultants, 5no main contractors and 5no sub-contractors. Their comments include; “yes, because it is about that team, you do get the regular team so it’s more of a two way thing, it’s more of an involvement in a partnering agreement” (Main Contractor 2); “yes definitely, [including some] small companies who are doing very well out of it and have done for a number of years...” (Main Contractor 3); and Consultant 3 who states there is no longer “...an appetite to get involved in claims...as people try and sort things out as they go so there...is an unwillingness on a lot of parties to get into adversarial situations”. Furthermore Client 2 agreeing with Consultant 3 maintained “...there is a contract in place and when things are going wrong all businesses revert back to the contract. Yet the partnering arrangement certainly delays the period when you go legal because there are increased levels of management that can be draw upon first”. Nevertheless, as interviewees were asked a specific ‘yes’ or ‘no’ question as previously identified, a number of respondents qualified their riposte in so far as “probably has but not noticed it...” (Sub contractor 2); “...but going the other way now...” (Main Contractor 1); and “...if done in the right way...” (Sub-contractor 3), meaning the apparent 3/17 split is, in itself, less comprehensible.

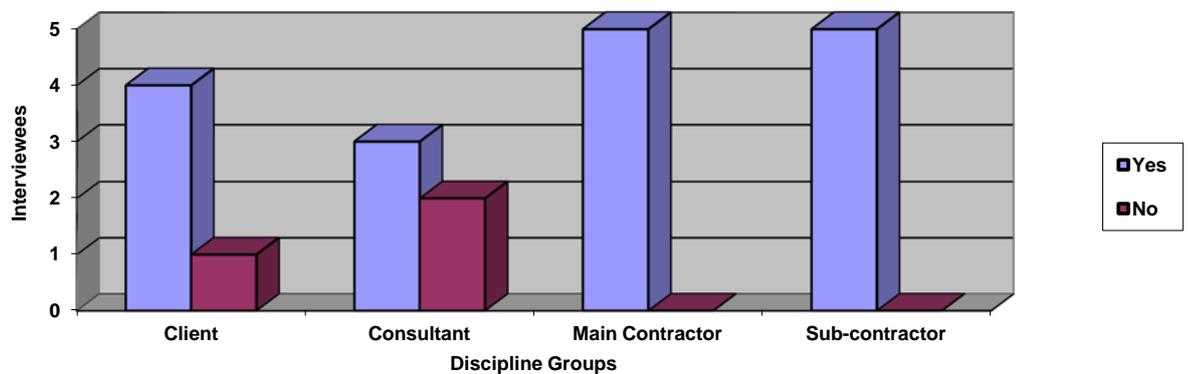


Figure 5.16: Has partnering initiated a move away from adversarial, arms-length relationships to more collaborative arrangements?

Description	Has partnering initiated a move away from adversarial, arms-length relationships to more collaborative arrangements ?			
	Client	Consultant	Main Contractor	Sub-contractor
Yes;	4 (20%)	3 (15%)	5 (25%)	5 (25%)
No;	1 (5%)	2 (10%)	0 (0%)	0 (0%)

Table 5.37: Has partnering initiated a move away from adversarial, arms-length relationships to more collaborative arrangements?

The three who believed partnering had not initiated a move from adversarial, arms-length relationships was Client 3 and Consultant 1 and 2 with Consultant 1 stating “*I don't think it has [as] the recession has learnt [us]...that cut throat business and adversary with everyone on the team is not the way to do it*”.

5.11.4 Key Findings Associated with Cost/Productivity

As the Egan Report (1998) sought to improve the quality and efficiency of UK construction, and the Wolstenholme Review (2008) concluded little progress had been made against either the Latham (1994) or Egan (1998) targets that were to drive performance improvements, the results from the supply chain analysis in respect of cost/productivity, were;

- Just over half (12/20) recognised the construction industry under achieved in respect of cost and/or productivity, whilst 7no thought it did not. One was undecided;
- Seventy percent of respondents (14/20) believed there was a recognisable link between schemes partnered and its overall outcome in respect of success;
- Therefore, with 85% voting in the affirmative, it was suggested that partnering has initiated a move away from adversarial, arms-length relationships to more collaborative arrangements due to there being a strong positive relationship between collaboration and project performance (Wu, et al., 2008). So whilst believing greater benefits could be realised with a collaborative approach albeit Wu, *et al.*, (2008) believes there is no “...single format but a range from low to high degree of collaborative working”, there remains a reluctance to commit to that higher level.

5.12 Customer Satisfaction

5.12.1 Partnering as a Procurement Method and the Number of Construction Projects Being Completed Successfully

Interviewees from the 4no disciplines were not in agreement in respect of schemes being completed successfully when partnered. Therefore, given the assumption success equates to client satisfaction, 11 (55%) were mixed whilst 7 (35%) agreed and 2 (10%) disagreed. As Figure 5.17 shows the 7no positive respondents comprised 2no clients, 1no consultant, 3no main contractors and 1no sub-

contractors, whilst those mixed comprised 3no clients, 2no consultant, 2no main contractors and 4no sub-contractors

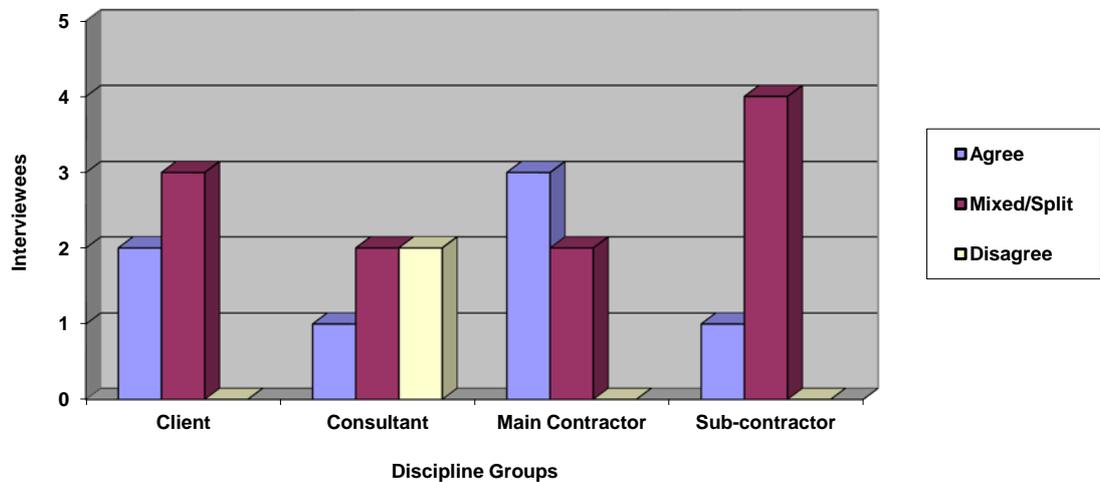


Figure 5.17: The implementation of partnering has resulted in more construction projects being completed successfully?

5.12 Summary - Phase One Findings (from initial concept to assumption development)

Overall this chapter (Chapter 5) in attempting to address the 4th objective of this research study, has established a number of theoretical codes associated with the eight keys drivers. As detailed within Chapter 4, and summarised in Chapter 1 (Table 1.1) this exploratory design has meant the qualitative first phase helped develop the second quantitative phase. For with exploration needed because an appropriate (existing) measure in respect of the eight key drivers was not available, this sequential design that began qualitatively was considered best for exploring this particular research phenomenon. Consequently as Figure 5.18 details, the researcher has been able to identify themes and variables for further (quantitative) testing based on the qualitative data, which is centred on an emergent theory having explored construction partnering in depth. As the subsequent quantitative component of the study (phase 2) is connected to the initial qualitative phase through the development and testing of an appropriate, more structured data collection instrument (i.e. a questionnaire) the second phase will measure prevalence and generalise results in respect of the four identified discipline groups and the eight key partnering drivers. Further, as previously noted (Table 1.1 and Figure 5.18) the initial qualitative phase has also helped the researcher establish that all aspects of the topic are important, given their meaning to the research

participants whilst also providing ideas for assumption development and subsidiary research questions.

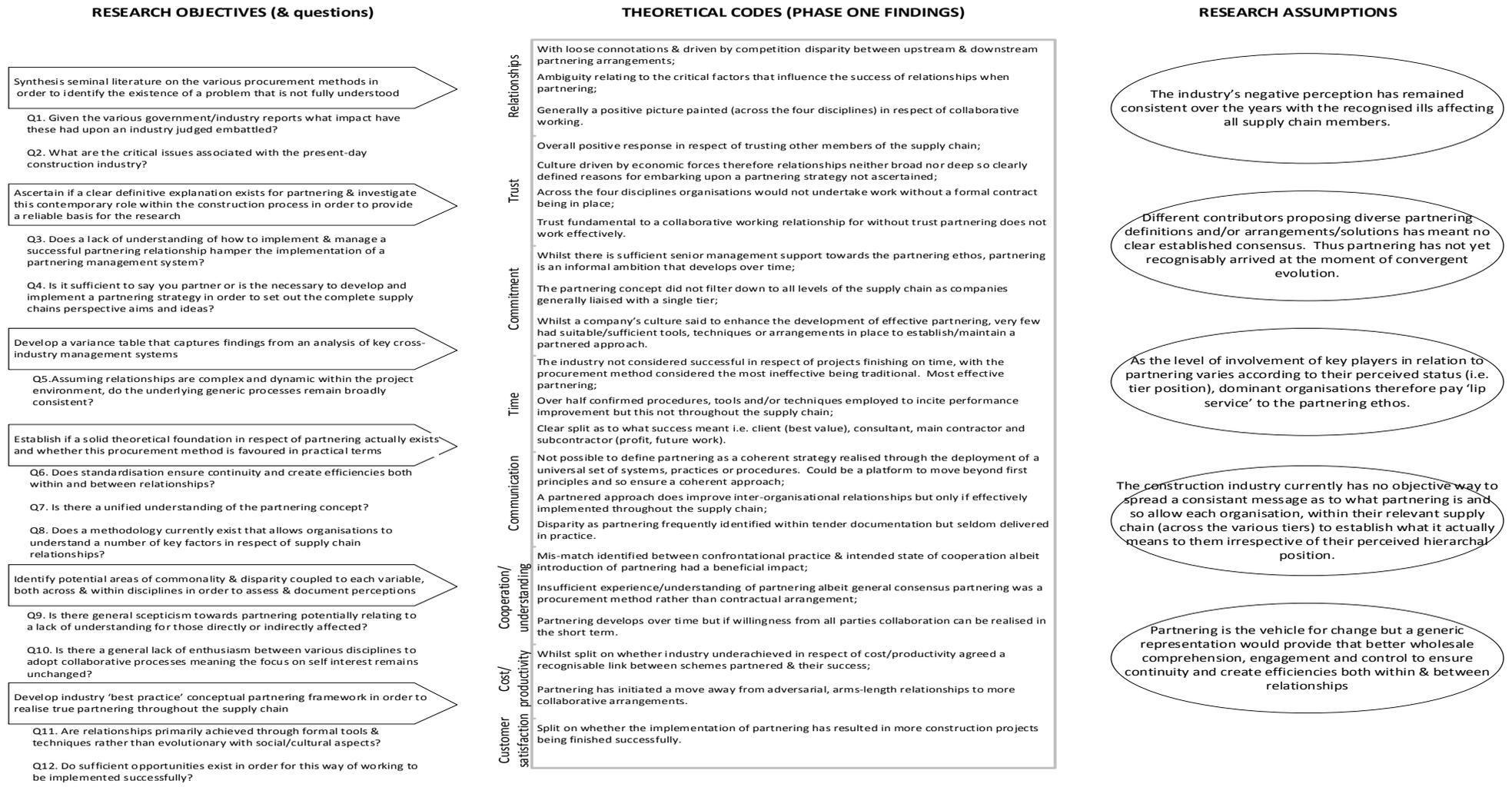


Figure 5.18: The Qualitative Research Process

CHAPTER 6: QUANTITATIVE (SECOND PHASE) ANALYSIS

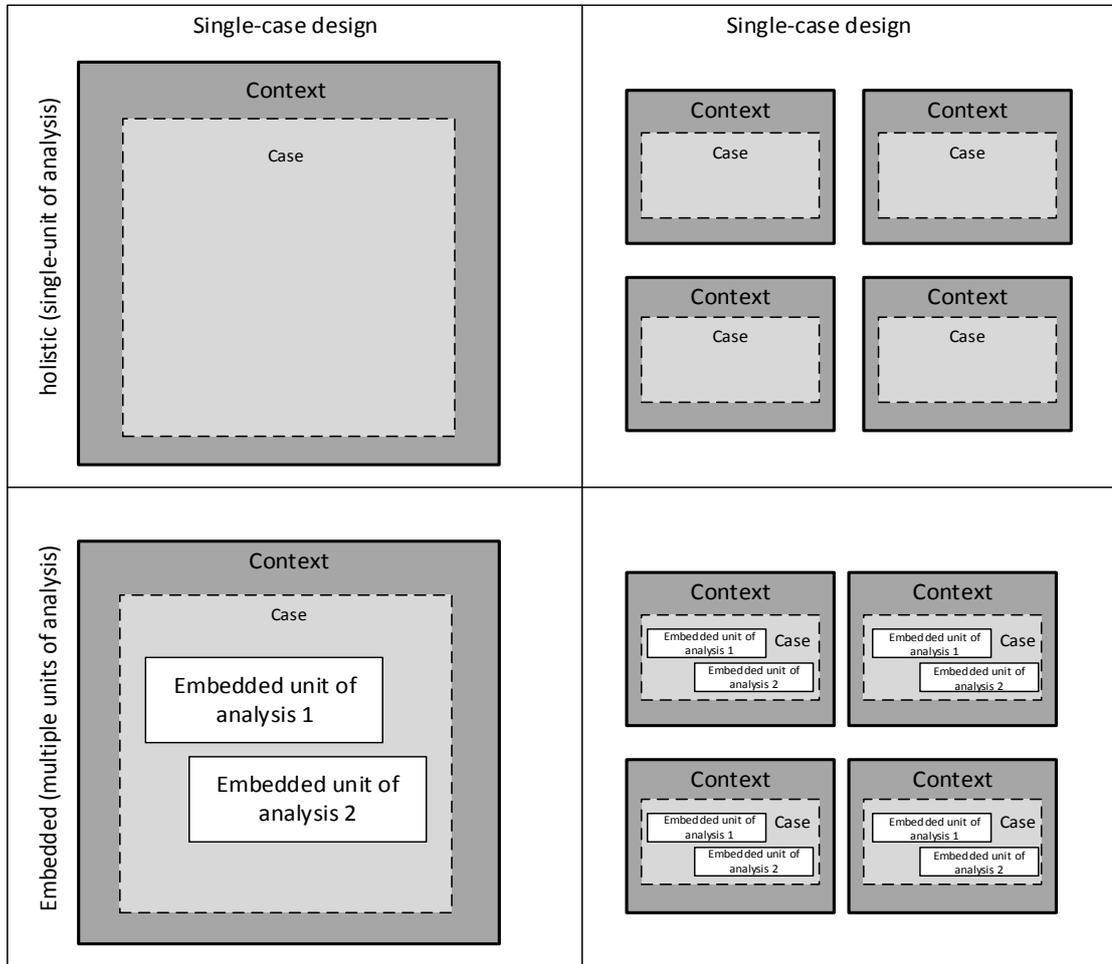
6.1 Introduction

Having identified and discussed construction partnering in association with the eight key drivers through the previously detailed qualitative strategy, this chapter (Chapter 6) explores and exploits those preliminary reported interpretations. It therefore draws from the strengths of Chapter 5, all as detailed in Chapter 4. For having collected the non-standard 'soft', 'flexible', 'subjective' and 'rich' data, quantification enables triangulation that Denzin (1978) broadly defined as "the combination of methodologies in the study of the same phenomenon". So in dealing with variables and their measurement, this chapter focuses on associations and differences between those variables, by comparing groups in order to determine whether an association between variables exist. If there are differences between those groups, measure the strength and direction of that association, and where the differences lie. Accordingly, as the data is from two supply chain studies, where each comprised 4no discipline groups, this chapter provides a linear unfolding of the research which is in the same order as the research instrument (Appendix 7).

6.2 Adopted Approach

To capture a small number of cases set in their real world contexts, albeit with relevant data coming from multiple, and not singular sources of evidence (i.e. ten respondents from each of the four disciplines across two supply chains), the approach adopted was intended to be similar to that employed in case study logic (Chapter 4). For as case studies favour the collection of qualitative data in natural settings, this quantitative phase "derives" data (Bromley, 1986) from the responses to the developed research instrument, albeit within two distinctly selected supply chains. Having therefore purposively selected the two supply chains (i.e. 1no Client and 1no Main Contractor) the emphasis was to study the collaborative phenomenon through those supply chains in order to understand the conundrum that is supply chain collaboration. Therefore, in acknowledging each supply chain was a bounded entity that formed the main area of analysis, the adopted design was a common multiple case design (Figure 6.1). For whilst the holistic case related to partnering within and throughout the supply chain, utilising two separate organisational supply chains meant greater confidence in the data as "...the more cases, the greater confidence or certainty in a study's findings..." (Yin, 2009). Though whilst "...considerably more difficult to implement than a single case design"

(Sagepub.com), because each case deliberately tries to test the conditions under which the same findings may have been replicated, it is acknowledged the answer to the question “how many experiments (or cases) need to be conducted to arrive at an unqualified result” is still judgemental (Yin, 2009).



(Source: COSMOS Corporation)

Figure 6.1: Basic Types of Designs for Case Studies

With reference to the two supply chain studies, each of which comprised four disciplines (i.e. clients, consultants, main contractors and subcontractors) and five respondents from each discipline, meant forty questionnaires were completed overall. Each questionnaire, as demonstrated within Appendix 8 (figure b), consisting of ten distinct areas (i.e. personal details, general perception and the eight key drivers) totalled 96no questions. So whilst a small number of responses were missed or deemed not applicable within individual questionnaires, the captured data has been analysed with the aid of SPSS (Statistical Package for Social Science – Version 21). The statistical methods used, all of which were non-

parametric; as parametric tests assume the data fits the normal distribution (McDonald, 2014), were performed in order to examine the associations and differences between independent and dependent variables that were non-linear or normally distributed. For non-parametric tests, which are sometimes referred to as assumption free tests "...because they make fewer assumptions about the type of data on which they can be used" (Field, 2009) fundamentally work on the principle of ranked data. The analysis is then carried out on the ranks rather than the actual data thus breaking the parametric assumptions. Accordingly, and as Chapter 4 details, with various non-parametric tests available the statistical procedures utilised as part of this chapter include the Kruskal-Wallis H test and Spearman's rank correlation coefficient (r_s).

6.3 Respondents/Company Details

6.3.1 Personal and Organisational Characteristics

Akin to Chapter 5 each of the forty respondents from across the two supply chain studies were requested, via the developed questionnaire, to provide personal information relating to their general experience within the construction industry, how long they had worked with their current employer and their position within that company. The respondents, who were also asked to select a relevant age range, responded to these specific questions via nominal categories which meant it was possible to compare the associations between these categorical variables. Thus, as Table 6.1 indicates the roles of those questioned, the averaged cumulative number of years for each category and the respondent's tenure length, a Spearman's rank correlation coefficient (abbreviated to Spearman's correlation) was used as a standardised measure of the strength of relationship between two variables. For having converted non-parametric data into ranked scores, the Spearman's correlation was exercised instead of a Pearson's correlation coefficient due to the assumptions of the parametric test not being met (i.e. the two variables were not measured at the interval or ratio level [they were not continuous] and there was no linear relationship). Yet in measuring the strength and direction of an association between a respondent's position and their age and/or position and length of service through Spearman's correlation, on an ordinal scale utilising SPSS software, there was a very weak negative relationship between the former in that $r_s(38) = -.063$, $p=.700$. Hence an individual's seniority did not necessarily correlate to being older (Table 6.2) which meant as the number of senior responses increased their age

range could well have an abated tilt. Yet as regards a respondent's position and length of service there was a very weak positive correlation between their position and length of service as $r_s(38) = .029, p=.859$. Hence for those employees with extended tenure, the relative probability for them to fulfil the more senior roles was positive albeit insubstantial (Table 6.3). Though in both instances, as $p > .05$ the difference between the regression coefficients cannot be regarded as significant, meaning there is no evidence to assert a respondents position and age or position and length of service are associated.

Demographics	Categories	N=20 (per SC*)		Cumulative Years (Average)	
		SC 1	SC 2	SC 1	SC 2
Role	Director	5	50	5	43
	Associate	2	16	1	3
	Senior Man.	9	89	8	99
	Mid Man.	4	30	6	63
	Operative	0	0	0	0
Total		20	185	20	208
Tenure within current role	<1	0	0	2	1
	1-5	0	0	4	12
	6-10	6	48	3	24
	11-15	6	78	6	78
	>15	8	144	5	15
Total		20	270	20	130

* SC = Supply Chain

Table 6.1: Demographic Characteristics of Respondents

Spearman's rho		Individual's position within company	Age range
Individual's position within company	Correlation Coefficient	1.000	-.063
	Sig (2-tailed)	-	.700
	N	40	40
Age range	Correlation Coefficient	-.063	1.000
	Sig (2-tailed)	.700	-
	N	40	40

Table 6.2 Nonparametric Correlation; Company position & age range

Spearman's rho		Individual's position within company	Length of time current employer
Individual's position within company	Correlation Coefficient	1.000	.029
	Sig (2-tailed)	-	.859
	N	40	40
Length of time current employer	Correlation Coefficient	.029	1.000
	Sig (2-tailed)	.859	-
	N	40	40

Table 6.3 Nonparametric Correlation; Company position & length of employment

As depicted by Table 6.1, the majority of respondents were at a senior level within their respective organisations (SC 1 = 80% and SC 2 = 70%), the remaining 20% and 30% respectively were middle management. So as each of the four disciplines within the two supply chains were represented by sufficiently senior members of staff it was felt each respondent was capable of providing clear succinct answers relevant to their company's position within the project team because of their individual experience and length of service with that particular employer. Moreover as the phase two respondents were comparable to those from the first phase it is acknowledged, albeit for information purposes only, that whilst findings suggested there was an obtainable wealth of construction industry experience, 92.5% of those questioned were male.

Having asked respondents the nature of the company's core business the results demonstrated the main core business for each organisation reverted to type, while Table 6.4 indicates the foremost categories for organisational turnover as £2.81-£11.20m and >£50m. These categories being equal first were chosen by 11 out of 40 respondents (27.5%). Yet the organisations within the former category met the financial definition for a 'medium' sized company, as established by the Department for Trade and Industry (DTI). Those within the second category (>£50m) exceeded that definition. The next largest category, with 10 out of 40 (25%) and falling outside the DTI financial criteria for 'medium' sized organisations, was that between £11.21 to £50m. The final category, with 8 out of 40 (20%) were companies that had a turnover of less than £2.8m, and so met the financial criteria in respect of DTI's definition of a 'small' organisation. Further the median scores in relation to each disciplines turnover was £20.1 to £50m (client), £11.21m to £20.0m (consultant), >£50m (main contractor) and between £1.1m to £2.8m and £2.81m to £5m (subcontractor). As this equated to an overall median of £11.21m to £20m, in relation to the specific disciplines and their overall percentage totals, 20% had a turnover of not more than £2.8m (0% client; 7.5% consultant; 0% main contractor; 12.5% subcontractor), 27.5% had a turnover of between £2,81m and £11.2m (10% client; 5% consultant; 5% main contractor; 7.5% subcontractor) whilst the remaining 52.5% had a turnover above the £11.2m figure (15% client; 12.5% consultant; 20% main contractor; 5% subcontractor).

Discipline Type	Turnover (£)			
	≤2.8m	2.81m-11.2m	11.21m-50m	>50m
Client 1		■◆		
Client 2				■◆
Client 3		◆		■
Client 4		■		◆
Client 5			◆	■
Consultant 1	■			◆
Consultant 2	◆	■		
Consultant 3		■		◆
Consultant 4	■			◆
Consultant 5			■	◆
Main Contractor 1			■◆	
Main Contractor 2			■◆	
Main Contractor 3			■	◆
Main Contractor 4		◆	■	
Main Contractor 5		◆	■	
Sub Contractor 1	◆			■
Sub Contractor 2	◆		■	
Sub Contractor 3	◆	■		
Sub Contractor 4	◆	■		
Sub Contractor 5	■	◆		
TOTAL	8(20%)	11(27.5%)	10(25%)	11(27.5%)

Table 6.4: Financial Characteristics ■ Supply Chain 1 ◆ Supply Chain 2

Of those companies with a turnover of between £2.81 to £11.2M, and falling within the DTI financial criteria for 'medium' sized organisations, 6 of the overall 11 companies also met the DTI criteria for a 'medium' sized enterprise in respect of employment; by employing ≤250 (Table 6.5). Of the 8 companies that were defined as financially 'small', with a turnover of ≤£2.8m, 8 companies also met the DTI criteria for a 'small' enterprise in respect of employment, by employing ≤50 staff. Accordingly the remaining 26 organisations, by not satisfying the DTI criteria, were not defined as either a 'small' or 'medium' enterprise. Hence the median scores in relation to the numbers employed by each discipline were >400no (client), between 251no–400 and >400no (consultant and main contractor) and 11no–50no (subcontractor). As this equated to an overall median of between 251no–400 and >400no, in relation to the specific disciplines and their overall percentage totals, 30% employed ≤50no (2.5% client; 10% consultant; 0% main contractor; 17.5% subcontractor), 15% employed between 51no and 250no (0% client; 0% consultant; 10% main contractor; 5% subcontractor) whilst the remaining 55% employed more than 250no (22.5% client; 15% consultant; 15% main contractor; 2.5% subcontractor).

Discipline Type	Employed				
	<10	10-49	50-99	100-250	>250
Client 1					■ ◆
Client 2	■				◆
Client 3					■ ◆
Client 4					■ ◆
Client 5					■ ◆
Consultant 1		■			◆
Consultant 2	◆	■			
Consultant 3					■ ◆
Consultant 4		■			◆
Consultant 5					■ ◆
Main Contractor 1			◆		■
Main Contractor 2			◆		■
Main Contractor 3					■ ◆
Main Contractor 4			◆		■
Main Contractor 5			◆		■
Sub Contractor 1	◆				■
Sub Contractor 2	◆		■		
Sub Contractor 3		■ ◆			
Sub Contractor 4		■ ◆			
Sub Contractor 5		■	◆		
TOTAL	4(10%)	8(20%)	6(15%)	0(0%)	22(55%)

■ Supply Chain 1 ◆ Supply Chain 2

Table 6.5: Employment Characteristics

To sum up, with reference to Table 6.6 below, having run a Spearman’s correlation, it was concluded that a significant positive correlation between a company’s average annual turnover and the numbers employed existed; $r_s(38) = .732, p < .05$. Further, with a significance coefficient value of less than .05, it was also concluded that the relationship between annual turnover and those employed was significant. As the probability of seeing an r_s value of this size by chance suggests a company’s average annual turnover and the numbers they employ really do correlate.

		Average annual turnover	Discipline	How many staff directly employed
Average annual turnover	Correlation Coefficient	1.00	-.310	.732**
	Sig (2-tailed)	-	.052	.000
	N	40	40	40
Discipline	Correlation Coefficient	-.310	1.000	-.490
	Sig (2-tailed)	.052	-	.001
	N	40	40	40
How many staff directly employed	Correlation Coefficient	.732**	-.490**	1.000
	Sig (2-tailed)	.000	.001	-
	N	40	40	40

Table 6.6: Nonparametric Correlations

Table 6.6 also demonstrates a Spearman's correlation test was run to determine the association between an organisation's annual turnover, how many staff were directly employed and the 40no organisations across the 4no disciplines. So with results of $r_s = -.310$ and $r_s = -.490$, along with reported p values of $p = .052$ and $p = .001$ respectively, there were weak to moderate negative correlations between the two sets of variables i.e. $r_s(38) = -.310, p = .052$ and $r_s(38) = -.490, p = .001$. Meaning with an increase of respondents a decrease in annual turnover and the number of staff directly employed would be observed. Moreover, because the latter relationship between the two sets of variables was statistically significant, this suggested the probability of seeing r_s values of this size by chance implied no direct association between an organisations main core business and their average annual turnover; which makes the sample representative.

6.3.2 Procurement Environment

Respondents were asked to identify, as a percentage, the procurement approach utilised to secure work and how much of that secured work was then ultimately sub-contracted. For as BIS Research Paper No. 145 identified "...the construction supply chains ...are diverse and complex...[with] between 50% and 75% of the total value of the work accounted for by a small number of major sub-contractors..." albeit workloads were then allocated into packages and "...undertaken by a disaggregated tier 3 supply chain". Therefore in order to test whether two categorical variables, measured on an ordinal scale, were linked i.e. discipline and most frequent procurement method adopted, a Spearman's rank correlation coefficient was again utilised. The results are displayed in Table 6.7 below, although across the four disciplines 85% of the works were secured via competition, which is endorsed by Akintan and Morledge (2013) who stated "traditional construction procurement remains the dominant procurement strategy in the UK". Yet a 'weak' negative correlation existed between discipline and the most frequent method of procurement; $r_s(37) = -.205, p = .211$ meaning an increase in respondents could mean a decrease in those agreeing with the most frequent method of procurement. Still, the median scores in relation to the independent variable (discipline) and the dependent variable (most common method of procurement) were; competition – partnering framework (client); competition – select list (consultant and main contractor); and competition, albeit split between open market and select list (subcontractor) Moreover, with an overall median score identifying competition (select list), as two consultants (5%) and one sub-contractor (2.5%)

identified negotiation, and one main contractor did not know (2.5%), 32.5% identified open completion as the most popular approach (10% client; 5% consultant; 5% main contractor; and 12.5% subcontractor). This was followed by competitive partnering framework at 30% (15% client; 5% consultant; 10% main contractor; and 0% subcontractor), then select list competition i.e. 27.5% (0% client; 10% consultant; 7.5% main contractor; and 10% subcontractor).

		Most frequent method of securing work	Discipline	Work sub-contracted
Most frequent method of securing work	Correlation Coefficient	1.000	-.205	.172
	Sig (2-tailed)	-	.211	.310
	N	39	39	37
Discipline	Correlation Coefficient	-.205	1.000	-.374
	Sig (2-tailed)	.211	-	.021
	N	39	40	38
Work sub-contracted	Correlation Coefficient	.172	-.374	1.000
	Sig (2-tailed)	.310	.021	-
	N	37	38	38

Table 6.7: Nonparametric Correlations – Procurement

As regards statistically significant differences between the two categorical variables i.e. discipline (independent variable) and most frequent method of procurement (dependent variable) a nonparametric Kruskal-Wallis H Test was run to determine if there were differences in the procurement route scores between the four disciplines i.e. Client (n=10), Consultant (n=10), Main Contractor (n=9) and Sub-contractor (n=10). Accordingly, it was established that the distribution of procurement route scores, including a visual inspection of the boxplot (Figure 6.2) were similar for all disciplines, and with the median scores as noted above the differences were not statistically significant i.e. $X^2(3) = 2.940, p = .401$. Hence the distribution of the most common method of procurement was the same across the discipline categories implying competition is elemental.

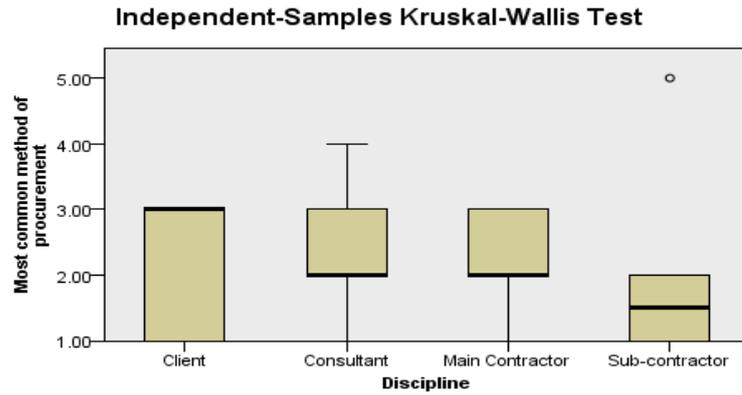


Figure 6.2: Boxplot – The Distribution of Procurement Route Scores Across Disciplines

Having identified each company's most common procurement method to secure work, it was asked how much of that secured work was then ultimately sub-contracted. Having performed Spearman's correlation tests for association in order to test whether two categorical variables were associated i.e. discipline (independent variable) and work subcontracted (dependant variable) it was concluded that a 'weak' negative correlation between discipline and the work subcontracted existed; $r_s(39) = -.374, p=.021$ (Table 6.7). Thus as the number of organisations questioned increases (independent variable) the percentage subcontracted could potentially decrease and the probability of seeing an r_s value of this size by chance suggests there was a relationship between discipline category and their response to the subcontract question. Further the median scores in relation to the independent variable categories (disciplines) and the dependent variable (work subcontracted) were; >75% (client); <25% (consultant); split between 51-75% and >75% (main contractor); and <25% (subcontractor). Moreover, with an overall median score being split between <25% and 25-50%, as one client (2.5%) and one consultant (2.5%) did not know, 47.5% identified <25% (2.5% client; 20% consultant; 2.5% main contractor; and 22.5% subcontractor). This was followed by >75% at 27.5% (15% client; 0% consultant; 12.5% main contractor; and 0% subcontractor), then 25-50% and 51-75% with 10% each (i.e. 5% and 0% client; 0% and 2.5% consultant; 5% and 5% main contractor; and 0% and 2.5% subcontractor). Therefore findings appear to show a clear divide between clients and main contractors and consultants and subcontractors in relation to the amount of work subcontracted.

A Kruskal-Wallis H Test was also run to determine if there were differences in the sub-contracted work scores between the four disciplines i.e. Client (n=9), Consultant (n=9), Main Contractor (n=10) and Sub-contractor (no=10). This included a visual inspection of the boxplot (Figure 6.3) which established the distribution of procurement route scores were not similar for all disciplines. Moreover, with the median scores as noted above the differences were statistically significant i.e. $\chi^2(3) = 22.484$, $p < .05$. Thus the disciplines previously identified as dominant i.e. 'client' and 'main contractor', subcontracted extensively (i.e. between 51-75% and >75% of their work), while those further down the supply chain, whom were considered 'subservient' (Chapter 6), still did so, albeit to a lesser degree (i.e. <25%) because projects involved a large number of low value transactions within each supply chain (BIC, 2013). Consequently the distribution of the work sub-contracted was not the same across categories of disciplines.

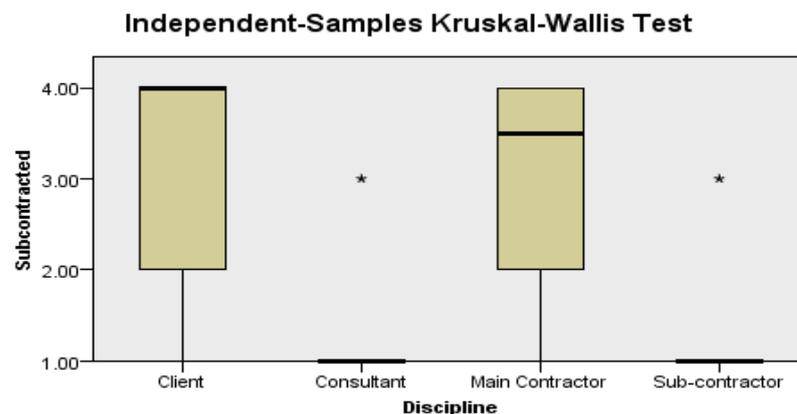


Figure 6.3: Boxplot – The Distribution of Subcontracted Work Scores Across Disciplines

6.3.3 Summing up

As a précis the results indicate the interviewee's occupied relatively senior positions within their respective organisations and had been with their current employers for an average of 10 years. With the most prevalent age bracket being 41-50, all forty respondents were judged to have had a good understanding of their organisations practices and procedures as well as a lucid knowledge of the construction industry generally. The data analysis also indicated 65% of organisations approached during this second phase were broadly considered large enterprises. Six companies were categorised as 'small' i.e. a turnover of not more than £2.8M and employing not more than 50 staff. Eight were therefore termed medium enterprises

i.e. a turnover of not more than £11.2M and employing not more than 250 staff. So as the spread of results across the four disciplines were considered representative of the UK construction industry it is recognised “most construction work is delivered at the tier 3 level or below – meaning there are two tiers of management activity, procurement, etc. above most construction activities” (BIS, 2013).

In respect of procurement, works were primarily secured via competition, with open competition as the most popular approach. It was also established that the distribution of the most common method of procurement was the same across the four categories of disciplines, while the distribution of the work sub-contracted was not. For as previously iterated, a company’s hierarchal position within the supply chain has been identified as significant in respect of their procurement strategy. Therefore the disciplines previously identified as dominant i.e. ‘client’ and ‘main contractor’ sub-contracted extensively while those further down the supply chain did so, but to a lesser degree.

6.4 General Perception

The survey sought data from the forty respondents on their perception of the construction industry. For whilst the phase one qualitative analysis identified the overall perception of the construction industry was negative (Chapter 5 – Table 5.3 and Figure 5.3), this question in the same format was included as part of the second phase in order to substantiate (or invalidate) those preliminary findings. Therefore, as the highest scoring positive and negative perceptions from the first phase single words or short phrases were ‘customer focused’ (with 7 out of 20) and ‘low profit margins’ (with 16 out of 20), the very same were listed upon the phase two measuring instrument adjacent to appropriate tick boxes with the instruction that respondents ticked all those considered amenable (Appendix 8, figure b). Once in receipt of all relevant data and having run a Chi-square test for association between the independent variable (discipline) and the dependent variable (industry perception) a statistically significant association was calculated (i.e. $\chi^2(1)=18.800, p=.027$). Yet this seems to coincide with the previous statement that the client and main contractor disciplines were dominant, as the observed frequency for client and main contractor categories within the independent variable were both greater than expected for ‘positive’ (60% and 80%, respectively) whilst lower than expected for ‘negative’ (20% and 0%). This was converse for consultant and sub-contractor meaning it was higher than expected for ‘negative’ (80% and 50%) and

lower than expected for 'positive' (20% and 40%). With 1no client (equating to 10% within discipline), 2no main contractors (equating to 20% within discipline) and 1no subcontractor (again equating to 10% within discipline), identifying an equal number of positive and negative responses, an overall positive perception of the construction industry was recorded (Figure 6.4). Yet with a 50% positive result, 10% split and a negative result of 37.5% the perception of the construction industry, as graphically illustrated, remains diverse - albeit suspiciously interconnected with a disciplines perceived dominance.

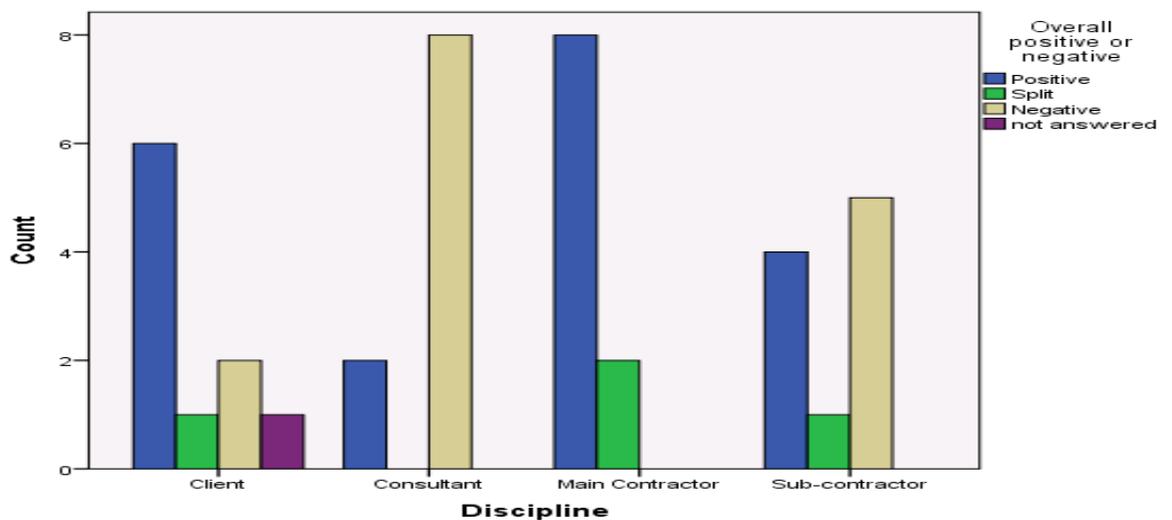


Figure 6.4: Bar chart showing discipline perception of the construction industry

A Kruskal-Wallis H test, was also run in respect of statistically significant differences and this rejected the null hypothesis that the distribution of an overall positive or negative perception was the same across categories of discipline ($X^2(3) = 10.311, p = .016$). Taking this rejected null hypothesis, having established all possible variables of group comparisons through Pairwise Comparison tests to ascertain group differences, it was revealed the statistically significant differences in scores were as a result of the 'consultant and main contractor' group ($p = .011$). No statistically significant differences were therefore identified between 'client and consultant' (.389), 'client and main contractor' (1.000), 'client and subcontractor' (1.000), 'consultant and subcontractor' (1.000) and 'main contractor and subcontractor' (.263). Though through visual inspection of the boxplot (Figure 6.5) the 'client and main contractor' organisations, which had been considered dominant, were generally positive and the compliant disciplines in the form of consultant's and sub-contractor's had an overall negative perception. Thus with a number of outliers

evident, the median scores in relation to this H_0 were positive (client and main contractor), negative (consultant) and split between split/mixed and negative (subcontractor). Further, the overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 50% positive (15% client, 5% consultant, 20% main contractor and 10% subcontractor), 10% split (2.5% client, 0% consultant, 5% main contractor and 2.5% subcontractor) and 37.5% negative (5% client, 20% consultant, 0% and 12.5%).

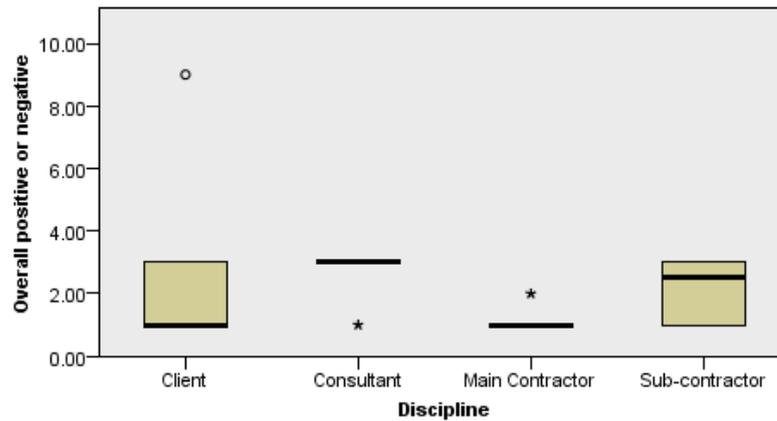


Figure 6.5: Boxplot – The distribution of construction industry perspective across disciplines

Having initially captured the phase two survey findings in a binary matrix style arrangement Figure 6.6, Table 6.8 and Table 6.9 were developed to collectively articulate the key themes. So with reference to the number of participants from the two supply chains across the four disciplines, having independently analysed each in respect of industry perspective, it shows the highest scoring positive perception; identified by 23 out of 40 (57.5%) respondents, was 'customer focused' (Table 6.8). This was selected by 5no clients, 4no consultants, 10no main contractors and 4no subcontractors across the two supply chains. This was consistent with the phase one results, albeit ominously, in both phases, only half the clients questioned selected the same (Chapter 5 – Table 5.3). The second highest positive perception with 14 out of 40 (35%), was 'meets client expectation', and this was selected by 4no clients, 2no consultants, 4no main contractors and 4no sub contractors across the two supply chains. The third positive perception was 'good communication' which was identified by 12 out of 40 (30%) respondents. Equal fourth came 'mutually beneficial', and 'innovation' with 11 out of 40 (27.5%) whilst fifth, sixth, seventh and eighth were 'successful' (25%), 'dynamic' (22.5%), 'creative' (20%) and 'inclusive' (7.5%). From a negative perspective the highest scoring perception,

identified by 22 out of 40 (55%) respondents was 'low profit margins'. This also reflected the highest scoring negative perception from the phase one analysis, and was selected by 2no clients, 7no consultants, 5no main contractors and 8no sub-contractors (Table 6.8). The second highest negative perception, with 13 out of 40 (32.5%) respondents selecting the same was 'cost cutting'. This negative perception, which was also the second highest negative perspective during the first phase, was selected by 1no client, 3no consultants, 5no main contractors and 3no sub-contractors. 'Slow to Change' was third (albeit the equal fifth highest scoring negative perception from the phase one analysis) and had been selected by 2no clients, 3no consultants, 3no main contractors and 3no sub-contractors. The fourth highest negative perception was 'fragmented', and whilst identified by 8 out of 40 (20%) respondents, this too was consistent with the phase one findings, where 6 out of 20 selected 'fragmented'. 'Fragmented' as part of the phase two research was identified by 1no client, 3no consultants, 1no main contractor and 3no sub-contractors. 'Adversarial' was fifth (17.5%), 'transient' and 'corner cutting' sixth (12.5%) and 'under performs' seventh (10%), while eighth was 'parochial' (7.5%) and equal ninth 'litigious' and 'poor productivity' (2.5%). Moreover, while only Consultant 4 from the second supply chain selected all three of the top ranked negative perceptions 3no consultants, 2no main contractors and 2no sub-contractors across the two supply chains selected both 'low profit margins' and 'cost cutting'. One client, 1no consultant, 2no main contractors and 2no sub-contractors selected 'low profit margins' and 'cost cutting', while none identified both 'cost cutting' and 'slow to change'.

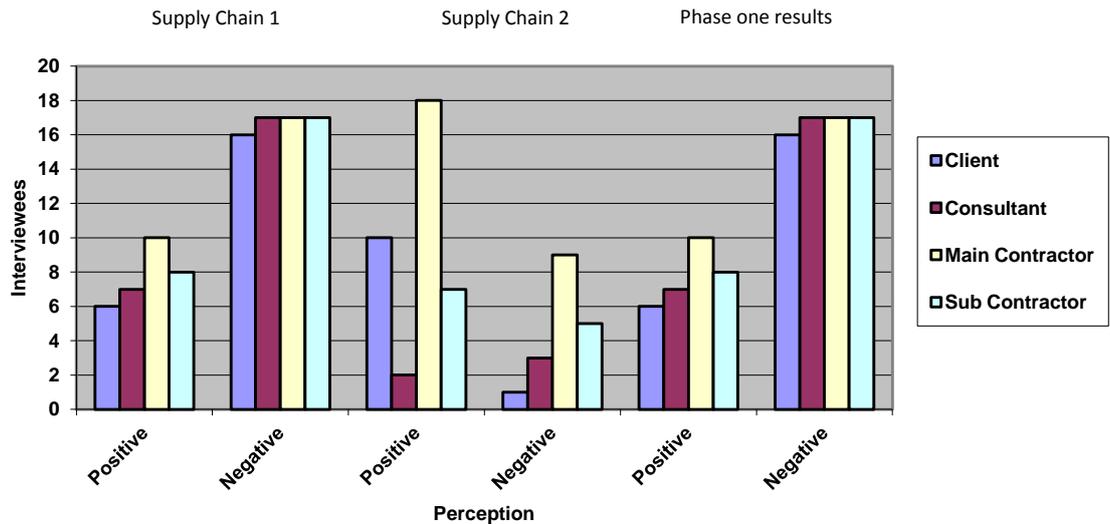


Figure 6.6: Graphical Display – General Industry Perception across the Two Supply Chains, when Compared to the Phase One Results.

6.4.1 Summing up

With reference to Figure 6.6, which also incorporates the phase one findings, has been used to help comprehend the broader picture in terms of discipline perception and therefore help provide a linkage to the eight key drivers identified within Chapter 2 and discussed throughout this and the previous chapter. For in providing this broader more holistic perspective, and identifying a ranked order that fits the collection of observations (Table 6.10), this allowed the analysis to identify the relevant groupings within the data set when each of the forty respondents (10no clients, 10no consultants, 10no main contractors and 10no sub-contractors) were asked to categorise their perception of the construction industry. The evidence from the analysis therefore suggests;

- The overall industry perception during the phase two analysis skewed positive. Yet the perception of the construction industry remains diverse - for;
- 'innovation' has been identified as the second ranked positive perception, but its equivalent 'slow to change' is ranked as the second negative perception;
- 'Mutually beneficial' is displayed as the third ranked positive perception, while 'low profit margins' is in pole position as regards the negative ranking;
- 'Good communication' as a positive is ranked fifth albeit 'fragmented' is fourth as a negative; and

- Whilst 'successful' is ranked fourth 'under performs' is sixth.
- In ranked order the crosstabulated top 10 positive and negative industry perceptions, across both supply chains (i.e. 40no respondents from 4no specific disciplines), encapsulate the elemental eight key drivers as Table 7.7c illustrates;
- A statistically significant association, splitting the four disciplines in respect of industry perception was calculated (i.e. $\chi^2(1)=18.800, p=.027$). Seemingly this reflects those previously designated dominant (i.e. client and main contractor) as they generally had a more positive assessment of the industry;
- Respondents overall perception of the construction industry also differed. For having run a Kruskal-Wallis H test, it was rejected that the distribution of dependant variable categories (i.e. positive, split or negative) were the same across the four discipline categories ($\chi^2(3) = 16.925, p = .001$) - albeit suspiciously interconnected with a disciplines associated dominance;
- The phase two (quantitative) findings are generally consistent with the phase one (qualitative) findings; hence the key pressure remains financial with the stimulus remaining lowest cost. 'Low profit margins' and 'cost cutting' are therefore still identified by a number of respondents, which again reinforces "...downward competitive pressure through the supply chain facilitates cost reduction...[albeit] very high levels of competition in supplier selection are seen to be having a negative effect..." (BIS, 2013).

Positive Perception	Rank	Identified No. (%)
Customer Focus	1	23(57.5%)
Meets Client Expectation	2	13(32.5%)
Good Communication	3	12(30%)
Mutually Beneficial	=4	11(27.5%)
Innovative	=4	11(27.5%)
Successful	5	10(25%)
Dynamic	6	9 (22.5%)
Creative	7	8(20%)
Inclusive	8	3 (7.5%)

Table 6.8; Industry Perception (Positive)

Negative Perception	Rank	Identified No. (%)
Low Profit Margins	1	22(55%)
Cost Cutting	2	13(32.5%)
Slow to Change	3	12(30%)
Fragmented	4	8(20%)
Adversarial	5	7(17.5%)
Transient	=6	5(12.5%)
Corner Cutting	=6	5(12.5%)
Underperforms	7	4(10%)
Parochial	8	3 (7.5%)
Poor Productivity	9	2(5%)
Litigious	10	1(2.5%)

Table 6.9; Industry Perception (Negative)

Combined Perceptions (P = Positive & N = Negative)	P/N	Overall Rank	Identified No. (%)
Customer Focus	P	1	23(57.5%)
Low Profit Margins	N	2	22 (55%)
Meets Client Expectations	P	3	13(32.5%)
Cost Cutting	N	= 4	13(32.5%)
Good Communication	P	= 4	12(30%)
Successful	P	= 4	12 (30%)
Mutually Beneficial	P	= 5	11 (27.5%)
Innovative	P	= 5	11 (27.5%)
Slow to Change	N	= 5	11 (27.5%)
Dynamic	P	6	9 (22.5%)
Fragmented	N	7	8 (20%)
Creative	P	= 8	7 (17.5%)
Adversarial	N	= 8	7 (17.5%)
Transient	N	9	6 (15%)
Corner Cutting	N	10	5 (12.5%)
Under Performs	N	= 11	3 (7.5%)
Parochial	N	= 11	3 (7.5%)
Inclusive	P	= 11	3 (7.5%)
Poor Productivity	N	= 12	1 (2.5%)
Litigious	N	= 12	1 (2.5%)

Table 6.10; Industry Perception (Combined)

6.5 Identified Key Drivers

The incitement for a healthier atmosphere throughout the supply chain remains key to enhanced project performance. So with construction partnering identified as a means to that end (Murray and Langford, 2003), the realisation of a relationship schema that delivers project requirements in spite of the problems imposed by the

procurement route means supply chain collaboration should be conducted in spite of the selected procurement route rather than because of it (Tookey, *et al.*, 2001). Accordingly with little doubt about the positive impact of construction partnering (Thurairajah, *et al.*, 2006; Wood and Ellies, 2005), as it represents the most significant development in respect of improving project performance and profitability within an industry where deeply ingrained attitudinal and behavioural characteristics towards mutual trust and understanding remain prevalent, it is again necessary to consider the tangential influences i.e. the eight key drivers. Thus within an industry where “no one firm can provide all the specialism’s; therefore many small-sized specialist firms with narrow expertise continue to work to meet the industry’s varied and complex demand” (Akintan and Morledge, 2013) consideration must be given to steering successful, inclusive and incentivised supply chain collaboration.

The next step analyses the data from the returned questionnaires (Appendix 8 – figure b), under the relevant key driver sub-headings, both singularly and across the four disciplines (or as a collection of questions) in order to investigate the partnering phenomenon numerically. These questions, termed ‘null assumptions’, which are not intended to be mixed up with the overall project assumptions established following the completion of the first phase qualitative survey will be analysed mathematically in order to test the same. So with Tables 1-8 (Appendix 10) identifying whether each assumption is considered positive or negative, this second quantitative phase, with a study design that measured and analysed the various attitudes across the four disciplines in respect of the dependent variables (or null assumption), details, interprets and reports the results from the ranked one-way analysis of variance in SPSS. Thus determining whether there was in fact an overall effect of the independent variables (disciplines) on the dependent variables (null assumptions). In addition, as the respondents perception of each dependent variable were measured using a five point Likert scale (i.e. 1 = strongly disagree; 2 = disagree; 3 = split/mixed; 4 = agree; and 5; strongly agree), having graphically shown if there were any overall effects of the independent variables on the dependent variables and having ascertained which of the groups differed, Spearman’s correlation tests for association were also run to investigate the strength and direction of the association between the two ordinal variables.

6.5.1 Relationships

With reference to the key driver 'relationships', as the "...dimension of the concept is unclear" (Bygalle, *et al*, 2010) a non-parametric Kruskal-Wallis H test has been used to determine if there were statistical significant differences between the various combinations of unrelated, independent categories (disciplines i.e. client, consultant, main contractor and sub-contractor groups) when aligned with particular ordinal dependent variables (i.e. null assumption; Table 6.1a – Appendix 10). Yet as the respondents perception of 'relationships' were measured using a five point Likert scale (i.e. 1 = strongly disagree; 2 = disagree; 3 = split/mixed; 4 = agree; and 5; strongly agree), none of the eight null assumptions (A_0), in respect of 'relationships' were rejected. Therefore as the relevant boxplots visually identified no statistically significant differences between the four groups of the independent variable on the various ordinal dependent variables therefore all were retained. Meaning as there was no significant relationship between the independent and dependent variables it can be concluded the correlations are chance occurrences and not 'generalisable'; that is, it may not be true of the population at large. Accordingly from a supply chain viewpoint, in respect of the first null assumption (A_01) which is deemed a negative perspective; a dominant upstream partner (who dictates terms and conditions, proceedings, etc.) is said to always exist ($X^2(3)=1.930, p=.587$). From an organisations perspective, in respect of the second null assumption (A_02 - also a negative perspective); there will always be a greater focus on the upstream relationship with the dominant partner ($X^2(3)=.946, p=.814$). Hence sustaining previous reviews (Bygballe, *et al.*, 2010; Bresnen and Marshall, 2000; Li, *et al.*, 2000) which found partnering was fundamentally concerned with relationships between clients and main contractors and acknowledged whilst main contractors endorsed partnering arrangements with clients, they also practised conventional approaches with suppliers (Bresnen and Marshall, 2000; Packham, *et al.*, 2003). Yet the results from the Kruskal-Wallis test, in examining for differences has meant agreement across the four disciplines in respect of a partnered approach being an effective strategy to improve relationships throughout the supply chain rather than just with dominant partners ($X^2(3)=4.440, p=.218$). So as a positive relationship was deemed to have a constructive effect on each particular project ($X^2(3)=6.612, p=.085$) and recognising good working relationships both up and downstream should go beyond the 1st tier ($X^2(3)=3.817, p=.282$), it was also accepted effective relationships between relevant supply chain members could be

engineered/established during the period of a single project ($X^2(3)=1.902, p=.593$). So while some researchers have identified project partnering as the first step towards long-term strategic partnering (Kubal, 1996; Thompson and Sanders, 1998; Cheng, Li and Love, 2000) there remains a considerable focus on the benefits of partnering for individual projects (Anvuur and Kumuraswamy, 2007). It was also accepted that relationships between supply chain members were monitored ($X^2(3)=5.211, p=.157$), whilst a positive relationship was said to have a constructive effect on future work prospects ($X^2(3)=1.410, p=.703$).

In respect of ranking each variable separately and comparing the ranks of each data pair in terms of strength and direction of the association between the ordinal variables, Spearman's correlation coefficient has been used to establish if associations between each of the two variables existed. Hence as a statistical measure of a relationship, with each of the null assumption (A_0) written in terms of there being only one significant association between the variables, whilst illustrating the SPSS output on the variables identified, interpreted the same as follows;

- **Discipline and dominant upstream partner** - $r_s(40) = .089, p=.583$. The Spearman correlation coefficient value of .089 confirms there is a positive, albeit very weak, correlation between the two variables. Consequently there is an association between an increase in responses across the four disciplines and an increase in those who believed, due to the nature of the industry, that a dominant upstream partner would always exist. However, given the above correlation coefficient calculated describes the relationship between the two variables, a significance test was also performed. For in order to test the assumption of this test the statistical significance needed to be determined, and with the level of statistical significance (p-value) reported as .583, it can be concluded there is moderate evidence to believe A_0 . So whilst this statistical significance does not determine the strength of the relationship (as the p-value does that) it does conclude the correlation coefficient is statistically significantly different from zero i.e. there is an association between the two variables albeit no tendency for the variables to fluctuate in tandem;
- **Discipline and focus on upstream relationships** - $r_s(40) = -.148, p=.363$. A Spearman's correlation was run to determine the relationship between the perception that there was a greater focus on the upstream relationship with the

dominant partner as regards the 40no organisations across 4no disciplines. Therefore with a result of $-.148$ and a reported $p=.363$, there was a 'very weak' negative correlation between these two variables. Hence an increase in respondents could lead to a slight decrease in those agreeing to the statement, albeit no association (i.e. monotonic relationship) between the variables within the population exists and the relationship between the two variables were not statistically significant. So whilst there is no tendency for the variables to fluctuate in tandem, this A_0 is to be retained i.e. from an organisation perspective there is a greater focus on the upstream relationship with the dominant partner;

- **Discipline and partnering as an effective approach** - $r_s(40) = -.013$, $p=.934$. Having again run a Spearman's correlation to assess the relationship between these two variables, it was concluded that there is a negative correlation between the discipline variable and partnering being an effective strategy to improve relationships throughout the supply chain (not just the dominant partners). Yet this correlation ($r_s = -.013$) is extremely weak due to the magnitude of the Spearman's correlation coefficient being determined by the strength of r_s in relation to zero. So with a slight negative tilt in respect of organisations across the four disciplines and their perception that partnering is an effective strategy to improve relationships throughout the supply chain, the significance value of this coefficient being $.934$ concludes there is no statistical significant relationship between the two variables;
- **Discipline and a positive relationship has a constructive effect** - $r_s(40) = -.030$, $p=.856$. Describing the relationship between the two variables there is a 'very weak' negative correlation between the four discipline categories i.e. client, consultant, main contractor and sub-contractor and whether a positive relationship has a constructive effect on each particular project. That is, as the value of the first variable increases (i.e. more organisational responses), the value associated with a positive relationship having a constructive effect potentially decreases. Thus whilst there is no propensity for the variables to mutually oscillate, higher the number of responses potentially less agreeable the overall response. Since SPSS also reports the p-value for this test as $.856$, it is stated there is no statistical significant relationship between the two variables;

- **Discipline and a positive relationships on future work prospects** - $r_s(40) = .053$, $p=.744$. Given the Spearman correlation coefficient r_s is $.053$, there is a 'very weak' positive association between the categorised respondents and their belief that a positive relationship has a constructive effect on future work prospects. Therefore as the correlation is that both variables would reciprocally increase, it can also be concluded that the correlation coefficient is not statistically significant (i.e. $p=.744$);
- **Discipline and single project partnering** - $r_s(40) = -.049$, $p=.763$. Again describing the relationship between the two variables there is a 'very weak' negative correlation between the four discipline categories i.e. client, consultant, main contractor and sub-contractor and whether an effective relationship between relevant supply chain members can be engineered/established during the period of a single project. Hence, whilst not a perfect negative correlation (i.e. -1), which would indicate an increase in one variable would reliably predict a decrease in the other, as the value of the first variable increases, an opposite directional change is nevertheless predicted for the second variable i.e. the more respondents questioned greater the refusal. Moreover a coefficient significance value of $.763$ concludes there was no statistical significance.
- **Discipline and relationships beyond tier one** - $r_s(40) = .082$, $p=.614$. The Spearman correlation coefficient value of $.082$ confirms there is a positive, albeit very weak, correlation between the two variables. So there is an association between an increase in responses across the four disciplines and an increase in those who believed it was necessary to have good working relationships both up and down stream that went beyond the first tier. However, given the above correlation coefficient calculated describes the relationship between the two variables, a significance test was also performed and with a coefficient significance value of $.614$ concluded, there was no statistical significance.
- **Discipline and relationships are monitored** - $r_s(40) = -.313$, $p=.049$. The relationship between the two variables is a 'weak' negative correlation between the four discipline categories i.e. client, consultant, main contractor and sub-contractor and whether relationships with other members of the supply chain either up or down stream were monitored. So whilst the negative value suggests the more respondents questioned greater the refusal, with a coefficient

significance value of .049 it was also inferred that a statistical significant relationship between the two variables did exist. Hence this null assumption (A_0), considered a positive presumption, where $p=.049$ was interpreted as marginally significant i.e. the decision could go either way (Rumsey, 2010). Albeit the probability of seeing an r_s value of this size by chance suggests disciplines may not associate positively with the notion that relationships with other members of the supply chain, either up or downstream, are monitored.

6.5.2 Summarising Relationships as a Key Driver

Given the constructs used in respect of the key driver relationships, 6no positive perceptions and 2no negative perceptions have been retained (i.e. none rejected). So in relation to each of the eight A_0 's, whilst the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same have been identified (Appendix 10 Table 1b), evidence from a holistic perspective suggests;

- A dominant upstream partner would always exist and results suggest there was a greater focus on the upstream relationship with that dominant partner;
- Findings suggested partnering was fundamentally concerned with relationships between clients and main contractors. For whilst main contractors endorsed partnering arrangements with clients, they also practised conventional approaches with suppliers;
- A partnered approach was considered an effective strategy to improve relationships throughout the supply chain rather than just with dominant partners, and this can be engineered/established during a single project;
- It is accepted there should be good working relationships, both up and downstream, that go beyond the 1st tier, as a positive relationship was deemed to have a constructive effect on each particular project, as well as improving future work prospects;
- Relationships with other members of the supply chain are judged to be monitored.

6.5.3 Trust

With reference to the key driver 'trust' as "enhanced supplier performance, lowered costs of negotiation, and reduced conflict are shown to be related to high levels of interorganisational trust" (Zaheer, *et al.*, 1998) a non-parametric Kruskal-Wallis H test was again used to determine if there were statistical significant differences between the various combinations of unrelated, independent categories (i.e. disciplines) when aligned with the ordinal dependent variables (the null assumption as identified within Table 6.2a – Appendix 10). Where relevant, in order to establish where any differences laid all possible variations of group comparisons were also analysed through a more common post-hoc approach which, in this instance, took the form of Pairwise Comparison tests. Further, as with the first key driver 'relationships', the median for each group, being the common way of expressing the central tendency of the groups when running Kruskal-Wallis H tests were also undertake. Finally, having graphically shown if there were any overall effects of the independent variables on the dependent variables and having ascertained which of the groups differed, Spearman's correlation tests for association were then run to investigate the strength and direction of the association between the two ordinal variables.

With reference to the findings from running the non-parametric tests in SPSS (i.e. Kruskal-Wallis H test including Pairwise Comparison tests) three of the eight null assumptions (A_0), in respect of 'trust' were rejected. Meaning five were retained because the observed significance value was $>.05$ and therefore not considered significant as the numbers of the sample did not differ significantly from the numbers of the population; thus suggesting the findings may have been due to chance. Consequently the first null assumption (A_01) being termed a negative perspective, albeit the first retained, related to the main area of mistrust being financially centred ($X^2(3)=3.107, p=.375$). Hence results suggested an insufficient number of responders disagreed with H_01 and therefore no statistically significant differences were recorded between the four categories (Table 6.2.a, Appendix 10). In respect of the second retained null assumption (A_04) were $X^2(3)=6.203, p=.102$, this again acknowledged the independent variable (i.e. disciplines) was not significantly affected by the dependant variable (i.e. trust is reliant upon inter-organisational relationships that develop over time) and so was retained by being agreeable to a significant number of responders. Moreover A_05 , being the third retained,

corroborates when schemes are partnered, separate contractual documentation must always be in place ($X^2(3)=6.215, p=.102$) albeit the literature review (Chapter 2) identified Egan's perception was for formal contract documentation to gradually become obsolete as effective partnering did not rest on contracts; rather rigorous targets that were performance measured. However, A_06 was rejected as significant differences in discipline responses were recorded when asked as an organisation if they would still collaborate with an upstream supply chain member without trust ($X^2(3)=9.195, p=.027$). Yet with A_07 being retained, as findings revealed there could still be collaboration downstream without trust ($X^2(3)=3.271, p=.352$), A_08 being the fifth retained meant similar scores were recorded across the four discipline groups when considering if the development and implementation of a partnering strategy engendered trust throughout the project team (i.e. $X^2(3)=6.408, p=.093$). Therefore with no statistically significant difference it was suggested the development and implementation of a partnering strategy was a positive approach to engage all members of the supply chain and prompt trust.

Five A_0 's were retained. Therefore, having acknowledged a number of outliers where present, the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits in relation to the same (A_01 , A_04 , A_05 , A_07 & A_08) have also been recorded (Table 6.2b, Appendix 10). Though with reference to the second null assumption (A_02), which was a negative perception, having completed the same non-parametric tests in SPSS it was reported that a statistical significant difference did exist and therefore the A_0 was rejected ($X^2(3) = 9.420, p = .024$). For in investigating potential differences in those who believed there would never be complete trust between disciplines i.e. 'client' ($n=10$), 'consultant' ($n=10$), 'main contractor' ($n=10$) and 'sub-contractor' ($n=10$) it was established that distribution differed between groups. as assessed by visual inspection of the boxplot (Figure 6.7). Accordingly scores associated with this dependent variable (i.e. either up or down stream there would never be complete trust) were statistically significantly different across the independent variable (i.e. discipline group) as scores ranged from mixed/split to strongly agree. A Pairwise Comparison test was also performed and this post hoc analyses revealed the overall statistically significant score was as a result of the 'client and main contractor' group ($p = .020$). Hence there were no statistically significant differences between 'client and consultant' (.828), 'client and sub-contractor' (.165), 'consultant

and main contractor' (.878), 'consultant and subcontractor' (1.000) or 'main-contractor and sub-contractor' (1.000). Yet due to identified disparity between 'client and main contractor' the alternative assumption (A_a) will apply, meaning opinions differed in respect of the dependant variable there would never be complete trust, as 100% trust was only ever be an aspiration, and therefore was dependent upon which discipline category was answering. In this regard, whilst acknowledging an outlier was present, the median scores in relation to the second null assumption was strongly agree/agree (client), agree (consultant and subcontractor) and mixed/split (main contractor). The overall percentage total relating to each categories depiction and the relevant discipline splits were; 70% agree/strongly agree (22.5% client; 17.5% consultant; 10% main contractor; 20% sub contractor), 17.5% split/mixed (2.5% client; 5% consultant; 10% main contractor; 0% sub contractor) and 12.5% disagree/strongly disagree (0% client; 2.5% consultant; 5% main contractor; 5% sub contractor).

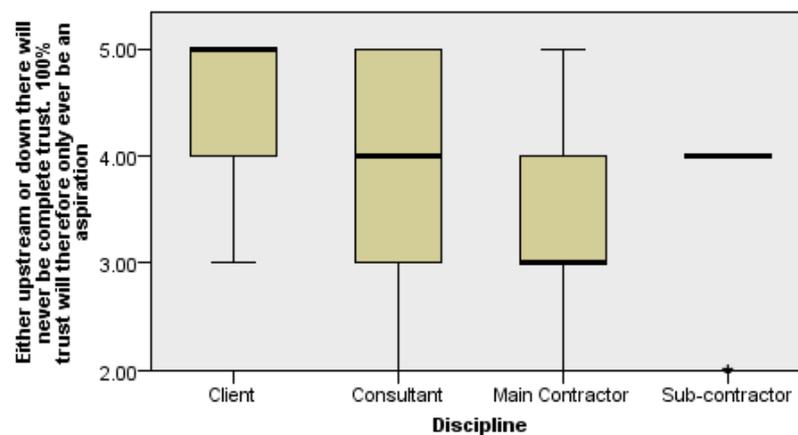


Figure 6.7: Boxplot in relation to the 2nd (rejected) A_0 .

A Spearman's correlation was also run to determine the association between the perception that there would never be complete trust up stream or down (i.e. the dependent variable) when considering the 40no organisations across 4no disciplines (i.e. the independent variable). So with a result of -0.408 and a reported $p=0.009$, there was a moderately negative correlation between these two variables $r_s(40) = -0.408$, $p=0.009$. Hence an increase in respondents could lead to a decrease in those agreeing to the statement there would never be complete trust. The association between the two variables was also statistically significant therefore the probability of seeing an r_s value of this size by chance suggests there was a

relationship between discipline category and their response to the A_0 (i.e. there would never be complete trust, as 100% trust could only ever be an aspiration).

The third null assumption, which stated the implementation of a partnered approach has resulted in a positive shift in terms of trust throughout the supply chain was also rejected due to having a statistical significance ($X^2(3)=8.048$, $p=.045$). In investigating potential differences across the 4no categories of the independent variable (i.e. disciplines) in order to establish who believed the implementation of a partnered approach resulted in a positive shift in terms of trust throughout the supply chain it was recorded that distribution differed between groups, as assessed by visual inspection of the boxplot (Figure 6.8). Furthermore, having completed a Pairwise Comparison test, it was confirmed the analysed groups that generated a significant score distribution were the 'client and sub-contractor' group ($p=.088$) and 'main contractor and sub-contractor' group ($p=.088$). Hence there were no statistically significant differences between 'client and consultant' (1.000), 'client and main contractor' (1.000), consultant and main contractor (1.000) and consultant and sub-contractor (1.000). Therefore, as the subcontractor has a more disapproving view of partnering having a positive shift on trust throughout the supply chain, the alternative assumption (H_a) will apply (i.e. the research findings suggest the implementation of the partnered approach has not resulted in a positive shift in terms of trust). Also whilst acknowledging a number of outliers were present, the median scores in relation to the third null assumption were agree (client and main contractor), split between agree and mixed/split (consultant) and mixed/split (subcontractor). The overall percentage total relating to each categories depiction and the relevant discipline splits were; 52.5% agree/strongly agree (17.5% client; 12.5% consultant; 17.5% main contractor; 5% sub contractor), 40% split/mixed (7.5% client; 10% consultant; 7.5% main contractor; 15% sub contractor) and 7.5% disagree/strongly disagree (0% client; 2.5% consultant; 0% main contractor; 5% sub contractor).

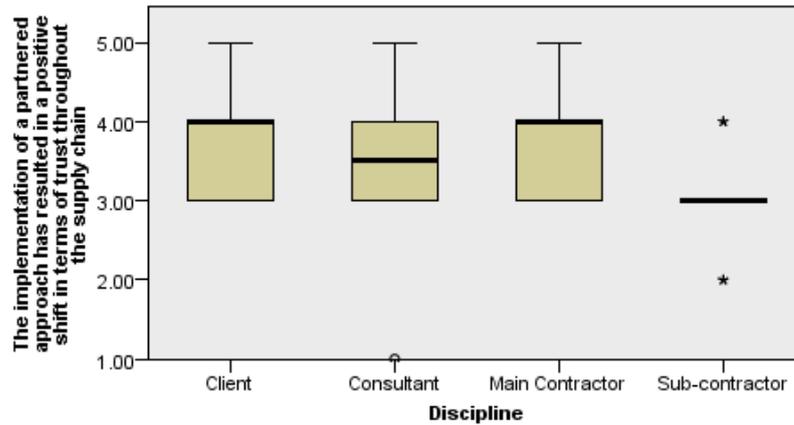


Figure 6.8: Boxplot Comparison in relation to the 3rd (rejected) A_0 and the key driver trust

The Spearman's correlation determined the association between the dependent variable and the independent variable as weakly negative; $r_s(40) = -.316$, $p=.047$. Thus with a correlation between the two variables recognised, an increase in respondents could lead to a decrease in those agreeing to the statement the implementation of a partnered approach would result in a positive shift in terms of trust throughout the supply chain. The relationship between the two variables was also statistically significant therefore the probability of seeing an r_s value of this size by chance suggests there was a relationship between discipline category and their response to the A_0 .

The sixth null assumption (being the third rejected) in respect of trust has also been subject to a Kruskal-Wallis H test in order to identify differences between groups and a Spearman's test for association to measure the strength of relationship between the independent variable (i.e. disciplines) and the dependent variable (i.e. as an organisation you would still collaborate with an upstream supply chain member without trust). The former proved to have statistically significant differences (i.e. $\chi^2(3) = 9.195$, $p = .027$) as visibly identifiable from the boxplot (Figure 6.9). Having also run a Pairwise Comparison test this confirmed the analysed group that generated significant score distribution was the 'client and consultant' group ($p = .037$). Hence there were no statistically significant differences between 'client and main contractor' (1.000), 'client and sub-contractor' (.446), 'consultant and main contractor' (1.000), 'consultant and subcontractor' (1.000) or 'main-contractor and sub-contractor' (1.000). Yet due to identified differences between the 'client and consultant' group the H_a will apply, although agreement to

this dependant variable (i.e. as an organisation you would still collaborate with an upstream supply chain member without trust) is dependent upon which discipline category is answering. For whilst acknowledging an outlier was present, the median scores in relation to the sixth null hypothesis were 'not applicable' (client), disagree (consultant) and mixed/split (main contractor and subcontractor). The overall percentage total relating to each categories depiction and the relevant discipline splits were; 22.5% not applicable (17.5% client; 5% consultant; 0% main contractor; 0% sub contractor), 20% strongly agree/agree (2.5% client; 5% consultant; 5% main contractor; 7.5% sub contractor), 30% split/mixed (0% client; 0% consultant; 12.5% main contractor; 17.5% sub contractor) and 27.5% disagree/strongly disagree (5% client; 15% consultant; 7.5% main contractor; 0% sub contractor).

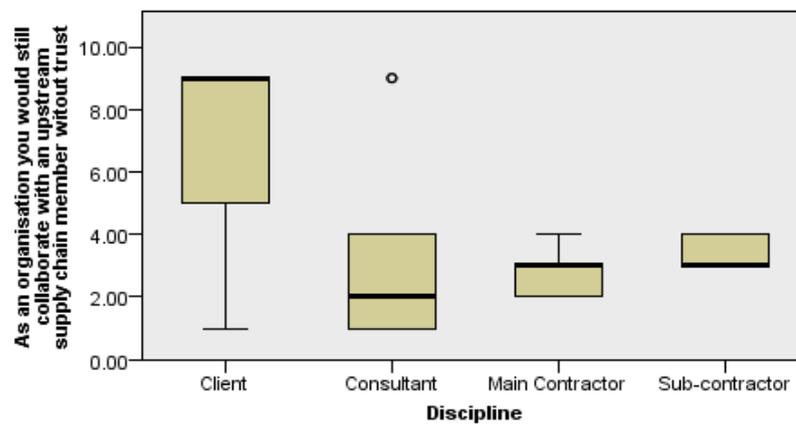


Figure 6.9: Boxplot Comparison in relation to the 6th (rejected) A_0 and the key driver trust.

With reference to this rejected sixth null assumption, a Spearman's correlation determined the association between the two variables i.e. the dependent variable (an organisation would still collaborate with an upstream supply chain member without trust) and the independent variable (discipline categories; client [n=10], consultant [n=10], main contractor [n=10] and sub-contractor groups [n=10]), resulted in a weak negative shift; $r_s(40) = -.259, p=.106$. So with a correlation between the two variables recognised, an increase in respondents could lead to a decrease in those agreeing to the statement that an organisation would still collaborate with an upstream supply chain member without trust. However the relationship between the two variables was not considered statistically significant therefore it can be concluded the correlation is a chance occurrence and not 'generalisable'; that is, it is not true of the population at large.

In respect of ranking each variable separately and comparing the ranks of each data pair in terms of strength and direction of the association between the ordinal variables, Spearman's correlation coefficient has also been used to establish if associations between each of the two variables existed. Hence as a statistical measure of the various relationships, with each of the null assumptions (A_0) written in terms of there being no association between the variables, Table 6.2a (Appendix 10) includes the SPSS output on the variables identified.

6.5.4 Summarising Trust as a Key Driver

In respect of the key driver trust, while 5no positive perceptions and 3no negative perceptions were identified, five were retained (i.e. 2no negative and 3no positive perceptions) whilst 3no (i.e. 1no negative and 2no positive) were rejected. So with the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same have been identified (Table 6.2b, Appendix 10), evidence from a holistic perspective suggests;

- The main area of mistrust is financially centred;
- Disagreement as to whether there will ever be 100% trust, with the main disparity between clients and main contractors. The distribution of the second null hypothesis (i.e. either upstream or down there will never be complete trust) was not the same across categories of disciplines. Therefore from a difference perspective there will never be 100% trust for whilst clients strongly agreed, consultants and subcontractors agreed, main contractors were mixed/split;
- Disagreement as to whether the implementation of the partnered approach has not resulted in a positive shift in terms of trust with the subcontractor having a more disapproving view of partnering. The alternative assumption (A_a) stating implementation of the partnered approach has not resulted in a positive shift in terms of trust will apply;
- Trust is reliant upon inter-organisational trust that develops over time;
- When schemes are partnered, separate contractual documentation must always be in place (for when things go wrong);

- Distribution was not the same across categories of disciplines for the sixth null hypothesis (i.e. as an organisation you would still collaborate with an upstream supply chain member without trust). This time, as clients mainly responded 'not applicable' this invariably skewed the result as consultants disagreed, while main contractors and subcontractors were mixed/split. Hence from a difference perspective it was rejected that an organisation would still collaborate upstream without trust;
- As an organisation you would still collaborate with a downstream supply chain member without trust;
- The development and implementation of a partnering strategy that engages all members of the supply chain from the outset, engenders thrust throughout the project team.

6.5.5 Commitment

Akin to the two previous key drivers (i.e. 'relationship' and 'trust') a non-parametric Kruskal-Wallis H test determined if there were statistical significant differences between the distributions of the four unrelated, independent groups (i.e. disciplines) when paired to the eleven dependant statements (termed 'null assumption' or A_0) associated with this key driver 'commitment'. This section therefore details, interprets and reports the results from having run Kruskal-Wallis tests in SPSS to determine whether there was in fact an overall effect of the dependent variables on these independent variables. In addition, in respect of any rejected null assumptions and where any differences laid, all possible variations of the group comparisons were considered through the previously noted Pairwise Comparison post-hoc test. Finally, as also noted beforehand, Spearman's correlation tests for association were run to investigate the strength and direction of the association between the two ordinal variables having graphically shown if there were any overall effects of the independent variables on the dependent variables and having ascertained which of the groups differed.

As illustrated (Table 6.3a, Appendix 10) eight of the eleven null assumptions in respect to 'commitment' were retained whilst the residual three rejected. Of these eleven, seven were considered positive perceptions (of which five were retained), and four were negative (with two being retained). Consequently with reference to

the first null assumption (a positive perception), which stated the whole construction industry remained committed to the concept of partnering, was not significantly affected by the independent variable (i.e. discipline) and therefore was retained (i.e. $X^2(3)=6.507, p=.089$). Meaning the categories selected within the dependant variable were visibly similar across the four discipline groups as illustrated by the boxplot (Figure 6.10). In this regard, whilst acknowledging a number of outliers were present, and with an overall median score of split/mixed, the median scores in relation to whether each discipline believed the construction industry remained committed to the concept of partnering were split/mixed (clients, consultants and subcontractors) and agree (main contractors). Further in relation to the specific disciplines and their overall percentage totals, 40% were strongly agree/agree (10% client; 10% consultant; 17.5% main contractor; 2.5% sub contractor), 42.5% were split/mixed (10% client; 10% consultant; 5% main contractor; 17.5% sub contractor) and 17.5% disagree/strongly disagree (5% client; 5% consultant; 2.5% main contractor; 5% sub contractor). Consequently from the 40 interviewees across the four discipline groups i.e. clients, consultants, main contractors and sub contractors), the comparable responses tilted towards the working assumptions that as a whole the construction industry remained committed to the concept of partnering.

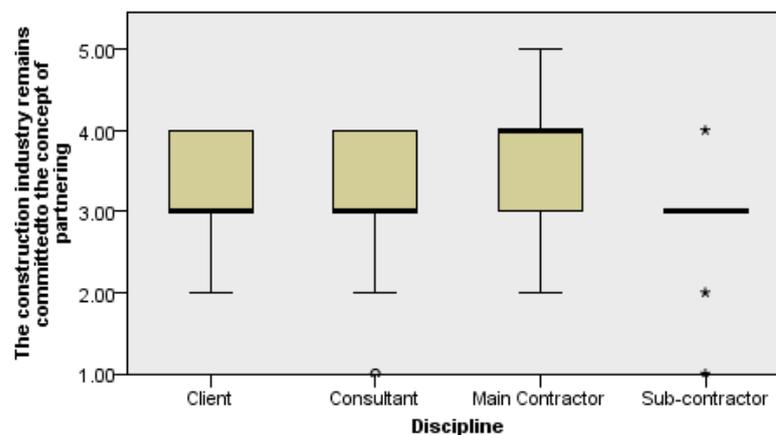


Figure 6.10: Boxplot; 1st retained A_0 and the key driver commitment.

Yet given statistically significant differences in relation to organisations being committed to partnering upstream (the second null assumption) and down (the third null assumption) were identified, these were rejected; $X^2(3)=9.273, p=.026$ and $X^2(3)=9.205, p=.027$ respectively. Therefore in relation to an organisations commitment up and downstream, as illustrated by the relevant boxplots (Figure 6.11

& Figure 6.12), the distribution of the dependant scores were not the same across the 4no discipline categories (i.e. independent variables). In this regard, accepting the alternative assumption (A_a), it can be stated as a whole, the 40 organisations did not commit to partnering either upstream or down. Accordingly, whilst acknowledging a single outlier was present on each boxplot, the median scores in relation to the up and downstream commitment were confirmed as; clients (split/mixed - A_02) and (agree - A_03), consultants (agree - A_02) and (split/mixed and agree - A_03), main contractors (split between agree and strongly agree - A_02 and A_03) and subcontractors (split/mixed - A_02 and A_03). Thus by accepting median up and downstream commitment scores were higher for main contractors and consultants than sub-contractors this intimates sub-contractor apprehension whilst bolstering main contractor dominance.

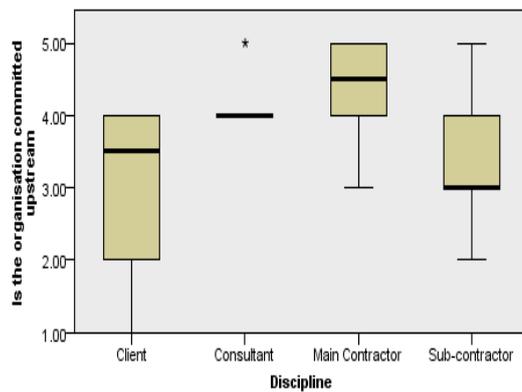


Figure 6.11: Boxplots in relation to the 2nd (rejected) A_0 .

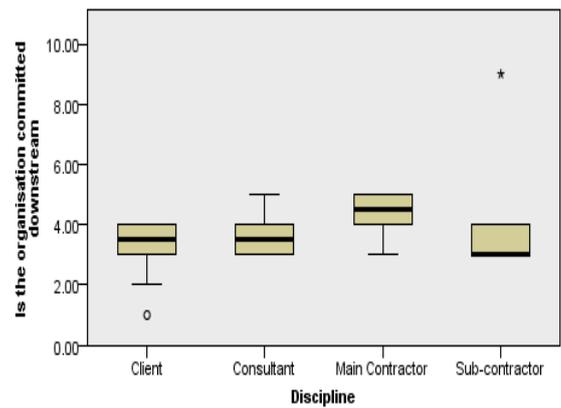


Figure 6.12: Boxplots in relation to the 3rd (rejected) A_0 .

Having also run a Pairwise Comparison test for both assumptions, this confirmed the analysed groups that generated significant score distribution were the 'main contractor and subcontractor' group ($p = .055$) and 'client and main contractor' ($p = .038$) respectively. This with reference to the second assumption, there were no statistically significant differences between 'client and consultant' (.703), 'client and main contractor' (.322), 'client and subcontractor' (1.000), 'consultant and main contractor' (1.000) or 'consultant and subcontractor' (1.000). As regards the third assumption there were no statistically significant differences between 'client and consultant' (1.000), 'client and subcontractor' (1.000), 'consultant and main

contractor' (.184) or 'consultant and subcontractor' (1.000), 'main contractor and subcontractor' (.184). Yet due to identified differences between 'client and consultant' and 'client and main contractor', the A_a will apply, albeit agreement to these dependant variables is reliant upon which discipline category is answering. For the overall percentage total relating to each categories depiction and the relevant discipline splits for A_02 , were; 22.5% not applicable (15% client; 7.5% consultant; 0% main contractor; 0% sub contractor), 50% strongly agree/agree (5% client; 17.5% consultant; 20% main contractor; 7.5% sub contractor), 22.5% split/mixed (2.5% client; 0% consultant; 5% main contractor; 15% sub contractor) and 5% disagree/strongly disagree (2.5% client; 0% consultant; 0% main contractor; 2.5% sub contractor). Whilst for A_03 , this equated to; 2.5% not applicable (0% client; 0% consultant; 0% main contractor; 2.5% sub contractor), 55% strongly agree/agree (12.5% client; 12.5% consultant; 22.5% main contractor; 7.5% sub contractor), 37.5% split/mixed (7.5% client; 12.5% consultant; 2.5% main contractor; 15% sub contractor) and 5% disagree/strongly disagree (5% client; 0% consultant; 0% main contractor; 0% sub contractor).

The fourth null assumption, relating to partnering being an achievable ethos rather than an unobtainable concept was also retained ($X^2(3)=4.171, p=.244$). So as the categories selected within the dependant variable were visibly similar across the four discipline groups, excluding the four outliers, as illustrated by the boxplot (Figure 6.13), it was also accepted that a strategy could be implemented to encapsulate the complete supply chain ($X^2(3)=2.473, p=.480$). For again this (the ninth) null assumption had visibly similar categories selected across the four disciplines (Figure 6.14). Hence the median scores in relation to A_04 and A_09 i.e. partnering being an achievable ethos and it being implemented to encapsulate the complete supply chain respectively, were agree (clients - A_04 and A_09), agree (A_04) and split/mixed (A_09) (consultants), agree (A_04 and A_09) (main contractors) and agree (A_04) and split/mixed and agree (A_09) (sub-contractors). Consequently in not rejecting either null assumption each working assumption remained, i.e. everyone saying 'partnering' is not enough to realise effective collaboration, as there must be an appropriate partnering strategy which is developed and implemented to encapsulate the complete supply chain. Moreover null assumption (A_06) that a partnered approach to project procurement would not succeed unless all members of the supply chain were fully committed was also retained due to categories

selected within the dependant variable being similar across the four discipline groups i.e. $X^2(3)=4.497, p=.213$ (Figure 6.15). Also, in failing to reject null assumption eleven, the working assumption also remained that there was a need for a partnering strategy to be developed and implemented in order to set out the complete supply chains prescriptive aims and objectives, which would then be measured throughout the scheme ($X^2(3)=2.942, p=.401$). Hence the median scores in relation to a partnered approach not succeeding unless all members of the supply chain are fully committed and the development of a partnering strategy were; clients - agree (A_09 and A_011), consultants - split/mixed (A_09 and A_011), main contractors - agree (A_09 and A_011) and subcontractors - split between agree and split/mixed (A_09) and agree (A_011). Thus by accepting median up and downstream commitment scores were higher for main contractors and consultants than subcontractors this intimates sub-contractor apprehension whilst bolstering main contractor dominance.

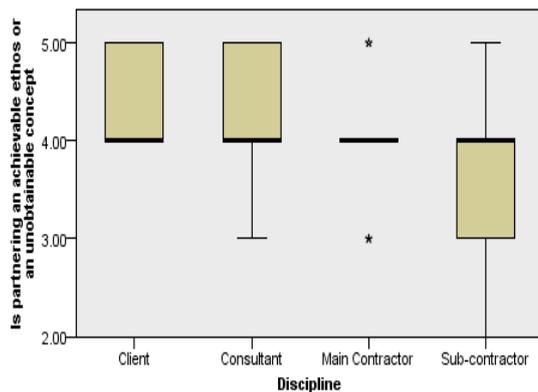


Figure 6.13: Boxplots in relation to the 4th retained A_0 .

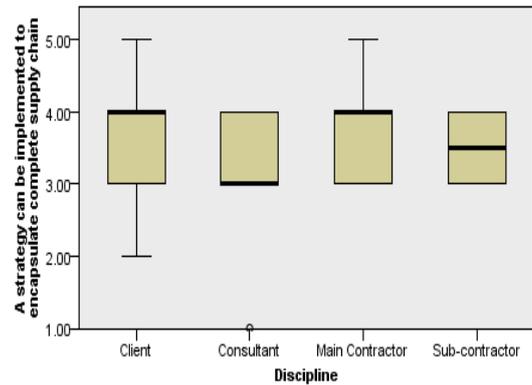


Figure 6.14: Boxplots in relation to the 9th retained A_0 .

With reference to the fifth null assumption, relating to everyone saying they partner is not enough to realise effective collaboration was also retained ($X^2(3)=3.914, p=.271$). Therefore in failing to reject the null assumption, the working assumption remained that the various discipline categories were in general agreement that there must be a partnering strategy. So as the categories selected within the dependant variable were visibly similar across the four discipline groups, excluding the four outliers, as illustrated by the boxplots (Figure 6.16), the median scores in relation to whether each discipline believed partnered meant an appropriate strategy was 'agree'. Moreover the overall percentage total relating to each categories depiction and the relevant discipline splits were; 85% strongly

agree/agree (25% client; 22.5% consultant; 20% main contractor; 17.5% sub-contractor), 12.5% split/mixed (0% client; 2.5% consultant; 5% main contractor; 5% sub contractor) and 2.5% disagree/strongly disagree (0% client; 0% consultant; 0% main contractor; 2.5% sub contractor).

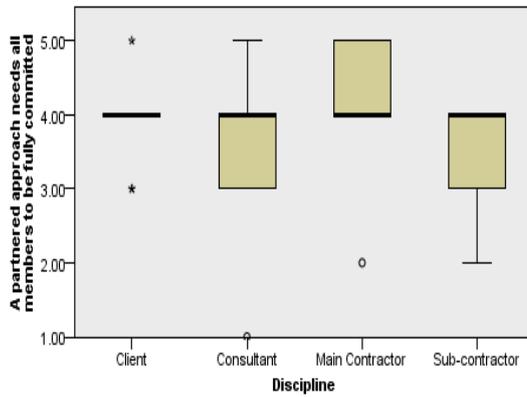


Figure 6.15: Boxplot in relation to the 6th (retained) A₀

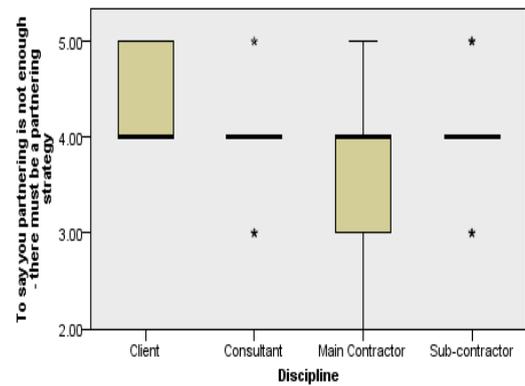


Figure 6.16: Boxplot in relation to the 5th (retained) A₀

No statistical significance was identified in relation to the eighth null assumption in that ‘the complete supply chain was not actively engaged in the partnering ethos’ ($X^2(3)=.094, p=.993$). So as the categories selected within the dependant variable were visibly similar across the four discipline groups, as illustrated by the boxplot (Figure 6.17), the median scores in relation to the same were agree (client and main contractor), split/mixed (consultants), and falling between split/mixed and agree (sub-contractors). In addition the overall percentage total relating to each categories depiction and the relevant discipline splits were; 82.5% strongly agree/agree (25% client; 20% consultant; 17.5% main contractor; 20% sub contractor), 15% split/mixed (0% client; 5% consultant; 5% main contractor; 5% sub contractor) and 2.5% disagree/strongly disagree (0% client; 0% consultant; 2.5% main contractor; 0% sub contractor). Yet whilst this negatively tilted assumption remained, and underscored by the two previously rejected null assumptions (A₀2 and A₀3), the tenth null assumption, being retained ($X^2(3)=2.210, p=.530$), suggested the partnering concept did filter down to all levels of the supply chain. Yet as the categories selected within this dependant variable were visibly similar across the four discipline groups, excluding the client outlier, as illustrated by the boxplot (Figure 6.18), the median score in relation to whether

each discipline believed the partnering concept did filter down to all levels of the supply chain were 'mixed/split'. Moreover the overall percentage total relating to each categories depiction and the relevant discipline splits were; 15% agree/strongly agree (0% client; 7.5% consultant; 7.5% main contractor; 0% sub contractor), 60% split/mixed (20% client; 10% consultant; 12.5% main contractor; 17.5% sub contractor) and 25% disagree/strongly disagree (5% client; 7.5% consultant; 5% main contractor; 7.5% sub contractor).

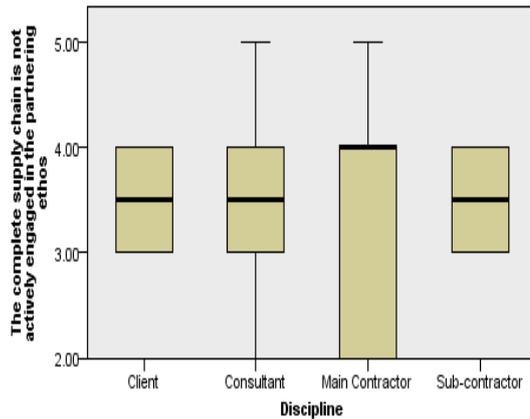


Figure 6.17: Boxplot in relation to A₀8

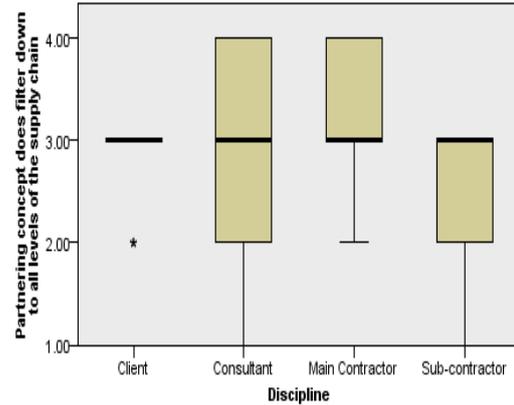


Figure 6.18: Boxplot in relation to A₀10

Finally, the seventh null assumption relating to the partnering ethos being driven by the client was the third to be rejected ($X^2(3)=9.496, p=.023$). For in relation to members of the supply chain saying they were committed to collaborative working but the partnering ethos must always be driven by the client, the distribution of the dependant scores were not the same across the 4no discipline categories (i.e. independent variables), as illustrated by the boxplot (Figure 6.19). Thus in accepting the alternative assumption (A_a) it can be stated, as a whole, the 40 organisations did not agree with the client being the driver in relation to partnering. Accordingly, the median scores in relation to the seventh null assumption i.e. the partnering ethos must always be driven by the client were split/mixed (clients), agree (consultants), falling between disagree and split/mixed (main contractors) and agree (sub-contractors). Thus accepting median scores were statistically significantly higher for consultants and subcontractors (agree) than main contractors. In this regard, in relation to the specific disciplines and their overall percentage totals, 35% were strongly agree/agree (5% client; 15% consultant; 2.5% main contractor; 15% sub contractor), 37.5% were split/mixed (12.5% client; 5% consultant; 12.5% main contractor; 7.5% sub contractor) and 27.5%

disagree/strongly disagree (7.5% client; 5% consultant; 12.5% main contractor; 2.5% sub contractor). Consequently from the 40 interviewees across the 4 disciplines i.e. 10 clients, 10 consultants, 10 main contractors and 10 sub-contractors, in accepting the alternative assumption (A_a) it can be stated partnering is not seen as something to be driven by the client.

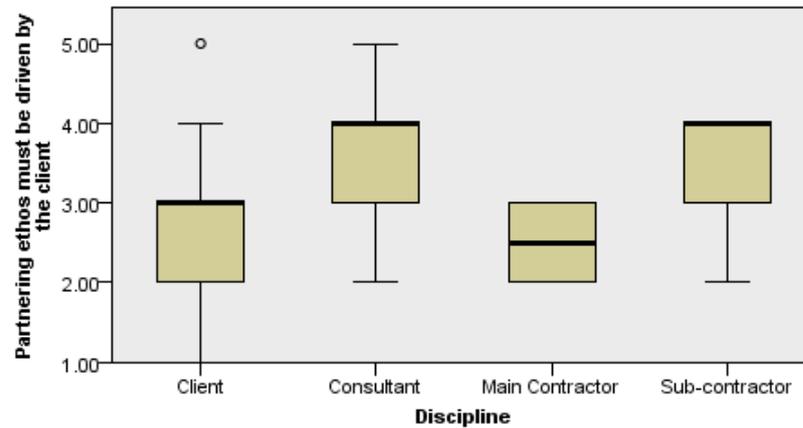


Figure 6.19: Boxplot in relation to A₀7.

A Pairwise Comparison test was also run for this assumption and this confirmed the analysed groups that generated significant score distribution were the 'consultant and main contractor' group ($p = .063$) and 'main contractor and subcontractor' ($p = .071$) respectively. Accordingly there were no statistically significant differences between 'client and consultant' (.607), 'client and main contractor' (1.000), 'client and sub-contractor' (.658) or 'consultant and subcontractor' (1.000).

In respect of ranking each variable separately and comparing the ranks of each data pair in terms of strength and direction of the association between the ordinal variables, Spearman's correlation coefficient has also been used to establish if associations between each of the two variables existed. Hence as a statistical measure of the various relationships, with each of the null assumption (A_0) written in terms of there being no association between the variables shows the SPSS output on the variables identified. (Table 6.3a, Appendix 10).

6.5.6 Summarising Commitment as a Key Driver;

In respect of the key driver commitment, while 7no positive perceptions and 4no negative perceptions were identified, eight have been retained (i.e. 3no positive and 2no negative) whilst 3no (i.e. 2no positive and 1no negative) rejected. So with the median scores and the overall percentage total relating to each categories depiction

and the relevant discipline splits for the same have been identified (Appendix 10 Table 6.3b), evidence from a holistic perspective suggests;

- It was accepted that the whole construction industry remained committed to the concept of partnering, albeit the complete supply chain was not actively engaged in the partnering ethos;
- Organisations differed in their response when asked if they were committed to partnering either upstream or down. Both hypotheses were therefore rejected, and though differences appeared associated to perceived dominance, clients invariably acknowledged no upstream supply chain;
- It was agreeable that partnering was an achievable ethos rather than an unobtainable concept. Yet it was not sufficient to say you partnered, as the development and implementation of a partnering strategy was deemed necessary in order to set out the complete supply chains prescriptive aims and objectives, which would then be measured throughout the scheme;
- Whilst it was accepted that a strategy could be implemented to encapsulate the complete supply chain it was agreed the client should not be left to drive partnering.

6.5.7 Time

The construction industry in respect of projects being finished on time is considered a success. Hence having ran a Kruskal-Wallis H test, the first null assumption (A_01), as illustrated (Table 6.4a, Appendix 10), was retained ($X^2(3)=5.682, p=.128$). The second null assumption in relation to initial programmes being generally optimistic and focusing on what the client wanted to see was also accepted ($X^2(3)=5.492, p=.139$). There was also strong evidence in favour of the working assumption that stated when schemes were partnered the prospect of completing on time increased due to the early involvement of relevant supply chain members ($X^2(3)=.159, p=.984$). Moreover the distribution of scores in relation to partnering having a positive impact on project time, as long as there was trust and an effective management strategy, was similar for all groups meaning it was again retained ($X^2(3)=2.111, p=.550$). Though the null assumption identifying suitable/sufficient procedures, tools and techniques existed to manage programme was statistically significant and therefore rejected ($X^2(3)=10.118, p=.018$). Finally, while the

introduction of an incentive scheme that all members of the supply chain benefitted from, and so provided a realistic opportunity for a project to finish on time, was welcomed ($X^2(3)=911, p=.823$), the null assumption that incentive schemes should replace penalties as part of the contract was rejected ($X^2(3)=8.510, p=.037$).

Taking the two rejected null assumptions (A_05 and A_07), having established all possible variations of group comparisons through Pairwise Comparison tests to ascertain group differences, it was revealed the statistically significant differences in scores for both A_0 's were as a result of the 'client and sub-contractor' group, where $p=.037$ and $.022$ (Figure 6.20 and Figure 6.21). Hence there was no statistically significant differences between 'client and consultant' (.521 and 1.000), 'client and main contractor' (.380 and .076), 'consultant and main contractor' (1.000 and 1.000), 'consultant and sub-contractor' (1.000 and .775) and 'main contractor and sub-contractor' (1.000 and 1.000). Yet as a consequence of the disparity between the 'client and subcontractor' group there was a significant difference in the perception that penalties should be replaced with incentive schemes and whether suitable/sufficient procedures, tools and techniques that engage all members of the supply chain to manage programme existed. Hence whilst acknowledging a number of outliers were present, and with an overall median score of agree the category median scores in relation to A_05 were split/mixed (client), divided between agree and split/mixed (consultant), agree (main contractor) and agree (sub-contractor). The overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 57.5% strongly agree/agree (5% client; 12.5% consultant; 17.5% main contractor; 22.5% sub-contractor), 27.5% split/mixed (10% client; 10% consultant; 5% main contractor; 2.5% sub-contractor); and 15% disagree/strongly disagree (10% client; 2.5% consultant; 2.5% main contractor; 0% sub-contractor). In relation to A_07 , with an overall median score of agree, the category median scores were agree (client), agree (consultant), split/mixed (main contractor) and split/mixed (sub-contractor). The overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 57.5% agree/strongly agree (25% client; 17.5% consultant; 7.5% main contractor; 7.5% sub-contractor) 30% split/mixed (0% client; 2.5% consultant; 15% main contractor; 12.5% sub-contractor) and 12.5% disagree/strongly disagree (0% client; 5% consultant; 2.5% main contractor; 5% sub-contractor). In relation to the five retained A_0 's whilst acknowledging a number of outliers were present, their median scores and the overall percentage total

relating to each categories depiction and the relevant discipline splits for the same have been identified below.

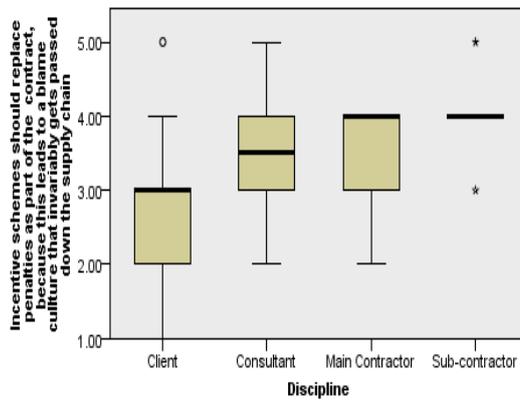


Figure 6.20: Boxplot in relation to A₀5

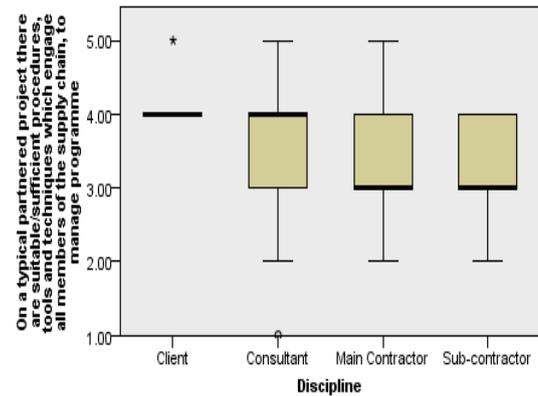


Figure 6.21: Boxplot in relation to A₀7

By using the same previously discuss method (i.e. Spearman's correlation), a measure of the strength and direction of the association between the relevant independent categories (disciplines) when aligned with particular ordinal dependent variables (A₀5 and A₀7) has also been calculated. So with a result of .443 and a reported p=.004 for A₀5 i.e. the perception that incentive schemes should replace penalties as part of the contract, because this leads to a blame culture that invariably gets passed down the supply chain, there was a moderate positive correlation between the two variables. Meaning an increase in respondents could lead to an increase in those agreeing to the statement. The relationship between the two variables was also statistically significant therefore the probability of seeing an r_s value of this size by chance suggests disciplines really do correlate positively with the notion that incentive schemes should replace penalties as part of the contract. As regards A₀7 (i.e. there are suitable/sufficient procedures, tools and techniques which engage all members of the supply chain to manage programme), with a result of -.497 and a reported p=.001, a moderate negative correlation was recorded. Hence an increase in respondents could lead to a decrease in those agreeing to the statement there are suitable/sufficient procedures, tools and techniques which engage all members of the supply chain in respect of time. Again as the relationship between the two variables was statistically significant the

probability of seeing an r_s value of this size by chance suggests disciplines really do correlate negatively with the seventh A_0 .

In respect of the five retained A_0 's having again ranking each variable separately and compared the ranks of each data pair in terms of strength and direction of the association between the ordinal variables using Spearman's correlation coefficient, (Table 6.4a, Appendix 10) shows the SPSS output on the variables identified. In relation to A_01 , A_03 and A_05 these have moderately negative correlations recorded meaning an increase in respondents could lead to a decrease in those agreeing to each statement, albeit none of the relationships between the relevant variables were statistically significant. Hence it can be concluded the correlations are chance occurrences and not 'generalisable'; that is it is not true of the population at large.

6.5.8 Summarising Time as a Key Driver;

In respect of the key driver time, while 6no positive perceptions and 1no negative perception were identified, five have been retained when considering differences (i.e. 4no positive and 1no negative) whilst 2no (both positive perceptions) were rejected. Further, when considering associations, statistical tests were used to determine if associations between two variables did exist and, if so the strength and direction were measured. So with the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same have been identified (Table 6.4b, Appendix 10) illustrating the same, evidence from a holistic perspective suggests;

- The construction industry is considered successful in respect of schemes being finished on time, albeit it is believed initial programmes were generally optimistic;
- The early involvement of supply chain members increased the prospect of finishing schemes on time though trust and an effective management strategy was necessary;
- There is said to be a lack of suitable/sufficient procedures, tools and/or techniques applied to manage programme throughout the supply chain;

- The introduction of incentive schemes that benefit all members of the supply chain should be encouraged, but these should not be introduced as a penalty replacement.

6.5.9 Communication

Three of the ten null assumptions (A_0) in respect of the key driver 'communication' were rejected following completion of the relevant kruskal-wallis test (Table 6.5a, Appendix 10). Seven were therefore retained and with weak evidence against each set of variables, and therefore no significant findings where the alpha level was ≤ 0.05 ($\alpha = p \leq 0.05$), meant none of the seven were significantly different in comparison. Thus retaining the null assumptions (A_0) meant general agreement that the implementation of a partnered approach would result in a positive shift in terms of improved communication throughout the supply chain (a positive perception where $X^2(3)=5.180, p=.159$) and a formal partnering strategy needed to be implemented on each project (another positive perception where $X^2(3)=1.013, p=.798$). As 'effective and appropriate communication was also necessary in order to build relationships' (a positive perception where $X^2(3)=2.956, p=.398$) it was accepted good communication relied on commitment, cooperation and a supply chains understanding of the partnering concept (a neutral proposition where $X^2(3)=1.182, p=.757$) albeit accepting supply chain communication was restricted to those one tier removed (negative presumption where $X^2(3)=0.538, p=.911$). As it was also accepted that whilst tender documentation often talked about a partnered approach this was rarely delivered in practice (a negative proposition where $X^2(3)=7.175, p=.067$) if supply chain members did embrace the partnering methodology and abide by the rules upon which they were based, this only lasted until a scheme became problematic when partnerships were frequently abandoned (a negative proposition where $X^2(3)=7.650, p=.054$), albeit marginal therefore could go either way (Rumsey, 2010). Accordingly in relation to the seven retained A_0 's whilst acknowledging a number of outliers were present, their median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same have been identified (Table 6.5b, Appendix 10).

In relation to the three rejected null assumptions (A_02 , A_04 and A_09) where the alternative assumptions (A_a) were to be held, and having compared all the different combinations of the independent categories (i.e. disciplines) the between group differences have been ascertained through the post hoc procedures as noted above

(i.e. Pairwise Comparison testing). Therefore (Table 6.5a, Appendix 10) identifies, having matched each discipline head-to-head with each other, those that were statistically significant with an alpha level $\leq .05$ ($\alpha = p \leq .05$) are shown as; 'client and consultant' for A₀2 (the primary focus of partnering is on the relationship between client and main contractor - a neutral perception where $X^2(3)=9.545, p=.023$); 'client and main contractor' and 'main contractor and subcontractor' for A₀4 (there is a tendency for the upstream supply chain member to dictate terms and conditions upon the lower tiered supply chain members - a negative perception where $X^2(3)=7.979, p=.046$); and 'client and consultant', 'consultant and main contractor' and 'main contractor and sub-contractor' for A₀9 (if a scheme benefits from a partnering approach this is generally restricted to upstream supply chain members only - a negative proposition where $X^2(3)=14.727, p=.002$). Hence in relation to A₀2 there was no statistically significant difference between 'client and main contractor' (.057), 'client and sub-contractor' (.463), 'consultant and main contractor' (1.000), 'consultant and sub-contractor' (1.000) and 'main contractor and sub-contractor' (1.000). Also whilst acknowledging a number of outliers where present, the median category scores in relation to A₀2 were split between agree and strongly agree (client), split/mixed (consultant), agree (main contractor and sub-contractor). Therefore with an overall median total of agree, the percentage total relating to each categories depiction and the relevant discipline splits for the same were; 67.5% agree/strongly agree (25% client; 10% consultant; 15% main contractor; 17.5% sub-contractor) 22.5% split/mixed (0% client; 10% consultant; 7.5% main contractor; 5% sub-contractor); and 10% disagree/strongly disagree (0% client; 5% consultant; 2.5% main contractor; 2.5% sub-contractor). In relation to A₀4 the median scores were agree (client, consultant and subcontractor) and split/mixed (main contractor) and there was no statistically significant difference between 'client and consultant' (1.000), 'client and sub contractor' (1.000), 'consultant and main contractor' (.738), 'consultant and subcontractor' (1.000) and 'main contractor and sub-contractor' (.092). Therefore with an overall median total of agree, the overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 67.5% agree/strongly agree (20% client; 15% consultant; 10% main contractor; 22.5% sub-contractor) 20% split/mixed (2.5% client; 7.5% consultant; 7.5% main contractor; 2.5% sub-contractor); 10% disagree/strongly disagree (0% client; 2.5% consultant; 7.5% main contractor; 0% sub-contractor) and 2.5% unknown (client). In relation to A₀9 the median scores were divided between

disagree and split/mixed (client), agree (consultant and subcontractor) and disagree (main contractor). Further with overall median total of split/mixed the overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 45% agree/strongly agree (5% client; 20% consultant; 2.5% main contractor; 17.5% sub-contractor) 20% split/mixed (5% client; 5% consultant; 5% main contractor; 5% sub-contractor); 32.5% disagree/strongly disagree (12.5% client; 0% consultant; 17.5% main contractor; 2.5% sub-contractor) and 2.5% unknown (client).

A measure of the strength and direction of the association between the relevant independent categories (disciplines) when aligned with each ordinal dependent variable was also calculated (i.e. Spearman's correlation) as Table 6.5a (Appendix 10) demonstrates. Yet in respect of the first of the three null assumptions rejected (i.e. A_02), with a result of -0.260 and a reported $p=0.105$ for the perception that the primary focus of partnering was on the relationship between client and main contractor, there was a 'weak' negative correlation between the two variables. Meaning an increase in respondents could lead to a slight decrease in those agreeing to the statement. Also the relationship between the two variables was not statistically significant therefore not deemed 'generalisable' i.e. it can be concluded the correlations are chance occurrences, and therefore not true of the population at large. As regards A_04 and the assessment that upstream supply chain members dictate terms and conditions upon lower tiered supply chain members, with a result of -0.085 and a reported $p=0.603$, a 'very weak' negative correlation was also recorded. Hence an increase in respondents could lead to a very slight decrease in those agreeing to the statement that upstream supply chain members dictate terms and conditions to those lower tiered. Again as the relationship between the two variables was not statistically significant the correlations are chance occurrences. With a result of 0.104 and a reported $p=0.521$ for the perception that if a scheme benefits from a partnered approach this is generally restricted to upstream supply chain members only (i.e. A_09), there was a 'very weak' positive correlation between the two variables. Meaning an increase in respondents could lead to a slight increase in those agreeing to the statement. Also the relationship between the two variables was not statistically significant therefore it too was 'generalisable'.

6.5.10 Summarising Communication as a Key Driver;

In respect of the key driver communication, while 2no positive perceptions, 6no negative perceptions and 2no natural perceptions were identified, seven had been retained when considering differences (i.e. 2no positive, 3no negative and 2no neutral) whilst 3no (negative perceptions) were rejected. Therefore having considered associations, the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same have been identified (Table 6.5b, Appendix 10), yet, evidence from a holistic perspective suggests;

- There was general agreement that the implementation of a partnered approach could result in a positive shift in terms of improved communication. Therefore an appropriate strategy needed to be implemented on each project;
- Supply chain communication was generally restricted to those one tier removed;
- Effective and appropriate communication was necessary to build relationships albeit good communication relied on commitment, cooperation and a supply chains understanding of the partnering concept;
- Tender documentation talked about partnering albeit collaborative working was delivered less frequently and generally only up until the point where the project became problematic;
- As the response relating to an upstream supply chain member dictating terms and conditions differed in relation to whether a discipline was deemed dominant (i.e. client or main contractor) or subservient (i.e. consultant or sub-contractor) the reaction was split;

6.5.11 Cooperation and Understanding

With reference to Table 6.6a (Appendix 10), having completed the same non-parametric tests in SPSS (i.e. kruskal-wallis H test including pairwise test) it is acknowledged nine of the eleven null assumptions (A_0) in respect of 'cooperation/understanding' were retained, while the remaining two rejected. Consequently the first null assumption (A_01) 'there is sufficient understanding of partnering within the construction industry' with weak evidence against it failed to

reject the proposition. This positive perception has therefore been retained ($X^2(3)=6.462, p=.091$). Yet the third null assumption (A_03), 'signing up to a framework agreement constitutes partnering' was marginally rejected ($X^2(3)=8.052, p=.045$). Yet the negative perception 'there isn't a good level of cooperation/understanding of the partnering ethos throughout the supply chain' (A_011) whilst retained ($X^2(3)=2.882, p=.410$) challenged the retained null assumption (A_02) 'there is sufficient collaborative working' ($X^2(3)=.614, p=.893$). However with the tenth null assumption (A_010) 'in order for a partnering scheme to be successful there has to be a good level of cooperation/understanding of the partnering ethos throughout the supply chain' also retained ($X^2(3)=2.816, p=.421$), there is a strong belief 'the term partnering is used too often and out of context' (A_05 - $X^2(3)=.212, p=.976$), as it too was retained. In addition, whilst it was agreed 'organisations tended to pay lip service to the partnering ethos in order to secure work'; as this negative seventh null assumption (A_07) was only marginally retained ($X^2(3)=7.687, p=.053$), Egan's vision of partnering, where reciprocal working could be achieved within 'an industry where subcontract labour was utilised extensively' (A_06) was rejected ($X^2(3)=9.177, p=.027$). The results also proved affirmative in relation to the sceptical fourth null assumption (A_04) 'partnering still means adhering to the terms and conditions of the up-stream supply chain member' ($X^2(3)=.790, p=.852$) although the eighth null assumption (A_08) was also retained i.e. 'where a scheme has been partnered all relevant supply chain members realise their correct balance of the partnership'; ($X^2(3)=.998, p=.802$). Finally, with significant results shown the ninth null assumption (A_09) stating 'partnering is an approach to procurement and not a contractual arrangement' was also retained ($X^2(3)=2.114, p=.549$).

The first rejected null assumption (A_03) considered a neutral presumption, meant the alternative assumption (A_a) refuted A_03 , as statistically significant differences between two or more groups of the independent variable existed when considering if signing up to a framework agreement constituted partnering. So when investigating potential differences between the 10 representatives from each independent variable category i.e. clients, consultants, main contractors and sub-contractors, and those who believed signing up to a framework agreement constituted partnering the differing distributions could initially be seen by a visual inspection of the boxplot (Figure 6.22). A pairwise comparison test, as previously

detailed, was also performed and this post hoc analysis showed the group that generated significant score distribution was 'client and main contractor ($p=.038$). Accordingly there was no statistically significant difference between 'client and consultant' (1.000), 'client and sub-contractor' (.390), 'consultant and main contractor' (.598), 'consultant and sub-contractor' (1.000) and 'main contractor and sub-contractor' (1.000). Also whilst acknowledging a number of outliers were present, the median scores in relation to this H_{03} were disagree (client, consultant and subcontractor), and divided between disagree and split/mixed (main contractor). Thus with an overall median score of disagree, the overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 17.5% agree/strongly agree (0% client; 2.5% consultant; 10% main contractor; 5% sub-contractor) 10% split/mixed (0% client; 2.5% consultant; 2.5% main contractor; 5% sub-contractor); and 72.5% disagree/strongly disagree (25% client; 20% consultant; 12.5% main contractor; 15% sub-contractor).

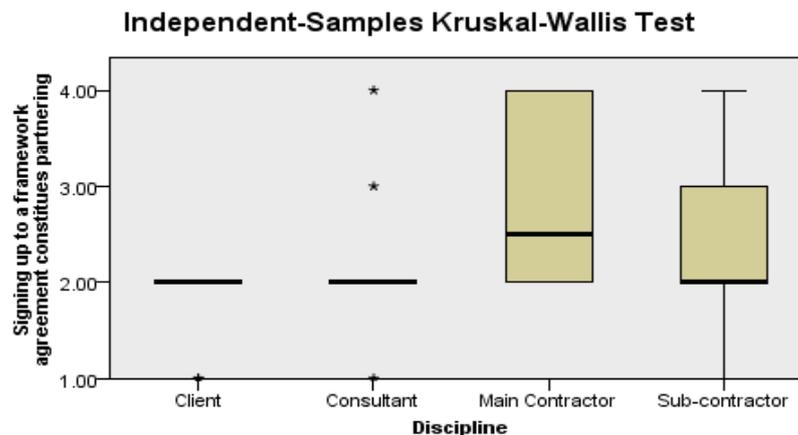


Figure 6.22 Boxplot test in relation to A_{03} .

The second rejected null assumption (A_{06}) considered a positive perception, meant the alternative assumption (H_a) refuting A_{06} supposed Egan's vision of partnering, where reciprocal working as opposed to fragmentation was the way forward was not achievable within an industry where subcontractor labour was utilised extensively. So when investigating potential differences between the 10 representatives from each independent variable category i.e. clients, consultants, main contractors and sub-contractors, and those who believed reciprocal working, as opposed to fragmentation, was the way forward the differing distributions could initially be seen by a visual inspection of the boxplot (Figure 6.23). A Pairwise Comparison test, as previously detailed, was also performed and this post hoc analysis showed the

group that generated significant score distribution was again 'client and main contractor' ($p=.043$). Accordingly in relation to A_06 there was no statistically significant difference between 'client and consultant' (1.000), 'client and sub-contractor' (1.000), 'consultant and main contractor' (.184), 'consultant and sub-contractor' (1.000) and 'main contractor and sub-contractor' (.084). Also whilst acknowledging a number of outliers were present, the median scores in relation to this A_06 were divided between disagree and split/mixed (client), split/mixed (consultant), agree (main contractor) and split/mixed (sub-contractor). Thus with an overall median total of split/mixed, the overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 37.5% agree/strongly agree (7.5% client; 7.5% consultant; 20% main contractor; 2.5% sub-contractor) 40% split/mixed (5% client; 10% consultant; 5% main contractor; 20% sub-contractor); and 22.5% disagree/strongly disagree (12.5% client; 7.5% consultant; 0% main contractor; 2.5%sub-contractor)

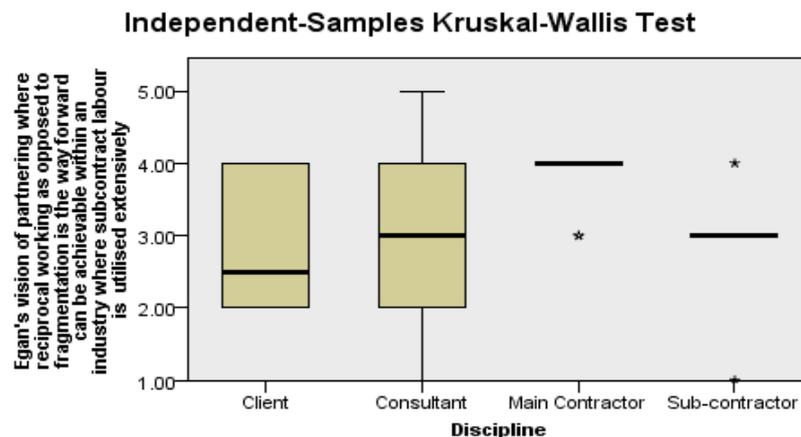


Figure 6.23: Boxplot test in relation to A_06

In relation to the nine retained A_0 's whilst acknowledging a number of outliers were present, their median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same have been identified within Table 6.6b (Appendix 10).

A measure of the strength and direction of the association between the relevant independent categories (disciplines) when aligned with each ordinal dependent variable was also calculated (i.e. Spearman's correlation) as Table 6.6a demonstrates (Appendix 10). Yet in respect of the first of the two null assumptions rejected (A_03) with a result of .364 and a reported $p=.021$ for the perception signing

up to a framework agreement constitutes partnering, there was a weak positive correlation between the two variables. Meaning an increase in respondents could lead to a slight increase in those agreeing to the statement. Also the relationship between the two variables was statistically significant therefore the probability of seeing an r_s value of this size by chance suggests disciplines really do correlate positively with the notion that signing up to a framework agreement constitutes partnering. As regards A₀6 and the assessment that collaborative working as opposed to fragmentation can be achieved within an industry where sub-contract labour is utilised extensively, with a result of .145 and a reported $p=.372$, a very weak positive correlation was recorded. Hence an increase in respondents could lead to a very slight increase in those agreeing to the sixth null assumption. Again as the relationship between the two variables was not statistically significant it can be concluded the correlations are chance occurrences, therefore not true of the population at large.

6.5.12 Summarising Cooperation and Understanding as a key driver;

In respect of the key driver cooperation/understanding, while 5no positive perceptions, 4no negative perceptions and 2no natural perceptions were identified, nine had been retained when considering differences (i.e. 4no positive, 4no negative and 1no neutral) whilst 2no (1no positive and 1no neutral) were rejected. So with the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same (Appendix 10 Table 6.6b) evidence from a holistic perspective suggests;

- Within the construction industry there is considered to be sufficient understanding of partnering. It was also agreed for a partnering scheme to be successful there has to be a good level of cooperation and understanding of the partnering ethos throughout the supply chain;
- Partnering was an approach to procurement rather than a contractual arrangement, albeit still adhering to an upstream supply chains members terms and conditions;
- Partnering is more than signing up to a framework, and as the term is used too often and out of context, the level of cooperation and understanding of partnering is generally poor;

- Results suggest whilst there is said to be collaborative working findings insinuate organisations tend to pay lip service to the partnering ethos in order to win work, while Egan's vision of partnering (where reciprocal working could be achieved) is not a realistic proposition.

6.5.13 Cost/Productivity

With reference to Table 6.7a (Appendix 10) eleven of the twelve null assumptions (A_0), in respect to 'cost/productivity' were retained while one was rejected. In relation to partnering, of these twelve statements four were considered positive perceptions, with the remaining eight deemed negative. Accordingly the construction industry is not considered successful in terms of projects being completed on/under budget ($A_{01} - X^2(3)=1.040, p=.791$), albeit when a scheme is partnered the prospects of finishing on/under budget are improved ($A_{02} - X^2(3)=7.277, p=.064$). Nevertheless organisations are compelled towards competition because best cost at day one wins ($A_{06} - X^2(3)=.989, p=.804$). Equally the null assumption relating to going to the open market for competitive prices due to a rise in single stage tendering was also retained ($A_{011} - X^2(3)=4.338, p=.227$) as was that relating to work packages being regularly priced competitively even though a scheme was being partnered ($A_{07} - X^2(3)=5.560, p=.135$). It was also retained that standard practice meant establishing an agreed maximum price between the client and main contractor before all work packages were let ($A_{05} - X^2(3)=2.137, p=.545$), it was accepted when relevant work packages had been won further negotiations with the appropriate sub-contractor to reduce their tender price was common ($A_{08} - X^2(3)=3.981, p=.264$), and these were effective/successful ($A_{09} - X^2(3)=2.380, p=.497$). So whilst findings illustrate disputes generally do centre around money ($A_{010} - X^2(3)=2.805, p=.423$), albeit there must be trust between the relevant supply chain members in order for cost/productivity to have a positive effect ($A_{03} - X^2(3)=.397, p=.941$), it was accepted the complete supply chain benefit from a partnered approach ($A_{04} - X^2(3)=5.602, p=.133$). Yet it was rejected that on each project a strategy existed that clearly identified suitable/sufficient procedures tools and techniques to manage cost, budgets, pain and gain ($A_{012} - X^2(3)=10.910, p=.012$).

Taking the first, and only rejected null assumption (i.e. A_012) showed differences existed between the independent category respondents which meant the alternative assumption (H_a) is believed. Hence a partnering strategy does not exist on each project which clearly identifies suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain/gain, etc. Furthermore, having completed appropriate pairwise testing, the analysed groups that generated significant score distribution were the 'client and sub-contractor' ($p = .016$). Accordingly in relation to A_012 there was no statistically significant difference between 'client and consultant' (.179), 'client and main contractor' (1.000), 'consultant and main contractor' (.983), 'consultant and sub-contractor' (1.000) and 'main contractor and sub-contractor' (.161) (Figure 6.7(a) and (b)). Also whilst acknowledging a number of outliers where present, the median scores in relation to this rejected null assumption were 'agree' (client and main contractor) and 'split/mixed' (consultant and subcontractor). Thus with an overall median of 'split/mixed', the overall percentage total relating to each categories depiction and the relevant discipline splits for the same were; 40% strongly agree/agree (17.5% client; 7.5% consultant; 15% main contractor; 0% sub-contractor), 50% split/mixed (7.5% client; 12.5% consultant; 7.5% main contractor; 22.5% sub-contractor); and 10% disagree/strongly disagree (0% client; 5% consultant; 2.5% main contractor; 2.5% sub-contractor).

In respect of ranking each variable separately and comparing the ranks of each data pair in terms of strength and direction of the association between the relevant independent categories (disciplines) when aligned with a particular ordinal dependent variable, Spearman's correlation coefficient has also been used to establish if associations between each of the two variables existed, as Table 6.7a (Appendix 10) demonstrates. Yet with specific regard to A_012 , with a result of -0.385 and a reported $p = .014$ for the perception on each project a partnering strategy exists that clearly identifies suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain/gain, etc., there was a weak negative correlation between the two variables. Meaning an increase in respondents could lead to a slight decrease in those agreeing to the statement. Also the relationship between the two variables was statistically significant therefore the probability of seeing an r_s value of this size by chance suggests disciplines really do correlate positively with the notion that on each project a partnering strategy exists.

6.5.14 Summarising cost/productivity as a key driver;

In respect of the key driver cost/productivity, while 4no positive perceptions and 8no negative perceptions were identified, eleven had been retained when considering differences (i.e. 3no positive and 8no negative) whilst 1no (a positive) was rejected. So with the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same (Appendix 10 Table 6.7b) evidence from a holistic perspective suggests; ;

- Industry not considered successful in respect of projects being completed on/under budget, though when schemes are correctly partnered prospects increased – albeit organisations compelled towards competition as best cost at day one invariably wins;
- Therefore even when schemes are said to be partnered, work packages regularly priced competitively and increasingly via the open market due to the rise of single stage tendering;
- Standard practice to establish an agreed maximum price before all work packages let and to undertake further negotiations with relevant sub-contractor in order to reduce their initial tender price – which is considered effective;
- As the majority of disputes are said to centre around finances, there must be trust between relevant supply chain members in order for cost/productivity to have a positive effective;
- With the complete supply chain said to benefit from partnering, no strategy implemented to clearly identify suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain and gain.

6.5.15 Customer Satisfaction

With reference to Table 6.8a (Appendix 10) four of the seven null assumptions (A_0), in respect to ‘customer satisfaction’ were retained while three were rejected. In relation to partnering, of these seven statements two were considered positive perceptions, with one neutral, the remaining four deemed negative. Accordingly there is said to be a definite lack of customer focus that inhibits the industry ($A_01 - X^2(3)=4.269, p=.234$), although agreed the implementation of partnering as a procurement method has resulted in more construction projects being completed

successfully ($H_04 - X^2(3)=2.538, p=.468$). However it was also established that client organisations generally didn't have sufficient knowledge around partnering, procurement, etc. in order to push forward the partnering ethos ($A_06 - X^2(3)=2.474, p=.480$) although generally agreed partnering was the master key to initiate customer satisfaction ($A_07 - X^2(3)=4.697, p=.195$).

Taking null assumption two (A_02), the first rejected, differences existed between the independent category respondents which meant the alternative assumption (A_a) is believed. Hence the partnering ethos must not be driven by the client in order to achieve customer satisfaction ($A_02 - X^2(3)=9.829, p=.020$). Having therefore completed appropriate pairwise testing, the analysed groups that generated significant score distribution were the 'client and consultant' ($p =.028$), 'client and sub-contractor' ($p =.041$), 'main contractor and consultant' ($p =.018$) and 'main contractor and sub-contractor' ($p =.026$). Accordingly in relation to A_02 there was no statistically significant difference between 'client and main contractor' (.183) and 'consultant and sub-contractor' (.887). Also whilst acknowledging one outlier where present, the median scores in relation to this rejected null assumptions were 'disagree' (client and main contractor) and 'agree' (consultant and subcontractor) meaning the overall median was 'split/mixed'.

The second rejected null assumption (H_03) considered a negative perception, meant the alternative assumption (A_a) was held in that within the client organisation there was not too much focus on lowest price to realise the full benefits of true partnering ($H_03 - X^2(3)=11.290, p=.010$). Further when investigating potential differences between the 10 representatives from each independent variable category i.e. clients, consultants, main contractors and sub-contractors a pairwise comparison test, as previously detailed, was also performed and this post hoc analysis showed the group that generated significant score distribution was 'client and subcontractor' ($p=.011$). Accordingly in relation to H_03 there was no statistically significant difference between 'client and consultant' (1.000), 'client and main contractor' (1.000), 'consultant and main contractor' (1.000), 'consultant and sub-contractor' (0.238) and 'main contractor and sub-contractor' (.054). Also whilst acknowledging a number of outliers where present, the median scores in relation to H_03 were divided between agree (client, consultant, main contractor) and strongly agree (sub-contractor). Thus an overall median total of split/mixed was recorded.

Finally, the fifth null assumption relating to client organisations having little concern/interest in the procurement method implemented and so would be guided by the consultant was the third, and last to be rejected ($X^2(3)=13.997, p=.003$). Hence the distribution of the dependant scores were not the same across the 4no discipline categories (i.e. independent variables), and so in accepting the alternative assumption (A_a) it can be stated, as a whole, the 40 organisations did not agree the client had little concern/interest in the procurement method, and so would be guided by consultants, as long as projects were delivered to time, cost and quality. Accordingly, the median scores in relation to the fifth null assumption were split/mixed (clients and main contractors) and agree (consultants and subcontractors) with an overall median recorded as 'agree'.

In respect of ranking each variable separately and comparing the ranks of each data pair in terms of strength and direction of the association between the relevant independent categories (disciplines) when aligned with a particular ordinal dependent variable, Spearman's correlation coefficient has also been used to establish if associations between each of the two variables existed, as Table 6.8a (Appendix 10) demonstrates.

6.5.16 Summarisation of Customer Satisfaction

In respect of the key driver customer satisfaction, while 2no positive, 1no neutral and 4no negative perceptions were identified, four had been retained when considering differences (i.e. 2no positive and 2no negative) whilst 3no (a neutral and two positive) were rejected. So with the median scores and the overall percentage total relating to each categories depiction and the relevant discipline splits for the same (Appendix 10 Table 6.8b) evidence from a holistic perspective suggests; There is a lack of customer focus that inhibits the industry though partnering has meant more projects are classified as successful;

- Client organisations have insufficient knowledge and understanding in order to fully engage with the partnering ethos. Yet whilst identified as the master key to customer satisfaction, agreed the partnering approach is a team effort and therefore not an approach to be solely driven by the client;
- Full partnering can be realised as there is not a complete focus on cost as the client also have an interest and input into the procurement approach selected.

6.6 Summary - Phase Two Findings (assumption testing)

As detailed within Chapter 5, and summarised in Chapter 1 (Table 1.1) this analysis of numeric data has meant the quantitative second phase through inferential statistical methods has helped test for significance of differences between two group means and multiple regression analysis, which has been used to determine the degree of relationship between relationships. So through the use of sophisticated computer software, following the formulation of five hypotheses from the initial qualitative phase this quantitative phase has duly tested the same using a closed-ended response questionnaire administered to 40no discipline members in order to either "...confirm or disconfirm inferences from the first strand or to provide further explanation..." (Teddlie and Tashakkori, 2009). So in answering the exploratory questions, in respect of the eight key drivers chronologically in a prespecified order, albeit as a distinct separate strand from the first phase, has meant the study has unfolded in a slower, more predictable manner. Consequently, with reference to inferences and this sequential data analysis, the themes obtained from this second phase will be used in comparison with the results attained from the first phase as previously identified. For through the development and testing of an appropriate, more structured data collection instrument (i.e. a questionnaire) the second phase has measured prevalence and generalised results in respect of the four identified discipline groups and the eight key partnering drivers.

CHAPTER 7: META-INFERENCE (SUMMARY OF FINDINGS AND DISCUSSION)

7.1 Introduction

With particular regard to Figure 4.5 (Chapter 4) and various other figures within Chapter 5 (Figure 5.1, 5.2, 5.3, etc.) this chapter is focused on discussing the main findings from the multi-methodology (mixed methods) research before interpreting, summarising and contextualising the data within the larger body of research associated with construction partnering. With a compositional structure that Yin (2009) terms 'linear-analytic', this chapter will therefore judiciously and effectively present the most relevant evidence to answer the five assumptions (Table 1.1 and Figure 5.18) before assessing their implications and drawing conclusions, and so interpret the results in an objective but critical way. Thus by addressing both exploratory (qualitative) and confirmatory (quantitative) questions in order to develop meta inferences; which Tashakkori and Teddlie (2008) describe as an overall conclusion, explanation or understanding developed through and integration of the inferences obtained from both strands of a mixed methods study, the purpose of this research is to inform action. For the discussions in this chapter, which hinge around the supporting and challenging results obtained through substantiating the various research objectives; which in turn helped organise the data and focus the analysis, has enabled the independent conclusion about the enhancement associated with this particular phenomenon. Yet in order to provide a clear direction in relation to theory development, having interpreted the results and considered how they modify and fit with what was previously understood about construction partnering, and so enable the reader to follow the central line of the results, every effort has been made to select and organise descriptive statistics into summary tables, graphs and/or figures that only show the most relevant or important information. For acknowledging the descriptive statistics are voluminous, it is essential not to miss the forest for the trees, when presenting the purposeful arguments whilst working iteratively with both data and literature. Therefore selectiveness is relevant in limiting the report to the most critical evidence and so not clutter the chapter with supportive but secondary information. For being presented with too much detail and the reader may not be able to follow the central line. Hence, by not displaying the entire evidentiary base, but through multi-faceted analytical integration of disciplined science, creative artistry and personal reflexivity the interviews, documents, observations and field notes are moulded into a meaningful interpretation of that

established during the ‘findings’ phase (Chapter 5 and 6) (Patton, 2002), albeit in relation to the established assumptions. Ultimately this chapter, in providing a richer explanation of the results, triangulates the findings from the qualitative and quantitative research with the concerns discussed in chapter two and so addresses the five assumptions by realising the six objectives (Figure 5.18).

7.2 Qualitative and Quantitative Integration

Whilst Hesse-Biber (2010) identified few exemplary mixed methods projects existed that the researcher could use as a template, Bryman (2007) stated insufficient attention had been paid to the writing up of mixed methods findings and in particular the way in which such findings could be integrated. Indeed, it could be argued that there was still considerable uncertainty concerning what it meant to integrate findings in mixed methods research. So as researchers presented evidence based on both qualitative and quantitative methods, albeit drawing from one set of evidence and under reporting the other, Brannen (2005) stated this potentially risked criticism for not fully exploiting the possibilities for the analysis of both data sets. Moreover, as the Journal of Mixed Methods (2006) defined mixed methods as research in which the investigator collected, analysed, mixed and drew inferences from both quantitative and qualitative data in a single study, Tashakkori and Teddlie (2010) pronounced mixed methods researchers needed to become “methodological connoisseur[s]” whilst Cameron (2011) called for the need for “methodological trilingualism”. Hence this chapter in genuinely combining the qualitative and quantitative findings, and so making the most of the data collected, will consider whether the data suggests interesting contrasts or helps clarify each other and so offer insights that may not otherwise be gleaned (Bryman, 2007). Therefore with this study set up in order that the exploratory component developed the confirmatory component; the overall design is conceptualised in a sufficiently integrated way that the findings from the qualitative and quantitative research methods will be mutually informative. Accordingly as they talk to each other, “...much like a conversation or debate...” (Bryman, 2007) a negotiated account of what they mean together will be constructed, albeit centred on each of the five assumptions. Mixed methods research is therefore not just an exercise in substantiating findings against each other but the moulding of an overall or negotiated account of the findings that brings together both components of the construction partnering debate. So as the metaphor of triangulation is said to sometimes hinder this process by concentrating on the degree to which findings are mutually reinforcing or opposing (Greene *et al.*, 1989;

Symonds and Gorard, 2010), the challenge has been to find ways of approaching such accounts when there are no established templates or even rules of thumb for doing so (Bryman, 2007). For the written account, being more than the sum of its parts will not be presented as parallel quantitative and qualitative accounts that barely connect, but as findings that are mutually illuminating when answering the various suppositions.

With no model of integration better than another and acknowledging the main function of integration is to provide additional information where information obtained from one method only is deemed insufficient “mixed methods is evolving into a dominant design structure for educational research” (Symonds and Gorard, 2010). So as detailed previously (Chapter 4) with better quality data provided than with a single approach, which makes mixed methods a very effective method of research (Symonds and Gorard, 2010), mixed methods as the dominant research paradigm “provides the most informative, complete, balanced and useful research results” (Jonson, *et al.*, 2007). Thus as the design has a mixed approach this chapter, in joining the qualitative and quantitative research alternatives will have a combined descriptive (qualitative) and statistical (quantitative) format. So whilst Brown (2001) divides the research design into four parts: “purely statistical, statistical with some qualitative, qualitative with some statistics and purely qualitative”, this particular research process with a quantitative dominant approach i.e. qualitative interviews being undertaken via semi-structured surveys prior to the issue of structured close-ended questionnaires (as previously noted) the important issue has been to present the outcomes as completely and clearly as possible. Accordingly as Brown (2001) asserts this account of the “story may differ in structure from project to project and report to report”, the subordinate qualitative component, having been formally analysed and reported, fully contributes to knowledge development rather than simply facilitating the focal quantitative method. Hence, like Rogers and Nicolaas (1998), while the first component sustains the second (i.e. sequential), which in this instance was the qualitative component that creates and validates a quantitative instrument, and having undertaken a sophisticated analysis of both components, the findings from both methods will be brought together, compared and contrasted in order to “see if further understanding can be gained” (O’Cathain, 2010). Therefore with data collection and analysis having occurred (Chapter 5 and Chapter 6) it was also necessary to determine how data integration would be written up. For Leech, *et al.* (2011), O’Cathain (2009) and Johnstone (2004) recognised mixed methods researchers have had limited guidelines as to how to structure the various

sections of the mixed research report. Thus influenced by the initial research design (e.g. qual → QUAN) and acknowledging mixed method findings could be represented in three ways (Osborne, 2008) the qualitative and quantitative findings, have been written up separately within the preceding two chapters. Yet while this method has been recognised as the “most used manner to present mixed methods” (Sandelowski, 2003) this chapter, by pulling together the key findings, will intertwine both methods in a pragmatic approach that combines “...the reliability of empirical counts with the validity of lived experience” (sagepub/41670_5pdf) and so be objective through the research process and strive for generalisable findings by testing that assumed.

As the significance of all findings are to be clearly presented within this mixed research manuscript (Leech, *et al.*, 2011; Onwuegbuzie and Leech, 2004), albeit acknowledging the relative absence of well-known exemplars make it difficult to draw up ‘best practice’ when it comes to combining findings (Bryman, 2007), the aim of the written account is for it to be more than the sum of the parts. So with the central premise that a combined qualitative and quantitative approach provides a better understanding of research problems, and mixed methodologies provide a useful and novel way to communicate meaning and knowledge (Johnson and Onwuegbuzie, 2004), the qualitative and quantitative data will be integrated and presented here as part of that data interpretation. Though as previously identified, the approach used qualitative techniques to develop a theory that was tested by establishing conceptually connected assumptions and quantitative means (Figure 7.1). Therefore through the utilisation of a qual→ QUAN sequential mixed method approach has enabled generation and testing of assumptions around construction partnering and led to a comprehensive understanding of industry practice in respect of this particular phenomenon i.e. construction partnering.

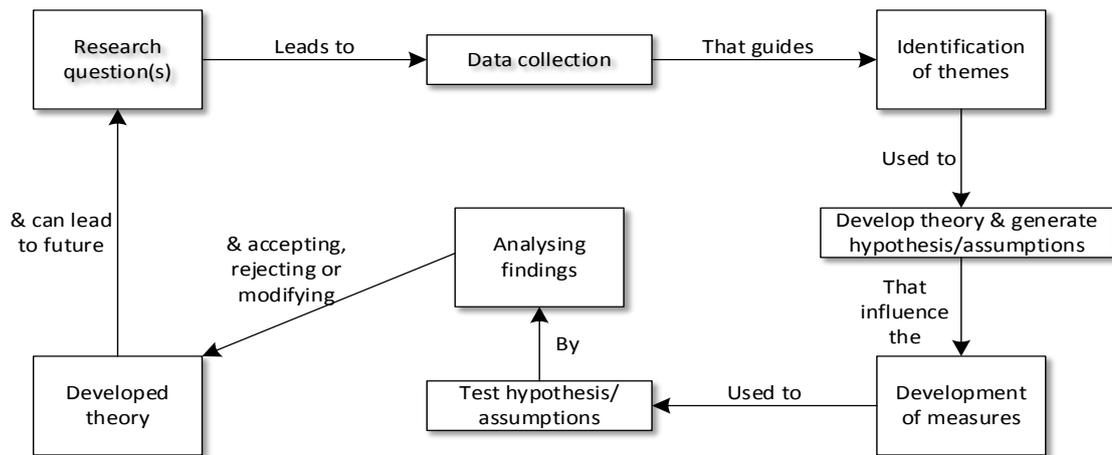


Figure 7.1: Quantitatively Testing

www.sagepub.com/-upm-data/41670_5pdf

7.3 Assumption Testing

Following the principle of Chapters 5 and 6, where the format of the same followed the order of the previously identified measuring instrument, the format of this chapter, following that criterion, sequentially identifies each of the five research assumptions subject to verification, as a verbatim representation as identified in Table 1.1. and Figure 5.18. For these simple, specific and conceptually clear statements that are ‘uni-dimensional’ (Kumar, 2011) are easy to test utilising the previously detailed methods and techniques for data collection and analysis. So with each assumption having its roots in the existing body of knowledge, in order for it to emerge and therefore add to that already known, each assumption is deemed ‘operationalisable’ and therefore is both measurable and testable, meaning conclusions can (and have) been drawn. Thus, as the literature review provided some indication about the predicted relationship among the variables, directional assumptions (i.e. “the industry’s negative perception has remained consistent”) as opposed to null assumption (i.e. “there is no significant difference”) have been employed to narrow the purpose statement so that specific variables are indicated for testing. Hence the below informed speculations, or predictions made about the results of relating variables, having been set up and tested in relation to the possible relationship between two or more variables are;

7.3.1 Assumption A_01 – *The industry’s negative perception has remained consistent over the years with the recognised ills affecting all supply chain members.*

Ross (2003), noting the construction industries clients were dissatisfied with the performance of the construction industry; particularly in respect of time cost and quality,

stated the then most recent report (Modernising Construction, 2002) (Figure 2.2) “still had as its central aim the development of approaches that facilitated efficient and productive work...”. Hence the central message had not changed since the Simon Report (1944) which had criticised the practice of open tendering, because it meant tenderers submitted low bids only to make up their income by reducing quality or making claims. So whilst Murray and Langford (2003) stated the “theme of procurement provide[d] a constant thread through the post World War II years”, albeit with the assumption “...benefits of any changes in the construction process accrue[d] to the principle elite members” Akintan and Morledge (2013) identified “main contractors and sub-contractors in traditional construction procurement projects pursued their self interests to such an extent that collaborative working [was] impossible to achieve”. Yet with each of the identified reports describing a condition of work continuity, and so promoting a move away from separated design and build, Chapter 2 highlighted those reports that spanned beyond seven decades uncovered a desire to ‘negotiate’ and ‘partner’ (Simon, 1944; Banwell, 1964; Wood, 1975; NEDO, 1988). So as Lavender (2014) acknowledged the industry had a poor image, with the traditional system of procurement disparaged because it failed to deliver the performance for which it was capable, the literature review identified a number of consistent industry ills (i.e. the eight key drivers), including relationships which were habitually transactional and strained by conflict and mistrust (Eriksson, *et al.*, 2007). Yet while enormously varied with large and absolutely world class at the top (HC127-1, 2008), perceptions are said to be conditioned by individual experiences rather than the examples that can be seen of wonderful buildings. Consequently the paradox is, whilst research identifies the products of the construction industry are appreciated i.e. buildings, infrastructure, etc., there is less positivity about the industry in general (HC127-1, 2008); as represented by the phase one findings. So while the Banwell report (1964) put its collective finger on the key issue of traditional separation between design and construction and so acclaimed the main contractor was to join the team early when timely nomination was part of the scheme, Cheung, *et al.* (2003) stated while the long-established adverse style of construction management had become out of place, there remained a behavioural blockage to cooperative contracting like partnering. Consequently there are many examples where the “...development of co-operation and trust [is], at best, fragile and at worst non-existent” (Bresnen, 2007). As this research therefore concludes there is no industry consensus as to when a particular procurement route should be used, albeit schemes in the main are individually tendered throughout the

supply chain (Chapter 6) project teams generally only exist for the duration of a single project (Briscoe and Dainty, 2005). So with authors having argued for better communication across the various supply chain tiers Egan (1998) observed “the fragmented nature of the industry, lack of co-ordination and communication between parties, the informal and unstructured learning process, lack of investment into research and development, adversarial contractual relationships and a lack of customer focus are what inhibits the industry’s performance” (Lee, *et al.*, 2006).

With various surveys undertaken in respect of the industry’s perception, including that by Baldry (1997), the Considerate Contractors Scheme (CCS) who commissioned Lychgate Projects to carry out a survey to gauge the general public’s view of the construction industry, The Wolstenholme Report (2009) and this research, the perception of construction is said to have improved. For whilst phase two data illustrated a more positive perception than phase one, Baldry (1997) stated there was “a fairly consistent and reasonably positive perception of the image of the industry amongst all sectors”. Whilst CCS noted the public’s overall impression of the construction industry had improved from a rating of 5.5 out of 10 in 2009 to 6.2 in 2010. So while Wolstenholme (2009) noted around 90% of the one thousand industry professionals completing their survey reported a positive impact from rethinking construction, albeit “working in larger organisations in senior level positions rather than SME’s or the broader employee base” and therefore “limited by partial uptake”, a statistically significant association from phase two of this survey suggests those termed dominant (i.e. client and main contractor) presented a more positive assessment of the industry during the second hard, objective, standardised and statistical quantitative phase. Moreover, as those surveyed were broadly split between medium and large enterprises the data from each phase generally remained consistent in respect of the key pressure being financial; because the stimulus was lowest cost at day one. Thus with “...downward competitive pressure throughout the supply chain...[and] very high levels of competition in supplier selection...” (BIS, 2013) which was said to result in a negative effect within this the most visible of industries; because it conducts its affairs and delivers its processes largely within the public domain, the construction industry in the UK has consistently performed in a way that is thought to be wasteful whilst not delivering good value for the customer (Latham, 1994). Hence following a succession of reports to investigate what Latham (1994) described as ‘ineffective’, ‘adversarial’, ‘fragmented’ and ‘incapable of delivering for its customers’ the premise that the

industry's negative perception has remained consistent over the years and the recognised ills affect all supply chain members is verified.

For with perceptions derived from first-hand experience the less than positive factors as identified within Table 5.5 (i.e. low profit margins, cost cutting, slow to change, fragmented, adversarial, transient, etc.) are fundamentally the same issues that the Simon (1944) and subsequent reports were to address albeit the recommendations from those pre-Latham reports largely failed to gain traction within the industry. Hence the UK construction industry is, in the main, considered adversarial with disjointed supply relationships as “projects are treated as a series of sequential and predominantly separate operations where the individual players have very little stake in the long-term success of the resulting building or structure and no commitment to it” (Briscoe and Dainty, 2005). So whilst the first phase analysis established organisations had noticed a general shift towards integrated supply chains, albeit with an overall negative perception whilst phase two skewed positive, the perception of the construction industry remained diverse as opinions differed within and between disciplines, albeit with a hint towards diversity being consequential in relation to a disciplines dominance.

7.3.2 Assumption A₀2– Different contributors proposing diverse partnering definitions and/or arrangements/solutions has meant no clear established consensus. Thus partnering has not yet recognisably arrived at the moment of convergent evolution.

Since construction projects require an accumulation of stakeholders, where the relationships are generally temporary in nature, the structure of the construction industry has long been described as fragmented (Alashwal, *et al.*, 2011; Holt, 2010). This a message identified as part of the literature review (Chapter Two) due to the traditional client-contractor mentality where the contractors, as either large or small businesses with shareholder interests to uphold and profits to chase, is said to remain. Thus encompassing a range of different activities that cover the whole construction supply chain the UK construction industry is said to be “highly fragmented, both by international standards and in comparison to other domestic sectors” (HC127-1, 2008). For with more than 270,000 active enterprises and over 90% of the 180,000 companies in construction contracting employing fewer than 10 workers (almost 72,000 of businesses are one man operations) fewer than 130 companies have a workforce of 600 or more. Moreover with the consultancy side similarly fragmented, with some

23,500 firms employing 225,000 people, the literature review suggests the industry has comparatively little vertical integration within the supply chain but a major reliance on subcontracting (HC127-1, 2008). As the primary selection mechanism remains price (Davey, *et al.*, 1998), meaning contracts are awarded to companies that offer the lowest price, the two surveys established competitive tendering was accepted as the main focus by all those questioned albeit the most frequently used procurement strategy was, in part, at odds to that preferred (Figure 5.3 and 5.4). Yet as the main contractor-subcontractor relationship was generally considered poor because it was routinely under traditional construction procurement arrangements where profit maximisation was elemental (Dainty, *et al.*, 2001; Tommelein and Ballard, 1998), findings have recognised a shift from promoting broadest competition towards more integrated supply chain mechanisms in the form of select lists and/or public sector frameworks. Though as the first phase analysis noted, frameworks were considered a public sector initiative established by central government, albeit a good way forward for those involved with partnering, the findings associated with an organisation's most frequently used procurement strategy ultimately impinged on their hierarchal position within the supply chain. For whilst a noteworthy difference at sub-contractor level was identified between preferred (4 out of 5 identified partnering/frameworks) and most frequently used (0 out of 5 identified partnering/frameworks) at client and main contractor levels their preferred (2 out of 5 and 4 out of 5 respectively identified partnering/frameworks) was replicated by their most frequently used. Yet there is no industry consensus as to when a particular procurement route should be used albeit a general understanding that partnering is the inclusion upon a framework were each project is competitively secured and that frameworks have been embraced by public sector bodies rather than private organisations due to contrasting perceptions in relation to what drives the company on procurement strategy (i.e. being publically accountable and so demonstrating best value).

As Egan (1998) advocated long term relationships would replace competitive tendering and/or single project partnering the industry continues its association with the same either through traditional, non-traditional or framework procurement were every work package for each individual scheme is tendered, albeit labelled partnering/frameworks upstream and select list downstream. Yet whilst the phase two survey concluded on average the disciplines disagreed that signing up to a framework agreement constituted partnering, the literature review established the industry customarily remains

competitively driven irrespective of the procurement method employed, with “...a new team for every piece of work”(Wolstenholme, 2009). Further, as Egan advocated long term relationships would replace competitive tendering and single project partnering, because a model that encouraged short term thinking did not make sense when compared to ways that incentivised long term value creation, data from both surveys found the most common method of procurement i.e. competition (Figure 6.3) was the same across the four discipline categories, while the distribution of work sub-contracted was not. For as previously noted, a company’s hierarchal position within the supply chain was identified as significant with those identified as dominant i.e. ‘client’ and ‘main contractor’, sub-contracting extensively while those further down the supply chain, albeit also subcontracting, did so but to a lesser degree (Figure 6.4). Yet as the industry customarily remains competitively driven irrespective of the procurement method employed, Bresnen and Marshall (2000) recognised a division existed between those that saw partnering as an informal and organic development i.e. an approach rather than a contractual arrangement that developed over time, and those who regarded it as something more formal i.e. engineered/established from the outset. Yet this was also positively reflected following the phase two analysis with the null assumption stating partnering was an approach to procurement was retained.

Whilst an analysis of the phase two data established a dominant upstream partner would always exist and partnering was fundamentally concerned with relationships between client and main contractor; with the main contractor practising conventional approaches with suppliers (Bresnen and Marshall, 2000; Packham *et al.*, 2003), partnering was accepted as an effective strategy to improve relationships throughout the supply chain. Yet with recognised disparity between partnering definitions, which included those who thought the partnering arrangement effectively superseded the contracts role and those who regarded it as something more formal where the contract was a crucial safeguard against any breakdown of the partnering arrangement, the literature review acknowledged there was no single clear partnering definition. Hence Murdoch and Hughes (2008) asserted the term project partnering meant different things to different people, thus rendering it “...multifaceted...” as Bresnen (2009) professed partnering was “...by no means as pervasive an approach as many of its early proponents would have liked or predicted”. Moreover, “...its diffusion not as extensive as expected...” nor was there a single unifying practice based theory or approach (Bresnen, 2009). So with varying views on a number of its features (Barlow and

Cohen, 1996; Hamza, *et al.*, 1999; Green, 1999) and the perception of the construction industry remaining diverse as the survey data identifies (i.e. ‘mutually beneficial’ is displayed as the third ranked positive perception, while ‘low profit margins’ is in pole position as regards the negative ranking), the challenge remains in respect of distinguishing between partnering as a distinctive practice or managerial rhetoric. Hence, as there also remains considerable uncertainty and debate about the range of mechanisms that partnering encompasses, as both phases identified this as minimal the second assumption is also verified.

7.3.3 Assumption A₀3 – In relation to partnering the level of key player involvement varies according to their perceived status (i.e. tier position), whilst dominant organisations pay ‘lip service’ to the partnering ethos;

The findings from the second phase survey concluded work was primarily secured via competition and as competition remained central to realising lowest price at day one this also reflected the first phase findings. Yet as comparable responses meant a positive tilt in respect of the whole industry remaining committed to the concept of partnering; Figure 6.17 summarised the complete supply chain was not actively engaged in the partnering ethos. So whilst deemed achievable, albeit fundamentally concerned with relationships between the client and main contractors, given Akintoye and Main (2007) and Davey, *et al.*, (1998) alleged partnering between clients and contractors was commonplace, the median scores in relation to an organisations commitment upstream and downstream were highest for main contractors (i.e. agree/strongly agree) and lowest for subcontractors (i.e. split/mixed). Thus as opinions differed within and between disciplines as part of the phase two analysis, with findings hinting towards diversity being consequential in relation to a subcontractors apprehension and a main contractors dominance. So as survey findings also established a dominant upstream partner, who dictated terms and conditions, proceedings, etc. would always exist, and there was a greater focus on that upstream relationship, whilst partnering and/or frameworks were identified as a company’s preferred strategy by 60% (12 out of 20) of those interviewed, it was accepted as the most frequently used by 30% (6 out of 20). Moreover as the findings associated with the most frequently used procurement strategy were, in part, at odds to that preferred (Figure 6.2 and 6.3) the organisations that generally matched preferred with most frequently used were those considered dominant i.e. client and main contractor. As the clients and main contractors preferred and most frequent procurement strategies were also generally unvaried during the phase two survey analysis it is therefore theorised

any procurement strategy implemented is dictated by the dominant (upstream) discipline who then generally promotes harsh competition downstream. Consequently with 3 out of 5 main contractors having identified partnering/frameworks as their preferred procurement strategy, the same number frequently secured work through competitive frameworks whilst 5 out of 5 subcontractors frequently secured their work traditionally or non-traditionally (albeit 3 out of 5 identified partnering/frameworks as their preferred). Thus as the literature review documented issues associated with the impact of procurement strategy and competitive tendering remained endemic and went beyond tier one into tier two and three (BIS, 2013), a company's hierarchal position within the supply chain has been identified as significant in respect of their procurement strategy.

As displayed in Table 6.7 across the four disciplines 85% of works were secured via competition. This endorsed by Akintan and Morledge (2013) who stated "traditional construction procurement remain(ed) the dominant procurement strategy in the UK". Moreover the median scores in relation to the same were; competition – partnering framework (client); competition – select list (consultant and main contractor); and competition, albeit split between open market and select list (subcontractor). Therefore in reflecting the first phase findings were competition remained central to realising lowest price at day one, it was also established that the distribution of procurement route scores were similar for all disciplines, and with the median scores as previously noted the differences were not statistically significant. Hence the distribution of the most common method of procurement was the same across the discipline categories implying competition was elemental. So with contractors said to collaborate only for fiscal gain (Cobra, 2010), and the traditional procurement method was often used by default (Akintoye and Main, 2007; Murdock and Hughes, 2008) by countless construction clients due to them not being habitual procurers of construction work (Constructing Excellence, 2004), the construction industry remains fragmented as opposed to the realisation of long term relationships that incentivised long term value creation. Therefore with no industry consensus when a particular procurement method should be used it was also recognised that there were very few opportunities to secure long term contracts due to a lack of loyalty because the vast majority of the procurement approaches were financially driven. Meaning as the key pressure remains financial, with 'low profit margins' and 'cost cutting' identified by a number of phase one and phase two respondents, this sustains that affirmed by BIS (2013) in that

“...downward competitive pressure through the supply chain facilitates cost reduction...[albeit] very high levels of competition in supplier selection are also seen to be having a negative effect...”. For traditional contracts were said to have a functional division of responsibility between design and construction (Bower, 2003; Cooke and Williams, 2004) and generally characterised by their adversarial practices because the lowest bid invariably won (Cheung, *et al.*, 2003; Chen *et al.*, 2007). Consequently in respect of an organisations level of involvement and dominant organisations paying lip service to the partnering ethos, because the first phase findings highlighted a company’s hierarchal position within the supply chain was significant in respect of their preferred and most frequently used procurement strategy, this assumption is confirmed.

7.3.4 Assumption A₀4 – The construction industry currently has no objective way to spread a consistent message as to what partnering is and so allow each organisation, within their relevant supply chain (across the various tiers) to establish what it actually means to them, irrespective of their perceived hierarchal position.

The incitement for a healthier atmosphere throughout the supply chain remains key to enhanced project performance though it is accepted within the industry that “no one firm can provide all the specialism’s; therefore many small-sized specialist firms with narrow expertise continue to work to meet the industry’s varied and complex demand” (Akintan and Morledge, 2013). Yet the phase one findings, which is bolstered by that established in phase two noted whilst there is no industry consensus as to the most advantageous procurement method, as a result of the industry-led and government-commissioned enquires discussed in the literature review (Chapter 2) there is a general understanding that frameworks have been embraced by public sector bodies. As a shift was also noticed from promoting broadest competition towards integrated supply chain mechanisms that encouraged mutual benefit phase two also concluded, when schemes were partnered, separate contractual documentation would always be in place although Egan’s perception was for contracts to gradually become obsolete as effective partnering did not rest on them; rather rigorous targets that were performance measured. Yet Bresnen and Marshall (2000) whilst accepting a reliance on formal contracts alone was insufficient to promote deeper desired changes in attitude, noted a division existed between those who saw partnering as an informal and organic development; where the partnering arrangement effectively superseded the contracts role, and those who regarded it as something more formal where the contract was a crucial safeguard against any breakdown of the partnering arrangement. So as the literature review noted Clamp, *et al.* (2007) and Cheung, *et al.*, (2003) alleged

partnering was never intended as an actual type of contractual arrangement or procurement method; rather an approach to procurement, literature suggests there is no single unifying practice based theory or approach (Bresnen, 2009). Furthermore whilst findings suggested the construction industry remained committed to the concept of partnering and there was sufficient understanding of partnering within the construction industry, there was said to be a poor level of cooperation/understanding of the partnering ethos throughout each particular supply chain. So as the question relating to signing up to a framework agreement constituted partnering was marginally rejected, partnering was said to mean compliance with an up-stream supply chain members terms and conditions. There was also a strong belief the term partnering was used too often and out of context. So whilst agreed 'organisations tended to pay lip service to the partnering ethos in order to secure work' Egan's vision of partnering, where reciprocal working could be achieved within 'an industry where subcontract labour was utilised extensively, was rejected. Moreover as the results from the second phase established there was said to be sufficient collaborative working, there was an identified lack of suitable/sufficient procedures, tools and/or techniques to manage various key drivers (i.e. programme and cost) and supply chain communication was generally restricted to those one tier removed. So with partnering identified as a more widespread part of global construction management practice (Bresnen, 2009, Wood and Ellis, 2005; Chan *et al.*, 2003), where it was more a "broad agreement about the overall philosophy" which was "...primarily about team working" (Clamp, *et al.*, 2007) duly exploited to capture a spirit of cooperation, in an effort to improve performance and profitability (Kumaraswamy, 1997; Briscoe and Dainty, 2005; Akintoye and Main, 2007) irrespective of project type (Bresnen and Marshall, 2000; Clamp, *et al.*, 2007; Bresnen and Marshall, 2010) than a particular project approach or type of contract, whilst tender documentation often talked about a partnered approach this was rarely delivered in practice. Moreover if supply chain members did embrace the partnering methodology and abide by the rules upon which they were based, this only lasted until a scheme became problematic when partnerships were frequently abandoned. So as Cooper, *et al.*, (1998) identified the same mistakes were occurring time and again as disengaged, ad-hoc methods in respect of co-ordination, management and control, continued to be employed, Chapter Three acknowledged the underlying generic construction processes remained broadly consistent. Yet as the industry is said to lack consensus as to what constitutes an integrated process the construction industry continues to have deeply ingrained attitudinal and behavioural characteristics towards mutual trust and

understanding (Green and McDermott, 1996; Thurairajah, *et al.*, 2006). For as the traditional roles and responsibilities characteristically change from project to project, there are no absolute rules regarding the right model or framework. Yet with disparate explanations of strategic management (Ansoff, 1984; Bowman and Asch, 1987; Fellows *et al.*, 2002; Jeyarathnam, 2008) strategy implementation; with particular regard to partnering, needs to be understood as an organisational change process (Tzortzopoulos, *et al.* 2006; Makin, *et al.*,1996; Stickland; 1998), with individuals and groups being capable and motivated to change their behaviour and so allow its adoption (Burnes, 2000). For whilst the elementary concept of "...highest quality, at the lowest price and in the shortest time" (Hackett, *et al.*, 2007) remains staunch, strategic management, which is not about predicting the future, rather preparing for the same in light of the many different project tasks in the modern construction industry, is said to accomplish continuous lasting improvement. Hence by delivering practical benefits over the long-term, through a simply administered 'partnering' model or framework that filters throughout the supply chain, means functioning optimally as a coherent whole through the alignment of processes and procedures into one holistic structure that enables operations to run more effectively and so achieve objectives. However, as integrated supply chain mechanisms that create harmony and encourage mutual benefit as part of long term agreements (CII 1991; Holt, 2010); and so lead to increased returns for all parties concerned, reported examples of successful long-term collaboration remain rare (Hamza and Djebarni, 1999). For whilst held by many as the way forward in construction there are a limited number of tools available to incite effective agreements that command performance improvement (Li, *et al.* 2001). For there are a large number of medium and small sized firms, each of which has their own objectives, goals, management styles and operating procedures. So although these are linked hierarchically by highly restricted contract terms and conditions that typically exist for the duration of a single project (Briscoe and Dainty, 2005), it has been suggested there remains a long way to go before the potential of a well designed management system. Thus the theoretical design and actual practice by which organisations manage their operational effectiveness and efficiency, and so contribute fully to the management and continual improvement of a business.

So continuing the theme of defining partnering and supply chain management and control, the first phase findings determined the construction industry was not considered 'inclusive' or 'mutually beneficial'. It was also branded 'adversarial' and 'fragmented' by some, while 'good communication' was poorly represented by all

disciplines. So with the premise ‘lowest price wins’ and “...price trumps performance in winning bids...” it was also acknowledged very high levels of competition in supplier selection had a negative effect on established supply chain relationships, which then increased the risk of those collaborations breaking down (BIS, 2013). Moreover while it is to be reasoned corroborative relationships and early involvement are enablers of high performance, albeit generally associated with reduced levels of completion, there is said to be a disincentive for a sub-contractor to support a main contractor due to work packages habitually being under traditional construction procurement arrangements. Yet with a mutual comprehension that schemes in the main were individually tendered throughout the supply chain, albeit labelled partnering/frameworks upstream and select lists downstream, there is a general contended perception, that collaboration would be an appropriate way to overcome problems and improve the overall performance of the industry (Akintan and Morledge, 2013). Though in recognising a company’s hierarchal position within the supply chain has been identified as significant in respect of their preferred and most frequently used procurement strategy, a promoted step change away from competition towards integrated mechanisms that incite collaborative working has not been realised. For while high levels of competition in supplier selection is said to have had a detrimental effect on the establishment of supply chain relationships (BIS, 2013), there has been a “...shift in bargaining power within the supply chain, [and this] has been used to push down prices...” because of high levels of competition and low initial margins that are expected to be increased through post tender rebidding of sub-contract packages. Therefore with no industry consensus when a particular procurement method should be used, although larger private sector organisations have more autonomy than the public sector and so operate without the same restrictions in terms of procurement regulations or the need to demonstrate best value (even though the vast majority of procurement approaches were financially driven), competition remains central in order to realise lowest price at day one. Hence with very few opportunities to forge long term arrangements as “...*the* [industry] is cut throat, meaning if you are the cheapest you get the job” (Sub-contractor 2) the ‘formal’ and ‘informal’ partnering arrangements have themselves been identified as “...little more than an expensive select list” (Main Contractor 4). So as 55% of those interviewed during phase one judged their organisation as informal partners and 20% as approved project partners, it was ascertained the partnering concept did not filter down to all levels of the supply chain. Moreover there were very few, if any, companies that had suitable/sufficient tools,

techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership. And of those interviewees acknowledging arrangements were in place, the general discernment in their adoption, development and/or implementation was the preservation of the client and main contractor link (Eriksson, *et al.*, 2007). Hence, as there are very few opportunities to secure long term contracts, were sub contractors partner with a contractor who partners with their client, due to a lack of loyalty upstream and down, there was mutual comprehension that schemes in the main were individually tendered throughout the supply chain. Finally as reports continue questioning the extent to which the principles and practices of partnering have become institutionalised and internalised by construction companies (Bresnen, 2009; Phua, 2006; Ng, *et al.*, 2002) it is recognised organisations approach this procurement method in different ways. The result is varying degrees of integration (Briscoe and Dainty, 2005), because of the local and situated nature of partnering, thus very specific local practices and particular combinations of tools and techniques, if any. Accordingly, with reference to the assumption that the construction industry currently has no objective way to spread a consistent message as to what partnering is and so allow each organisation, within their relevant supply chain (across the various tiers) to establish what it actually means to them, irrespective of their perceived hierarchal position, this is also confirmed.

7.3.5 Assumption A₀5 – Partnering is the vehicle for change but a generic representation would provide that better wholesale comprehension, engagement and control to ensure continuity and create efficiencies both within and between relationships.

The first phase findings highlighted a company's hierarchal position within the supply chain was significant in respect of their preferred and most frequently used procurement strategy. Yet as issues associated with the impact of procurement strategy and competitive tendering remained endemic and went beyond tier one into tier two and three (BIS, 2013), there was no general consensus as to the most advantageous procurement method. Therefore following the industry-led and government-commissioned enquiries previously identified (Chapter 2), whilst there is a general understanding that frameworks have been embraced by public sector bodies rather than private organisations, the industry continues its association with traditional and non-traditional procurement. It has also been established through this research that the number of companies across the four disciplines who identified partnering as the inclusion upon a framework, were each project was competitively secured, was

high. So as Egan advocated long term relationships would replace competitive tendering and single project partnering, the current 'formal' and 'informal' partnering designations appear more loose than Egan's initial 'utopian' objectives with competition remaining central in order to realise lowest price at day one. Still, as part of the first and second phase analyses, a shift from promoting broadest competition towards integrated supply chain mechanisms that encouraged mutual benefit was generally noticed across the four domains of enquiry, and whilst confined to conical supply chains and public sector frameworks, a generally positive picture is painted with all interviewees across the four disciplines in respect of working more collaboratively. Hence a large number of companies agreed they partnered, be that formally or informally. Yet a closer analysis of the data from both phases recognised the term 'select list' was also commonly used and the partnering discussed by the main contractors and sub-contractors, both up and downstream where either framework based or approved/select lists. Hence with over half believing they operated as informal partners and so understood and cooperated with the complete supply chain with fewer disputes the terms 'partnering' and/or 'partnering arrangements' were freely used to describe a variety of associations. Moreover, having identified interchangeable terminology within/between disciplines and that sixty five percent of all those interviewed believed partnering was an informal ambition that developed and strengthened over time, there were very few, if any, companies that had suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership. So having accepted tender documentation often talked about a partnered approach, whilst a number of principles around the way to procure partnering were said to exist, nobody seemed to have come up with a way to deliver in practice.

Phase two results also suggested the primary focus of partnering was not on the relationship between client and main contractor and when a scheme benefitted from a partnered approach this was not to be restricted to upstream supply chain members only. Moreover there was agreement across the four disciplines in respect of a partnered approach being an effective strategy to improve relationships throughout the supply chain rather than just with dominant partners. Yet whilst a partnered approach offered a positive shift in terms of improved communication throughout the supply chain; as effective and appropriate communication was necessary in order to building relationships, partnering was considered an approach to procurement and not a contractual arrangement. So whilst true collaboration was agreed as more than signing

up to a partnering framework, albeit phase two findings ascertained the term partnering was used too often and out of context, the level of cooperation and understanding was generally considered poor. So accepting good communication relied on commitment, cooperation and a supply chains understanding of the partnering concept as well as good working relationships both up and downstream, that went beyond the 1st tier, there was overall harmony that a positive relationship had a constructive effect on each particular project; as well as improving future work prospects. Moreover, in respect of organisations across the four disciplines and their perception that partnering was an effective strategy to improve relationships throughout the supply chain it was determined this could be engineered/established during a single project. Moreover, the development and implementation of a partnering strategy engendered trust throughout the project team. So with strong support that completing on time was also increased due to the early involvement of relevant supply chain members as the whole construction industry remained committed to the concept of partnering, suitable/sufficient, consistent/standardised procedures, tools and/or techniques did not exist. Yet while saying everyone partnered was not considered enough to realise effective collaboration, as there must be a partnering strategy which can be implemented to encapsulate the complete supply chain, it was also agreed a partnered approach to project procurement would not succeed unless all members of the supply chain were fully committed. Consequently, as there was a considered need for a partnering strategy to be developed and implemented in order to set out the complete supply chains prescriptive aims and objectives, which would then be measured throughout the scheme, because this is currently lacking across all responses this fifth assumption is substantiated.

7.4 Conclusion

Having designated a mixed methods approach because it ensured a rigorous and interconnected study, the research findings have therefore been evaluated as a mixed methods project, having narrowed the purpose statement into specific questions (the qualitative phase) and predictions (the quantitative phase). For as noted previously assumptions were specifically chosen because the literature review and qualitative first phase was to provide some indication about the predicted relationships among the variables. So as Figure 7.1 identifies the key aspects relied upon to demonstrate how far each assumption has been proved and how far the data helped explain and answer the questions posed and so enable the development of a dynamic conceptual

engagement framework, a summary of the key meta-inference represented in this chapter is as follows;

- Findings from both phase one and phase two identified the key pressure was financial with the stimulus remaining lowest cost. Hence the two principle negative perceptions from both phases was low profit margins and cost cutting;
- Phase one findings recorded an overall negative perception with the construction industry not considered 'inclusive' or 'mutually beneficial', while 'adversarial' and 'fragmented' with poor communication. However while phase two skewed positive, the overall perception of the industry remains diverse;
- In ranked order the crosstabulated top ten positive and negative industry perceptions across all respondents (i.e. 60 respondents across 4 disciplines) encapsulated the elemental eight key drivers;
- Overall no industry consensus as to when a particular procurement route should be used, albeit established work primarily secured via competition. For whilst phase one established general understanding that frameworks embraced by public sector bodies rather than private organisations (who utilise the open market to reduce costs) phase two concluded open competition was the most popular approach;
- Following the phase one analysis in respect of the key driver relationships, the term partnering was said to have loose connotations as fundamentally driven by competition on a project by project basis, with disparity between perceived upstream and downstream arrangements. This corroborated by the phase two survey as findings suggested partnering was essentially concerned with relationships between clients and main contractors;
- Survey results from phase one indicated trust was essential to a collaborative working relationship because without trust partnering would not work effectively. Phase two went on to find that the development and implementation of a partnering strategy that engages all members of the supply chain from the outset would engender trust throughout the project team;
- Both phase one and phase two concluded the partnering concept did not filter down to all levels of the supply chain. Phase one also confirmed that there was very few, if any, companies that had suitable/sufficient tools, techniques or

arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership. Phase two concluded the development and implementation of a partnering strategy was necessary;

- Acknowledged as part of the first phase analysis that a procedure for dealing with partnering work in the form of a platform to move beyond the initial principles of partnering could be instigated as a coherent approach to collaborative success. As respondent data from the second phase survey generally agreed that the implementation of a partnered approach could result in a positive shift in terms of improved communication, it was accepted an appropriate strategy needed to be implemented on each scheme;
- It was said, the term partnering was being used too often and out of context. While there was also a poor level of cooperation/understanding at the individual project level, phase one identified insufficient experience/understanding of partnering within the construction industry, albeit phase two believed there generally was;
- As phase one acknowledged a recognisable link between schemes partnered and a projects overall outcome in terms of success, phase two findings accepted the complete supply chain benefitted from partnering, albeit accepted no partnering strategy identified on each scheme which would clearly identify suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain and gain, etc.

Ultimately, and regardless of the formality or breadth of existing sporadic collaborative arrangements, the nature of future partnerships will be a significant determinant of success. Therefore all disciplines, across the complete supply chain (and throughout the various tiers), through governance and infrastructure are to pay specific, albeit directed attention to the eight key drivers of their respective alliances. For though the introduction of a construction partnering paradigm early discussions with proposed supply chain members highlights where each organisation can build on existing practices and so utilise the framework to bolster collaborative arrangements across all disciplines to move from transactional relationships to transformation. Furthermore where relationships between organisations are considered more challenging, the introduction of a generic representation which provides that better wholesale comprehension, engagement and control to ensure continuity and create efficiencies

will help the industry arrive at that moment of convergent evolution – which is considered an absolute priority.

CHAPTER 8: REALISATION OF SUPPLY CHAIN COLLABORATION – A CONCEPTUAL MODEL

8.1 Introduction

This chapter addresses Objective 6 of the research study (Table 1.1 and Figure 1.4). It presents a conceptual model, having taken into consideration the findings from the previous three chapters and the results of two workshops carried out to help develop the incorporated partnering standard. It therefore becomes a blueprint or roadmap and so provides a shape to help all supply chain members understand, embrace and achieve shared collaboration. Thus the main purpose for developing the model, having highlighted the issues associated with the apparent lack of commonality in the contemporary understanding of the partnering concept (Objective 3), is to purport how a generic representation provides that better wholesale comprehension, engagement and control of partnering in reality (Objective 6). Consequently having also fulfilled the first and second objectives (i.e. reasons identified for the adverse industry perception and potential areas of cohesion across acknowledged themes in respect of performance) the conceptual model was advanced, and endorsed, with due cognisance of other contemporary building design and construction processes.

8.2 A Standardised Partnered Approach

Findings from the literature review suggest, with no clear established consensus as to the definition of partnering, that fragmentation within and across industry tiers remain. For the construction industry's project partnering initiative has been the topic of predominantly positive, albeit prescriptive discussion within business press and academia for over two decades. Moreover, as recognised in answer to the second research assumption, this has been due to the traditional client-contractor mentality. Hence with a major reliance on subcontracting, with competitive tendering the main focus, evidence suggests there is comparatively little vertical integration within a construction projects supply chain. Therefore with contracts awarded to companies offering lowest price, supply chain relationships are deemed poor as profit maximisation remains elemental. As a result, having identified and critiqued similar work done within this area of study, it was identified that knowledge gaps did exist which merited further investigation.

Accordingly, the literature review, by finding divergent views between authors in relation to the principles and practices of partnering (Figure 2.1), completed a comprehensive study of present work. For having identified a topic of personal and academic interest (i.e. partnering and its effects on the UK construction industry), the quest to develop the argument meant searching for and analysing relevant literature, which ultimately led to the development of new insights (i.e. the eight key drivers, the lack of a realistic model to implement partnering, etc.). Yet the literature review was only successful because it logically framed arguments around the first five research objectives (Table 1.1 and Figure 1.4) and built reasoned cases, having seen each relevant piece of information in context. The systematic review of relevant literature not only provided a complete picture but offered the rationale for conducting further work. Hence this research, by questioning what is partnering and how was implementation intended, employed the literature review as a springboard for the whole thesis. As the first element, not only did it justify the reason for the research and establish what the most important issues were (Figure 2.1), but identify the gap this research was to fill.

As an organisation's preferred and most frequently used procurement strategy ultimately impinged on their hierarchal position within the supply chain, it was accepted the complete supply chain was not actively engaged in the partnering ethos. Thus, as procurement strategies were dictated by individually dominant disciplines on each scheme (i.e. client and main contractor), harsh competition was continually promoted. Consequently, as the more nuanced aspects of UK construction partnering were deemed more appropriate for qualitative research, because it provided a unique and critical contribution, by giving an understanding to the complex social processes, this preliminary method was used to capture essential aspects of the partnering phenomenon. From the perspective of four discipline groups (i.e. client, consultant, main contractor and sub-contractor) this research established there were very few, if any, companies that had suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnered approach throughout the supply chain. Thus, having developed the prevailing theory from the literature review, the qualitative research method, being exploratory and seeking to generate novel insights through an inductive approach, noted the term partnering was used too often and out of context. Meaning it was rarely delivered in practice, thus the industry has no objective way to spread a

consistent message as to what partnering is or allow individual organisations to establish what it means to them. Though ultimately, the qualitative first phase was operated to develop the discipline-centred quantitative measurement instrument which would be based around the eight key driver constructs. So as the initial stage, with its exploratory sequential design involving the collection of ‘soft’, ‘flexible’, ‘subjective’ and ‘rich’ data (Robson, 2003; Silverman, 2000) through interviews, this qualitative methodology systematised observations, utilised sampling techniques and helped develop a quantifiable scheme in order to examine the questions generated from the open and non-standard data.

The first phase, as an introductory procedure supplemented this principally quantitative project. So as the smaller, preliminary qualitative study provided complementary assistance in the development of this larger quantitative study, by ensuring it covered the important topics (i.e. the eight key drivers), the second phase engendered conceptual theory. Hence, as the qualitative inductive approach generated substantive theoretical codes and research assumptions (Figure 5.18) the quantitative (confirmatory) part of this study was used to collect highly standardised data. Thus the second phase built upon, verified and generalised the phase one findings and so enabled a greater insight into supply chain collaboration by again exploring the phenomenon from each disciplines perspective i.e. client, consultant, main contractor and sub-contractor. Therefore with a quantitative principal method (Figure 4.6) producing ‘hard’, ‘fixed’, ‘objective’ and ‘thin’ data (Robson, 2003; Silverman, 2000) that were numerical, this enabled statistical tests to help derive important facts from the research data prior to statements being made about the results. Yet prior to launching a larger-scale, unmoderated study in order to get a better understanding of the phenomenon within the larger customer population, a specific pre-test of the research instrument was undertaken. This, carried out by one academician and one representative from each of the four disciplines (i.e. client, consultant, main contractor and sub-contractor), provided advance warning about where the main research project potentially could have failed or if the proposed instrument was inappropriate or too complicated. The pilot study, which involved in-depth conversations post instrument completion to identify unclear, ambiguities or difficult questions, also identified the time taken to complete the questionnaire; which was considered reasonable. Yet whilst recognising pilot studies do have their limitations, it was also accepted their successful completion

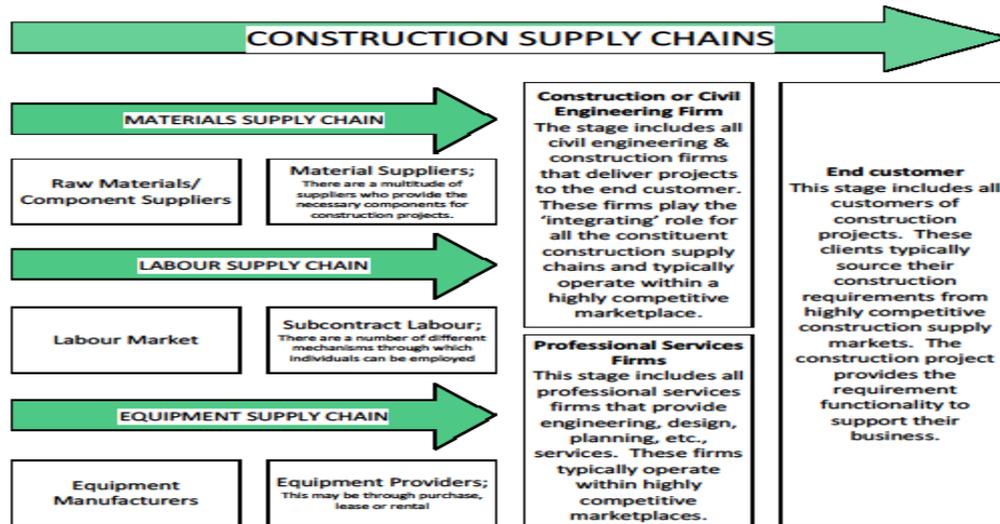
was no guarantee of a successful full-scale survey. So as a mini version of the full-scale second phase, the pilot study, having obtained a clear vision of the partnering phenomenon, pre-tested the quantitative research instrument. By doing so it pinpointed a number of unclear items and ambiguous instructions that were rectified. Hence, the general goal of the pilot study was realised because it "...ultimately saved some time, effort and money..." (Calitz, 2009) which could have been lost if the quantitative phase failed because of unforeseen attributes.

The quantitative (second) phase, that explored and exploited the preliminary reported interpretations from the first phase (qualitative), ensured triangulation. So by using a combination of methodologies to study the same phenomenon (Denzin, 1978) the second phase focused on associations and differences between the interviewees and disciplines in relation to questions asked around the eight key drivers. Having therefore selected two supply chains (i.e. 1no client and 1no main contractor), with a greater number of subjects involved here than in the qualitative first phase, this also enhanced result generalisation. So with the categorical data from the returned questionnaires populating the statistical package for social science (SPSS – version 21), which maximised the likelihood of discovering variations through numeric description of trends, attitudes or opinions, it was possible to describe those central tendencies whilst identifying distribution. Thus in helping derive results and conclusions drawn from the main findings of the second phase, which generally supported the first phase findings, these were then utilised to help develop the conceptual model.

Subsequently, with no industry consensus when a particular procurement method should be used, this research established, with the vast majority of procurement approaches being financially driven, that there were very few opportunities to secure long term contracts. The construction industry therefore needed an objective way to spread a consistent partnering message across the complete sector. This to establish what partnering should actually mean to each organisation, irrespective of their perceived hierarchal position. Hence the development of a conceptual model would provide that overall direction for each individual organisation to initiate and sustain an industry shift from the current disengaged, ad-hoc methods to operational performance, through innovation and change. For having acknowledged the high number of companies across the four disciplines that identified partnering as the inclusion upon a framework, where each work package

was competitively secured, the realisation of this partnering paradigm focuses effort, defines and/or clarifies organisational responsibilities while helping formulate and implement major partnering goals. Hence a planned and managed obligation to achieve partnering objectives and so provide consistency and guidance. Thus a generic representation to provide the construction industry with an inclusive partnering direction through an incorporated standardised process.

A conceptual model that influences the supply chains alliance, through a unified industry voice, is therefore presented as an objective way to spread a consistent message as to what partnering means for all organisations. For having identified interchangeable terminology within and between disciplines, it seems clear from that currently endorsed as best practice, construction companies are some considerable way from understanding what constitutes effective supply chain management and how superior performance can be achieved (Cox and Ireland, 2002). Therefore, with a myriad of construction supply chains' needing to be understood and integrated in order to successfully deliver a collaborative solution (Figure 8.1) this research proposal maps the entire partnering process from inception to completion. For given the substantial debate around partnering being that vehicle for change (Chapter 2), although evidence suggests limited opportunity has existed to fulfil supply chain collaboration (Chapter 5 and Chapter 6), this modelling work provides a visual representation of the various activities, processes and sub-processes to realise 'partnerisation'. For as augmented by the findings from this research, with the reported scepticism towards partnering potentially relating to a lack of understanding for those directly or indirectly affected (Bygalle, *et al.*, 2010), Gibb (2001) and Sanchez-Rodriguez, *et al.*, (2006) argued standardisation could ensure continuity and create efficiencies both within and between relationships. Bygalle, *et al.* (2010) also identified relationship development was primarily achieved through formal tools and techniques rather than evolutionary and/or social/cultural aspects.



(Source; Cox and Ireland, 2002)

Figure 8.1: The Myriad of Construction Supply Chains

As a partnered approach was considered an effective strategy to improve relationships throughout the supply chain rather than just with dominant partners or those one tier removed, a conceptual model has been proposed. For as research findings suggest a large number of organisations say they partner, and remain committed to the concept of partnering, data results suggest the complete supply chain is not actively engaged in the partnering ethos. Meaning the focus on self-interest essentially remains unchanged with the project delivery processes largely disconnected due to traditional procurement arrangements. Hence, as construction is now so specialised, with no one firm providing all the expertise, the approach engenders adversarial attitudes due to a lack of collaboration. For with as much as 75-85% (Eriksson, 2007; Packham, *et al*, 2003) of the gross work done in construction by competitive sub-contracting, this results in conflicts and disputes, a lack of focus on customers' requirements and a failure to satisfy clients' needs. Thus with a general lack of enthusiasm between the various disciplines to adopt a collaborative process, true relational engagements within contemporary construction are considered wishful. The development and implementation of a partnering strategy is therefore deemed necessary, as evidence suggests there is currently a lack of suitable/sufficient procedures, tools and/or techniques. With research findings also concluding partnering could be engineered/established during a single project, whilst there is a broad general awareness of partnering, there was no standardisation in respect of implementation. Hence, as research suggests a generic representation of partnering, in the form of a model, would provide that

general comprehension by standardising the starting point for partnering implementation, this would assist all organisations across the four disciplines to become familiar with the partnering approach.

8.3 The Development of a Conceptual Engagement Framework

Having identified the existence of a number of cross sector management systems, open discussions with representatives from each of the four disciplines were carried out during this the development stage of the research (Figure 1.4). For by introducing the management systems discussed in Chapter 3, to representatives from each of the four disciplines, the participatory self-contained sessions, bolstered by previous research findings, encouraged peer feedback in respect of the universal management principles. For with construction companies not seen to have suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnered approach that bridged the complete supply chain, the goal was to establish if a single existing (or newly developed) management system was commonly preferred. Although with details of the 11 professionals who took part in either of the two workshops (Appendix 5), it was revealed while very few had actually heard of any of the standardised management systems previously detailed, none utilised consistent regulated arrangements within a construction setting. So with Consultant 3 being the only one with a working knowledge of any of the management systems (i.e. Six Sigma), Client 2 observed it was not possible to write something that was based on being reasonable with another party. Meaning there was no wide spread support for a prescribed complex approach, with Main Contractor 1 stating "...partnering works when it's not written down...for it's an appreciation.....it's just talking together". So as the workshops, with the participants fully interactive, acknowledged the contemporary construction procurement model was deficient; which bolstered findings from the two previous phases, they accepted a high-level process map could provide "...the ingredients for a partnership to work" (Client 2). For whilst there had previously been interest in, and acceptance of frameworks (Fleming, *et al.*, 2000), Goulding, *et al.*, (2012) emphasised the need for a paradigm shift from the 'traditional' approach in order to help improve the construction industry's performance. So even when Main Contractor 1 acknowledged some partnering guidance was available, it was recognised this did not capture the whole industry, as Consultant 2 stated, "in many companies partnering was not cascaded down to sub-contractors". Therefore their attitude and

overall culture to partnering was different. For in respect of wholesale partnering and helping companies achieve true collaboration, strategic management systems were not available within the construction sector. Hence larger organisations had an understanding and therefore participated in partnering, while smaller organisations were not engaged. However, Main Contractor 1 went on to state that if a management system looked to be a ‘bulky process’, every subcontractor would run a mile anyway.

With an appropriate balance of expert opinion, workshop discussions revealed Main Contractor 1 identified the Building Services Research and Information Association (BSRIA) and Building Information Management (BIM) were the “new codes all about driving collaboration in its purest form...albeit [considered] very much from the public sector”. Yet, accepting BIM was not sufficiently understood across the whole industry, Client 2 countered BIM was actually considered more a “fancy O&M manual, rather than a tool for collaborative working”. So as the contemporary construction procurement model was deemed deficient, the fundamental concern related to a lack of interest and commitment in standardised partnering following any initial enthusiasm (i.e. the continued payment of lip service). So as Client 2 acknowledged partnering was a good idea, albeit virtually impossible to document the details of how it worked, good partnering procedures could be written down. Thus, while a blue print should not be produced saying if you follow this then that is partnering, a conceptual model would provide the ingredients for supply chain collaboration to work. Hence, as partnering cannot be imposed, the conceptual model, as a simplistic process could create the right partnering atmosphere throughout the project supply chain (Main Contractor 1). Meaning an approach, a formula for success or a principle where every single box did not need to be ticked. Thus improving the prevailing situation through “...a common set of definitions, documentation and procedures that provide the basis to allow a wide range of organisations involved in a construction project to work together seamlessly” (Kagioglou, *et al.*, 1998). For if partnering is to work, this is something that cannot be forced because enforcing someone to be your partner is not achievable (Consultant 2).

As Akintan and Morledge (2013) noted “...there is a general lack of enthusiasm between main contractors and subcontractors to adopt collaborative processes...”, research findings established the most common method of procurement was

competition. Yet in consideration to the work undertaken thus far it is evident that partnering is evolving as a significant area of construction (Eriksson, 2010). Though in order to gain maximum benefit it is essential to extend the partnering paradigm throughout the supply chain. However as considerable research, including this investigation, has found collaboration and the benefits of partnering are not easily obtained (Eriksson, 2010) it is apparent that there is uncertainty over the meaning and implications of true collaboration in project supply chains. Further, there is only a vague understanding of the wider dimensions of improved partnering performance, as lowest cost at day one wins the initial and subsequent schemes. This due to an industry considered disaggregated, with a large number of small scale enterprises where very high levels of competition are evident and “price often trumps performance in winning bids” (BIS, 2013); thus a very limited extent of repeat work. This in turn implies the lack of a feedback mechanism to provide information performance results for each relevant organisation across the relevant disciplines. Therefore, in an endeavour to lessen current thinking around self-centred independent behaviour, caused by a lack of understanding around partnering (Eriksson, 2010; Bygballe, *et al.*, 2010), a conceptual model, as a collaborative tool is suggested.

The conceptual model, regarded as an Incorporated Partnering Standard (IPS), being an industry-based boundary-free process, is to overarch individual company and endeavour-based methods and partnering procedures; if in fact any exist. For with the promotion of an unambiguous view of both the partnering journey and the destination of the endeavour, a non-prescriptive generic process is proposed. So as a model for all supply chain members, it offers insight into the adopted partnered approach whilst gauging how that optimal performance would be achieved. Thus establishing what needs to be sought from each new relationship, and so promoting an environment of continuous learning, where best practice can be utilised, developed and shared by all. For with evidence suggesting many practitioners are functioning at different levels of awareness and performance, the main goal of this inspirational document would be to include all relevant upstream and downstream actors within the supply chain. Therefore, with particular regard to the eight key drivers, improve performance through the establishment of close relationships between all supply chain members by integrating their respective activities and systems. This opposed to “focus[ing] on dyadic relationships between clients and

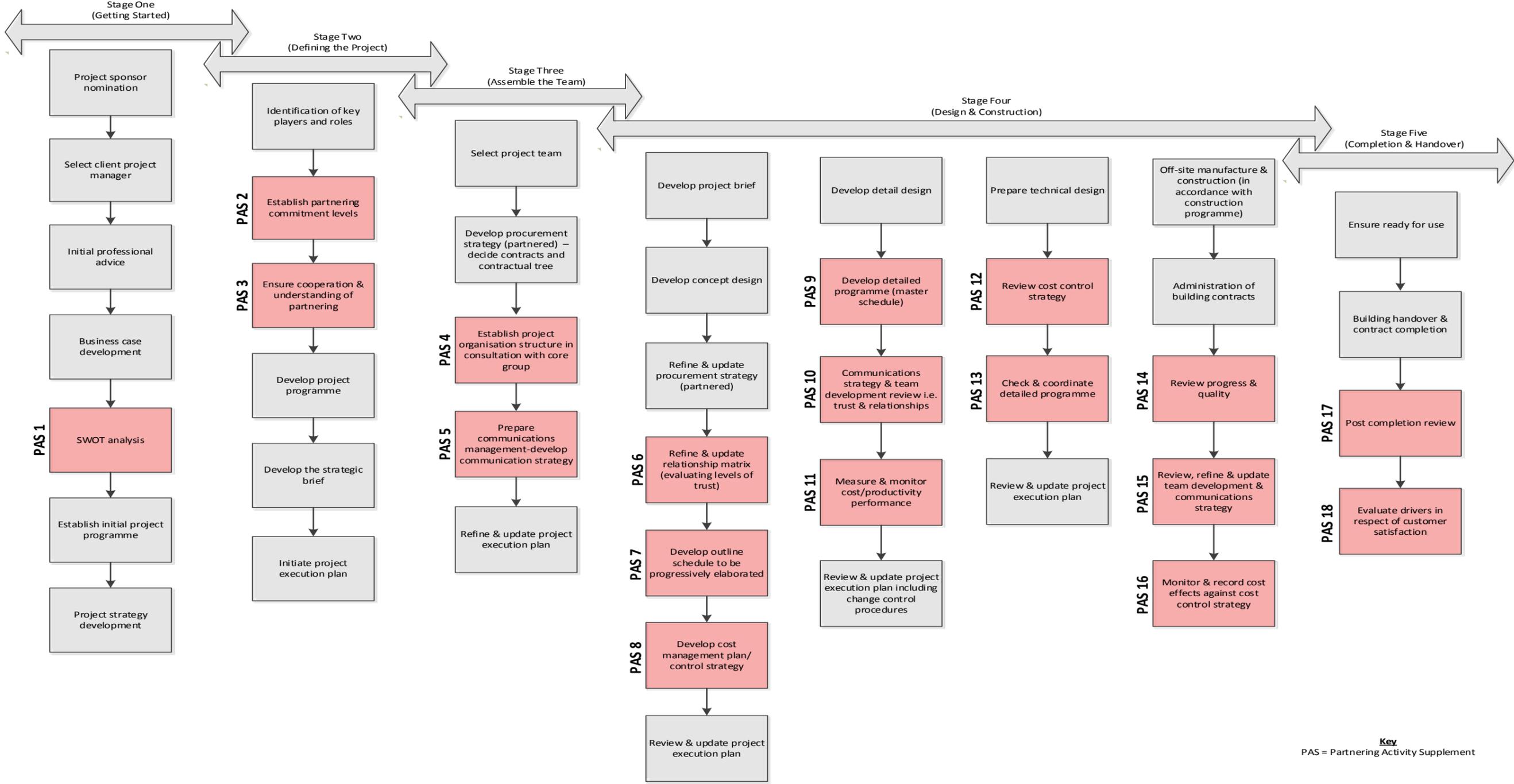
main contractors while neglecting the importance of involving sub-contractors and suppliers” (Bygballe, *et al.*, 2010). For it has become increasingly evident that the more recent approaches to construction procurement (i.e. Design and Build, Construction Management, etc.) that endeavoured to address process issues beyond those commonly associated with building projects (i.e. time, cost and/or quality), such as communication, trust, relationships, etc. (Figure 2.1), have fundamentally failed (Cooper, *et al.*, 1997).

As the Incorporated Partnering Standard (IPS) is an agreed homogeneous way of delivering a scheme, which is repeatable and reproducible, it represents a simple, easy to use style of visual (and written) description. This, referred variously as guidelines, agreements, standardised procedures and/or protocols, identifies the activities and/or processes involved in supply chain collaboration. Yet the IPS will remain adaptable, rather than listing conditions or set actions, and so establish the general model for partnering. So whilst accepting the term partnering is used in a variety of contexts, including as rules and/or procedures for communicating, the advantages of working to a set model enables all partnering activities to be undertaken in a standard manner. This should lead to inter-operator independence i.e. any member of the supply chain should produce the same or similar results. Therefore whilst encouraging confidence in results and enabling those unfamiliar with the partnering process to become quickly familiar, it enables a consistent presentation of supply chain collaboration. Accordingly, with the aid of a high level process map that plots the partnering activities across the entire project process (Figure 8.2) an IPS has been developed. For this incorporated partnering standard, proposed as a ‘basic conceptual model’ (Miriam-Webster dictionary, 1994) is to provide a set of common definitions, documentation and procedures, to help provide the partnering basics within a construction project.

The model, being two dimensional (i.e. it has a sub-group), is deemed a valuable tool for conceptualising the partnering idea being considered as part of this research. Thus a roadmap for the purposes of aligning and identifying the direction for change in respect of project banding, in order to provide a consistent and holistic approach to developing, managing and co-ordinating supply chain partnerships. For having placed the identified activities associated with each of the eight key drivers i.e. cooperation, coordination, commitment, etc. (Figure 2.1) into an blueprint that presents the same in a co-ordinated, logical order, results in a habitual

procedure presented as a visual aid that pictures how the inputs, outputs and responsibilities are linked. Thus a conceptual structure that serves as a support or guide for building and developing indiscriminate supply chains within the construction industry. So whilst not absolutely necessary, the IPS would help organisations improve their business performance through an interest, acceptance and implementation of veritable supply chain collaboration. Yet, as an on-going and planned activity, rather than something ad-hoc, the IPS would not be as prescriptive as to restrict or stifle creativity, rather something easily adaptable to suit individual projects.

The IPS, as a model would provide certainty that the relevant groups were exploiting an application that was in full compliance with the accepted partnering rules; whilst being structured, maintainable and upgradeable. So whilst not tied to the model *per se* it would allow developers to save time by re-using generic phases and/or partnering activity supplements (PAS) (Figure 8.2), which then would permit focus to be given to other areas. Consequently the IPS starts as a pre-prepared arrangement with interlinked activities that support this particular approach to the partnering objective. Thus a standardised model used as a reference for dealing with the common partnering problem, albeit serving as a guide that can be modified as required by adding or deleting individual activities to help approach and resolve new problems of a similar nature. Thus by prompting new thinking about how partnering is done, the development of the IPS, which involves two main levels (Section 8.5.2 and Section 8.5.3), is encapsulated within the macro process map (Figure 8.2).



Key
PAS = Partnering Activity Supplement

Output

Project strategy confirmation (e.g. a partnered approach agreed).

Confidence in potential partners

Improved communication & the development of stronger upstream & downstream relationship links that are strategically & continuously managed to ensure mutual advantage across the multi-party business relationship.

Accepting the responsibility of time & budget control is the whole teams. Having rationally anticipated completion date & budget greater predictability in respect of time, cost & quality.

Project partnering strategy established on each scheme that clearly identifies sufficient procedures, tools & techniques to manage costs, budget, pain & gain, etc.

Ensuring the planned reviewed, refined & updated polices, strategies, lines of communication & key interfaces between diverse parties remain effective with substantial benefits for all

Concluding evaluation to establish what was done well & what could be done better in order to inform future partnered schemes.

Figure 8.2: An Overview (macro process map)

8.4 The Overview or Macro Process Map

Prior to the commencement of the Incorporated Partnering Standard (IPS) a high level process map has been produced that provides a pictorial representation of building projects key stages, with particular regard to partnering. The context diagram (Figure 8.2), which recognises construction projects follow the same basic structure, fuses the RIBA (Royal Institution of British Architects) and CIB (Construction Industry Board) plan of works. For whilst accepting numerous plans of work (i.e. PACE, CIB, RIBA, CIC, BS7000, BPF, JCT) represent all aspects of the construction industry “no published plan of work offers definitive guidance” (Tolson, 2002). However, this research considered the eight key stages from the RIBA’s plan of work, as industry disciplines recognise the process of designing, constructing, maintaining and using because they generally formalise the principles in contemporary practice. Hence the “standard against which others are judged...” (Hughes and Murdoch, 2001). Yet with considerable variety in the detail of the various work plans (Appendix 12), where operational complexity ranging from 22no operations (CIB) to 186no (RIBA), the CIB plan of work principle was selected as the macro contextual model nub. For with over-complex arrangements deemed counter-productive (Hughes and Murdoch, 2001), whilst recognising there was no relationship between the number of stages and operations, the CIB plan of work portrays the least complex picture of construction projects. So whilst sufficiently illustrating the demands of each particular project from a partnering perspective, eighteen Partnering Activity Supplements (PAS), that categorise the key partnering ingredients, have been interleaved into the combined work plans that reflect the eight key drivers previously acknowledged (Figure 2.1), thus forming the macro process map.

While the eighteen Partnering Activity Supplements (PAS) could be interrelated into any plan of work, as the complexity of the organisational structure is fixed by the way it is described, albeit accepting the complexity of construction projects are very diverse, the context diagram also identifies the intended outputs. For evidence suggests partnering processes are inconsistently documented; or worse undocumented (Hughes and Murdoch, 2001). Consequently as process mapping is undertaken to learn, this overview, through the identified five key work stages provides an outline of the significant activities fundamental for collaborative success. Accordingly the partnering activities identified upon the macro process

map, are to help all companies throughout the supply chain recognise standardised deliverables and the roles associated with achieving, managing and reviewing the improved collaborative approach. This in turn breeds partnering confidence through establishing consensus within the variable tiered associations, which theoretically means transferring from a more traditional hierarchical position to true supply chain collaboration. Thus given the documented issues associated with a definitive partnering definition and the enormous amount of variability in the terms used to describe construction project management responsibilities; which were consistently seen as an irrepressible factor in operations due to the lack of understanding, has meant improved partnering acumen. In this regard, as a clear priority from the outset, the macro contextual process map takes the form of a high level diagram identifying the partnering *modus operandi*. Therefore graphically illustrating the primary defining activities needed to realise a partnership when viewed collectively within the overall construction process.

The contextual diagram, by identifying the various partnering ingredients needed throughout a construction project (Partnering Activity Supplements - PAS), promotes tangible changes and improvements within the construction process. So by providing direction for collaborative improvement at this the macro level, eighteen partnering activities have been identified across the five CIB key work stages. Yet whilst Hughes and Murdoch (2001) recognised the CIB key work stages contained the least detail of any work plan, numerous RIBA work activities have also been included as they are “part of the mind set of every architect and most other professionals involved in the construction industry” (RIBA, 2013). So as an overview, the macro process map (Figure 8.2) graphically represents the intended life cycle of any construction project, and conveys inherent partnering activities based on;

- The need for a contextual process map that provides a complete partnering overview by traversing the whole construction process albeit aiming to synchronise the diverse interests of each supply chain member across the various disciplines (i.e. clients, consultants, main contractors and sub-contractors) and throughout the numerous tiers;
- An endeavour at strategic management level to instigate a simplistic generic formality at inception that delineates earlier co-operative involvement and so

facilitates the primary aim of communicating significant partnering interactions across all stages of a construction project;

- The need to develop a rationally overt set of process-related principles in the form of an IPS that is recognisable throughout the construction industry in order to co-ordinate prospective partnering benefits and realise the potential. Thus a “...common process best controlled by an integrated system” (Cooper, *et al.*, 1998);
- An acceptance there is no single best way for all circumstances in respect of partnered projects, rather an agreement that improvements to the process, via the deletion, combining or concurrent performance of activities is left solely in the remit of the core team. Thus the process map (Figure 8.2), and subsequent conceptual model (Figure 8.3) would be “...designed as a prototype or generic tool which could be adapted and applied irrespective of the variability in particular projects detail” (Cooper, *et al.*, 1998);
- The optimisation of an inclusive non data focused solution incorporating the relevant Partnering Activity Supplements (PAS) and acknowledging the significant role each supply chain member plays. A macro process map would therefore be issued to all supply chain members and so provide an overview of a collaborative whole within the construction process;
- A consistent application of values in a repeatable form relatable throughout the supply chain. So by being centred on changing and systematising existing fragmentary production traditions, the IPS, which is to be manageable across the whole construction industry, will be based on the industry-wide co-ordinated context diagram;
- An established systematic and consistent interface between the existing unbalanced (hierarchical) practices and true project partners in order to realise standardised deliverables (outputs). This starts with a high level, integral process that initiates an improved representation of supply chain collaboration throughout each relevant building project;
- Graphically communicating the cyclical processes involved in harnessing and improving the knowledge-base and so, with activities associated with achieving,

managing and reviewing the partnering process, support feeding the knowledge back in order to improve the performance of all aspects for all construction projects.

8.5 The Incorporated Partnering Standard (IPS)

The conceptual model, being influenced by the Generic Design and Construction Process Protocol (GD CPP), as developed by Salford University, was grasped to improve the prevailing partnering situation. For having previously identified a number of significant issues existed that hindered the effective development of coalitions within the UK construction industry, many attempts have been made to model the construction procurement process; though these were commonly on a project by project basis and centred on functional expertise. So as Kagioglou, *et al.*, (1999) confirmed fragmentation and confrontational relationships were two of the “greatest barriers for improving quality and productivity”, insufficient tools and/or techniques existed to ensure inclusion. Sheath, *et al.*, (1996) also noted no single model had been fashioned that encompassed the entire supply chain; as each of the models represented the process from a single perspective i.e. client and main contractor. As this neglected the importance of sub-contractor and supplier involvement (Dainty, *et al.*, 2001; Miller, *et al.*, 2002) there currently is no management system that provides an adequate representation to the satisfaction of its amassed stakeholders.

Acknowledging partnering is a way of working rather than a contract, there is a need to objectively manage supply chain collaboration. So whilst none of the general management systems previously identified were utilised by any of the construction sector representatives whom attended either workshop, a simplistic model that illustrates the process arrangements was considered most appropriate. For as a basic high-level outline of the complete partnering methodology it facilitates a broad understand of the partnered approach to be adopted. Hence the macros process map, as an uncomplicated, labour-efficient paradigm, has been designated to graphically characterise;

- The Conceptual Model (Level One – Phase Outline); the actual processes necessary to realise the key outputs identified within the context processes (i.e. the processes identified from the macro contextual model – Figure 8.2) and the

tasks to be undertaken across six phases and how these processes interact and traverse the two activity zones (Figure 8.3) ; and

- Micro Analysis (Level Two – Sub-processes); the identified sub-processes to be undertaken in order to successfully navigate each of the six phases illustrated on the Conceptual Model (Level One) and again how these sub-processes interact and traverse the six phases and two activity zones.

The aim of the modelling work is to provide a visual representation of the various activities, processes and sub-process within each of the activity zones. This whilst maintaining all the attributes of a good model i.e. simple to administer, clear to understand and direct whilst delivering practical, measurable, sustainable benefits. Thus by mapping the entire partnering process, from identifying a scheme to be partnered to evaluating organisational culture and partnering maturity, the provision of a common set of definitions, documentation and procedures provide the basis to allow a wide range of organisations across various tiers to ensure a truly co-operative project environment exists. Hence as an easily adapted and tailored arrangement that is to suit each particular project, though provoking predictability, the proposition is for organisations across all disciplines to use the ‘storied’ Incorporated Partnering Standard (IPS) to help improve their partnering position. So whilst not an ad hoc activity, rather a planned on-going one, the conceptual model provides the clear means to achieve true collaboration as a result of an established partnering consensus through the utilisation of the same.

The following sub-sections discuss these steps in detail subsequent to an overview of the macro process map. For the macro process map illustrates the key high level activities (termed Partnering Activity Supplements or PAS) considered fundamental to the implementation and successful realisation of a collaborated scheme, which hypothetically enhances the schemes prospect of success.

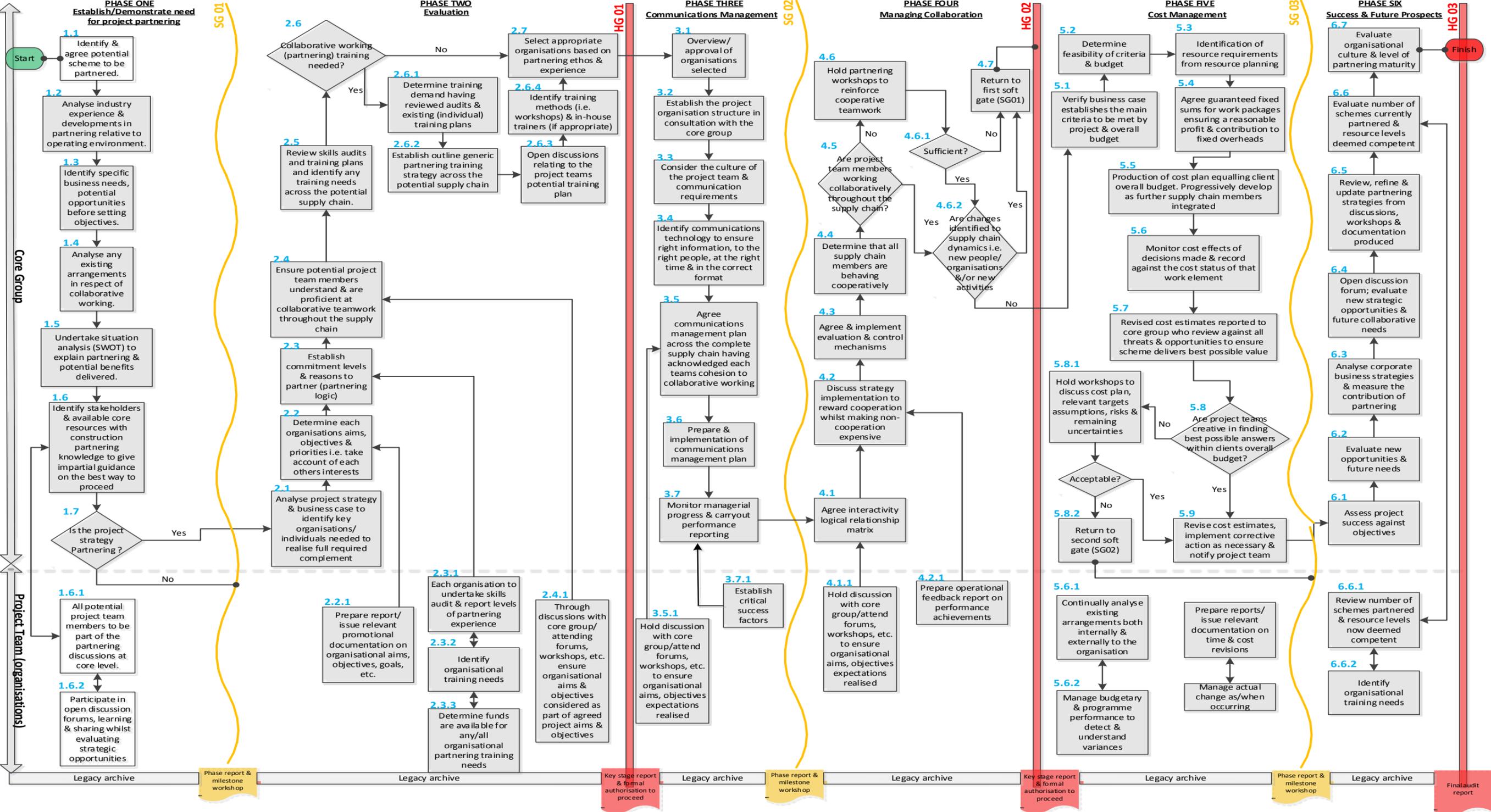


Figure 8.3: The Conceptual Model (Level One – Outline of Phases)

8.6 The Conceptual Model (Level One) and Micro Analysis (Level Two)

This product specific or initial level, that Cooper, *et al.* (1998) established should “concentrate on the general principles of the process, rather than the detail of each activity involved”, will inevitably be broken down further to a more detailed second level (Section 8.7). Yet this preference for principles means this first level, exploits and manages each Partnering Activity Supplement (PAS), from the macro contextual model across six phases that astride the construction process (Figure 8.2). Thus to depict the relevant processes associated with realising each of the eighteen Partnering Activity Supplements (PAS) the conceptual model aims to communicate its inherent principles simply and comprehensibly. This through the graphical representation of each process athwart the five broad stages (Figure 8.2) albeit interacting with each other and overlapping as the scheme progresses. Hence, as Rosenau (1996) notes such process models are “an effective way to show how a process works”, it provides a visual representation of the partnering processes allied to the higher level process map and how, with reference to each activity zone (i.e. core group and project team), these processes interact across the complete supply chain given “...most work and employment sit within lower tiers of the supply chain” (BIS, 2013). For these discrete elements with well-defined interfaces, upon an ‘X’ and ‘Y’ axis that show process sequence and participant groups respectively, map the eighteen Partnering Activity Supplements (PAS) across the complete construction process. The horizontal ‘X’ axis therefore illustrates time in phases and the individual process activities or gates (which is faintly considered sequential). The ‘Y’ axis shows the intended organisational relationships needed in the process, all as detailed below. Thus this initial model deals with the functional detail of the Incorporated Partnering Standard (IPS) in that it defines and manages the process using a set of modular phases which as Kagioglou, *et al.*, (2000) notes “...can be operated concurrently or concatenate to make the process more efficient...”. Or in small-scale projects may be combined depending on the ability to retain key functional and function-driven deliverables and activities. Accordingly, the six phased modules of the conceptual model interpret the relevant Partnering Activity Supplements (PAS) (Figure 8.3) under the previously established five stages of the macro process map (Figure 8.2).

The micro analysis (level two) contains the sub-processes of the six phases identified upon the conceptual model (i.e. what the level one processes consist of)

and how these sub-processes (i.e. the more detailed level) interact with each other in relation to each relevant phase and the two activity zones (i.e. core group and project group). This second level, the micro analysis, whilst supporting that preceding, by providing further product-specific detail, will not be so prescriptive as to restrict or stifle creativity. So whilst only the additional processes are detailed below, it could easily be adapted and tailored to suit the individual project. So acknowledging the level one issues identified by Wu, *et al.*, (2000) within the Generic Design and Construction Process Protocol, these level two sub-processes (or micro analysis) supports the creation, implementation and management of the overall Incorporated Partnering Standard (IPS) as a process protocol. Though as Kagioglou, *et al.*, (2000) recognised the effective implementation of a conceptual model greatly depends on its ability to effectively translate the strategic to the operational, as a structured set of identified processes undertaken by the multifunctional teams during each relevant phase, this second level guides and supports "...work towards a common objective" (Kagioglou, *et al.*, 1999). So with additional information produced for each phase, the network of disciplines enact the specifically agreed partnering processes which means the 'product' drives the collaborative process rather than the function as in a sequential approach. So with responsibility for completing the various processes lying with either the core group or project team representatives, albeit the six sub-process maps could be broken down to more detailed levels, the key to successfully completing each phase is to agree level two activities. For this leads to the production of partnering deliverables (i.e. reports, documentation, milestones, etc.) associated with that relevant phase. So as each sub-process is conducted, in some form, as part of the overall scheme, which culminates with the presentation of the deliverables at the end of that relevant phase as planned, it is these six activity groupings that are seen as ensuring the effective execution of a partnered approach. Accordingly, the six sub-processes that relate to the previously established conceptual model phases, further interprets how this would be realised.

➤ **Phase One; Establish/Demonstrate Need For Project Partnering**

This initial phase (Figure 8.4), whilst relating to the strategic business considerations of any potential project that aims to address the client's need, must also specify the aims and objectives of the various organisations associated with implementing a partnered approach. Thus identifying the internal and external

factors that are deemed both favourable and unfavourable for each particular organisation, the core group at the outset i.e. from the 'start' point upon the process map, must;

- 1.1. Identify & agree potential scheme to be partnered – at the outset a client, along with any initial key stakeholders must consider whether a scheme would be suitable for partnering (e.g. not a one-off low value, small scale project, of short duration where very few sub-contractors engaged); once identified,
- 1.2. Analyse industry experience and developments in partnering relative to operating environment - this to consider how partnering would be realised in order to get 'true' buy-in from the initial core group members, rather than the lip service that is frequently experienced. Whilst undertaking this activity; as part of this process,
 - 1.2.1. Consider leading edge projects to capture learning. Reflect how that learning could influence change on identified potential schemes; and
 - 1.2.2. Review/refine partnering knowledge data base - establish levels of partnering experience within available resources, as this could help fortify the groups collaborative aspirations. Source final audit reports on similar schemes.
- 1.3. Identify specific business needs, potential opportunities before setting objectives - each core group member to fully understand why their organisation intends to adopt a partnered approach. In so doing it must be clearly understood not only what the opportunities and potential benefits are for that individual organisation but what the overall agreed project objectives are, as these are the ones to be realised by the complete supply chain; then,
- 1.4. Analyse any existing arrangements in respect of collaborative working – each organisation to consider if/what existing partnering arrangements are in place and how this could potentially affect this newly proposed scheme; this to include,

1.4.1 Reviewing available legacy archive information including KPI data & any previously set bench marking in respect of recently completed partnered scheme. Source final audit reports on similar schemes.

1.5. Identify stakeholders and availability of core resources with construction partnering knowledge to give impartial guidance on the best way to proceed - with partnering branded as the approach being taken, other relevant resources to be identified and secured in order to bolster the collaborative standpoint; therefore to include,

1.5.1. Open discussion forum; learning and sharing– all potential project team members to be part of the partnering discussions at core group level in order to get a clear understanding of the approach being adopted; therefore each project team member, at individual organisational level to,

1.5.2. Participate in open discussion forums, learning and sharing whilst evaluating opportunities - individual organisations willing to take part in open discussion forums at lower level, where individual experiences are shared and each organisation is open minded and prepared to learn;

a. Individual organisations to identify specific business needs and potential opportunities – each organisation, whilst not necessarily part of the core group are still to be engaging upon a partnered scheme. Therefore in light of own business needs and perceived prospects, establish each project team member fully understands why their organisation is embarking upon a partnered approach and what the overall agreed project objectives are; then,

b. Identify company resources with construction partnering knowledge - with partnering branded as the approach being taken, other relevant resources to be identified and secured in order to bolster the collaborative standpoint; also,

c. Analyse existing arrangements in respect of collaborative working - each organisation to consider if/what existing partnering arrangements are in place and how this could potentially affect this

newly proposed scheme. This in turn ascertains an organisations willingness to participate in open discussion forums.

- 1.6. Undertake situation analysis (SWOT) to explain partnering and potential benefits that could be delivered (PAS 1) - this being undertaken by each relevant individual organisation across all tier levels and disciplines and by the core group in respect of the particular scheme; following its satisfactory completion,
- 1.7. Determine if project strategy is to be partnering – at the end of phase one (and when other potential project team members join the project) agree whether the scheme is to be procured collaboratively. If yes progress to phase two (activity 2.1) but if no prepare an end of phase report explaining the reasoning and distribute accordingly. The completed report will also be included as part of the legacy archive.

Whilst Cooper, *et al.*, (1998) acknowledged design and construction process models and client focused guides gave little thought to the early stages, Hughes and Murdoch (2001) noted the RIBA 2000 was most intense during the early design and construction stages while the RIBA Plan of Work 2013 identified a new stage in which “a project is strategically appraised and defined before a detailed brief is created” (Sinclair, *et al.*, 2013). So whilst Cooper, *et al.* (1998) stated models supposed clients had already established the need when engaging the construction industry, with little evidence to suggest otherwise, the RIBA Plan of Work 2013 noted the need for “initial considerations for assembling the project team” (Appendix 10). Yet there still remains no clear tactic in respect of whether a partnered approach would be gainful, hence the inclusion of this first phase (incorporating PAS 1). For at the end of this the first phase (Figure 8.4), which is also the end of the first stage, the recognised output would be whether a true partnered approach would be practicable and constructive in relation to each organisations particular needs and potential opportunities. This having held discussions with potential partners, retrieved all previously archived appropriate data and analysed any existing partnering arrangements in order to establish competency levels and improve partnering standards where necessary.

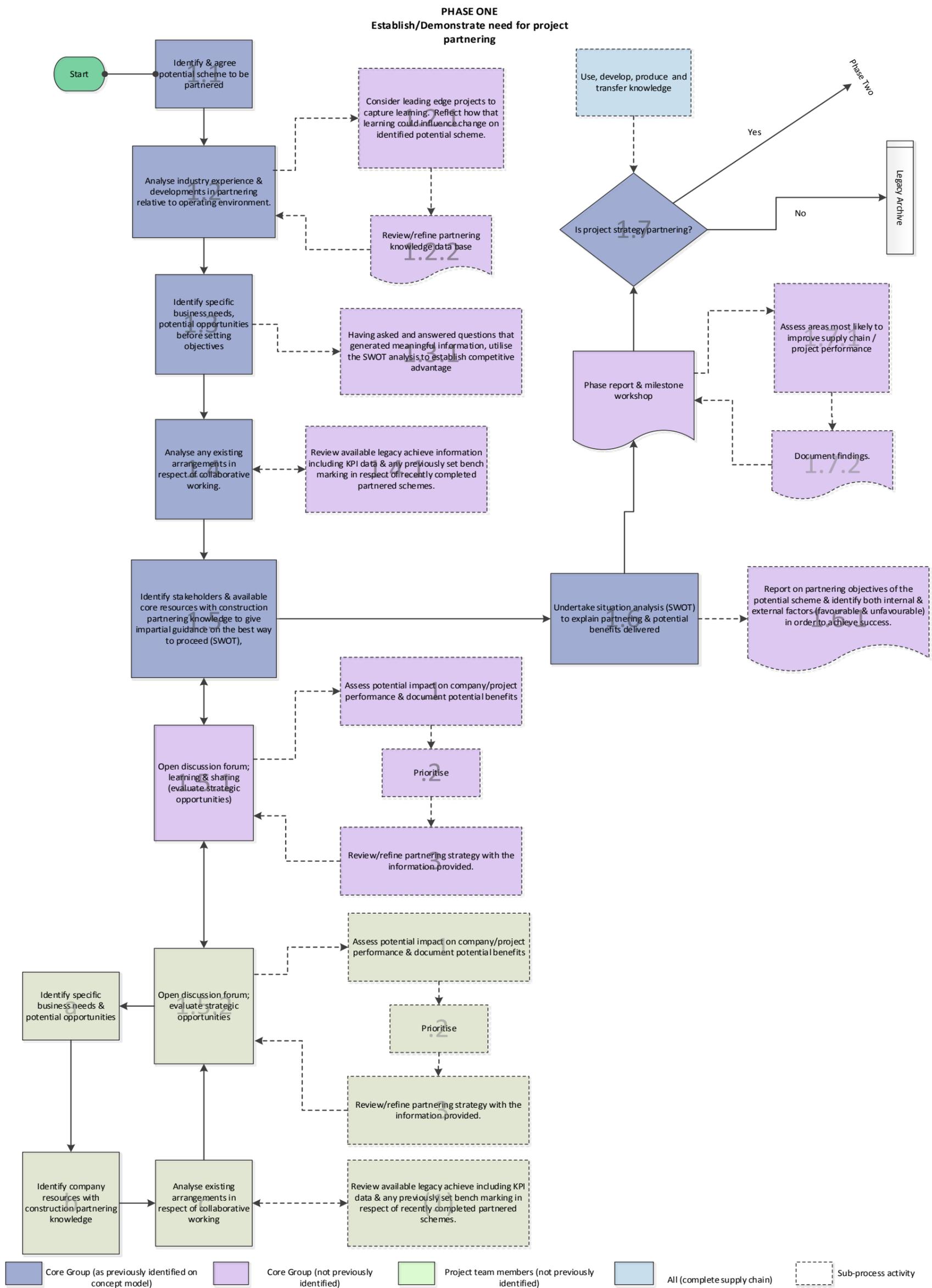


Figure 8.4: The Micro Analysis (Level Two – Phase One)

➤ **Phase Two – Evaluation**

During this phase, with a partnered approach agreed, and having acknowledged the need for earlier collaboration and project team assembly, it is necessary to ensure all potential partners across the whole project team comprehend the strategy adopted and are committed to the guiding principle (Figure 8.5). For as already established, without stalwart collaboration across the inclusive supply chain, the eight key drivers would not be realised. This would ultimately mean failure from a partnered perspective. For in a traditionally procured scheme a dominant upstream partner exists and so a greater focus on the upstream relationship with the dominant partner, while the key pressure remains financial. Hence, with a continuing stimulus on lowest cost, the aim at this the inception stage (albeit repeated as new project team members are introduced) is to;

- 2.1. Analyse project strategy and business case to identify key organisations/ individuals needed to realise full required complement – this process being the development of the core group from the initial phase one contributors to a more holistic group to deliver the relevant scheme; once identified,
 - 2.1.1 Establish selection criteria and identify own organisation meets that criteria as it will subsequently be applied to others;
 - 2.1.2 Acknowledge interaction of client and supply chain objectives in order to determine the particular culture that will be established/fostered throughout the project;
 - 2.1.3 Identify apparently suitable organisations and invite to a no-obligations seminar or one-to-one meeting in order to gauge commitment; albeit.
 - a. Recognising partnering must remain voluntary – but make it clear a partnering relationship is desired.
- 2.2. Determine each organisations aims, objectives and priorities - individual organisations to identify specific business needs, potential opportunities and their perceived project/organisational outcome. This from being involved as a core group member upon a scheme that is truly partnered; in order to do this,

- 2.2.1. Accept organisations forming a project team provide more benefits for all as opposed to everyone narrowly concentrating on their own interests; therefore,
- 2.2.2. Agree the complete supply chain will make a fair return for their involvement in the project; hence,
 - a. Agree organisational targets – each organisation must consider whether a scheme would be suitable for them if partnered. So in light of own business needs establish perceived prospects and ensure each organisational member fully understands why their organisation is embarking upon a partnered approach;
 - b. Prepare report/issue relevant promotional documentation on organisational aims, objectives, goals, etc. - each organisation, being part of the core group upon a partnered scheme, to fully understand why their organisation is embarking upon a partnered approach having established what the overall agreed project objectives are.
- 2.2.3 Establish the positive responses are supported by internal policies and actions on previous projects i.e. partnering charters, etc.; for,
- 2.2.4 The overall aim being the set up of an integrated project team that gives all parties the opportunity to contribute their best work.
- 2.3. Establish commitment levels and reasons to partner (partnering logic) (PAS 2) – the core group to acknowledge project needs trump individual business needs although all members to fully understand why their organisation is embarking upon a partnered approach; However to get true partnering buy-in from all core group members,
 - 2.3.1 Each organisation to undertake skills audit and report levels of partnering experience – for need to establish overall partnering skill levels across the organisations; therefore,
 - a. Important to select organisations that have the required culture in order for the team to work together in a compatible and cooperative manner.

- 2.3.2 Identify organisational training needs – establish how firms are organised internally to support partnering. An honest assessment to be made by all organisations in respect of where they believe their partnering gaps are. For in respect of the overall project team other supply chain members may facilitate workshops, toolbox talks, etc.; so,
 - a. Is there a senior member of the organisation (with partnering experience) acting as partnering champion.
- 2.3.3 Recognise short term views are not compatible with partnering. Time and resources need to be invested to build long term benefits, thus,
 - a. Determine funds are available for any/all organisational partnering training needs – where partnering gaps exist, and no in house project training available/possible, external expertise will need to be sourced.
- 2.4. Ensure potential project team members understand and are proficient at collaborative teamwork throughout the supply chain (PAS 3) – for if true partnering is to be effective, all supply chain members must understand and actively embrace collaboration. Further, where a knowledge shortfall exists, this to be identified and collectively rectified; hence feeding into this process,
 - 2.4.1 Organisations to have a good track of steadily improved performance on partnered schemes. Through discussions with core group/attending forums, workshops, etc. to ensure organisational aims and objectives considered as part of agreed project aims and objectives; whilst
 - 2.4.2 Acknowledging organisations chosen will work in cooperation with the core group and other supply chain members;
 - 2.4.3 Criteria to identify those able to agree mutual objectives, decision making and problem resolution systems and specific improvement performance.
- 2.5 Review skills audit(s) and training plans and identify any training needs across the potential supply chain – establish the training needs across each level and how this would be addressed i.e. internally, externally; to do this,

2.5.1 Identify each organisations training plan in respect of partnering - with partnering as the adopted approach, need to review all training plans and establish overall partnering skill levels across the project team; this realised having,

- a. Identified each organisational training needs; and,
- b. Evaluate a company's partnering performance on similar schemes compared to this project, including technical competence, experience of specific role and interpersonal skills.

2.5.2 Undertaken skills audits across potential project teams - where partnering gaps exist, and no in house project training available/possible, external expertise will need to be sourced; then having identified potentially suitably qualified and enthusiastic organisations,

- a. Consider utilising a questionnaire based upon the select criteria.

2.6. Collaborative working (partnering) training needed – yes and no question (i.e. a branch) in the process flow; where no flows into 2.7 but yes means;

2.6.1 Determine training demand having received audits and existing (individual) training plans; thus,

2.6.2 Establish outline generic partnering training strategy across the potential supply chain; through,

- a. A willingness to be open about individual organisational interests in search of mutual objectives; and,
- b. Willing to change internal procedures if inhibiting partnering; therefore,
- c. Prepared to be questioned by other members of the project team who justifiably expect full and open answers; thus
- d. Parties prepared to spend time ensuring partnering is successful.

2.6.3 Open discussions in order to finalise project teams overall training plan relating to the project teams potential training plan; which flows into,

2.6.4 Identifying training methods (i.e. workshops and in-house trainers - if appropriate), whilst being prepared to help weaker partners, i.e. training in actions needed to meet exacting standards; which then flows into 2.7.

2.7. Select other appropriate organisations based on partnering ethos and experiences – the point where the core group is developed having established the organisations that have a clear understanding of partnering and/or are committed to work in a true partnered style. Where the project objectives outweigh those of the individual organisation. Progression to the third phase is not possible until the relevant organisations have been selected and the core group is collectively satisfied with each organisation. An end of phase report to be prepared explaining the reasoning behind the decision to proceed (or not). This to be distributed accordingly, as well as being included as part of the legacy archive.

Simpson (2001) stated “partnering is not a term invented by construction spin doctors to paper over the industry’s problems”. It is however the total commitment on the part of every member of the construction team, from the client right down to the component manufacturers and specialist sub-contractors to the principles and processes of partnering. Hence, from the beginning, all parties to agree to focus on creative cooperation and teamwork in order to avoid adversarial confrontation. Yet there must be a commitment to partnering by top management of every organisation involved in the project to build working relationships that are based on mutual respect, trust and integrity. So as this research concluded the construction industry remained committed to the concept of partnering, the complete supply chain was not actively engaged in the partnering ethos. With collaboration being more than signing up to a partnering framework, effective organisation selection is paramount as it was accepted an effective partnering strategy could be implemented to encapsulate the complete supply chain.

As a paradigm, partnering, it’s associated behavioural aspects and factors affecting success have been extensively investigated (Larson, 1997; Black, *et al.*, 2000; Cheng, *et al.*, 2000; Li, *et al.*, 2000; Chan, *et al.*, 2004; Cheng and Li, 2004). So whilst generally agreed there is no unified understanding of the concept (Nystrom, 2005; Li, *et al.*, 2000) one of the most significant findings from these studies, as

identified by Ozorhon, *et al.* (2008) was that partnering success was mainly depended on the selection of appropriate partners and the strength of relationship during the project. So as previous studies demonstrated cooperation was positively and linearly associated to improve partnering performance (Das and Teng, 1998), cooperation is vital to overcome any potential misunderstandings and coordination difficulties that could arise from differences in managerial or organisational practices. Consequently each organisations cooperation/understanding intensity must be ascertained because, while established as one of the key drivers, research findings concluded individual organisations paid lip service to the partnering ethos in order to win work. Yet with sufficient understanding of partnering across the industry, the term partnering was still used too often and out of context. Meaning the level of cooperation and understanding of partnering at project level was poor.

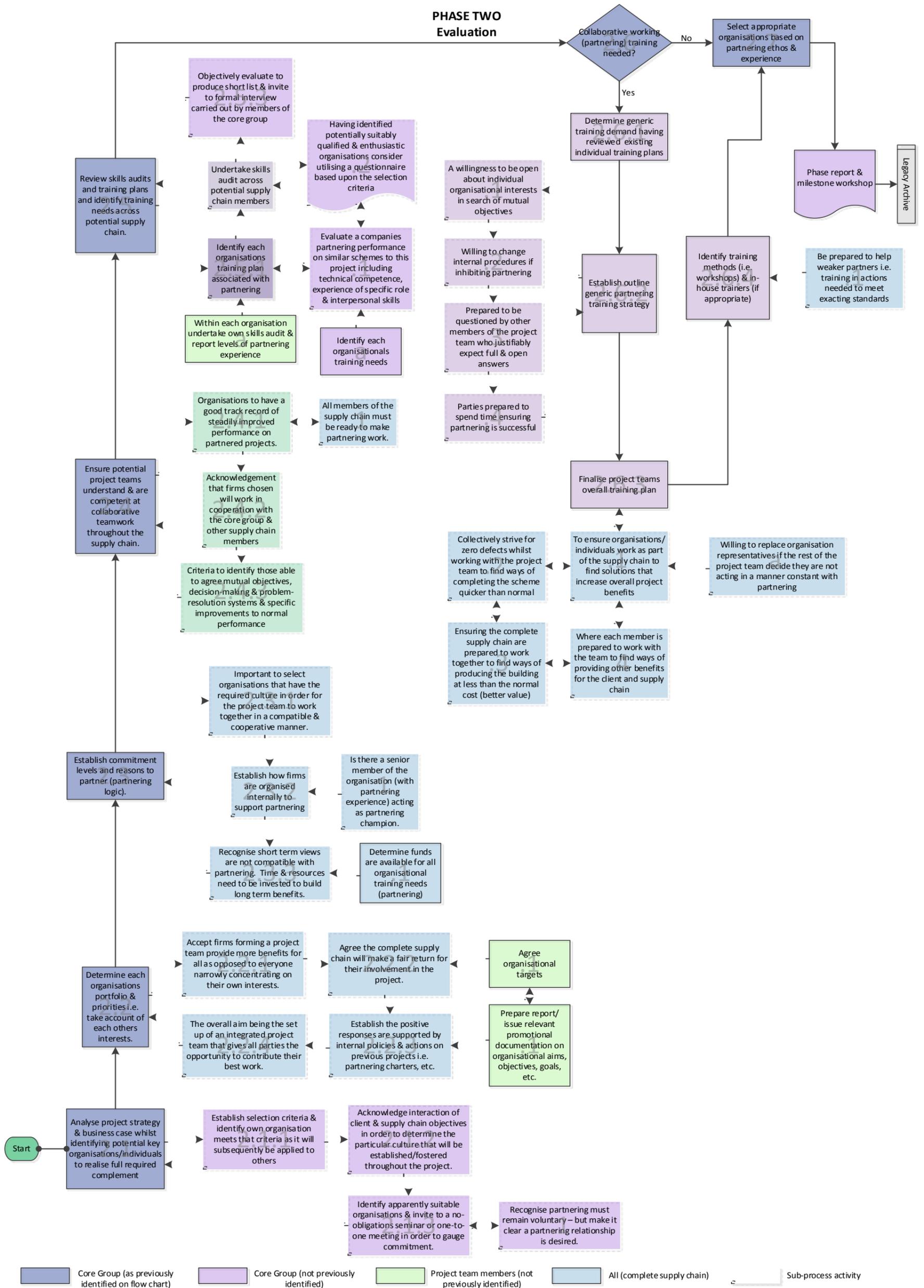


Figure 8.5: The Micro Analysis (Level Two – Phase Two)

➤ Phase Three - Communications Management

Project communications management is the process required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information. This provides the critical link among people, ideas and information which are necessary for success. So as Thomas and Thomas (2005) recognised effective communication was about understanding messages received rather than just the sending of information, this was aided by team members whom have previously met. So as research findings suggested supply chain communication was generally restricted to those one tier removed, successful relationships were expected to exhibit higher levels of communication quality (Dikmen, *et al.*, 2008). Yet collaborative working was delivered less frequently and generally only up until the point where the project became problematic. Nevertheless there was general agreement the implementation of a partnered approach could result in a positive shift in terms of improved communication. It is therefore necessary for the core group to agree a communication management plan across the complete supply chain. For everyone involved in a project must be prepared to send and receive communications. Likewise all supply chain members must understand how the communications in which they are involved affects the project as a whole, given better communication means more smoothly a project flows (Bruce and Langdon, 2000).

Communication is aided by the early establishment of clear lines of responsibility, albeit this means many different things to different organisations and/or individuals in different circumstances. Consequently this is a huge issue that is significant to the efficiency and effectiveness of partnering and the integrated teams (Thomas and Thomas, 2005). Closing the communications gap across the project team therefore minimises adversarial relationships among project participants. For adversarial relationships are “...always reflected in difficulties in resolving claims, cost and programme overruns, low profitability, litigation and a win-lose climate...” (Awodele and Ogunsemi, 2007). This in turn affects the completion of a project within schedule and to the required standard. Yet as failure by partners to communicate effectively throughout the projects life cycle could lead to misunderstandings and suspicion, and eventually poor economic results and cessation (Doz, 1996), controlling the process and performance levels against measurable goals via regular meetings and progress reports is essential to ensure

partnership stability (Dikmen, *et al.*, 2008). Thus as effective and appropriate communication is necessary to build relationships albeit good communication relies on commitment, cooperation and a supply chains understanding of the partnering concept, an appropriate communication management plan must be established and implemented on each project (Figure 8.6) This includes;

- 3.1. Overview/approval of organisations selected – ensure all core group members are fully aware and acceptable of other core group members. Therefore all are content and committed to collaborating throughout the supply chain; including,
 - 3.1.1 Project team members wanted are those willing to partner throughout the supply whilst having the necessary skills; so,
 - 3.1.2 Considering the team as a whole, will each member fit with the other selected i.e. is there any potential conflicts between members.
- 3.2. Establish the project organisation structure in consultation with the core group (PAS 4) – whilst combating the perception of hierarchy establish the roles of each core group member and how their work affects, and is affected by, their involvement/ actions;
 - 3.2.1 Carryout activity analysis establishing the initial activities to be performed (WBS), including whose responsibility and how this will be integrated; for
 - a. The right organisation for the project team must be established; as
 - b. The structure will need people of the right calibre to ensure decisions are made effectively.
 - 3.2.2 Analyse the decisions needed to be made and consider which are individual and which are corporate;
 - 3.2.3 As membership and structure develops documentation and publish roles and responsibilities; as,
 - c. Team skills set for project delivery change as the scheme progresses, so may be necessary to change the team constitution.

- 3.3. Consider the culture of the project team and the communication requirements – looking at the way the group is formed in order to fulfil the project i.e. number of specialists across the various tiers, establish the key communication linkages; in addition,
- 3.3.1 Large number of specialist work teams – some of these contribute to the project for only a short time but still to have firm duties of teamwork with general presumption to achieve ‘win-win’ solutions; yet,
 - 3.3.2 Impractical to involve all work teams fully in project partnering, but recognise the existence of technology clusters; thus,
 - 3.3.3 Clearly define the structure of roles, responsibilities and lines of communication between respective supply chain members; and
 - 3.3.4 Ensure members are suitably located and communication protocols established to facilitate regular contact, as,
 - 3.3.5 Supply chain resources expended only on communication information that contributes to success, or where a lack of communication can lead to failure.
- 3.4. Identify communications technology to ensure right information, to the right people, at the right time and in the correct format – this having particular regard to the diverse organisations involved with the scheme and those agreed as key stakeholders for the relevant tasks; therefore,
- 3.4.1 Consider processes required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information; hence,
 - a. Provide critical links among people, ideas and information that are necessary for success; then,
 - b. Consider the communications technology factors that may affect the project including; immediacy for information, availability of technology, expected project staffing and project length.
 - 3.4.2 Complete supply chain must understand how the communications in which they are involved as individuals affect the scheme as a whole.

- 3.5. Discuss and agree communications management plan across the complete supply chain having acknowledged each teams cohesion to collaborative working - this to ensure all core group members/teams understand and accept how communication will be delivered across the complete supply chain, throughout the duration of the scheme. This to be documented and presented; for,
- 3.5.1 Everyone involved in the project must be prepared to send and receive communications. Thus hold discussions with the core group/attend forums, workshops, etc. to ensure organisational aims, objectives, and expectations realised – as true buy-in can only be realised if each organisation benefits from, and therefore agrees to, the communication methods proposed; as,
- 3.5.2 Information distribution means making needed information available to all relevant supply chain members in a timely manner, including unexpected requests for information.
- 3.6 Prepare and implement communications management plan (PAS 5) – as an agreed document this will be issued to all project partners and followed as agreed. Progress to the fourth phase (process 4.1) is possible prior to the full completion of this communications management plan due to the identified soft gate; though,
- 3.6.1 Collection and filing structure detailing methods to be used to gather and store various types of information. To also cover collecting and disseminating revisions to previously distributed material;
- 3.6.2 Distribution structure detailing to whom information (status reports, data, schedule, technical documentation, etc.) will be used to distribute the various types of information; this,
- a. Compatible with the responsibilities and reporting relationships identified in the project team structure.

- 3.6.3 Description of information to be distributed, including format, content, level of detail and conventions/definitions to be used;
 - 3.6.4 Production schedules showing when each type of communications will be produced i.e. workshops, formal meetings, reports, etc.;
 - 3.6.5 Methods for accessing information between scheduled communications.
- 3.7 Monitor managerial progress and carryout performance reporting – the effectiveness of the communications management plan will be received throughout the scheme, with amendments agreed and implemented as necessary. The document would also be discussed and issued to any new organisations, but in order to do this;
- 3.7.1 Majority of communications planning is done as part of the earliest project phase. The results of the process to be reviewed regularly throughout the project and revised as needed to ensure continued applicability. So establish critical success factors – as a core group what does communication success mean; but also on a continual basis,
 - a. How will operational progress be monitored – for this needs to be a set method/process with a bench mark set; and
 - b. ensure suitable training methods are available if required.
 - 3.7.2 Communications planning being tightly linked with project team structure, as it has major effect on project communication requirements.

**PHASE THREE
Communications Management**

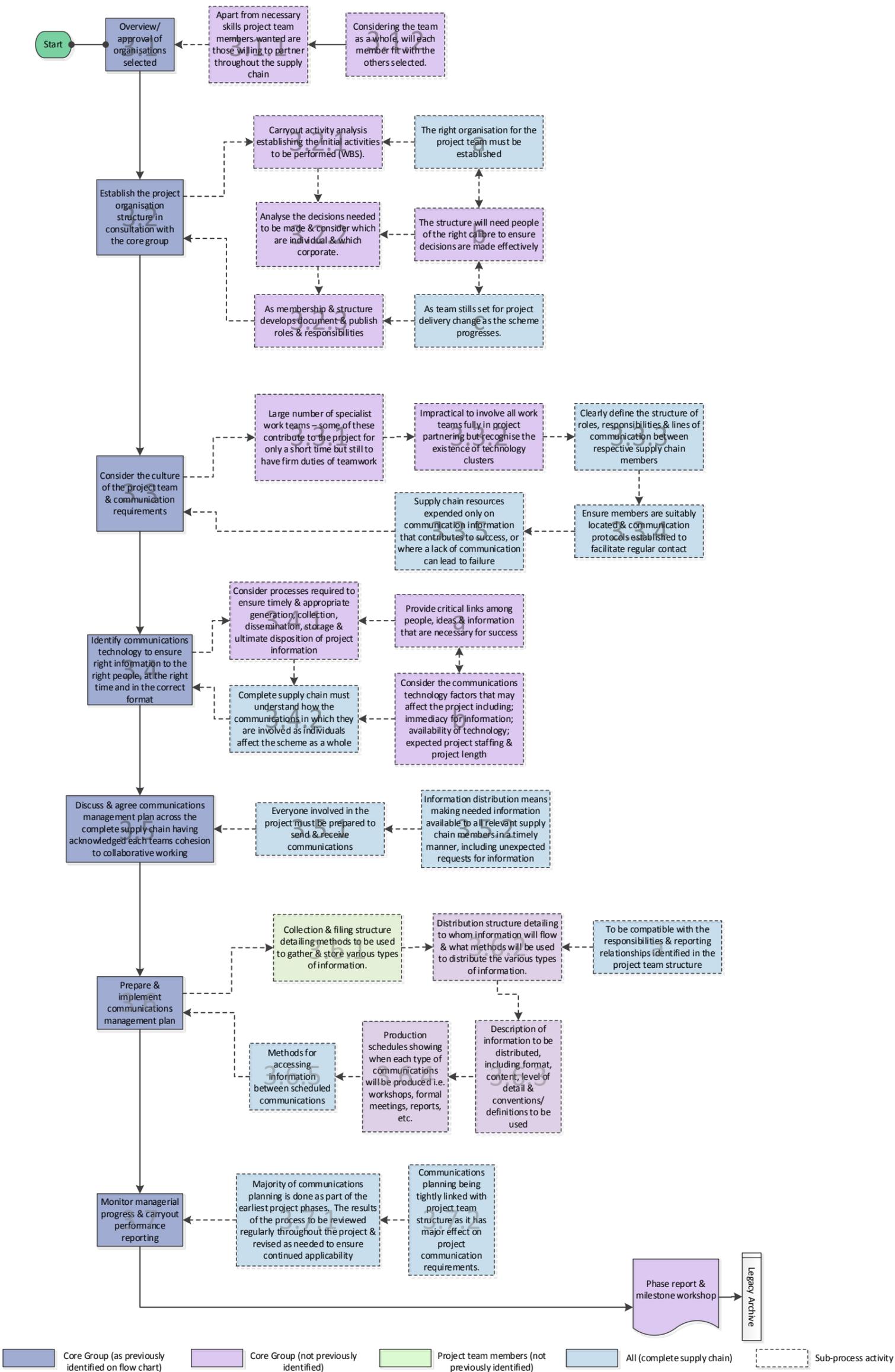


Figure 8.6: The Micro Analysis (Level Two – Phase Three)

➤ Phase Four – Managing Collaboration

Bygballe, *et al.* (2010) identified there was no unified view as to what partnered relationships were in the construction industry. Findings from this research therefore established partnering was fundamentally concerned with the relationship between clients and main contractors. So whilst main contractors endorsed partnering arrangements with clients, they also practised conventional approaches with suppliers. Thus corroborating that stated by Miller, *et al.* (2002) when it was perceived “...underperformance was due to a tendency to focus on dyadic relationships between clients and main contractors, while neglecting the importance of involving subcontractors and suppliers”. Moreover as Wood and Ellis (2005) stated the perceptions and experiences of partnered relationships were generally positive, any early optimism from such arrangements were seldom sustained throughout the project lifecycle. So whilst Bresnen and Marshall (2002) stated tools and techniques deprived social and evolutionary aspects of relationship building, sub-contractors carried out up to 85% of the work (Akintan and Morledge, 2013). Therefore, as any initial enthusiasm and commitment may be followed by a lack of interest, especially as the downstream link was considered weaker (Akintoye, *et al.*, 2000) management techniques needed to be introduced. They then were to be strategically and continuously managed to ensure mutual advantage across the multiparty business relationship. So as Latham (1994) and Egan (1998) indicated government and industry wanted constructional arrangements to be more intensively relational, project team development through organisation/relationship planning, company/staff acquisition, were required to make partnering work.

Construction practitioners have some knowledge of supply chain relationships, but a better conceptual understanding of this multi-factor innovation is crucial. For a number of inconsistencies had been identified across the research findings in respect of collaborative understanding and arrangements, hence the establishment and implementation of a new and more systematic approach. Further, it was also acknowledged relationships could be engineered/established during a single project, if there was a wholesale willingness and sufficient understanding of the concept and the pre-requisites associated with its successful implementation. Though an organisation’s degree of preparedness in effectively adopting long term business relationships with dissimilar sized multiparty participants, as Figure 8.7 identified ,involves;

- 4.1. Agree, refine and/or update relationship matrix (PAS 6) – a convenient method of visualising relationships quickly and definitively. A simple tool for reporting and working on all the relationships in the selected structure i.e. a projects core group; having,
 - 4.1.1 Identify the key roles needed to lead and support the development of cooperative teamwork; through,
 - a. Holding discussions with core group/attend forums, workshops, etc. to ensure organisational aims, objectives and expectations are realised - as true buy-in can only be achieved if each organisation agrees to the relationship matrix proposed, thus
 - 4.1.2 Nurture an environment of continuous learning, for;
 - a. Remembering, cooperation not a panacea, therefore controls needed.
 - 4.1.3. Ensure when other organisations engaged, they selected on the basis of achieving long term sustainable value; with,
 - a. teams being involved in projects as early as practicable.
- 4.2. Discuss strategy implementation to reward cooperation whilst making non-cooperation expensive – consideration given to favouritism toward those who form an effective part of the core team, through continual interaction. Thus evolving those similarly cultured organisations on future work, rather than fierce competition on all projects where no coalition employed; though prior to those discussions,
 - 4.2.1 Prepare organisational report on performance achievements associated with the various procurement methods adopted – to ensure each organisation is committed to collaboration because they believe it better meets their organisational aims, objectives, expectations; though,
 - 4.2.2. Empower all through education, training and induction that equips them with essential technical and partnering skills; thus
 - a. Ensure experienced people selected who foster cooperative culture.

- 4.2.3. Selected firms to be remunerated in ways that give organisations incentives to deliver quality; so
 - a. Monitor operational progress – each organisation to continuously monitor own position having embarked upon collaborative procurement to ensure a partnered approach is sustainable, thus,
- 4.2.4 Agree common processes within other organisations involved in collaborative arrangements.
- 4.3 Agree and implement control and evaluation mechanism - an agreed control document would be issued to all project partners and this would be followed as arranged; then,
 - 4.3.1 Build long term relationships that are committed to continuously searching for performance improvements - discourage organisations and individuals for making assumptions about others behaviour; with
 - 4.3.2 Everyone taking responsibility for own actions in relation to collaborative working – so focus upon success by actively seeking to deliver maximum benefits for all involved;
 - 4.3.3 Regularly measure the project teams overall performance;
 - 4.3.4 Work streams to take direct responsibility for organising the links needed for partnering to work effectively.
- 4.4 Are project team members working collaboratively throughout the supply chain? - determine whether all supply chain members are behaving cooperatively, thus
 - 4.4.1 Organisations and individuals to act on the basis everyone are doing their best in the interests of the whole organisation (trust). Thus encourage everyone to be worthy of trust;
 - 4.4.2 Breakdown suspicion and mistrust by emphasising everyone has a part to play and publicising case studies showing how partnering delivers greater benefits than traditional procurement;

- 4.4.3 Agree common processes with other core group members in respect of the partnering arrangements, whilst avoiding rapid turnover of staff;
- 4.5 Hold partnering workshops to reinforce cooperative teamwork - ensure all core group members understand and are fully committed to collaborating throughout the supply chain, with work teams deciding and establishing links at workshops; thus,
 - 4.5.1. Invest in research and development aimed at achieving specific improvements – so establish programme of actions at improving partnering performance; and,
 - 4.5.2 Encourage work team members to be open about new ideas, feelings and experiences. if acceptable progress to 4.6,
- 4.6 Are changes identified to supply chain dynamics i.e. new organisations, people and/or activities – if yes or unacceptable in respect of encouraging work team members to be open about new ideas,
 - 4.6.1 Are changes identified to supply chain dynamics i.e. new people/ organisations and/or new activities – is the team suitably established in order to progress to Phase 5, or due to changes across the core group is the realisation of true partnering throughout the supply chain eclipsed. If no progress to the next phase (Phase 5) which will include preparing an end of phase report explaining the reasoning and distribute accordingly; but if yes,
- 4.7 Return to first soft gate – where either the complete core group or individual organisations will commence from process 2.1, being the start of phase 2. In turn, if 'no' prepare an end of phase report explaining the reasoning and distribute accordingly. The completed report will also be included as part of the legacy archive.

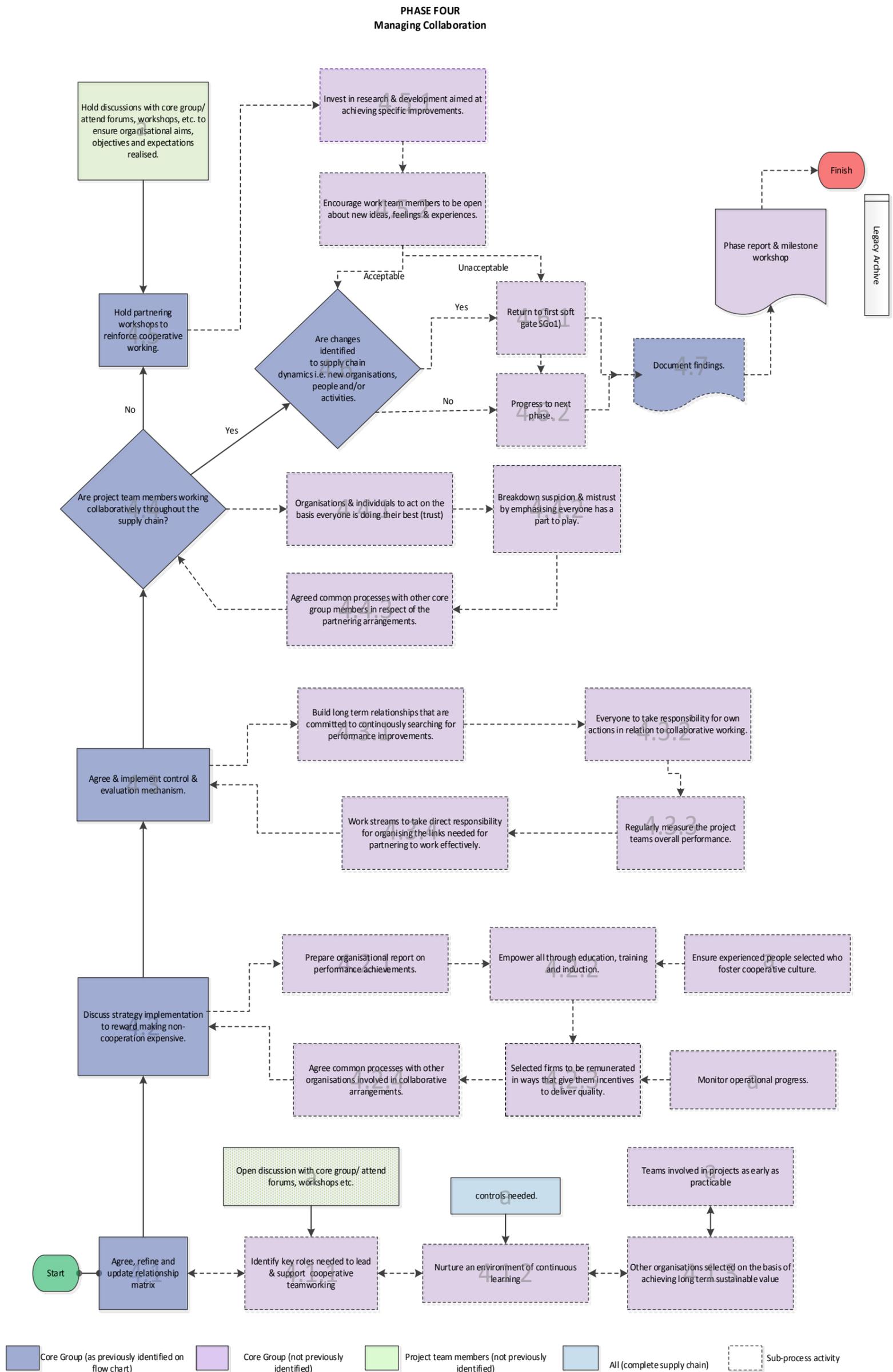


Figure 8.7: The Micro Analysis (Level Two – Phase Four)

➤ Phase Five – Cost and Time Management

To ensure any project is completed within the approved budget, albeit accepting time may have a direct influence on costs, best practice cost control begins with a business case from the client. For this defines the function, quality and value required in a new facility as well as the maximum cost the client could afford to pay (Bennett and Peace, 2006). Yet with the importance of cost control widely recognised by construction professionals, Olawale & Sun (2010) reported many construction projects do not achieve their cost objectives. This reflected in the findings from this research as the industry has not been considered successful in respect of projects being completed on/under budget. Also findings have identified the construction industry, in respect of projects being finished on time was diverse. For even when schemes were said to have been partnered, with benefits including better time predictability and shorter overall delivery periods, which in turn should bring longer term efficiencies, organisations were compelled towards competition; as best cost at day one invariably won. So as Chan, *et al.*, (2005) and Black, *et al.*, (2000) also recognised partnering could achieve quicker implementation as the early involvement of relevant supply chain members increased the prospect of finishing schemes within budget and on time, Sohail (2002) suggested “construction professionals seem[ed] to pay more attention to cost performance of projects than time performance”. Though as this research has established, while the complete supply chain are said to benefit from partnering, there is generally no all-encompassing project partnering strategy that clearly identifies sufficient procedures, tools and techniques to manage either cost or time.

The application of cost control is said to be more overwhelming than that of time control. With 84% of those surveyed by Olawale and Sun (2010) indicating they always applied cost control methods and 16% indicating they frequently applied cost control methods to their projects. Yet as cost overrun is still relatively common in construction projects and the majority of disputes said to centre on finances, the proportion of respondents that experienced cost overrun on less than 10% of their projects was 41%. This in turn meant 59% of respondents experienced cost overrun on 10% or more of their projects (Olawale and Sun, 2010). So whilst believed initial programmes were generally optimistic, and the ability to influence cost was greatest during the early stages of the project, the objective of cost and time control is to manage the delivery of the project within the approved budget and

schedule. So as this research concluded the factors inhibiting effective cost and time control appeared greatly similar i.e. a lack of suitable/sufficient procedures, tools and techniques, partnering should mean the whole team is responsible to search for financial or time savings when difficult cost or programme problems arise. This may involve setting up a specific team to find the best possible solution (Bennett and Peace, 2006). So whilst partnering challenges supply chain members to be creative in finding the best possible answers to a predicament, albeit within the clients overall budget or programme, this is realised without disparity to individual organisation profits, fixed overhead margins or agreed timescales. Cost and time control is therefore concerned with not only sculpting and agreeing facets that create changes to the relevant baselines, but determining and managing those changes as and when they occur. Cost and time control therefore includes the key processes and decisions as identified in Figure 8.8 and detailed below, namely;

- 5.1 Verify business case establishes the main criteria to be met by project including overall budget and schedule – cost and time control being the responsibility of the whole project team. This based on early scope definition, clear requirement identification, sound cost plan and an overall programme pervading the full supply chain that begins with a rationally anticipated completion date; therefore ensure.
 - 5.1.1 Scope statement to be prepared having considered and agreed the same by core team, who will have also identified constraints;
 - 5.1.2. Core team members to emphasise the importance of time and cost control at every opportunity to the whole project team; but
 - a. During the early stages of the project ensure work defined to meet milestones to be as flexible as possible so design decisions can be absorbed;
 - b. Ensure cost control begins with the clients business case, which defines maximum cost and anticipated completion dates.
- 5.2 Identify resource requirements and assign project roles, responsibilities and report relationships; which will include,

- 5.2.1 Deliberately build long term relationships committed to searching continuously for performance improvements; but
- 5.2.2 Ensure team members are involved with the projects early by assembling at the outset all those who have a major contribution to make.
- 5.3 Develop outline schedule and initial cost management plan (PAS 7 and PAS 8) - determine feasibility of criteria, budget and schedule. Early scope definition is critical, as is clear requirement identification and the production of a sound cost plan; therefore need to confirm,
 - 5.3.1 A rationally identified completion date that is worked back to establish fixed milestones must be produced. For each milestone will define specific work that must be completed by an identifiable date. Therefore with the main criteria of cost and time management being to meet the clients overall budget and schedule as established in the business case, the feasibility of the same should be tested by reference to similar projects or specific studies via the various partnering organisations; yet linking with,
 - 5.3.2 More experienced core team members on behalf of the whole team to coordinate and check the developing programme and budget;
 - a. Feasibility of criteria to be tested by reference to similar projects and/or specific studies. Identification of resource requirements from resource planning - with the primary concern being to establish the people, equipment and material costs and their availability in order to complete each relevant project activity the first step is resource planning.
 - 5.3.3 Core team undertakes schedule and budgetary risk management studies to ensure cost plan and programme provides a robust basis for control. Thus resource planning, harmonized with cost estimating, determines what physical resources (and the quantities of each) are needed to perform project activities; although,

5.3.4 The initial targets must be achievable and accepted as being achievable by the whole project team.

5.4 Progressively develop/review cost plan and programme - cost and time targets must be achievable and accepted as being achievable by the whole partnering supply chain. So as a business decision, where cost and time estimating involves developing an approximation of the resource allocation needed to complete project activities and all associated costs, a clear definition of what the money will be spent on and when must be made; this leads to,

5.4.1 Detailed cost plan and programme to be produced for the agreed work in order to achieve identified milestones and financial targets. For with the cost plan allocating the budget to the main elements of the project, it will also identify all agreed profits and overheads. This having established resources and duration, which are then guaranteed no matter what happens to other costs. Production of cost plan and master programme equalling clients overall budget and timescale – both must be produced by the core group which reflects the client's business case; yet,

5.4.2 Detailed milestone programme and cost plan provides part of the background information for workshops, though as regards scheduling each milestone defines specific work to be completed by explicit dates to ensure project completion. So every supply chain member must undertake all detailed planning associated with their own work activities, albeit under an overall framework of critical points (i.e. project milestones); therefore,

a. Fixed sums that provide a reasonable profit and contribution to fixed overheads to be agreed with each organisation.

5.4.3 Core group to make some improvements on previous best performance, albeit cost and time targets must be achievable;

5.4.4 Cost plan and programme not to include any contingency or risk allowance – project decisions made on the basis of good information;

- 5.4.5 Each target to be agreed in cooperation with the firm responsible for set task. This through workshops where agree guaranteed fixed sums and timescales for each work package identified, this leads to,
 - 5.4.6 Agreements being reached with relevant organisations for each element, where cost and time estimating involves developing an approximation of the resource allocation needed to complete project activities and all associated costs, a clear definition of what the money will be spent on, and when, must be made.
- 5.5 Monitor cost and time effects on decisions made and record against the cost status of that work element (PAS 11) - with all costs estimated (or priced) for all resources allocated to individual activities or work packages associated with the project, each target is to be agreed in cooperation with the supply chain member responsible for that particular work; then,
- 5.5.1 Produce regular cost and schedule reports that detail status of each element or system. Hence progressively developed as further design decisions are made until well defined targets are identified for each work element. Targets will be based on everything going well. Yet with all monies and resources allocated in as much detail as possible in order that the project estimates can be compared to the client's overall project budget and schedule, operational progress will be monitored on a continual basis. This as a set method/process with a bench mark agreed; in addition,
 - 5.5.2 Highlight all threats to the targets and any opportunities to make savings not already dealt with by the organisations directly involved; therefore identify,
 - a. When difficult problems arise, it is the whole team's responsibility to search for savings and/or more efficient solutions to get the scheme back on track (PAS 10). For cost and schedule control is associated with monitoring budgetary and programme performance to detect and understand any variances - this from plan as decisions are made. The collaborative approach means all project team members must work as a collective in order to establish the best possible solution to

achieve project objectives; Thus returning either/both as quickly as possible to that originally projected in order to complete the scheme as anticipated.

5.5.3 Core team challenged to be creative in finding best possible answers within business case; but,

- a. Each supply chain organisation to undertake detailed planning and costing of their own work within the overall scheme, as variations from plan may be required as well as adjustments to other aspects of the project plan.

5.5.4 Establish effective and reliable time and cost control systems and train each organisation to use them.

5.6 Is it acknowledged that cost problems or scheduling issues are the whole teams responsibility to search for a satisfactory result (PAS 10) – the collaborative approach means all project team members must work as a collective in order to establish the best possible solution to achieve project objectives; if yes progress to 5.7 but if no,

5.6.1. Hold workshops to discuss cost plan, relevant targets, assumptions, risks and remaining uncertainties (PAS 14 and PAS 15) – ensure there is an appropriate level of understanding and commitment from the whole core group in respect of problem solving; this involves,

- a. Holding organisational workshops to discuss cost and/or schedule concerns and so ponder each target – each organisation to explore how they could potentially resolve the various cost or schedule issues that arise before attending core group workshops; but if remaining unacceptable, therefore,
- b. Each individual organisation needs to recognise the limited future prospects through not working collectively; which means,
- c. Empowering all through education, training and induction that equips them with essential technical and partnering skills. Then if still ‘no’ return to second soft gate – where either the complete core group or individual organisations will commence from process 4.1, being the

start of phase 4. In turn, prepare an end of phase report explaining the reasoning and distribute accordingly. The completed report will also be included as part of the legacy archive. If now acceptable or yes;

5.7 Revised cost estimates or programme alterations to be reported to core group (PAS 12 and PAS 13) – this to review against all threats and opportunities to ensure scheme delivers best possible value, whilst maintaining effective communication; but,

5.7.1 Influence the factors that create change to the cost and schedule management plans to ensure changes agreed upon. For partnering challenges all supply chain members to be creative in finding the best possible answers to a predicament, which is realised without disparity to individual organisation profits or fixed overhead margins. Thus relevant core group members being prepared to be involved with other organisations to ensure a satisfactory solution established;

5.7.2 Revise cost estimates, implement corrective action as necessary and notify project team (PAS 16) - cost control and programming not only concerned with sculpting and agreeing facets that create changes to the cost baseline and master programme, but determining and managing those changes as and when they occur; in doing this,

5.7.3 Prepare report and issue relevant documentation in respect of cost and time revisions - determining the schedule and/or costs have changed, by issuing schedule and/or budgetary revisions that incorporate agreed new targets. This follows root cause analysis to identify the cause of the variation, though schedule/budgetary recovery can be planned and executed for activities delineated later in the project rather than just addressing the activity causing the deviation. Ensure all core group members understand the revisions made and that these are acceptable to all; when acceptable progress to process 6.1 (phase 6), albeit,

5.7.4 Manage the actual changes when and as they occur - this corrective action being anything done to bring expected future schedule/budgetary performance in line with the overall project schedule/costs. Invariably remedial action in the areas of time and/or

cost management involves the expedition of special actions to ensure completion of an activity on time and/or within budget with the least possible delay/disruption; therefore prepare,

- a. Phase report and hold milestone workshop. This to ensure cost and schedule control measures implemented - as the whole project team aim to keep the project within budget and on programme, cost and schedule control measures are crucial. This in order that the core team can check that everyone involved concentrates on doing whatever is necessary to complete all the required work as per the business case. So accepting project control measures are necessary to ensure the scheme finishes within budget and on time, constantly measure progress, evaluate plans and budgets before taking corrective action when required; yet
- b. Document lessons learnt - cost and schedule control issues/resolutions should be documented in order that the variation cause and the reasoning behind choosing the corrective action become part of the legacy archive for this and future projects involving the performing organisation and/or project team.

Having planned, reviewed, refined and updated each of the eight key drivers throughout the six phases, as identified upon the conceptual model (Figure 8.3), it is accepted project team members will not simply stick to the plan and get things done as specified. So, with a project trying to take on a life of its own, partnering works by relentlessly putting the agreed policies, strategies, lines of communication and key interfaces between the diverse parties, established during the earlier processes, into effect during the identified phases. Therefore careful, painstaking attention to detail throughout the residual phases of the project is needed. This to reinforce partnering and enable project teams using collaboration to deliver substantial benefits for everyone involved. So with the incorporated partnering standard (IPS) as the main tool, albeit accepting change is an inevitable consequence to a partnered project, constantly measuring, updating and managing the collaborated approach in an integrated manner is necessary to meet the goals established at the outset by the complete supply chain. Therefore accepting the procurement of a partnered project takes time and effort in order to guide the project to a successful conclusion, control can never be relaxed, even when all is going to plan; as “even

the best laid plans can go awry” (Bruce and Langdon, 2000). Yet with the conceptual model documented, approved and implemented up until the latter stages, to keep the partnering philosophy running efficiently throughout the complete supply chain during the balance of the scheme the following must be monitored;

- The attitudes of the supply chain members working on the partnered project including client, consultants, main contractor and sub-contractors (i.e. core group and other appointed organisations). For everyone involved in partnering must understand successful partnering means the application of a set of practical actions that deliver benefits to the whole supply chain when applied steadily and consistently on the basis of commitment and hard work. It should also be accepted that partnering achieves significant benefits when used for the first time albeit acknowledging the levels of benefit should increase as teams continue working together on supplementary schemes. Accordingly there has to be an acceptance from senior managers across all tier levels that new partnering teams need time and resources to decide their own best way of working; and that support is maintained when initial costs are incurred without the benefits emerging;
- The cooperation/understanding and cohesiveness of the complete project team. Therefore ensure supply chain members are investing in training and workshops when organisations have not worked together before or are new to partnering and have conditions been instigated that encourage and reward cooperative behaviour. So accepting partnering changes the nature of work for many people, in requiring more face-to-face contacts, are organisations taking account of other company interests and do they understand the significance of the same is in their own best interest. Conversely, be aware of potential conflicts of interest where partnering firms are collaborating with competitors, as a number of checks may be necessary to maintain the open communication required by partnering;
- The continued investment in developing increasingly effective relationships between work streams by ensuring project team continuity. For in helping ‘weaker’ partners look to develop a strategic relationship in the search for opportunities to develop more profitable new business,

establishes effective relationships. Albeit recognising whilst dominant organisations use partnering to produce the maximum net benefits, these should then be shared in a manner that is sufficiently fair to motivate everyone to do their best possible work. Nevertheless it must also be recognised that circumstances change and a successful arrangement may become less attractive to some partners;

- The status of work being performed, its volume, quality, the costs and expenditure as compared to the plan. For whilst targets are to be set that are achievable, albeit challenging, ensure the agreed targets have taken account of the interests of all supply chain members. Therefore targets, which are easily measured, are being achieved without damaging those further down the supply chain where benefits are considered small compared to what could be realised if full sub-contractor collaboration was accomplished.

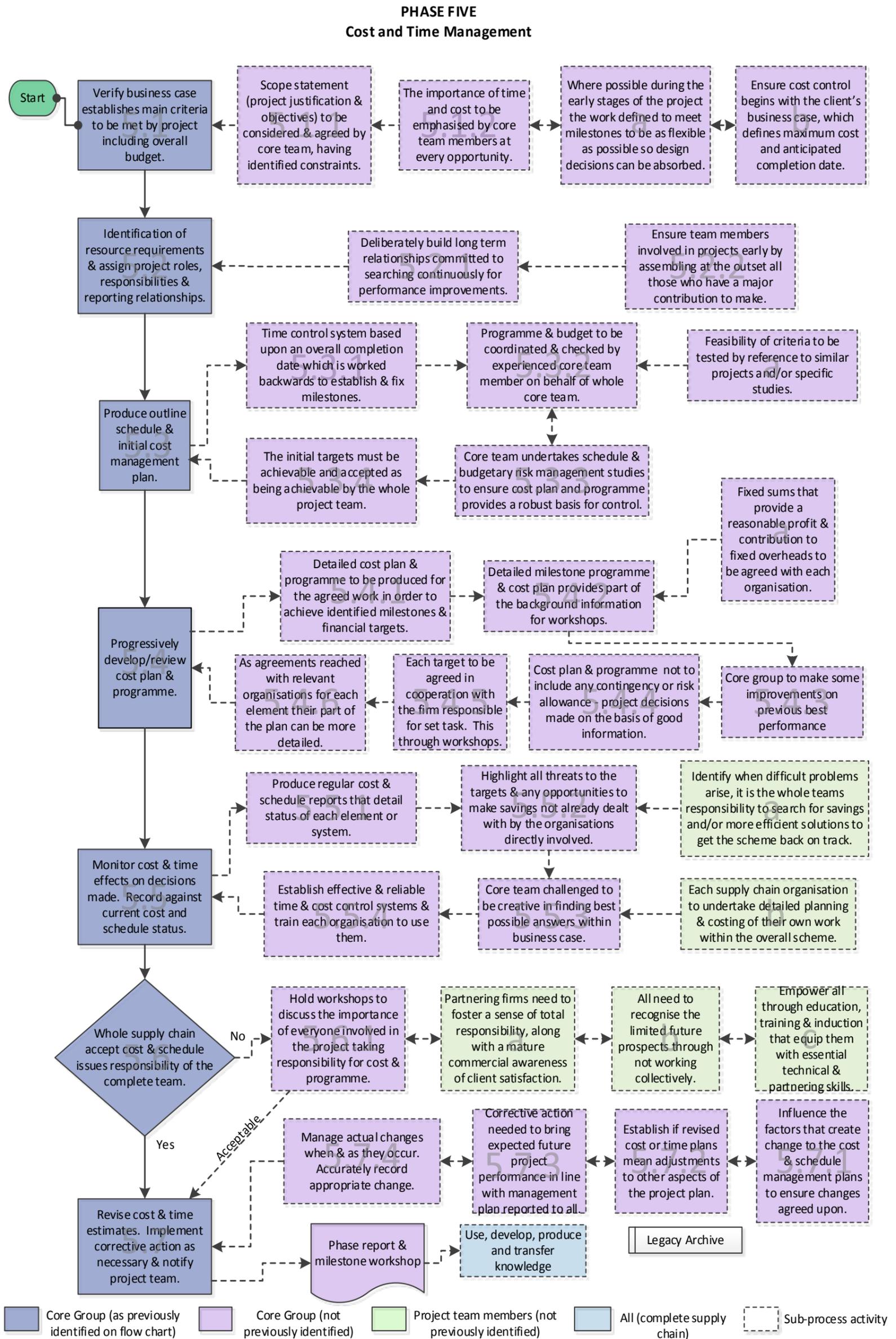


Figure 8.8: The Micro Analysis (Level Two – Phase Five)

➤ **Phase Six – Success & Future Prospects**

The final important step, being the concluding evaluation, is to appraise what was done well and what could have been done better in respect of project partnering. This irrespective of whether a scheme achieves its goals or advances into cheerless disrepute. For only through a final project evaluation is it possible to learn how to better manage the next partnered scheme for “project partnering delivers increasingly large benefits when it is delivered long term” (Bennett and Peace, 2006). Consequently only through effective scrutiny can lessons be learned from this project and effectively applied to subsequent partnered projects. As partnering therefore depends upon an appropriate feedback system to provide information on the performance of the joint organisation, the components to the final (close down) evaluation will, as illustrated on Figure 8.9, will include;

- 6.1. Assess project success against objectives (PAS 17) - an overall assessment of the partnered project, this in relation to the eight key drivers, will generally involve a final meeting with the core team to help evaluate the impact partnering has had on the project and so produce input for the final written report; thus,
 - 6.1.1 Document project results to formalise acceptance of the projects product (administration closure);
 - 6.1.2. Measure current partnering performance against previous performance, industry norms or best practice;
 - 6.1.3 Produce a complete set of records for archiving by the appropriate parties;
 - 6.1.4 Bench marks identified that provide information about the overall performance of the partnered scheme;
 - 6.1.5 All documentation produced to record and analyse project performance must be available for review;
 - 6.1.6 Includes collecting records and analysing project success, partnering effectiveness and lessons learned.
- 6.2. Analyse business strategies and measure the contribution of partnering; therefore,

- 6.2.1. Establish if partnering was used effectively;
- 6.2.2. Review procedures and standards used in relation to the efficiency and effectiveness of the project work;
 - a. Acknowledge the whole point of partnering was to achieve continuous performance improvement.
- 6.2.3. Feedback system established in order to provide information on the performance of the collaboration, each organisation and project generally;
 - a. Needs to provide measurable information about progress and performance whilst highlighting problems and opportunities.
- 6.2.4. Check objectives, target and plans were relevant, mutually beneficial and realistic;
- 6.3 Review, refine and update partnering strategies from discussions, workshops and documentation produced. Therefore analyse corporate business strategies and measure the contribution of partnering – as a final written report, the history of the partnering process and a final evaluation of the performance. For “...things that worked should be acknowledged [whilst] things that didn’t should be explained” (Baker and Baker, 2000); and in order to do this,
 - 6.3.1 Discuss results as soon as available with teams encouraged to suggest ways of improving their performance;
 - 6.3.2 Regularly consider whether established benchmarks need to be changed to reflect developments in partnering arrangements;
 - a. Ensure the guiding principle is that collaborative teams feedback all decisions in order to influence future actions.
- 6.4 Evaluate organisational culture and level of partnering maturity. This in relation to drivers in respect of customer satisfaction, new opportunities and future needs (PAS 18) - helping to understand both the achievements and disappointments in respect of the collaborative approach adopted. For whilst a partnered approach that does not meet the majority of the set

objectives (i.e. key drivers) should be studied closely to understand what went wrong, successful projects also deserve inspection and evaluation. As there are lessons to be learned from every project; hence,

6.4.1 Review to help core group/organisations identify opportunities to extend their activities or recognise they have reached a stage where further improvements are unrealistic. Therefore refine and update partnering strategies from discussions, workshops and documentation produced – reflect upon the actual strategy adopted in relation to the initial incorporated partnering standard (IPS) given the process is variable. Provide justification for making partnering adjustments and the continued investment in developing increasingly effective relationships between work streams by ensuring project team continuity;

a. Establish if organisational step change in relation to current activities are needed. Therefore review number of schemes partnered and resource levels now deemed competent. Evaluate organisational culture and level of partnering maturity this to establish then communicate partnering status. Documented so it becomes part of the historical database for both this and other projects of the performing organisation. In doing so identify organisations training needs – consider where partnering weaknesses are and endeavour to rectify.

6.5 Open discussion forum; evaluate new strategic opportunities and future collaborative needs - as the project involved a variety of organisations at various tier levels, it is advisable to evaluate the performance of each supply chain member. Whilst this may be limited to core team members it may, by agreement, apply to all disciplines at all levels including consultants, sub-contractors, suppliers, etc.; For in helping 'weaker' partners look to develop a strategic relationship in the search for opportunities to develop more profitable new business, establishes effective relationships. Though recognising whilst dominant organisations use partnering to produce the maximum net benefits, these should then be shared in a manner that is sufficiently fair to motivate everyone to do their best possible work

8.7 ACTIVITY ZONES

With the conceptual model (or incorporated partnering standard) consisting of an X and Y axis with the former showing process sequence (or time) and the relevant stage-gates, similar to that presented by Cooper, *et al.*, (1998), the Y axis shows the project team permutations i.e. Core Group and Project Team (Organisations). The core group being the projects key stakeholders who are likely to make a significant contribution to the success of the joint work, while the project team, comprising individuals from cross-sector organisations, are assigned to undertake activities for the same project. The participants who, having been designated a responsibility, will become involved with the project as early as possible in order to move away from the traditional models of the UK construction industry (Figure 1.4) and so attain a more unified understanding of partnering, will also help all supply chain members understand, embrace and achieve shared collaboration. For while their “early involvement...is a significant development of the conventional approach to building” (Cooper, *et al.*, 1998) placing significance on the activity zone enactment rather than the more traditional hierarchal structure, where the enthusiasm between main contractors and subcontractors to adopt collaborative processes is deficient, has the potential to develop the eight key drivers through the utilisation of multi-functional and multi-tiered zones. Thus while a single person or organisation could potentially undertake an activity zone when fulfilling the responsibilities associated with the Generic Design and Construction Process Protocol (Kagioglou, *et al.*,1998), given the two incorporated partnering standard activity zones consist of a complex network of disciplines and tiered organisations irrespective of project size and procurement approach means both are multifunctional and traditionally hierarchal with membership determined by the specific project task and/or process. For as noted previously if more relational procurement strategies were considered, collaboration could be achievable.

8.8 MILESTONES AND STAGE-GATES

Performance monitoring, within this the partnering culture, could be the process that keeps supply chain collaboration moving forward smoothly. For having agreed/utilised a partnered approach, effective monitoring allows the project to be kept on track in terms of the eight key drivers, the assorted disciplines and their relevant tiered organisations. Therefore as progress towards mutual objectives and

performance improvements are accomplished through various meeting types during each process phase, albeit with agreed decision-making processes implemented, this is reinforced by milestone workshops. Milestone workshops, summarising a sequence of tasks through to the specification of a key output are to assure a high quality positive response to the incorporated partnering standard strategy through a multi-functional/multi-tiered core group at the end of each of the six phases. The milestone workshops are therefore pertinent markers that summarise the work associated with the schemes partnering deliverables and so whilst bringing together the whole project team responsible for the next phase, are said to have three primary purposes, namely;

- Verify the current stage has successfully achieved the deliverables set and that everything is ready for the subsequent phase;
- Through the realisation of mutual objectives and the continued endeavour toward achieving the eight key drivers, establish a diverse project team that is confident in using partnering to tackle the next phase;
- Agree in detail how the next phase will be executed.

The pertinent markers, being the ‘hard’ and ‘soft’ stage gates identified upon the conceptual model (Figure 8.3), are a fusion of the original construction process protocol ‘go/kill’ quality control checkpoints; as taken from the manufacturing industry (Cooper, 1990; Ceric, 2003) and the third generation new product development process (Cooper, 1994). For as Cooper (1994) recognised every product passed through a certain number of phases, with each incorporating a set of activities that were to be undertaken, reviewed and a decision made to commence, albeit this resulted in certain deficiencies, the third generation product development process allowed stages to overlap. Thus Coopers (1994) new proposal meant the process could conditionally continue to the next stage without each activity within that stage being complete. This enabled greater flexibility and speed in a projects implementation. Therefore given phase interaction in the partnering modus operandi was inevitable, because the processes do not fall into discrete components with well-defined interfaces, the decision was made to amalgamate “the third generation process with overlapping, fluid stages and ‘fuzzy’ or conditional ‘go’ decisions at gates” (Cooper, 1994). For an element of consistent planning and review was deemed beneficial as research suggests collaborative

working is generally delivered up until the project becomes problematic. Consequently from inception to completion, as partnered schemes pass through six phases, the overall process will be administered by a combination of the two types of gates. The 'hard' gates represent checkpoints at the end of significant phases i.e. evaluation that cannot be passed until all the activities of the preceding phases have been completed and decisions made in respect of continuing with the collaboration and (any changes needed). The 'soft' gates allow conditional progression to the following phase without completing all activities of the preceding phase. Hence the fundamental characteristic of the overlapping stages means the incorporated partnering standard need not wait for each activity within that stage to be completed before moving on to the following stage. This enables superior flexibility and speed in project implementation because the partnering process is fundamentally sequential in nature therefore stages cannot be skipped or eliminated.

8.9 Supply Chain Meetings/Workshops

Within each supply chain, representatives of all the work teams involved in the project during the relevant phase meet on a regular basis in order to review supply chain optimisation in respect of team structure, the level of collaboration required and how much more integration is possible. They will also ensure all necessary information is in place to help drive potential cost and service level benefits whilst looking to resolve any problems that may have arisen as a result of the ongoing collaborative process. These meetings, which are to progress as long as work by the supply chain is underway, must also consider the need for supply chain workshops, although the decision is somewhat influenced by the work teams knowledge/understanding of partnering. So whether partnering is new (where more effort will be needed before a workshop is effective, albeit the benefits are potentially greater) or already established (workshops are already an integral part of the supply chains work) the supply chain, in consultation with relevant members of the core team (including members of the client's internal team), prepare the supply chain for that relevant milestone stage. Hence with a series of supply chain workshops identified because the preparatory works are potentially extensive and spread over a long period with many different work teams involved there is perceived merit in this practical approach. For it ensures all understand how their approach to the eight key drivers contribute to the overall partnering philosophy.

Moreover with the workshop looking beyond the first few tiers and so taking account of all key organisations in the extended supply chain, means better integration and optimisation of the internal and external supply chain. Therefore in accepting it is no longer enough to simply rely on each discipline to keep their own 'house' in order, and customers and suppliers have an increased role in driving the partnering strategy, the supply chain workshops help install collaboration, which can be progressed and developed across the identified partnering phases.

The analysis of reports and workshops will never be enough to guide the partnering strategy to unqualified fruition. It is therefore accepted various different meeting types will always be a necessary component of partnering in order to assess progress, resolve conflicts, problems, etc. So in addition to the key gatherings noted above other meetings, both formal and informal during the six partnering process protocol phases (Figure 8.3) are to be considered, namely;

- Induction course (Partnering) – Held for the relevant groups of work teams/organisations before inclusion into the project supply chain. These initial meetings/courses informs people about the way work is organised and reinforces the schemes use of partnering and cooperative team working (i.e. the way partnering is being put into effect, description of the projects mutual objectives, decision-making systems, etc.). Whilst the relevant organisations will have already discussed and agreed the conceptual framework, this will be issued and considered here;
- Work team meetings - Involves operatives from various disciplines associated with completing each specific task. All work teams meet as often as is required to realise the same;
- Sub-stage meetings - The core team meets at agreed specified times to solve any problems not being dealt with elsewhere. The meetings involve reviewing design and construction methods, progress, cost, key stage reports etc. along with external influences to ensure the project is meeting agreed targets before making decisions about problems and opportunities;
- Supply chain meetings - Within each supply chain representatives of all the work teams currently involved in the project meet at agreed specified times. The general purpose of the meetings is to ensure all necessary information

is in place for the coordination of the design and for efficient construction whilst looking for better ways of working and resolve any problems;

- Partnering workshops – Depending on the project stage discussions may include how individual styles and personality traits affect working relationships, mutual objectives, brainstorming major problems/obstacles and discuss possible solutions, etc.;
- Partnering health checks – With reference to the conceptual framework agreed core team representatives to check how effectively partnering is being used. This through interviewing (and scoring) a cross-section of project team members.

8.10 Legacy Archive

As identified at level one (Figure 8.3 – Conceptual model) and level two (Micro Analysis Activities), the structure and undertaking of the incorporated partnering standard, which includes the phase review reports, means partnering experiences can be recorded by all supply chain members throughout each relevant process. So in order to inform later phases and future projects, both success and failure will be recorded in order to offer important lessons. For as this research identifies, which Cooper (1994) also acknowledged, fragmentation and the competitive nature of the construction industry prevent the benefits of shared best practice. Thus the “creation, maintenance and use of a legacy archive [will] act as a central repository, or information spine (Sheath, *et al.*, 1996). Therefore as partnering success relies on the right people having the right information at the right time the subsequent increase in partnering awareness, both phase to phase and project to project, has the potential for improving performance in relation to the eight key drivers.

8.11 Validation of the Incorporated Partnering Standard (IPS)

As an assurance the proposed conceptual model, as an Incorporated Partnering Standard (IPS), could steer true partnering throughout the supply chain, and so meet the research aim, meant testing. For having completed the initial design, following the realisation that the development and implementation of a partnering strategy was necessary, this end product testing was undertaken to ensure the IPS was fit for its intended use through examination and the provision of subjective evidence. So before the IPS could be released, this checking process would ensure

the proposed conformed to the specification and therefore meet the operational needs of any potential user. Hence, as the principle way to judge the success (or otherwise) of a knowledge based development project was to review, structured interviews were carried out during the fourth stage of the research (Figure 1.6). So as Section 4.7.3 discussed reliability and validity, Table 8.1 presents details of the ten professionals (2no.academics, 8no. practitioners) who participated in the validation process as experts in the field, familiar with the content universe. Hence a combination of different professionals ensured an appropriate balance of expert opinion (criteria for selecting the experts was given in Section 4.6.2), with the academics being university lecturers/professors while the practitioners were chosen from each of the four disciplines previously identified within this study i.e. clients, consultants, main contractors and sub-contractors. For as Fox, *et al.*, (2003) suggests, validation assessment will not be effective unless it comprises an appropriate balance of all necessary expert knowledge.

The validation process, reflecting how well this piece of research actually manifested the reality it claimed to represent, initially took the form of construct validity. Construct validity, therefore defined how well the model measured up to its claim that successful partnering would be accomplished throughout the complete supply chain by identifying specific activities and bringing together the established eight key drivers. Hence, it referred to whether the operational definition of the variable actually reflected the true theoretical meaning of the initial construct. As a test of generalisation, construct validity, which is particularly important in the social sciences and essential to the perceived overall validity of this research model, took the form of a differential-groups study. Though with no single best way to study construct validity, because it has been viewed as an overarching term to assess the validity of that proposed (Messick, 1993), both face validity and content validity were worked through as part of the assessment process to test whether the model regulated the intended construct (i.e. the realisation of construction partnering). So by testing the translation of the incorporated partnering standard into a functioning and operating reality, the concern was how well was that transformation done. Therefore the focus was on whether the macro process map, conceptual model and micro analysis were a good reflection on the initial construct. This, a definitional approach, acknowledged a good detailed definition of construction partnering did exist, which was used to check operating reality. Both face validity and content validity were therefore utilised in order to assess the degree to which the researcher

translated the initial theory into operationalization (i.e. the macro process map, conceptual model and micro analysis as functioning and operating reality).

Face validity, as a subjective test viewed the macro process map, conceptual model and micro analysis, and ascertained that it covered the concept it purported to measure. Hence as face validity refers to the transparency or relevance of the model to guide the various organisations within the four disciplines, and throughout the complete supply chain, the incorporated partnering standard presented was said to have face validity. For it was generally agreed by the 10no experts interviewed that subjectively it 'looked like' it would guide true partnering within the construction industry. Therefore, whilst not actually scientific, and "probably the weakest way to try and demonstrate construct validity" (Trochim, 2006) as the test was idiosyncratic, it is nevertheless acknowledged there had been a reliance on subjective judgement. Yet to improve the quality of this face validity measurement it was made more systematic by holding interviews with each of a carefully selected sample (i.e. ten industry professionals; 2no academics and 8no practitioners) who then reported back with their judgement as to whether the model appeared to be a good translation of the construct. From the initial examination of the macro process map, conceptual model and micro analysis, the incorporated partnering standard was therefore considered an adequate partnering blue print and a suitable vehicle for change (Table 8.1).

Content validity being closely linked to face validity, albeit different, is a non-statistical type of validation that involves "the systematic examination of the [model] content to determine whether it covers a representative sample of the behaviour domain to be measured" (Anastasi and Urbina, 1997). Therefore determining the extent to which the elements within the model were relevant and representative in relation to the construct (Haynes, *et al.*, 1995). So whilst a challenge to create a reliable effective definition for this more complex construct, with an element of subjectivity in relation to determining content validity, the 10no subject matter experts were again used to evaluate whether the model assessed defined content. Therefore, in this instance, content validity referred to the extent the macro process map, conceptual model and micro analysis represented the four disciplines and eight key drivers of the social construct. Also the method of measuring content validity against the content domain was by gauging agreement among the 2no academics and 8no practitioners in relation to the four questions through the

utilisation of a five point Likert scale i.e. 1: strongly disagree; 2: disagree; 3 : split/mixed; 4: agree; 5: strongly agree (Table 8.1). As a result, and in accordance with Lawshe (1975), because more than half the interviewees responded positively to each question then it was concluded those items had at least some content validity; though in reality, because large numbers agreed with each particular statement, greater levels of content validity actually existed.

As this research has identified, through structured interviews, the construction industry currently does not have a clear way of spreading a consistent message as to what partnering is. Though the industry experts identified partnering could be used as a suitable vehicle for change. Table 8.1 therefore reveals all participants noted a generic representation would provide better understanding; which reflects that previously identified, whilst also noting a conceptual model would promote engagement and control from the whole project team. The mean scores for the first and fourth questions identified on Table 8.1 being 4.4 and 4.1 respectively. In terms of the macro contextual model being a simple/understandable concept that could be woven into any plan of work/sequence whilst still tilting positive, was less compelling. For with a mean score of 3.9 it provided a blue print of key activities and roughly when these should be undertaken, but it was acknowledged “whilst it needs a few reads...it is a management tool that still needs translating to the operatives on site...” (Main Contractor 1). Finally, the participants, with a degree of scepticism, also accepted, that the concept model, as a flow chart picking up each partnering activity supplement, was presented simplistically (mean score of 3.7). Though it was noted, “...whilst it contained a lot of information, in relation to all contractors, would they understand it” (Main Contractor 2). Still the general consensus was that the issuing of the incorporated partnering standard, which included the macro process map, conceptual model and micro analysis to all supply chain members at the outset engaged the whole team. This, from a partnering perspective would then promote engagement and control. Hence, overall whilst the incorporated partnering standard (IPS) provides “...the detail of partnering”, the following are some of the participants comments;

“...this tool ensures all parties now know where the supply chain is coming from in respect of partnering. For whilst there is stuff about partnering out there no real detail” (Main Contractor 1);

“...whilst there is a need to put theory into practice, this is management level information that needs to be put into practice. For not sure how the operative with the screwdriver would understand therefore need to be clear how the gap between theory and practice are bridged” (Main Contractor 2);

“...it all appears to make sense and whilst simple enough to understand, it looks to cover all relevant areas, albeit giving the option for the project team to make improvements when necessary” (Sub Contractor 1).

Participant Category	Code	Job Role	Research Question/Likert Scores				IPS considered useful/ Appropriate
			Generic representation provides better understanding?	Macro contextual model is a clear overview, providing simple blue print?	Suitable/sufficient flow chart captures key activity supplements?	Partnering framework promotes engagement and control?	
Academic							
	A1	Professor	5	4	4	5	Yes
	A2	Research Fellow	4	4	4	4	Yes
Practitioners							
Client	CI1	Group Manager	5	4	3	4	Split/mixed
	CI2	Project Manager	4	4	4	4	Yes
Consultant	Con1	Director (QS)	4	4	3	4	Yes
	Con 2	Associate (PM)	4	4	4	4	Yes
Main Contractor	MC1	Contract Manager	5	4	4	4	Yes
	MC2	Site Manager	5	4	4	4	Yes
Sub Contractor	SC1	Director	4	4	4	4	Yes
	SC2	Director	4	3	3	4	Split/Mixed
Mean Score/Overall Result			4.4	3.9	3.7	4.1	Yes (4.025)

Table 8.1: Results From Structured Interview (Validation)

8.12 Conclusion

Several analysts and writers have identified critically a variety of requirements and factors responsible for the success of partnering relationships in the construction industry. Among these were Cheng *et al.*, (2000), Black *et al.*, (2001), etc. all as previously discussed (Chapter Two). Despite the variations in their findings, the results of such studies tended to (re-)affirm Bennett and Jayes' (1998) assertion that the concept of true partnering fed on co-operation and teamwork, openness and honesty, trust, equity and equality. So in accepting partnering is a long term business relationship that almost always involves multiparty participation, albeit there is no standard model and a number of interpretations of the basic principle, Barlow, *et al.* (1997) concluded partnering was best considered as a set of collaborative processes. Thus as a result of the findings from this study, which strengthens the literature review findings (Chapter Two), it is very clear different perceptions towards partnering currently prevail (Awodele and Ogunsemi, 2007; CII, 1991; Coward, *et al.* 1992). For while there is conformity over the general concept of partnering, as a cooperative relationship between business partners in order to improve performance, there is considerable variation in definition (Chapter 2). Consequently the adoption of the Incorporated Partnering Standard, which focuses on the eight key drivers, is advocated in order to realise wholesale collaboration. For as the success of partnerships mainly depend on the selection of an appropriate partner and the quality of those partnering relationships (Ozorhon, *et al.*, 2008), the conceptual model provides that commonality as to what true partnering is as opposed the contemporary understanding. Consequently, as findings to date suggest there is space for a realistic and tangible conceptual model, this Incorporated Partnering Standard presents a rationalised process given "organisational cultures of partnering parties need to be similar and suitable before the partnering relationship can be deemed successful" (Nifa and Ahmed, 2010). So whilst it is a common notion that considerable effort from all parties is necessary to effect changes, and Dikmen, *et al.* (2008) notes some strategies should be developed by the companies intending to engage in a partnership, which is then managed successfully, congruent technical and managerial resources and complimentary project partnering knowledge, along with experience are key ingredients in order to ensure construction arrangements are more intensively relational in nature.

The Incorporated Partnering Standard is therefore the blue print that identifies the specific activities to accomplish successful partnering, and so bring the eight key drivers to fruition throughout the complete project team. Therefore as this research believes certain requirements must be met if project partnering is to succeed, the conceptual model would empower project personnel throughout the complete supply chain in respect of collaboration due to a structured, workable approach being provided. Thus the most obvious advantage of using the IPS would be that its consistent approach would help in avoiding confusion between the disciplines and across the numerous tiers during each partnered scheme. For whilst the size of partnering organisations differ, they each have rights and responsibilities in making the partnering relationship work. So by being part of the same team, albeit acknowledging each project team may utilise the map, model and analysis in a slightly different approach, albeit resting on a foundation of logic, the process map, conceptual model (level 1), and micro analysis (level 2) were designed in order to show the information flow cycle in a simple but efficient manner. This making its integration (throughout the supply chain) easier to understand, implement and monitor. Hence rather than being an ad-hoc activity, it would be an on-going and planned one in order to help all reluctant organisations improve their business. Thus by being as simple as possible and having a positive impact on the whole supply chain, the Incorporated Partnering Standard, as a generic representation would provide a way of implementing consistent partnering control measures and performance systems and so providing best partnering practice. So in delivering the sixth objective, albeit acknowledging the various debates and subsequent refines slant towards a generic representation, it principally is a simple and circular strategy (Figure 8.10).

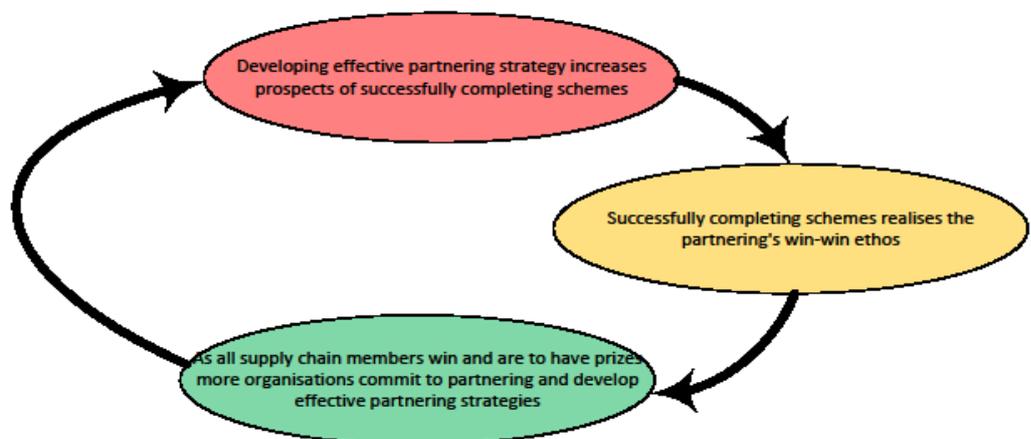


Figure 8.10; Simple Partnering Circular Strategy

CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

The Wolstenholme Report (2009) stated a number of clients were “being led by their construction cost consultants to abandon frameworks and go back to lowest price tendering [which was] a mistake”, this research has established lowest cost generally wins. Moreover whilst Bennett and Peace (2006) stated “traditional competitive tendering aimed at establishing the lowest price for a given design is incompatible with partnering” this work ascertained price only tendering for each individual scheme, rather than integrated teams made up of existing supply chain members kept together and moved from project to project, remained buoyant. So as “construction supply chains are highly fragmented...and the levels of fragmentation increases in supply chains that are directly involved in the delivery of construction work on site (BIS, 2013), this chapter by summarising the research findings cogitates the aim and objectives in light of the fact from a potential revolution all that has been achieved is a bit of improvement (Wolstenholme, 2009). It also revisits the research process adopted and presents the main conclusions and recommendations as well as touching on any potential further research.

9.2 The Research Process

The overall aim of this thesis, as identified within the first chapter was to push the boundaries of the on-going debate by introducing a conceptual collaborative framework as a prescribed conduit towards a paradigm of sustained partnering growth through guidance, governance and commonality. For as the BIS 2013 study highlighted construction supply chains were “highly fragmented”, albeit the level of fragmentation increased within the supply chains that were directly involved in the delivery of construction work on site, the research centred around whether the contemporary industry remained behaviourally ill-equipped. Yet as a healthier atmosphere was said to be the key to enhance performance and partnering was identified as a means to that end (Murray and Langford, 2003), relational approaches were not the dominant choice of procurement strategy (Phau, 2006; NBS, 2013). Hence Chapter 1, in considering the background to this study, stated the research problem was that the industry’s commitment to reform was only “skin deep” (Wolstenholme, 2009). Therefore due to uncertainty and the competitive nature of construction contracting the first chapter acknowledged the study would

establish the current role of partnering within construction prior to providing a possible management solution that would engage all supply chain members and deliver practical sustainable benefits, albeit through attaining the six objectives identified.

Chapter 2 reviewed extant literature on the various procurement methods, which were judged extensive, before pictorially representing a theoretical foundation for the research, albeit with particular regard to partnering. As this ultimately took the form of an initial stylised model that included the tangential influences deemed necessary to strive for successful, inclusive and incentivised supply chain collaboration (the eight key drivers), along with the identified encumbrances, the literature review established partnering was by no means as pervasive as many of the early proponents would have liked or predicted. Hence this chapter provided evidence for the purpose of the study whilst using it to underlie the problems addressed by the enquiry (Creswell and Plano Clark, 2007). Chapter 3 went on to note the design and construction process intricacies were the primary reason why the various government and industry reports failed to instigate significant improvement. Therefore the third chapter, having defined strategic management, considered various cross-sector management approaches that were said to facilitate improved operational performance; albeit with particular regard to construction, where the effective adoption and use of current improvement strategies was slow. Yet in recognising strategic management provided overall direction by comprising a series of steps and sequences to deal with the complexities and constraints of business management and growth, this chapter concluded no current management system was deemed appropriate, due to the key pressure being financial (with the stimulus remaining lowest cost) and the fact the concept of partnering did not filter down to all levels of the supply chain. It also identified a need for the UK construction industry to innovate and change its current process management practices in order to deliver project predictability. Moreover, as the industry was said to continue employing disengaged, ad-hoc methods in respect of coordination, management and control, thus divesting repeatability in respect of process execution, albeit the construction industry's design and construction processes are considered generic and consistent, this chapter concluded the overall goal would be the implementation of a systematised and standardised partnering model. For as a shaped part streamlining the way the organisations and projects operated, in respect of partnering, would bind the notion

of a management control system and so help realise success in respect of the eight key drivers.

Chapter 4 established the research strategy adopted in order to collect data, identify and ultimately answer the assumptions made. For having acknowledged the relationship between the question(s) posed and the methodology used was central to the research project, because the methodology delineated how the partnering conundrum would be systematically investigated, Chapter 4 confirmed the collective strength of an inductive (qualitative) and deductive (quantitative) approach. Thus with a preview of philosophy that included its various parts and how they are unified, this chapter in cataloguing the area to which this particular issue belonged outlined the epistemological and methodological characteristics and the logic behind the adopted mixed method approach i.e. pragmatic post positivism. Thus by critically evaluating why this approach was elected over the other viable options, the chapter looked at how the sequential mixed method design would exploit the strengths of both qualitative and quantitative approaches. Then combine these respective strengths within one single research design whilst ensuring transparency and so allowing public scrutiny whilst enabling future research to build on the same. The fourth chapter then focused on the procedures of data collection, data analysis and interpretation, having suggested “the well-known basic mixed methods sampling technique [known as] stratified purposive sampling” (Teddlie and Tashakkori, 2009) would be utilised. Hence the non-probability samples, being a representative group from the target population, or as Patton (2002) described it; “selecting samples within samples”, allowed for the discovery and detailed description of the characteristics which were similar or different across the strata i.e. the conclusions drawn were applicable to the target population. So by considering how that assumed would be tested the chapter identified the particular design for the study was ‘exploratory’ and the two methods would be used in sequence. It also discussed the qualitative first phase would employ detailed interview, as the general inductive research method, in order to generate substantive codes, whilst a quantitative second phase; which took priority, provided fuel for deductive data analysis. For a more systematic approach meant the provision of a more complete picture to the construction partnering phenomenon.

In pulling together the main findings from both the qualitative (Chapter 5) and quantitative (Chapter 6) methods, Chapter 7 discussed the key results from the

multi-methodology research before interpreting, summarising and contextualising the data within the larger body of research associated with construction partnering. So with a focus upon the previously identified eight key drivers this chapter presented the most relevant evidence from those previous (in particular Chapters 5 and Chapter 6) to answer the various assumptions (Table 1.1). For having specifically chosen assumptions, and with the literature review and qualitative first phase providing some indication about the predicted relationships among the variables, the conclusions drawn from the quantitative phase, were that future partnerships would be a significant determinant of project success. As the introduction of an Incorporated Partnering Standard, that paid specific attention to the eight key drivers would build on existing practices and so utilise the model to bolster collaborative arrangements across all disciplines to move from transactional relationships to transformation. Or where relationships between organisations were considered more challenging, the introduction of the proposed generic representation would provide that better wholesale comprehension, engagement and control. As it would ensure continuity and create efficiencies which would help the industry arrive at that moment of convergent evolution. Consequently Chapter 8 in realising the sixth objective presented that conceptual model, having taken into consideration the findings from the previous three chapters and the results from two workshops carried out to consider and refine the Incorporated Partnering Standard (IPS). Thus by presenting a blueprint, aimed at providing a consistent approach, and so avoiding confusion between the disciplines and across the numerous tiers during each partnered scheme, the intended result is to help all supply chain members understand, embrace and achieve shared collaboration. For it is accepted partnering cannot be imposed and therefore must be an approach that draws on creating the right atmosphere.

Finally, given the research aim, having established relevant research questions, objectives and assumptions for testing, this ninth and final chapter brings to an end the research project. This by appraising its overall structure, recognising the knowledge contribution in relation to the contemporary position and musing over potential future research and the limitations associated with the methodology selected.

9.3 Questioning the Contemporary Industry

As the imperfect nature of the construction industry was said to favour the use of more sophisticated mechanisms of relationship governance than mere competitive bidding, with partnering advocated as that mechanism for developing and improving inter-organisational relationships, the industry (to date) remains relatively unchanged. Therefore, as identified through the meta-inference, the key pressure continues to be financial with the stimulus remaining lowest cost. So whilst no industry consensus as to when a particular procurement route should be used, work is primarily secured via competition which repeatedly leads to poor service quality and/or substandard workmanship, as well as disjointed supply relationships and/or the prospect of rebidding. Consequently as phase one findings recorded an overall negative perception as the construction industry was not considered 'inclusive' or 'mutually beneficial', while 'adversarial' and 'fragmented' with poor communication, the overall perception of the industry remains diverse, as phase two findings skewing positive. Therefore as a result of the continuous criticism and sustained and increased pressure to improve the construction industry's less than optimal performance, long term relationships as opposed "a new team for every piece of work" (Wolstenholme, 2009) have persistently been recommended. For this notion of partnering, broached by a string of reports, was said to bring significant benefits by improving quality and timeliness of completion through a commitment to promote more positive and collaborative relationships that resulted in a common purpose leading to mutual advantage. Yet whilst considered "multifaceted", as there was said to be no single unified practice based theory, definition or approach (Bresnen, 2009), this research concluded the identified term 'partnering' was said to have been used too often and out of context. For whilst findings identified sufficient understanding of partnering within the construction industry generally, there was said to be a poor level of cooperation/understanding at the individual project level (Chapter 7, item 7.3.4). Hence the partnering concept did not filter down to all levels of the supply chain. Further as phase one confirmed there was very few, if any, companies that had suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership, phase two concluded the development and implementation of a partnering strategy was necessary.

With widely diverging views as to what was meant by the term partnering (Cain, 2001) this research also acknowledged partnering was a confused concept because it meant different things to different people. Though having established partnering was considered a procurement method as opposed a contractual arrangement, Bygballe *et al.* (2010) acknowledged different approaches and applications of the partnering concept had developed. Yet as the underlying principles common to all ‘true’ partnering approaches were identified as a commitment to promote more positive and collaborative relationships this research also recognised while frameworks were generally embraced by public sector bodies rather than private organisations, open market competition remained the most popular approach as an endeavour to reduce cost and so realise the lowest cost at day one. So with downward competitive pressure throughout the supply chain facilitating cost reductions and very high levels of competition in supplier selection this has had a negative effect on establishing supply chain relationships. For as many construction supply chains exist for the duration of a single project, albeit research identified partnering as a long term business relationship based on trust and continuous improvement, many industry participants adopt a short term view on business development with little interest in enhancing their long term competitiveness. Therefore whilst deemed mutually beneficial a number of organisations remain pessimistic about collaborative procurement strategies and prefer to ‘stick to what they know’ which is a reliance on more traditional procurement methods.

Accordingly with the aim being the introducing and utilisation of a conceptual collaborative framework as a prescribed conduit towards a paradigm of sustained partnering growth through guidance, governance and commonality, with a view that this would transpire into all supply chain members winning and therefore all having prizes (Wolstenholme, 2003), the research tackled the following objectives;

- A synthesis of seminal literature relating to the various procurement methods, in order to identify, explore and document the main reasons why the sector continues to be perceived adversarial;
- Ascertain if a clear definitive explanation exists for partnering and investigate the contemporary role of partnering within the construction process;
- Develop a variance table that captures findings from an analysis of key cross industry management systems. Thus compare and contrast the various

facets of each albeit with particular regard to their particular sector of origin and general consumption before considering their suitability in relation to a construction projects topography;

- Establish whether a solid theoretical foundation in partnering actually exists and is this procurement method favourable in practical terms;
- Identify potential areas of commonality and disparity in order to assess and document perceptions;
- Develop a conceptual partnering framework in order to steer true partnering throughout the supply chain.

9.4 Conclusions of the Research Study

The elemental theory coupled to this research was the development of a dynamic conceptual engagement framework in order to realise the congruous evolution of supply chain collaboration. Though whilst the interpretivist first phase sought to build theory as a result of empirical insight (i.e. explore the partnering phenomenon in depth, tie relevant elements together, categorise and code) it would ultimately assist in the preparation of an appropriate measuring instrument to gauge the level of attainment during the second phase. It was nevertheless based on a critical review of literature as a foundation that guided and loosely framed this study. Moreover as the context of the research also helped identify and check the key aspects of the topic in relation to importance and meaning, it also provided the ideas for the development of multiple assumptions. So with a clear rationale (as previously identified) in relation to the five assumptions (Figure 5.18) established from the exploratory (inductive) first phase, the specific statements of prediction that “offer[ed] a more effective way of organising [the] research” (Railsback, 2004) are as noted below.

The primary assumption, albeit sequentially fifth upon Figure 5.18 and therefore discussed last in Chapter 8 was;

- Partnering is the vehicle for change but a generic representation would provide that better wholesale comprehension, engagement and control to

ensure continuity and create efficiencies both within and between relationships.

The secondary or supporting assumptions, all of which are ‘descendent’ to the above ‘parent’ primary assumptions and only of interest (in a confirmatory sense) if the respective primary assumption is rejected are;

- The industry’s negative perception has remained consistent over the years with the recognised ills affecting all supply chain members;
- Different contributors proposing diverse partnering definitions and/or arrangements/solutions has meant no clear established consensus. Thus partnering has not yet recognisably arrived at the moment of convergent evolution;
- In relation to partnering the level of key player involvement varies according to their perceived status (i.e. tier position), whilst dominant organisations pay ‘lip service’ to the partnering ethos;
- The construction industry currently has no objective way to spread a consistent message as to what partnering is and so allow each organisation, within their relevant supply chain (across the various tiers) to establish what it actually means to them, irrespective of their perceived hierarchal position.

This research has established the majority of organisations across the four disciplines identified partnering as the inclusion upon a framework, where each project was competitively secured. It also concluded whilst there was a lack of customer focus, the construction industries clients were dissatisfied with the performance of the construction industry; particularly in respect of time cost and quality. Also with the key pressure identified as financial; because the stimulus was lowest cost at day one, main contractors and sub-contractors pursued their self-interests to such an extent that collaborative working was impossible to achieve. Consequently as Lavender (2014) acknowledged the industry had a poor image and the traditional system of procurement was disparaged because it failed to deliver the performance for which it was capable, the central aim has remained the development of approaches that facilitate efficient and productive work. Yet this has not changed since the Simon Report (1944) where the practice of open tendering

was criticised because it meant tenderers submitted low bids only to make up their income by reducing quality or making claims. So as the UK construction industry generally remains adversarial with disjointed supply relationships due to projects being “treated as a series of sequential and predominantly separate operations where the individual players have very little stake in the long-term success of the resulting building or structure and no commitment to it” (Briscoe and Dainty, 2005) the first secondary assumption is supported. Moreover whilst Murray and Langford (2003) stated the “theme of procurement provide[d] a constant thread through the post World War II years”, the industry continues to have comparatively little vertical integration within the supply chain. Though there is a major reliance on subcontracting albeit the partnering designation appears looser than Egan’s (1998) initial ‘utopian’ objectives. Hence competition remains central in order to realise lowest price at day one. So whilst a large number of companies agreed they ‘partner’, although the term ‘select list’ was also commonly used, the partnering discussed both up and downstream where either framework based or approved/select lists. Therefore with over half believing they operated as informal partners and so understood and cooperated with the complete supply chain with fewer disputes the terms ‘partnering’ and/or ‘partnering arrangements’ were freely used to describe a variety of associations. Accordingly the industry customarily remains competitively driven irrespective of the procurement method employed. Though Bresnen and Marshall (2000) recognised a division existed between those that saw partnering as an informal and organic development i.e. an approach rather than a contractual arrangement that developed over time, and those who regarded it as something more formal i.e. engineered/established from the outset. Thus, as the literature review established there was a broad agreement about the overall partnering philosophy but “no one single clear definition” (Bresnen, 2009), there remains considerable uncertainty and debate about the range of mechanisms that encompass partnering. As survey respondents recognised their partnering tools and/or techniques were minimal or non-existent, the second secondary assumption is also supported.

With a positive tilt in respect of the whole industry remaining committed to the concept of partnering, as findings concluded work was primarily secured via competition where lowest price would be realised at day one, it was recognised the complete supply chain was not actively engaged in the partnering ethos. So whilst Akintoye and Main (2007) and Davey, *et al.*, (1998) alleged partnering between clients and contractors was

commonplace this was fundamentally concerned with relationships between the client and main contractors. So as the survey findings established a dominant upstream partner, who dictated terms and conditions, proceedings, etc. would always exist and there was a greater focus on that upstream relationship, it is theorised any procurement strategy implemented is dictated by the dominant (upstream) discipline who then generally promotes harsh competition downstream. Though with no industry consensus when a particular procurement method should be used and very few opportunities to secure long term contracts due to a lack of loyalty because the vast majority of the procurement approaches were financially driven, findings also highlighted a company's hierarchal position within the supply chain was significant in respect of their preferred and most frequently used procurement strategy. Meaning as the key pressure remains financial, with 'low profit margins' and 'cost cutting' identified by a number of respondents, the clients and main contractors preferred and most frequent procurement strategies were generally unvaried whilst 5 out of 5 subcontractors frequently secured their work traditionally or non-traditionally (albeit 3 out of 5 identified partnering/frameworks as their preferred). It is therefore theorised any procurement strategy implemented is dictated by the dominant (upstream) discipline who then generally promotes harsh competition downstream. Thus in respect of the research findings which highlighted a company's hierarchal position within the supply chain was significant in respect of their preferred and most frequently used procurement strategy, this, the third supporting assumption is also confirmed.

Research findings established while various procurement methods are utilised across the industry there is a general understanding that frameworks have been embraced by public sector bodies. So whilst larger private sector organisations have more autonomy than the public sector and so operate without the same restrictions in terms of procurement regulations or the need to demonstrate best value (even though the vast majority of procurement approaches were financially driven) a shift was also noticed from promoting broadest competition towards integrated supply chain mechanisms that encouraged mutual benefit, albeit separate contractual documentation would always be in place. However the literature review alleged partnering was never intended as an actual type of contractual arrangement or procurement method; rather an approach to procurement and so a division existed between those who saw partnering as an informal and organic development; where the partnering arrangement effectively superseded the contracts role, and those who regarded it as something more formal where the contract was a crucial safeguard against any breakdown of the partnering

arrangement. Yet as research found the construction industry remained committed to the concept of partnering and overall there was sufficient understanding of partnering, there was said to be a poor level of cooperation/understanding of the partnering ethos throughout each particular supply chain and no single unifying practice based theory or approach (Bresnen, 2009). So whilst there was marginal disagreement to the question relating to signing up to a framework agreement constituted partnering, partnering was said to mean compliance with an up-stream supply chain member's terms and conditions. Hence as it is concluded that the construction industry currently has no objective way to spread a consistent message as to what partnering is the fourth supporting assumption is too confirmed.

With regards to the primary assumption, having acknowledged each of the above accepted supporting assumptions, a generally positive picture was painted across the four disciplines in respect of working more collaboratively. Though whilst a large number of companies agreed they partnered, be that formally or informally, a closer analysis recognised the term 'select list' was also commonly used and the partnering discussed by the main contractors and sub-contractors, both up and downstream where either framework based or approved/select lists. Hence the terms 'partnering' and/or 'partnering arrangements' were freely used to describe a variety of associations. So as a partnered approach offered a positive shift in terms of improved communication throughout the supply chain, very few companies, if any, had suitable/sufficient tools, techniques or arrangements in place to establish/maintain a partnering approach throughout the supply chain, which lasted the full duration of the partnership. Therefore it was accepted whilst tender documentation often talked about a partnered approach nobody seemed to have come up with a way to deliver in practice, albeit it was said that a number of principles around the way to procure partnering did exist. So accepting a partnered approach offered a positive shift in terms of improved communication throughout the supply chain; as effective and appropriate communication was necessary in order to building relationships, true collaboration was acknowledged as more than signing up to a partnering framework. This research therefore concludes there is a considered need to develop and implement a partnering strategy in order to set out the complete supply chains prescriptive aims and objectives, which would then be measured throughout the scheme, as findings suggest this is currently lacking. Consequently, as good communication is said to rely on commitment, cooperation and a supply chains understanding of the partnering concept as well as good working relationships both up and downstream, that went beyond the 1st tier, there was overall

harmony that a positive relationship had a constructive effect on each particular project; as well as improving future work prospects. Hence the primary assumption is supported in respect of a generic representation providing that better wholesale comprehension, engagement and control of partnering that ensures continuity and creates efficiencies both within and between relationships. Although accepting any vehicle for change would only provide the ingredients for the partnership as partnering cannot be imposed but can create the right atmosphere in order to ensure the right approach is adopted.

9.5 Recommendations

A number of recommendations to the construction industry at large, including all large, medium and small organisations (across all disciplines), institutes and associations, strategic forums and academia, in order to improve supply chain partnering, are presented as follows:

- As the supply chain has been identified as behaviourally ill-equipped, rather than a reliance upon traditional procurement where every scheme is separately tendered and lowest price wins, consideration must be given to the packaging of projects (where possible) in order to establish integrated teams made up of existing supply chain members kept together and moved from project to project so that continuous and sustainable improvements are pursued, rather than price-oriented contracting;
- With Latham (1994) noting “the only true effective way of delivering great buildings...was to achieve excellence at both a business and project level through collaboration”, adopt a singularly agreeable definition of what partnering means, which clearly demonstrates the nature and merits of practicable partnering and so identifies what ‘true’ partnering would achieve. For whilst partnering has been characterised as a continuous, consistent, proactive team approach, and therefore deemed the foundation for any interrelated construction project, as there is no unified understanding of partnering, its successful realisation through the implementation of a suitable management strategy would be considered ambiguous;
- As Tennyson (2011) suggested partnering was easy to talk about but invariably harder to undertake, it was accepted that integrated working

remained an under-utilised concept in the construction industry. So whilst the implementation of a partnering relationship was often hampered due to a lip service culture caused by a reluctance to “...focus on defining, identifying and delivering better value rather than low[est] price (Thomas and Thomas, 2008), as a complex and complicated concept (Nystrom, 2005) and therefore an “alien approach [which for many is] difficult to plan and implement” (Carmichael, 2002) a conceptual model, in the form of an Incorporated Partnering Standard is suggested. For an established management system, as a prescribed conduit towards continuous improvement would help contracting parties develop an organisational culture that was informed, experienced and planned (Mignot, 2011);

- The various constructor disciplines, particularly main contractors who are not said to be interested in developing cooperative relationships with sub-contractors (Eriksson, *et al.*, 2007) and those deemed lower tiered who have “very little stake in the long-term success of the resulting building or structure” (Egan, 1998) to be encouraged to actively engage with other supply chain members in order to inspire a move from historic (traditional) to transitional then aspirational (Figure 1.4). Therefore develop, collate and share tools and activities in order not only to arrive at the moment of congruous evolution but establish consensus. For the industry is said to have “...taken its eye off the reform agenda [which has resulted] in the erosion of the partnering/early contractor engagement culture” (BIS, 2013);
- The prohibition of subcontracted work packages being rebid in order to reduce prices through price cutting rather than cost reduction, as this is said to adversely affect the extent of supply chain alignment and arguably the attainment of best value delivery due to a lack of mutual understanding, trust, cooperation, etc. Hence many of the practices associated with the current procurement methods reduce the ability and incentive of the project supply chain to work collaboratively in order to improve the prospect of success;
- Because team players rarely work together on similar second schemes due to conventional procurement arrangements, where single projects are secured through competitive tendering meaning hands-on experience is

“hardly passed from project to project, [organisation to organisation] or person to person” (Lee, 1998). Therefore lessons learned are to be systematically incorporated into each scheme via the legacy achieve (Figure 8.3). Therefore in an effort to develop, collate and share tools and activities specifically targeted at effective collaborative working this accumulated knowledge will help projects become less adversarial and more integrated.

9.6 Contribution to Knowledge

The study of partnering in the UK is widely recognised in construction literature, the nexus of which was predominantly reinforced by a number of reports including: the Latham Report (1994); the Egan Reports (1998; 2002); the Wolstenholme Report (2009); various Constructing Excellence reports (2004; 2006) to name but a few. However, whilst the implemented recommendations from those reports had an impact on behaviours within the supply chain (BIS, 2013), an understanding of how construction partnering impacted the whole partnering supply chain received very little attention. Furthermore, while the Construction Best Practice Programme was to “...develop, collate and share tools and activities specifically targeted towards small to medium enterprises (SMEs)...” (Egan, 2002), lessons learned to date do not seem to have been systematically incorporated into the whole process. Given these issues and challenges raised in contemporary discourse, various representatives from a large number of organisations have had opportunities for accumulating a plethora of knowledge from hands-on experience which was “...hardly passed from project to project or person to person” (Lee and Dale, 1998). Chapter 2 and Chapter 3 identified the main challenges facing conventional construction; Chapter 4 presented the research design and methodology; Chapter 5, Chapter 6 and Chapter 7 presented primary data and contextualising issues; Chapter 8 presented the development and testing of the conceptual model. The precise elements of originality and contribution of this research to theoretical and practical standpoints are discussed under ‘theory’ and ‘practice’.

9.6.1 Theory

This research, uncovers new meaning and understanding of partnering through eight key drivers. Ten critical factors documented as part of this research (Table 5.14) can objectively be encompassed within the eight key drivers. This research also identified new partnering relationships and dynamics particularly from multiple stakeholder perspectives. For as design

and construction is likely to bring together large numbers of diverse disciplines and organisations; many of whom will not have worked together before, the conceptual model, as the adopted approach will establish and maintain collaborative principles (and practices) and so support the development of the collaborative culture. These forces are consistent with findings from Social Science and Behavioural Science scholars, particularly concerning Social Rules/Interpersonal Relationships, Communication and Decision Science (Kelley and Thibaut, 1978; Munns 1995; Gill and Butler, 1996; Wong and Cheung, 2005). For example, collaborative working was seen to be highly dependent on trust and this was considered fundamental for effective joint working relationships. These findings also resonate with the findings of Management Science scholars in Organisational Settings (Butler, 1991; Mayer, et al., 1995; Hosmer 1995; McAllister 1995; Rousseau, et al., 1998; Cheung, et al., 2003; Lau and Rowlinson 2009).

9.6.2 Practice

It is generally accepted that if discipline representatives were involved across the supply chain and throughout the various tiers, that this would result in cross-functional integration, and subsequently improve the procurement process (Jassawalla and Sashittal, 1998; Akintoye and Main, 2007; Wolstenholme, 2009). Accordingly, as "...all projects involve a large number of low value transactions..." (BIS, 2013) and much of the value of construction actually delivered "...by a disaggregated Tier 3 supply chain" (BIS, 2013), there was a need to espouse these issues further in practice debate. Given this, the conceptual model offers a conduit towards a paradigm for sustained partnering growth through guidance, governance and commonality. Hence the significant original contribution which emerged from the gaps within this, presented a conceptual model for wholesale supply chain collaboration. Whilst novelty and interpretation engage eight key drivers (i.e. commitment, communication, cooperation/understanding, cost/productivity, customer satisfaction, relationships, time and trust), these alone are acknowledged as being entrenched – particularly the longstanding fragmentation associated with construction supply chains. This conceptual model therefore, highlights these challenges and offers readers an opportunity to better understand these relationships within the context of a

disjointed construction industry are therefore seen as being pivotal, as understanding these factors can have a direct influence on supply chain performance. As a result, this research provides the following practice-related outputs;

- Issues associated with the apparent lack of commonality, especially contemporary understanding of the partnering concept; detailing generic representation; the identification of specific ingredients (i.e. eight key drivers) to improve wholesale comprehension, engagement and control of the partnering ethos;
- Specific constructs to support effective supply chain management; how superior performance can be achieved through multi-stakeholder perspectives and positioning;
- Relationships and drivers for successfully delivering a typical partnering solution; a conceptual model for helping stakeholders understand, embrace and achieve shared collaboration;
- Opportunities for further research, including the need to generate supply chain evidence; micro analysis to supplement existing contractual arrangements and management systems; and the need to provide greater transparency in order to present a more 'consistent partnering message'.

9.7 Future Work

The main purpose of this thesis was the provision of a suitable management solution that engaged all supply chain members and delivered practical sustainable benefits. This work therefore demonstrated a clear need to improve inter-organisational collaboration having ascertained a clear definitive explanation for partnering as debate still existed around its nature and merits (Bresnen and Marshall, 2000; Green, 1999; Bresnen, 2007; Alderman and Ivory, 2007) with the concept of partnering not being easily defined (Cheung, *et al.*, 2003) whilst puzzling in respect of what it was supposed to achieve (Naoum, 2003). However to ensure the complete supply chain, and especially the subcontracting SME's, were confident other members of the team, in particular those identified as dominant were not being opportunistic i.e. 'paying lip service', which meant a reversion back to more

traditional methods, a consistently transparent method of overall governance and guidance could be initiated. However the intricacies of some form of partnering accreditation scheme, where each relevant organisation across the discipline spectrum was assessed in respect of their partnering competence, or a body responsible for the encouragement, regulation and enforcement of partnering is outside the scope of this work, albeit identified as an area for future work.

The principles of collaborative working where “all have won and all must have prizes” (Wolstenholme, 2009) has been the subject for a sizeable number of research papers, as well as government and industry reports, all as previously detailed (Chapter 2). However what was not secreted is any clue as to an organised structure in respect of how partnering was to be comprehensively delivered. So purporting how a generic representation could provide that better wholesale comprehension, engagement and control of partnering in reality has given little cognisance to the subcontractors and suppliers working for subcontractors and suppliers (termed Tier 3), who also subcontract (Tier 4) albeit having a direct influence upon the dependent project structure. So as the dynamic conceptual engagement framework is to be incorporated as part of any procurement system from inception and promote the active engagement of supplemental organisations as and when appointed Chapter 8 has suggested one size of incorporated partnering standard fits all. Yet the thesis identifies more real world research is required particularly in respect of the smaller enterprises that Wolstenholme (2009) stated “numerically dominate[d] the industry”, for the partnering theme has been saturated with rhetorical seduction (Green, 1999) meaning a clearer practical understanding of the subsidiary organisations is required.

Other areas of potential future work include;

- More empirical research on the key motivational constructs associated with effective partnering on single projects and/or the last project from a programme of works;
- Ample scope for more empirical studies to explore and document the factors that impact the various organisations and individuals across the disciplines and throughout the tiers on the low level of true partnering engagement.

Such studies should attempt to uncover issues to do with dominance, cultures and sub-cultures, education and training;

- The development of the Incorporated Partnering Standard, which includes the macro process map, the contextual model and micro analysis, can be further developed into a key performance indicator. The incorporation of a IPS KPI would not only be useful for all disciplines and tier levels associated with current and potential projects but would also be useful for researchers and industry bodies (i.e. Constructing Excellence) to identify future scope of performance management in respect of partnering within the construction industry as a whole;
- Further external validation in order that the conceptual model can be better generalised. This taking the form of an in-depth investigation, or case study, where the Incorporated Partnering Standard is implemented on a new-found scheme and the findings recorded. For as validity refers to the approximate truth around this conceptual model, the degree to which the findings from this research would hold for other persons, in other places and at other times needs to be considered further;
- Given the rapidly changing procurement environment within construction, particularly as a result of technology such as Building Information Modelling (BIM) and Modern Methods of Construction (MMC), this needs to be studied in relation to the conceptual model. For whilst the model is a vehicle to bring the eight key drivers to fruition throughout the complete project team, and so identify the specific activities to accomplish successful partnering, BIM is also judged a way of worked. Therefore, as BIM is information modelling and information management in a team environment, where all team members should be working to the same standards, there is a degree of overlap that needs thought, as both concepts create value from the combined efforts of people, processes and technology;
- Consider collaborative working approaches in construction. For it is being increasingly recognised as a key factor in meeting client expectations. As an overarching principle to reduce cost, completion time and overall project risk, consideration should be given as to what the right combination of factors would be to improve the collaborative environment.

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APPENDICES

APPENDIX 1

Attributes, Antecedents and Consequences of Partnership and Collaboration

Partnering	Collaboration
Short or long term (partnering is relationships)	Long term
Trust and confidence in accountability	Trust and respect in collaborators
Two or more parties (joint working)	Open and inclusive process (joint venture)
Respect for specialist expertise	Knowledge and expertise more important than role or title
Informal to formal relationships defined by different partnership arrangements	Formal relationships defined by different partnership arrangements
Participants may represent a single constituency	Participants represent a broad range of community interest
Combine assets to accomplish the goal	A tool to engage a broad array of diverse entities
Blurring of professional boundaries	Non-hierarchical relationship
Choice of decision-making tools	Decision-making tool, often consensus or modified consensus
Commitment to an individual mission, but understand their partner's mission	Commitment to a common vision
Individuals retain their authority	Individuals retain their autonomy
Enhances own and each other's capacity	Enhance own and each other's capacity
Members of partnerships share the same vested interest	Willingness to work together towards an agreed purpose
Appropriate governance structures	Partnership
Common goals	Inter-dependency
Transparent lines of communication within and between partner agencies	Highly connected network
Agreement about objectives	
Reciprocity	Low expectation of reciprocation
Antecedents	
Individual, local and national initiatives	Educational preparation, maturity and experience to ensure readiness
Commitment to shared vision about venture	Understanding and acceptance of role and expertise
Willingness to sign up to creating a relationship that will support vision	Confidence in ability and recognition of disciplinary boundaries
Value cooperation and respect what other partners bring to the relationship	Effective communication, respect for and understanding of other's roles
	Sharing of knowledge, values, responsibility, vision and outcomes.
	Willingness to participate in formal, structured joint working to the extent that they do not rely on reciprocation in

	order to ensure each contributes to the shared vision
Consequences	
Social exclusion tackled more effectively through multi-disciplinary action	More effective use of staff due to cooperation rather than competition
Less repetition of service provision from different organisations	Demystification due to bridging of gaps between fragmented service provision
Less dilution of activities by agencies	Cross population of ideas
Less chance of members producing services that are counterproductive to each other	Sharing of effort and ultimately sharing of organisational structure
Barriers	
Complexity of relationships	
Desire of individuals not to be involved in making decisions about their care	
Role boundary conflicts	
Inter-professional differences of perspective	
Threats to professional identity	

(Carnwell and Carson, 2009)

Table 1.1: Attributes, Antecedents and Consequences of Partnership and Collaboration

APPENDIX 2

Advantages and Disadvantages of Partnering

Advantages	Disadvantages	Observation
Active management of all the project in all respects, as opposed to 'reactive' management when problems arise.	Success of project depends on personal commitment & trusting relationships, which can be difficult to develop.	Some partnering arrangements work well whilst others pay lip service to the concept.
Potentially reducing cost & project duration & improving quality of deliverables.	Necessary investment in developing new processes, training & teambuilding to maximise prospects of success.	Ability to deliver depends on the quality of the team. The recent recession has significantly dampened enthusiasm due to requirement to decrease budgets.
Continuous & maximised input from all participants.	Perception that partnering is a barrier to pure market forces & competition outside of the partnering arrangements.	Potential problem in that the benefits of partnering are not routinely passed down the supply chain
Collaborative relationships with mutual trust & shared ownership of risk/ problems throughout the life of the project.	Legal uncertainty surrounding new form of contracting, including a potential lack of legal enforceability of the arrangements.	The lack of a partnering/ alliance contract tempts client/ contractors to ignore the alliancing concepts when the going gets tough.
Value for money developed over a series of projects. Continuous improvement over time.	Risk of 'cosy relationships' & complacency and/or loss of interest once initial positivity fades.	-
A perceived reduction in the number of disputes.	The partnering process can be abused by one or more of the parties	As Figure 2.1 identifies there must be a full commitment to partnering throughout the complete supply chain.
Based on an open book and a win/win culture.	The process requires more client resource to compensate for the less competitive environment, and the process can collapse when one party becomes disadvantaged.	
The main benefits are generated from strategic partnering (multiple projects) rather than a single project.	To be most effective partnering needs to be practiced and learnt over a series of projects and typically requires an early commitment in terms of management resources and direct costs.	As Figure 2.3 illustrates.
There is integration of the design process with the construction process.	The direct costs of workshops, of training staff and of the more intensive early involvement of management in establishing the partnered approach.	

(Osborne Clarke, 2012)

Table 2.1: Advantages and Disadvantages of Partnering

APPENDIX 3

Dalling Unified Organisation

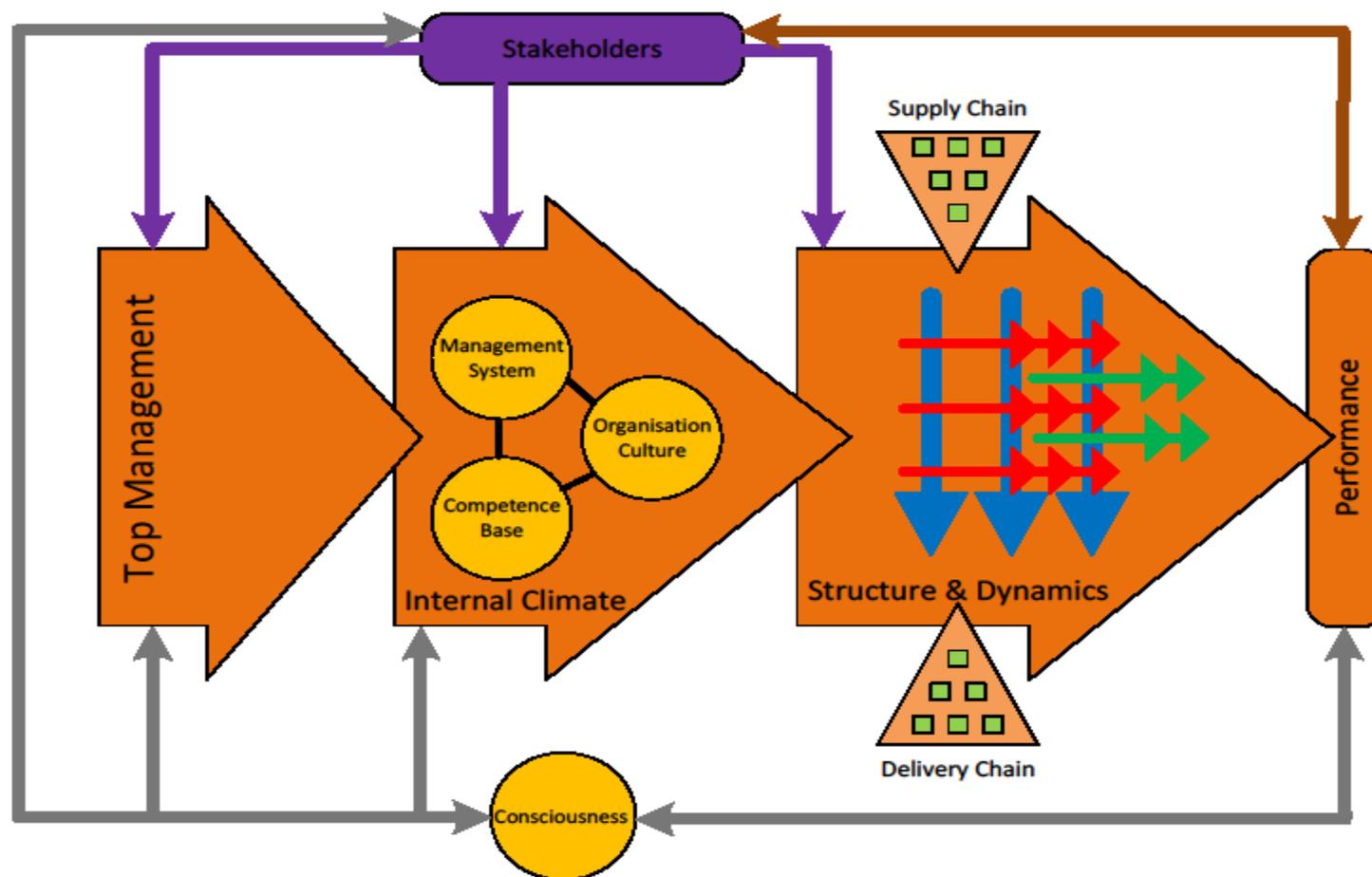


Figure 3.1: The Dalling Unified Organisation

APPENDIX 4

Strategic Management Types

Six Sigma			
Developed:	1986	Sector:	Manufacturing (mainly)
Purpose:	Process improvement via set of strategies, techniques & tools.	Approach:	Identifies & removes defect causes (errors) & minimises variability.
Techniques:	Set of quality management methods including statistical methods & the creation of a special infrastructure of people within the organisation who are experts in the methods – ‘champions’.		
Philosophy:	<ul style="list-style-type: none"> ❖ Continuous efforts to achieve stable and predictable process results; ❖ Process characteristics that can be measured, analysed, controlled and improved; ❖ Commitment from the entire organisation (particularly top level management) in order to achieve sustained quality improvements. 		
Characteristics:	<ul style="list-style-type: none"> ➤ Clear focus on achieving measurable and quantifiable financial returns from any Six Sigma project; ➤ Increased emphasis on strong and passionate management leadership and support; ➤ A special infrastructure of ‘champions’, ‘master black belts’, ‘black belts’, ‘green belts’, etc. to lead and implement the Six Sigma approach; ➤ Decisions made on the basis of verifiable data and statistical methods, rather than assumptions and guesswork. 		
Methodology:	DMAIC (Define, Measure, Analyse, Improve & Control) – used for projects aimed at improving an existing process;	DMADV (Define, Measure, Analyse, Design & Verify) – used for projects aimed at creating new product or process designs.	
Tools/Methods:	<p>Six Sigma utilises many established quality-management tools that are also used outside Six Sigma. The following list identifies the main methods;</p> <ul style="list-style-type: none"> • 5 Whys (iterative question asking technique); • Analyse of variance or ANOVA (the analysis of a collection of statistical models in order to find differences); • Business Process Mapping (business purpose, who’s responsible, completion standard & determination of success); • Check Sheet (form/document to collect real time data where generated. Data either qualitative or quantitative); • Chi-squared test (any statistical hypothesis test where sampling distribution test statistic is a chi-squared distribution and the null hypothesis is true); • Cost benefit analysis (a systematic process for calculating & comparing benefits of costs); • Quality Function Deployment (method of transforming user demands into design quality); • Root Cause analysis (problem solving through identifying root cause); • Balanced Score Card; • Critical to Quality (CTQ) Tree (used during design phase of DMAIC to brainstorm and validate needs and requirements); • Process summary worksheet (a ‘roll up’ of the sub-processes map indicating which steps add value in the process and which steps don’t); • Cause and effect diagram (assists project team to determine root causation, as tool captures ideas of the project team relative to what they feel are the root causes behind current sigma performance); • Run/Control charts (the run chart records a process element over time while control chart uses the data from a run chart to determine the upper and lower control limits); • Affinity Diagram (used to sort and categorise large number of ideas into major themes or categories). 		

Balanced Scorecard			
Developed:	1992	Sector:	Various
Purpose:	To balance financial and non-financial measures that drives strategy (developed from mission, vision & values) in an endeavour to bring together disparate elements of an organisation.	Approach:	Identification of a small number of financial and non-financial measures and attaching targets to them, which are ultimately measured.
Techniques:	Identifying the company's mission, values, vision and strategy before presenting a mix of financial and non-financial measures that have been compared to a target value. Therefore when reviewed it is possible to determine whether current performance meets expectations. Managers are therefore alerted to areas where performance deviates from expectations and so encouraged to focus their attention.		
Philosophy:	<ul style="list-style-type: none"> ❖ Articulate the business's mission, values, vision and strategy; ❖ Identify the performance categories that best link the business's vision and strategy and measure whether the desired results are being achieved; ❖ Ensure company wide acceptance of the measures; ❖ The scorecard a device that translates vision into reality. A well developed scorecard is expected to stimulate behavioural changes within an organisation; ❖ The objectives created act as a bridge from high level strategy to specific performance measures, which will be used to determine progress. 		
Characteristics:	<ul style="list-style-type: none"> ➤ Mission Statement – in defining the core purpose of the organisation it examines the raison d'être for the organisation beyond simply increasing shareholders wealth; ➤ Organisational Values – identification of the timeless principles that guide the organisation. So in representing the deeply held beliefs of the company these are demonstrated through the day-to-day behaviours of employees; ➤ Vision Statement – provides a word picture of what the organisation intends, and so gives a shared mental framework which gives form to the often abstract future; ➤ Strategy – this being the high level plans management devise to lead the organisation into the future; ➤ Identified Objectives – a set of concise performance objective statements that describe what must be done well in order to execute business strategy; ➤ Measurement - scorecard not intended to be complex – typically no more than 20 measures spread across a mix of financial and non-financial topics, which are easily reported manually. 		
Methodology:	Ultimately about choosing measures and targets. The various design methods proposed are intended to help in the identification of those measures and targets.	Four 'perspectives' proposed, albeit these considered a template and not a straightjacket. The chosen perspectives based on what is necessary to tell the story of the strategy.	
Tools/Methods:	<p>A well constructed balanced scorecard should tell the story of the organisation's strategy through a relatively small number of measures woven together through the perspectives. The four perspectives are;</p> <ul style="list-style-type: none"> • Financial – encourages the identification of a few relevant high-level financial measures; • Customer – encourages the identification of measures that answer the question 'how do customers see us?'; • Internal business processes – encourages the identification of measures that answer the question 'what must we excel at?'; • Learning and growth – encourages the identification of measures that 		

	<p>answer the question 'how can we continue to improve, create value and innovate?'</p> <p>In developing metrics, collecting data and analysing it relative to the perspectives, the goal for the balanced scorecard is the evolution from a measurement system to a strategic management system, where the scorecard is the cornerstone of management processes throughout the organisation.</p> <p>The balanced scorecard is not a piece of software and whilst automation adds structure and discipline to implementing the balanced scorecard system, it does need to be developed and implemented. Yet the Balanced Scorecard Institute formally recommends the QuickScore Performance Information System.</p>
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Integration Definition for Function Modelling (IDEF0)			
Developed:	1981	Sector:	Manufacturing, software engineering.
Purpose:	To model the decisions, actions and activities of an organisation or system. Effective IDEF0 models help to organise the analysis of a system and promote good communication between the analyst and the customer.	Approach:	Designed to organise systems analysis and promote effective communication between the analyst and the customer through simplified graphical devices to show data flow, system control and the functional flow of life cycle processes.
Techniques:	A modelling tool used to model a wide variety of automated and non-automated systems. For new systems may be used to define requirements and specify functions and then to design an implementation that meets the requirements and performs the functions. For existing systems used to analyse functions the system performs and record the mechanisms (means) by which these are done. The result is a model that consists of a hierarchical series of diagrams, text and glossary cross referenced to each other.		
Philosophy:	<ul style="list-style-type: none"> ❖ Functional modelling language building on structured analysis and design technique; ❖ Presented in an organised and systematic way to gain understanding, support analysis, provide logic for potential changes, specific requirements, etc.; ❖ Reflects how system functions interrelate and operate (just as the blueprint of a product reflects how the different pieces of a product fit together). 		
Characteristics:	<ul style="list-style-type: none"> ➤ Box and arrow graphics, where box is a function and the arrow as an interface to or from the function; ➤ Comprehensive and expressive, capable of graphically representing a wide variety of business, manufacturing and other types of enterprise operations to any level of detail; ➤ Coherent and simple language, providing for rigorous and precise expression, and promoting consistency of usage and interpretation; ➤ Enhances communication between systems analysts, developers and users through ease of learning and its emphasis on hierarchical exposition of detail; ➤ The system can be any combination of hardware, software and people; ➤ Diagrams are the major component of a model. 		
Methodology:	Step by step procedures provided for modelling, review and integration tasks. Therefore composed of a hierarchical series of diagrams that gradually display increasing levels of detail describing functions and their interfaces within the context of the system.	Successful systems development requires input and validation from the people will ultimately use the system. The author/reader cycle serves as the mechanism to facilitate communication between systems analysts and users. Accomplished by distributing kits containing IDEF0 models and supporting documentation to the reader community for comment and critique.	
Tools/Methods:	<p>There are three types of diagrams; graphic, text and glossary. The graphic diagrams define functions and functional relationships via box and arrow syntax and semantics. The text and glossary diagrams provide additional information in support of graphic diagrams.</p> <p>Characteristics of Activity Boxes;</p> <ul style="list-style-type: none"> • Represents key activities of the enterprise, from selected viewpoint; • Named using 'active' verbs or verb phrases; 		

	<ul style="list-style-type: none"> • Decomposed into groups of lower level activities; • Grouped to no more than 6 activities to a single level of model; • Numbered in sequence in a single level, according to 'dominance'. <p>Characteristic of Arrows;</p> <ul style="list-style-type: none"> • Represent collection of things (artifacts); • Named using nouns or noun phrases; • Connect activities together, and connect them to interfaces; • Arrows classified into categories (inputs, outputs, controls, <p>Provides a systems engineering approach to;</p> <ul style="list-style-type: none"> • Performing systems analysis and design at all levels, for systems composed of people, machines, computers and information of all varieties – the entire enterprise, system or subject area; • Producing reference documentation concurrent with development to serve as a basis for integrating new systems or improving existing systems; • Communicating among analysts, designers, users and managers; • Allowing coalition team consensus to be delivered by shared understanding; • Qualitative measures to manage large and complex projects;
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Business Process Reengineering (BPR)			
Developed:	1990	Sector:	Various.
Purpose:	Fundamentally rethink how organisations do their work in order to dramatically improve customer service, cut operational costs and become better competitors.	Approach:	Seeks to help companies radically restructure their organisations by focusing on the ground-up design of their business processes.
Techniques:	Re-engineering emphasizes a holistic focus on business objectives and how processes relate to them, encouraging full-scale recreation of processes rather than iterative optimization of sub-processes. The concept of business processes - interrelated activities aiming at creating a value added output to a customer is the basic underlying concept.		
Philosophy:	<ul style="list-style-type: none"> ❖ Rethink and radically redesign an organisations existing resources; ❖ BPR more than just business improvising as it's an approach for redesigning the way work is done to better support the organisation's mission and reduce costs; ❖ Only after an organisation rethinks what it should be doing, does it go on to decide how best to do it; ❖ BPR focuses on re-designing the process as a whole in order to achieve the greatest possible benefits to the organisation and customers; ❖ Major challenge for managers is to obliterate forms of work that do not add value and information technology should be used as an enabler for making non-value adding work obsolete; 		
Characteristics:	<ul style="list-style-type: none"> ➤ BPR starts with a high level assessment of the organisation's mission, strategic goals, and customer needs; ➤ BPR identifies, analyses and redesigns an organisations core business processes with the aim of achieving dramatic improvements in critical performance measures, such as cost, quality, service and speed; ➤ BPR different from other approaches to organisation development, by virtue of its aims for fundamental and radical change rather than iterative improvement; ➤ A key stimulus for re-engineering has been the continuing development and deployment of sophisticated information systems and networks; ➤ In order to reap the achievable benefits fully, the use of information technology is conceived as a major contributing factor; 		
Methodology:	Within the framework of the basic assessment of mission and goals, re-engineering focuses on the organisations business processes – the steps and procedures that govern how resources are used to create products and services that meet the needs of particular customers and markets.	As a structured ordering of work steps across time and place, a business process can be decomposed into specific activities, measures, modelled and improved.	
Tools/Methods:	<p>Basic questions need to be asked such as – does the mission need to be redefined?; are the strategic goals aligned with the mission?; who are our customers .</p> <p>Some important BPR success factors include;</p> <ul style="list-style-type: none"> • Organisation wide commitment; • BPR team composition; • Business needs analysis; • Adequate IT infrastructure; 		

	<ul style="list-style-type: none">• Effective change management;• Ongoing continuous improvement. <p>As an approach, BPR needs to take in the complete organisation and the full end-to-end processes, "...where the entire technological, human and organisational dimensions may be changed" (Zigiaris, 2000). So with business processes characterised by three elements (i.e. inputs, processing and outcome) albeit accepting the processing part is the most difficult; meaning business process reengineering mainly intervenes during this stage, reengineering imposes organisational transformation in order to become less time and money consuming. For as competition in respect of price, quality and selection, service and promptness of delivery increases ad infinitum; and the term business process reengineering has gained increased circulation.</p> <p>Yet as BPR relies on a different school of thought than continuous process improvement, with the extreme being the current process is irrelevant i.e. it doesn't work, it's broken, start again (Kiefer, 2003) designers of the new business process disassociate themselves from the current process. Yet, accepting not every company succeeds by applying BPR, given "they end their efforts precisely where they began, making no significant changes, achieving no major performance improvements, and fuelling employees criticism with yet another ineffective business improvement process" (Hammer and Champ, 2001), with between 50 and 70% of organisations not attaining the intended dramatic results (Kiefer, 2003),</p>
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Capability Maturity Model Integration (CMMI)			
Developed:	2002	Sector:	Software engineering, system engineering, integrated product and process development.
Purpose:	Well defined process improvement training and appraisal program that provides the means to work smarter. CMMI administered and marketed by Carnegie Mellon University.	Approach:	CMMI helps integrate traditionally separate organisational functions, set process improvement goals and priorities, provide guidance for quality processes, and provide a point of reference for appraising current processes.
Techniques:	Based on a process model or a structured collection of practices; CMMI currently addresses three areas of interest – Product and service development; Service establishment and Product and service acquisition. CMMI models provide guidance for developing or improving processes that meet the business goals of an organisation. A CMMI model may also be used as a framework for appraising the process maturity of the organisation.		
Philosophy:	<ul style="list-style-type: none"> ❖ Processes are rated according to their maturity levels; ❖ A framework of best practices (CMMI-Dev describes best practice in managing and monitoring software development processes); ❖ The CMMI model does not describe the processes themselves; it describes the characteristics of good processes, thus providing guidelines for companies developing or honing their own sets of processes; ❖ Better processes can mean lower costs and better quality results; 		
Characteristics:	<ul style="list-style-type: none"> ➤ The generalisation of improvement concepts makes CMMI abstract; ➤ Use the processes to help develop, acquire and maintain products and services and to benchmark against others; ➤ Like any framework not a quick fix for all that ails a development organisation. Improvement projects likely to be measured in months and years, not days and weeks; ➤ Continual improvement is built into the models as a formal appraisal can give a company an idea of the maturity of its processes and help create a road map toward improvement; ➤ Models help create an environment to support by providing a common language for cross-organisational communication and benchmarking, understand what specific practices to perform, how to improve its capability in performing and what process areas to focus on next. 		
Methodology:	CMMI exists in two representations; continuous and staged. The continuous representation designed to allow the user focus on the specific processes considered important for the organisations immediate business objectives or to those which the organisation assigns a high degree of risk. Staged representation designed to provide a standard sequence of improvements, and can serve as a basis for comparing the maturity of different projects and organisations.	Obtaining the greatest value from adopting the models' processes involves three key components; understanding the new practices; not treating them as engraved in stone, but adapting them to the environment; sticking with the changes long enough for them to make a difference.	
Tools/Methods:	<p>CMMI consists of three overlapping disciplines (constellations) providing specific focus into the development, acquisition and service management domains respectively.</p> <p>CMMI contains twenty two process areas that describe the aspects of product development that are to be covered by organisational processes.</p>		

	<p>There are five maturity levels and maturity level ratings are awarded for levels 2 through 5.</p> <p>There are two categories of goals and practices; generic and specific. Generic goals and practices are a part of every process area. Specific goals and practices are specific to a process area.</p> <p>An organisation is appraised and can be awarded a maturity level rating (1-5) or a capability level achievement profile. There are three classes of appraisal A, B and C.</p> <p>CMMI utilises the following established quality-management tools that are also used outside CMMI;</p> <ul style="list-style-type: none">• Six Sigma;• Knowledge Management
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Quality Function Deployment (QFD)			
Developed:	1966	Sector:	Various (started in manufacturing)
Purpose:	Method to transform user demands into design quality, to deploy the functions forming quality, and to deploy methods for achieving the design quality into subsystems and component parts and ultimately to specific elements of the (manufacturing) process.	Approach:	QFD designed to help planners focus on characteristics of a new or existing product or service from the viewpoint of market segments, company, or technology development needs. The technique yields charts and matrices.
Techniques:	<p>QFD is to translate often subjective quality criteria into objective ones that can be quantified and measured and which can then be used to design and manufacture the product. Intended to transform the way companies;</p> <ul style="list-style-type: none"> ○ Plan new products; ○ Design product requirements; ○ Determine process characteristics; ○ Control the manufacturing process; ○ Document already existing product specification. 		
Philosophy:	<ul style="list-style-type: none"> ❖ Comprehensive quality system that systematically links the needs of the customer with various business functions and organisational processes, thus aligning the entire company to a common goal; ❖ This is done by seeking both spoken and unspoken needs, identifying positive quality and business opportunities, and translating these into actions and designs by using transparent analytic and prioritisation methods, empowering organisations, to exceed normal expectations and provide a level of unanticipated excitement that generates value; ❖ Maximising positive quality that adds value; ❖ Comprehensive quality system for customer satisfaction; ❖ Strategy to stay ahead of the game. 		
Characteristics:	<p>As a quality system that implements elements of system thinking with elements of psychology and epistemology (knowledge), QFD provides a system of comprehensive development process for;</p> <ul style="list-style-type: none"> ➤ Understanding the true customer needs from the customers perspective; ➤ What value means to the customer, from the customers perspective; ➤ Understanding how customers or end users become interested, choose and are satisfied; ➤ Analysing how do we know the needs of the customer; ➤ Deciding what features to include; ➤ Determining what level of performance to deliver; ➤ Intelligently linking the needs of the customer with design, development, engineering, manufacturing, and service functions; ➤ Intelligently linking design for Six Sigma (DFSS) with the front end voice of customer analysis and the entire design system. 		
Methodology:	QFD links the needs of the customer (end user) with the design, development, engineering, manufacturing and service functions.	QFD can be used for both tangible products and non-tangible services, including manufactured goods, service industry, software products, IT projects, business process development, government, healthcare, environmental initiatives and many other applications.	
Tools/Methods:	QFD uses some principles from Concurrent Engineering in that cross-functional teams are involved in all phases of product development. Each of the four phases in a QFD process uses a matrix to translate customer requirements from		

	<p>initial planning stages to production control.</p> <p>Each phase, or matrix, represents a more specific aspect of the products requirements. Relationships between elements are evaluated for each phase. Only the most important aspects from each phase are deployed into the next matrix.</p> <p>Phase One – Product planning; Documents customer requirements, warranty data, competitive opportunities, product measurement, competing product measures, and the technical ability of the organisation to meet each customer requirement. Good data from the customer in this phase is critical to success;</p> <p>Phase Two – Product Design; Requires creativity and innovative team ideas. Product concepts are created during this phase and part specifications are documented. Parts that are determined to be most important to meeting customer needs are then deployed into process planning;</p> <p>Phase Three – Process Planning; During this phase manufacturing processes are flowcharted and process parameters (or target values) documented;</p> <p>Phase Four – Process Control; performance indicators created to monitor the production process, maintenance schedules and skills training for operators. Also decisions are made as to which process poses the most risk and controls put in place to prevent failures.</p> <p>House of Quality is an example of one QFD tool.</p> <p>Other tools extend the analysis beyond quality to cost, technology, reliability, function, parts, manufacturing and service developments.</p>
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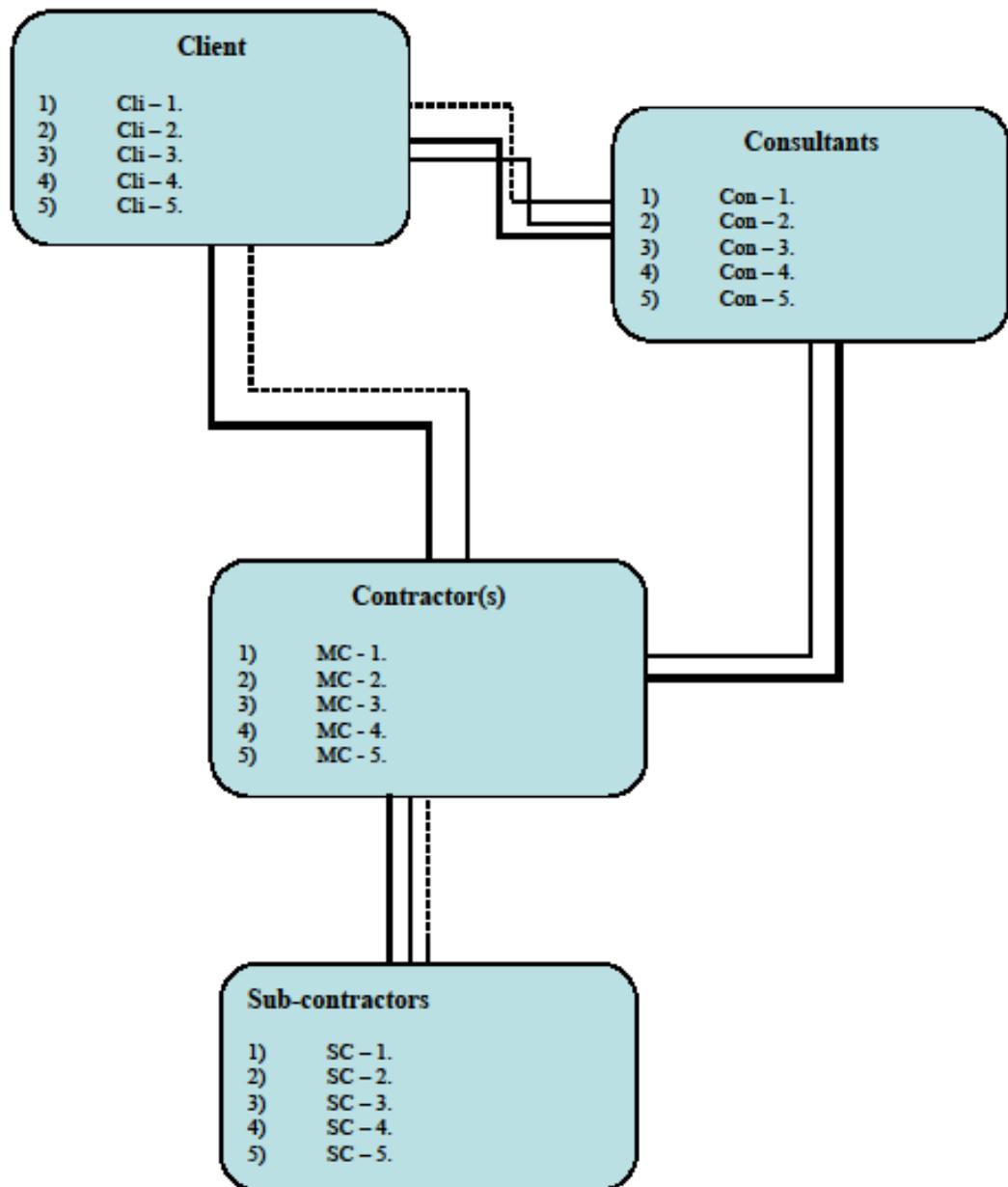
Kaizen			
Developed:	1986	Sector:	Manufacturing (mainly)
Purpose:	Kaizen, also known as continuous improvement, is an approach to work that systematically seeks to achieve small, incremental change in processes in order to improve efficiency and quality.	Approach:	System of continuous improvement in quality, technology, processes, company culture, productivity, safety and leadership.
Techniques:	A long term approach applied to any kind of work, which is the responsibility of every worker.		
Philosophy:	<ul style="list-style-type: none"> ❖ Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business and to provide jobs; ❖ Adopt a new philosophy; ❖ Eliminate the need for inspection on a mass basis by building quality into the product in the first place; ❖ End the practice of awarding business on the basis of price tag. Instead, minimise total cost; ❖ Improve constantly and forever the system of production and service to improve quality and productivity and thus constantly decrease cost; ❖ Institute training on the job and leadership; ❖ Eliminate asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the workforce. 		
Characteristics:	<ul style="list-style-type: none"> ➤ The aim of supervision should be to help people and machines and gadgets to do a better job; ➤ Drive out fear so that everyone may work effectively for the company; ➤ Break down barriers between departments. People in research, design, sales, production, etc. must work as a team to foresee problems of production and use of the product or service; ➤ 		
Methodology:	Kaizen is part action plan and part philosophy. As an action plan, it is about organising events focused on improving specific areas within the company. These events involve teams of employees at all levels, with an especially strong emphasis on involving plant floor employees	As part philosophy, develop a culture where all employees are actively engaged in improving the company.	
Tools/Methods:	<p>Typical kaizen event goes something like this;</p> <ul style="list-style-type: none"> • Set goals and provide any necessary background; • Review the current state and develop a plan for improvements; • Implement improvements; • Review and fix what doesn't work; • Report results and determine any follow-up items. <p>This type of cycle is frequently referred to as PDCA (plan, do, check, act). PDCA brings a scientific approach to making improvements.</p> <p>Kaizen as an action plan is exactly what develops Kaizen as a philosophy. When Kaizen is applied as an action plan through a consistent and sustained program of successful Kaizen events. It teaches employees to think differently about their work. In other words, consistent application of Kaizen as an action plan creates tremendous long-term value by developing the culture that is needed for truly effective continuous improvements.</p>		

	<p>Kaizen events are deceptively simple. The tools used are often considered to be less rigorous than the more analytical tools that are the hallmark of Six Sigma. But in practice, Kaizen events can be challenging to facilitate effectively because participants are pulled from their regular roles, requiring the events to be short and focused.</p> <p>Facilitators to be efficient in their selection and execution of problem solving tools, but those trained in the Six Sigma methodology may be tempted to use more rigorous analytical tools. A non-statistical tool, the value stream map, is the focus during Kaizens, however when selecting other tools to accompany the map, nothing to be introduced that is overly complicated.</p>
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Generic Design and Construction Process Protocol			
Developed:	1995	Sector:	Construction
Purpose:	The development and use of of more generic and comprehensive process models for the new product development in construction.	Approach:	Clear that building design is a multidimensional problem. It therefore focuses on all design activity in a project. The process that provides the back bone of management systems in construction
Techniques:	Specifies a set of stages . To develop sub-processes of the process protocol;.		
Philosophy:	<p>If everyone involved in a construction project could work to an agreed set of processes and procedures, this would not be more efficient, but it would be in a much better position to meet clients needs.</p> <p>Has a much more strategic, process-driven view of the management as it highlights a common process structure.. Therefore influence process thinking throughout the entire construction industry, including processes, people and technology.</p> <p>To indicate to the industry how to embrace rethinking construction.</p>		
Characteristics:	➤ A framework of common definitions, documents and procedures developed to help construction project participants work together seamlessly.		
Methodology:	Design and construction process mapped into eight sub-processes.	Four 'perspectives' proposed, albeit these considered a template and not a straightjacket. The chosen perspectives based on what is necessary to tell the story of the strategy.	
Tools/Methods:	Exploit processes, to illustate sub-processes and so get the entire construction industry involved it the project. Ensure written procedures produced.		

APPENDIX 5

Case Study Structure



KEY

- Contractual Relationship & Liaison
- Project Direction & Supervision
- Functional Liaison & Interrelated Working

Figure 5.1: Semi-Structured Interviewee Framework (Phase One)

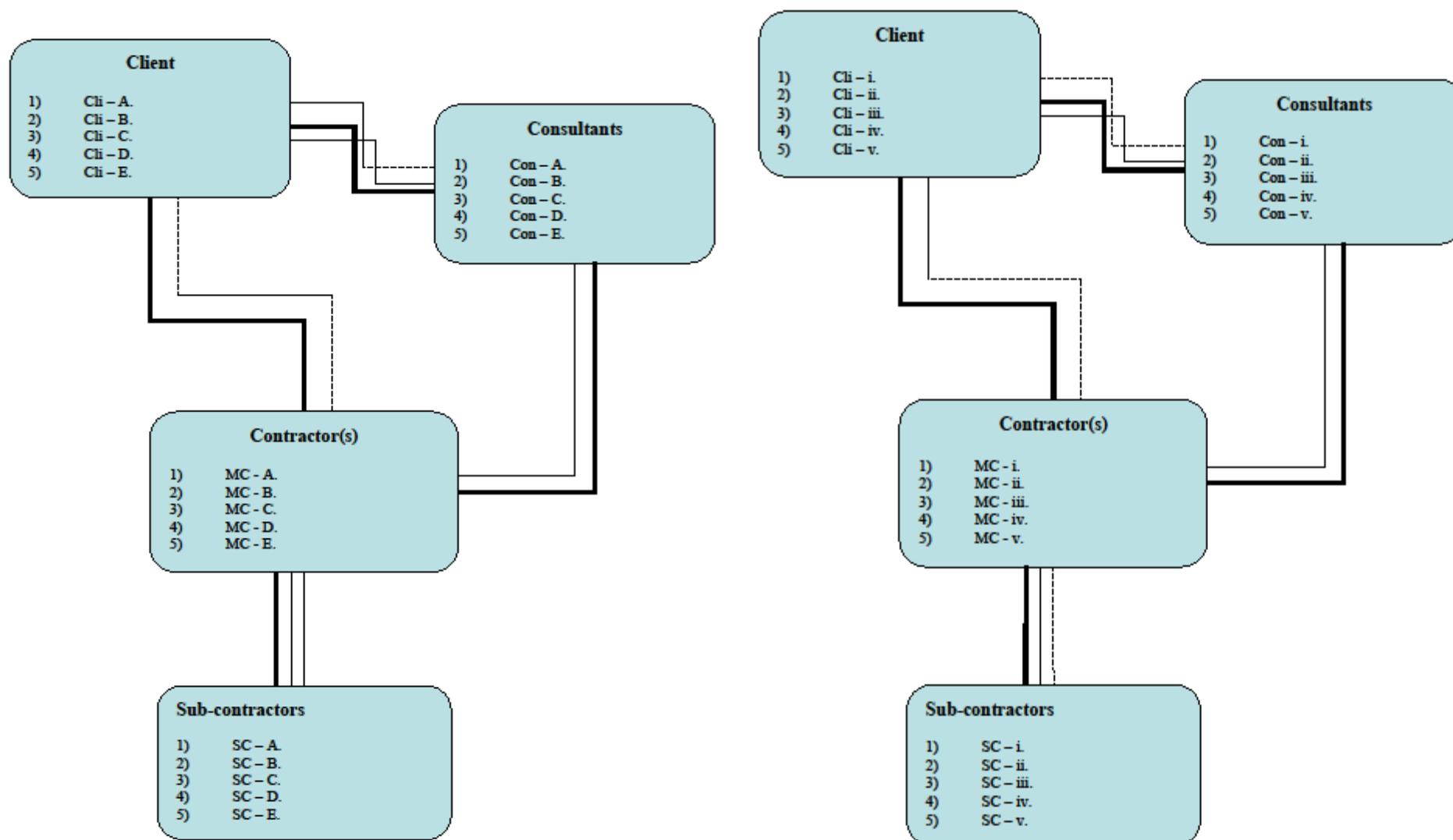


Figure 5.2: Case Study Structure (Phase Two)

KEY

- Contractual Relationship & Liaison
- Project Direction & Supervision
- Functional Liaison & Interrelated Working

WORKSHOP STRUCTURES

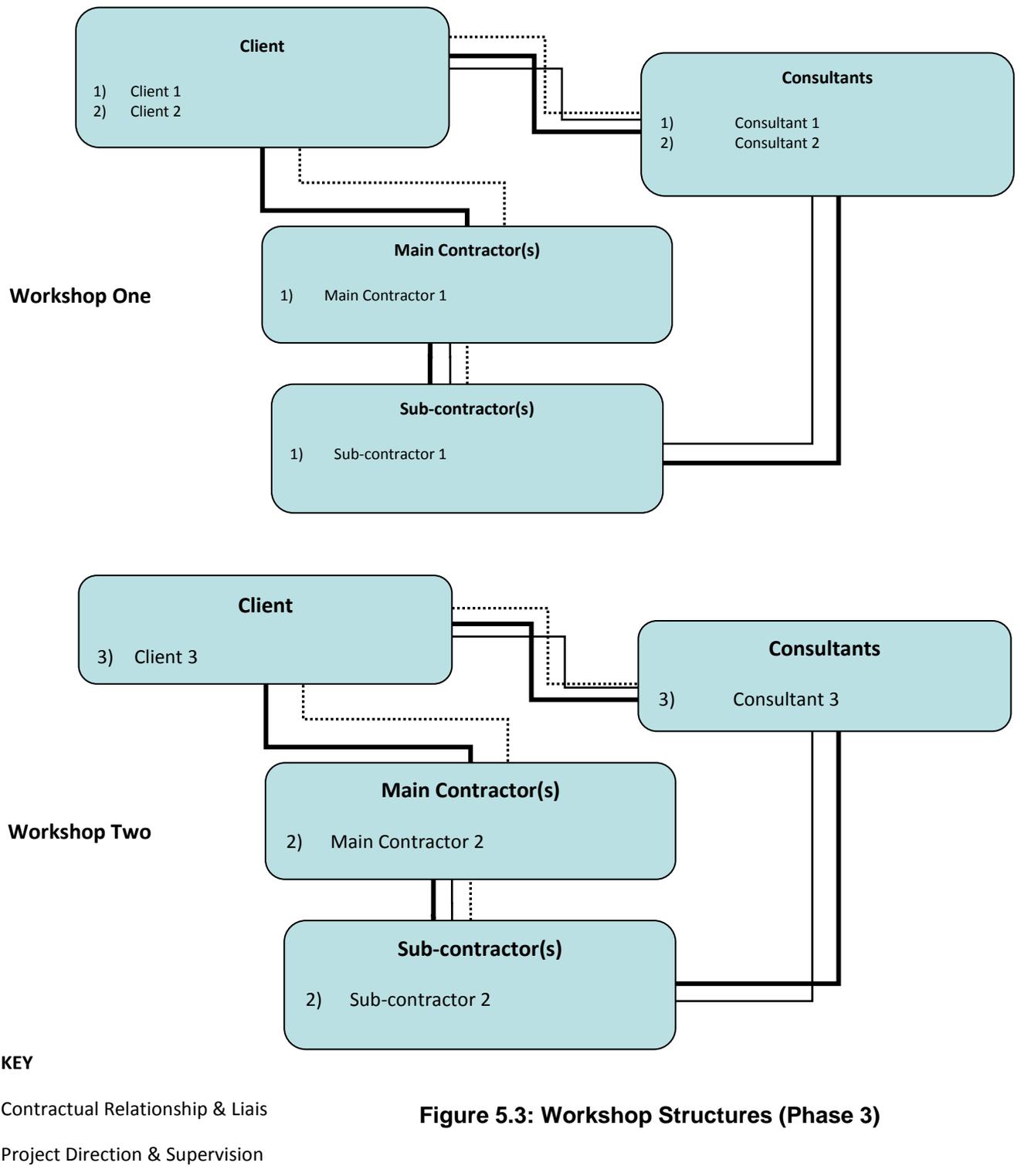


Figure 5.3: Workshop Structures (Phase 3)

APPENDIX 6

Probability V Non-Probability Sampling

Approach	
Purposive	Probability
External or deviant case sampling (sampling cases that are unusual or that are unusually at the far end(s) of a particular dimension of interest)	Random sampling (most basic form of probability sampling, where each unit of the population has an equal chance of inclusion within the sample)
Typical case sampling (sampling a case because it exemplifies a dimension of interest)	Systematic sampling (variation on random sampling, where units selected directly from the sampling frame i.e. without resorting to a table of random numbers)
Critical case sampling (sampling a crucial case that permits a logical inference about the phenomenon of interest – e.g. a case might be chosen precisely because it is anticipated that it might allow a theory to be tested)	Stratified random sampling (provides proportional representation within random sampling)
Maximum variation sampling (Sampling to ensure as wide a variation as possible in terms of the dimension of interest)	Multistage cluster sampling (primary sampling unit i.e. the first stage of the sampling unit, is not the units of the population to be sampled but groupings of those units. This population units are termed clusters)
Criterion sampling (sampling all units (cases or individuals) that meet a particular criterion)	-
Theoretical sampling (data collection for generating theory whereby analyst jointly collects, codes and analyses data and decides what data to collect next and where to find it)	-
Snowball sampling (sampling initially a small group, who then propose other participants who have the relevant experience for the research)	-
Opportunistic sampling (capitalising on opportunities to collect data from certain individuals, contact with whom is largely unforeseen but who may provide data relevant to the research question)	-
Stratified purposive sampling (sampling of usually typical cases or individuals within subgroups of interest)	-

(Source: Bryman, 2012)

Table 6.1: Sampling Approaches

Probability Sampling	Non-probability Sampling
Have complete sampling frame i.e. contact information for entire population	Used when there isn't an exhaustive population list available. Some units are able to be selected, therefore have no way of knowing the size and effect of sampling error (missed persons, unequal representation, etc.)
Could select at random sample from that population. Since all persons (or 'units') have an equal chance of being selected for the survey, can randomly select participants without missing entire portions of the audience.	Not random. Therefore the samples are gathered in a process that does not give all the individuals in the population an equal chance of being selected. Thus control over selection process.
An important feature is if interviews, interviewer has no choice about who they are to interview. The probabilistic algorithm specifies who is to be in the sample.	Often used for qualitative or exploratory research, such as focus groups or in depth interviews
Results can be generalised from a random sample. With the data collection method and decent response rate, can extrapolate results for the entire population.	Can be effective when trying to generate ideas and getting feedback, but cannot generalise results to an entire population with a high level of confidence. The relationship between the sample and the population is unknown.
Can be more expensive and time consuming.	More convenient and less costly, but doesn't hold up to expectations of probability theory.
Considered to be more accurate and rigorous.	
Avoids selection bias.	Greater scope for selection bias.
To produce the results the responses are combined from the sample in a way which takes account of the selection probabilities. The aim is that, if the sampling were to be repeated many times, the expected value of the results from the repeated samples would be the same as the results that would be got if the whole population was surveyed.	

Table 6.2: Sampling Techniques

APPENDIX 7

Common Survey Types (Advantages & Disadvantages)

Advantages	Disadvantages
Mail	
Easy and cost effective	Response rates are typically low
No interviewer, respondents may be more willing to share information.	Not appropriate for low literacy audience
	No interviewer, respondents cannot be probed
Face to face	
Good response rates	Expensive
Longer interviews more likely to be tolerated	Time-consuming
Attitude can be observed	May produce a non-representative sample
Online	
Low cost	Limited sampling and respondent availability
Automation and real-time access	Possible cooperation problems
Less time needed	No interviewer, respondents cannot be probed
Convenience for respondents	
Design flexibility, surveys can be programmed even if they are very complex	
No interviewer, respondents may be more willing to share information	
Phone	
Large scale accessibility in many countries	Lack of visual materials
Rapid data collection, particularly with the integration of CATI (computer assisted telephone interviewing) systems	Call screening is common
Quality control	Limited open-end questions or time constraints due to more limited survey length
Anonymity	Wariness
Flexibility	Inattentiveness

Table 7.1: Common Survey Types (Advantages & Disadvantages)

APPENDIX 8

Research Questionnaires

Figure 8.1; Phase 1 - Qualitative Semi Structured (Interview) Questionnaire

A CONSTRUCTION PARTNERING QUESTIONNAIRE

in respect of
the rationalisation of a dominant paradigm.

1.0 Respondent Details

1.1 Name;

1.2 Company;

1.3 What is the nature of the Company's core business (✓ appropriate box)

Client Organisation	<input type="checkbox"/>	Supplier	<input type="checkbox"/>
Consultant	<input type="checkbox"/>	Other (Please specify below)	<input type="checkbox"/>
Principal/Main Contractor	<input type="checkbox"/>	
Sub-contractor	<input type="checkbox"/>		

1.4 What is the average annual turnover of the Company ? (Please ✓ appropriate box below)

<input type="checkbox"/>	≤ £500k	<input type="checkbox"/>	between £501k & £50M
<input type="checkbox"/>	between £51M & £500M	<input type="checkbox"/>	> £500M

1.5 How many staff are directly employed by the Company? (✓ appropriate box & specify the exact number, if known)

<input type="checkbox"/>	≤ 10no.	<input type="checkbox"/>	Between 11no & 50no.
<input type="checkbox"/>	Between 51no & 100no.	<input type="checkbox"/>	Between 101no & 200no
<input type="checkbox"/>	Between 201no & 300no	<input type="checkbox"/>	> 300no

Exact number employed - if known; 3000 - 4000 it used to be 5000

1.6 How long has the Company been in business and how long have you been employed by them?

1.7 What is your role/position within the Company ?

1.8 Please provide additional information in relation to your experience within the industry ?

Explanation;

2.0 General Perception**2.1 What is your perception of the construction industry ? (please ✓ all that you feel apply)?**

- | | | | | | |
|--------------------------|------------------------|--------------------------|--------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | Dynamic | <input type="checkbox"/> | Adversarial | <input type="checkbox"/> | Successful |
| <input type="checkbox"/> | Litigious | <input type="checkbox"/> | Innovative | <input type="checkbox"/> | Low profit margins |
| <input type="checkbox"/> | Fragmented | <input type="checkbox"/> | Cost-cutting | <input type="checkbox"/> | Inclusive |
| <input type="checkbox"/> | Parochial | <input type="checkbox"/> | Creative | <input type="checkbox"/> | Slow to change |
| <input type="checkbox"/> | Customer focused | <input type="checkbox"/> | Poor productivity | <input type="checkbox"/> | Under performs |
| <input type="checkbox"/> | Corner cutting | <input type="checkbox"/> | Transient | <input type="checkbox"/> | Meets client expectation |
| <input type="checkbox"/> | Uncoordinated | <input type="checkbox"/> | Good communication | <input type="checkbox"/> | Mutually beneficial |
| <input type="checkbox"/> | Other (please specify) | | | | |

2.2 Please identify the company's preferred strategy for construction procurement (explaining your reasoning) ?

- Traditional Non-traditional Partnering
 Other (please specify)

Explanation;

2.3 What is the company's most frequently used construction procurement strategy (explaining your reasons) ?

- Traditional Non-traditional Partnering
 Other (please specify)

Explanation;

2.4 Is there a general 'industry' consensus when a particular procurement method should be used?

Explanation;

2.5 Has the company noticed a shift from promoting broadest competition towards integrated supply chain mechanisms that encourage mutual benefit ?

Explanation;

2.6 What drives the Company on procurement strategy and why ?

Explanation:

3.0 Relationships

3.1 Does your Company engage in partnering ?

Yes

No

3.2 If your answer to Question 3.1 above is 'yes' then, how many companies, up-stream (Clients/Main Contractors) do you have a partnering arrangement with - be it formal or informal, and how long has each been in place ?

Please provide five examples if possible;

N/A

Upstream	Duration	Formal	Informal
Arrangement (e.g. client, main contractor, etc.)	(months)	✓ (as relevant)	
1			
2			
3			
4			
5			

3.3 If your answer to Question 3.1 above is 'yes' then, how many companies, down-stream (Sub-Contractors/Suppliers) do you have a partnering arrangement with - be it formal or informal, and how long has each been in place ?

Please provide five examples if possible;

N/A

Downstream	Duration	Formal	Informal
Arrangement (e.g. sub-contractor, supplier, etc.)	(months)	✓ (as relevant)	
1			
2			
3			
4			
5			

3.4 Please identify (in order of preference) the top five critical factors that influence the success of relationships within partnering ?

Critical Factor	Reason
1	
2	
3	
4	
5	

Additional Information (e.g. other issues of importance)

3.5 Concerning partnering relationships with clients, contractors, sub-contractors and/or suppliers, utilising the four dimensions below, indicate where your organisation positions itself and why ?

Adversarial (perceived by the involved parties as a win/lose situation & leading to more formal litigation.

Guarded adversarial (relationships that strictly adhere to and are interpreted by the contracts.

Informal partners (understand and cooperate with parties with fewer disputes.

Project partners (equal partners working co-operatively to pursue a common set of goals)

Explanation;

4.0 Trust

4.1 Do you trust other members of the up-stream supply chain?

Yes

No

N/A

(✓) as relevant

4.2 Given the answer in Question 4.1 above, what influences your opinion?

Explanation;

4.3 Do you trust other members of the down-stream supply chain?

Yes

No

N/A

(✓) as relevant

4.4 Given the answer in Question 4.3 above, what influences your opinion?

Explanation;

4.5 Would you be prepared to work for an upstream supply chain member (including client organisation) without a formal contract being in place ?

Yes

No

N/A

(✓) as relevant

Explanation;

4.6 Would you be prepared to work for a downstream supply chain member without a formal contract being in place ?

Yes

No

N/A

(✓) as relevant

Explanation;

4.7 Does a collaborative working relationship work without trust?

Yes

No

5.0 Commitment

5.1 Is partnering an informal ambition that develops and strengthens over time or something more formal that can be actively engineered from the outset ?

Explanation;

5.2 With reference to the partnering ethos is there sufficient senior management support within your organisation to move away from short term thinking in favour of ways that incentivise long term relationships ?

Yes

No

Explanation;

5.3 Does the Partnering concept filter down to all levels of the supply chain?

Yes

No

Explanation;

5.4 Does the culture of your Company (e.g. it's internal workings) enhance or hinder the development of effective partnering relationships? (i.e. does it promote broadest competition or the integration of supply chain mechanisms)

Yes

No

Explanation;

5.5 What tools and techniques has your organisation adopted, developed and/or implemented in order to establish/maintain a partnering arrangement ?

Explanation;

6.0 Time

6.1 With reference to completing construction projects on time, is the construction industry considered successful ?

Yes

No

Explanation;

6.2 What procedures, tools and/or techniques does your company employ to incite effective agreements that lead to performance improvements ?

Explanation;

6.3 In terms of schemes completed on time, how would you score each procurement method and why ? (where 1 = very effective; 2 = effective; 3 = immaterial; 4 = ineffective; 5 = very ineffective).

- | | | | |
|--------------------------|-------------------------|--------------------------|------------------------|
| <input type="checkbox"/> | Traditional | <input type="checkbox"/> | Design & Build |
| <input type="checkbox"/> | Partnering | <input type="checkbox"/> | Management Contracting |
| <input type="checkbox"/> | Construction Management | <input type="checkbox"/> | Other..... |

Explanation;

6.4 What does project success mean to you and your organisation ?

Explanation;

7.0 Communication

7.1 Is it possible to define partnering as a coherent strategy that involves the deployment of a universal set of systems, practices and procedures ?

Yes No

Explanation;

7.2 In comparison with other forms of procurement, does a partnering arrangement improve inter-organisational relationships ?

Yes No

Explanation;

7.3 How often do projects mention partnering in tender documentation but fail to include partnering components during the project and why ?

Explanation;

8.0 Co-operation / Understanding

8.1 With reference to contracting parties, is there a mis-match between confrontational practice (win/lose mentality) and the intended state of cooperation (win/win)?

Explanation;

8.2 Is there sufficient experience/understanding of partnering within the construction industry ?

Yes No

Explanation;

8.3 Do you believe partnering was intended as an actual type of contractual arrangement or procurement method; rather than an approach to procurement ?

Explanation;

8.4 Has the introduction of partnering had a beneficial impact on mutual cooperation and understanding ? Please explain how

Yes

No

Explanation;

8.5 Is it possible to create effective collaboration in the short term ?

Yes

No

Explanation;

9.0 Cost/Productivity

9.1 Explaining your answer, does the construction industry under achieve in respect of cost and/or productivity ?

Yes

No

Explanation;

9.2 With reference to partnered projects is there a general trend in relation to the outcome of each scheme e.g. cost, productivity, quality, etc. ?

Explanation;

9.3 Has partnering initiated a move away from adversarial, arms-length relationships to more collaborative arrangements?

Yes

No

Explanation;

Figure 8.2; Phase 2 - Quantitative Questionnaire

Respondent;					
Company:.....					
Name:.....					
Role:.....					
Personal Details (Please circle the appropriate answer).					
Which best describes your current position;	Director	Associate	Senior Man	Mid. Man	Operative
Years experience in current role;	<1	1-5	5-10	10-15	>15
Your age;	20-30	31-40	41-50	51-60	>60
Length of time with current employer;	<1yr	1-5yrs	5-10yrs	10-15yrs	>15yrs
What is the nature of the company's core business? (✓ appropriate box)			What was the average annual turnover in the last financial year (✓ appropriate box)		
Client organisation	<input type="checkbox"/>	≤ £500k			<input type="checkbox"/>
Consultant	<input type="checkbox"/>	£501k-£1m			<input type="checkbox"/>
Principal/Main contractor	<input type="checkbox"/>	£1.1m-£5m			<input type="checkbox"/>
Sub-contractor	<input type="checkbox"/>	£5.1m-£10m			<input type="checkbox"/>
Supplier	<input type="checkbox"/>	£10.1m-£20m			<input type="checkbox"/>
Other (Please specify).....	<input type="checkbox"/>	£20.1m-£50m			<input type="checkbox"/>
How many staff are directly employed by the company (✓ appropriate box)			What percentage of your work is secured by?		
≤ 10no.			Competition (Open Market);		
11no & 50no;			Competition (Select List);		
51no & 100no;			Competition (Partnering Framework);		
101no & 200no;			Negotiation;		
201no & 300no;			Negotiation (Partnering Framework).		
>300no			Other (please specify):.....		
Please indicate the percentage of work your organisation usually sub-contractors? (Please circle the appropriate answer).			Please indicate the number of contractors/subcontractors usually invited to submit bids for the three procurement approaches indicated?		
<25% 25-50% 51-75% >75%			Design & Build	Drawing & Specification.	Partnering
			Don't Know		Other
General Perception;					
1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.					
There is a general industry consensus when a particular procurement method should be used?	1	2	3	4	5
The company has noticed a shift from promoting broadest competition towards integrated supply chain mechanisms that encourage mutual benefit?	1	2	3	4	5
What is your perception of the construction industry (please ✓ a maximum of five)?					
Dynamic	<input type="checkbox"/>	Transient	<input type="checkbox"/>	Corner Cutting	<input type="checkbox"/>
Adversarial	<input type="checkbox"/>	Customer Focused	<input type="checkbox"/>	Poor Productivity	<input type="checkbox"/>
Innovative	<input type="checkbox"/>	Good Communication	<input type="checkbox"/>	Mutually Beneficial	<input type="checkbox"/>
Creative	<input type="checkbox"/>	Fragmented	<input type="checkbox"/>	Slow to change	<input type="checkbox"/>
Litigious	<input type="checkbox"/>	Cost Cutting	<input type="checkbox"/>	Meets client expectations	<input type="checkbox"/>
Parochial	<input type="checkbox"/>	Low profit margins	<input type="checkbox"/>	Under Performs	<input type="checkbox"/>
Inclusive	<input type="checkbox"/>	Uncoordinated	<input type="checkbox"/>	Successful	<input type="checkbox"/>

The following are a series of statements relating to communication that you are asked to indicate how much you						
1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.						
The implementation of a partnered approach has resulted in a positive shift in terms of improved communication throughout the supply chain.	1	2	3	4	5	
The primary focus of partnering is on the relationship between client and main contractor.	1	2	3	4	5	
Supply chain communication is restricted to those one tier removed.	1	2	3	4	5	
There is a tendency for the upstream supply chain member to dictate terms and conditions upon the lower tiered supply chain members.	1	2	3	4	5	
Effective and appropriate communication is necessary in order to build relationships.	1	2	3	4	5	
Good communication relies on commitment, cooperation and the supply chains understanding of the partnering concept.	1	2	3	4	5	
Whilst tender documentation generally talks about a partnered approach this is rarely delivered in practice.	1	2	3	4	5	
Whilst supply chain members often embrace the partnering methodology and abide by the rules on which they are based, once a scheme becomes problematic partnerships are frequently abandoned.	1	2	3	4	5	
If a scheme benefits from a partnered approach this is generally restricted to upstream supply chain members only.	1	2	3	4	5	
As an organisation please identify who you communicate with? (Please ✓ all that apply).						
Client;			Main Contractor;		Subcontractor (tier 2)	
Consultant			Subcontractor (tier 1)		Subcontractor (tier 3)	
A formal partnering strategy needs to be implemented on each project? 1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.						
Please circle appropriate answer.	1	2	3	4	5	
Please identify three main reasons for this;						
The following are a series of statements relating to trust that you are asked to indicate how much you agree or						
As a percentage how much do you as an organisation trust other members of the upstream and downstream supply chain?						
	Upstream;	<20%	20-40%	41-60%	61-80%	>80%
	Downstream;	<20%	20-40%	41-60%	61-80%	>80%

As a percentage how much trust must there be in order for a partnered approach to work effectively?	<20%	20-40%	41-60%	61-80%	>80%
	1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.				
The main area for mistrust is financially centred?	1	2	3	4	5
Either upstream or down there will never be complete trust. 100% trust will therefore only ever be an aspiration.	1	2	3	4	5
The implementation of a partnered approach has resulted in a positive shift in terms of trust throughout the supply chain.	1	2	3	4	5
Trust is reliant upon inter-organisational relationships that develop over time.	1	2	3	4	5
When schemes are partnered, separate contractual documentation must always be in place (for when things go wrong).	1	2	3	4	5
As an organisation you would still collaborate with a supply chain member without trust.					
Upstream;	1	2	3	4	5
Downstream;	1	2	3	4	5
Please rank the following supply chain members on trust, where 1 = greatest/most - 6 = least/slightest.					
Client;			Main Contractor:		Subcontractor (tier 2)
Consultant			Subcontractor (tier 1)		Subcontractor (tier 3)
The development and implementation of a partnering strategy that engages all members of the supply chain from the outset, engenders trust throughout the project team. 1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.					
Please circle appropriate answer.	1	2	3	4	5
Please indicate three main reasons;					
The following are a series of statements relating to time that you are asked to indicate how much you agree or					
1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.					
The construction industry is successful in terms of projects being finished on time.	1	2	3	4	5
Initial project programmes are generally optimistic and focus on what the client wants to see with little chance of success.	1	2	3	4	5
Where schemes are partnered the prospect of completing on time is increased due to the early involvement of relevant supply chain members who help develop a realistic programme.	1	2	3	4	5

The introduction of an incentive scheme that all members of the supply chain benefit from provides a realistic opportunity for a project to finish on time.

1	2	3	4	5
---	---	---	---	---

Incentive schemes should replace penalties as part of the contract, because this leads to a blame culture that invariably gets passed down the supply chain.

1	2	3	4	5
---	---	---	---	---

In order for partnering to have a positive impact on project time there has to be trust and an effective management strategy?

1	2	3	4	5
---	---	---	---	---

On a typical partnered project there are suitable/sufficient procedures, tools and techniques, which engage all members of the supply chain, to manage programme.

1	2	3	4	5
---	---	---	---	---

Please identify three main challenges on implementation?

--

Please rank the following criteria in order of importance, where 1 = highest and 3 = lowest.

Time;		Cost;		Quality;	
-------	--	-------	--	----------	--

The following are a series of statements relating to cooperation/understanding that you are asked to indicate

1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.

There is sufficient understanding of partnering within the construction industry.

1	2	3	4	5
---	---	---	---	---

There is sufficient collaborative working.

1	2	3	4	5
---	---	---	---	---

Signing up to a framework agreement constitutes partnering.

1	2	3	4	5
---	---	---	---	---

Partnering still means adhering to the terms and conditions of the up stream supply chain member.

1	2	3	4	5
---	---	---	---	---

The term partnering is used too often and out of context.

1	2	3	4	5
---	---	---	---	---

Egan's vision of partnering where reciprocal working as opposed to fragmentation is the way forward can be achievable within an industry where subcontract labour is utilised extensively.

1	2	3	4	5
---	---	---	---	---

Organisations tend to pay 'tip service' to the partnering ethos in order to secure work.

1	2	3	4	5
---	---	---	---	---

Where a scheme has been partnered all relevant supply chain members realise their correct balance of the partnership.

1	2	3	4	5
---	---	---	---	---

Partnering is an approach to procurement and

1	2	3	4	5
---	---	---	---	---

In order for a partnered approach to be successful there has to be a good level of cooperation/ understanding of the partnering ethos throughout the supply chain.	1	2	3	4	5
There currently isn't a good level of cooperation/ understanding of the partnering ethos throughout	1	2	3	4	5
Please rank who are the main beneficiaries of a partnered project, where 1 = greatest/most - 6 = least/slightest.					
Client;			Main Contractor:		Subcontractor (tier 2)
Consultant			Subcontractor (tier 1)		Subcontractor (tier 3)
Other.....					
When a scheme is partnered what is the most frequently used contract document?					
NEC (with partnering option);					
JCT Standard Building Contract (with partnering charter);					
JCT Intermediate Building Contract (with partnering charter);					
JCT Minor Building Contract (with partnering charter);					
JCT Design and Build (with partnering charter);					
JCT Management Building Contract (with partnering charter);					
JCT Standard Sub-contract (with partnering charter);					
JCT Intermediate Sub-contract (with partnering charter);					
JCT Minor Works Sub-contract (with partnering charter);					
PPC 2000					
Other (please name):					
The following are a series of statements relating to cost/productivity that you are asked to indicate how much					
1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.					
The construction industry is not considered successful in terms of projects being finished on/under budget.	1	2	3	4	5
Where schemes are partnered the prospect of completion on/under budget always improves.	1	2	3	4	5
In order for partnering to have a positive effect on cost/productivity there must be trust between the relevant supply chain members.	1	2	3	4	5
The complete supply chain (client through to lower tiered sub-contractor) benefit from a partnered approach because, by working on an incentive arrangement, all members share the pain/gain ethos.	1	2	3	4	5
On a partnered scheme it is standard practice for an Agreed Maximum Price to be established between the client and main contractor before all work packages are let.	1	2	3	4	5
Organisations are compelled towards competition because best cost at day one always wins.	1	2	3	4	5
Relevant work packages are regularly priced competitively even though the scheme is being partnered?	1	2	3	4	5

When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is common.								
	1	2	3	4	5			
When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is effective/successful.								
	1	2	3	4	5			
Generally on partnered projects the vast majority of disputes centre around money.								
	1	2	3	4	5			
There is an increased tendency to go to the open market for competitive prices due to the rise in single stage tendering? 1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.								
Please circle appropriate answer.								
	1	2	3	4	5			
Please identify three main reasons for this;								
On each project a partnering strategy exists that clearly identifies suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain/gain, etc.? 1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.								
Please circle appropriate answer.								
	1	2	3	4	5			
Please identify what is implemented								
The following are a series of statements relating to relationships that you are asked to provide an opinion by								
What percentage of your work is distributed/ obtained competitively?								
		Upstream		<20%	20-40%	41-60%	61-80%	>80%
		Downstream		<20%	20-40%	41-60%	61-80%	>80%
What percentage does awarding/ securing the first scheme result in a second scheme being awarded/ secured through negotiation?								
		Upstream		<20%	20-40%	41-60%	61-80%	>80%
		Downstream		<20%	20-40%	41-60%	61-80%	>80%
What percentage of work is procured directly with a single client/main contractor/subcontractor via negotiation?								
		Upstream		<20%	20-40%	41-60%	61-80%	>80%
		Downstream		<20%	20-40%	41-60%	61-80%	>80%
As a percentage how many projects positively promote good relationships throughout the supply chain at the schemes commencement?								
				<20%	20-40%	41-60%	61-80%	>80%
As a percentage how many projects positively promote good relationships throughout the supply chain for the entire project?								
				<20%	20-40%	41-60%	61-80%	<80%
1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.								
Due to the nature of the industry a dominant upstream partner (who dictates terms and conditions, proceedings, etc.) will always exist.								
	1	2	3	4	5			

From an organisation perspective there is a greater focus on the upstream relationship with the dominant partner.

1	2	3	4	5
---	---	---	---	---

A partnered approach is an effective strategy to improve relationships throughout the supply chain (not just with the dominant partners).

1	2	3	4	5
---	---	---	---	---

A positive relationship has a constructive effect on each particular project.

1	2	3	4	5
---	---	---	---	---

A positive relationship has a constructive effect on future work prospects.

1	2	3	4	5
---	---	---	---	---

An effective relationship between relevant supply chain members can be engineered/ established during the period of a single project.

1	2	3	4	5
---	---	---	---	---

In relation to the complete supply chain who do you typically have a working relationship with either upstream or down ? Those; (please circle relevant boxes).

Upstream;	tier 1	tier 2	tier 3	tier 4	tier 5
Downstream;	tier 1	tier 2	tier 3	tier 4	tier 5

It is necessary to have good working relationships both up and downstream that go beyond the 1st tier? (please circle relevant boxes). 1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.

Upstream;	1	2	3	4	5
Downstream;	1	2	3	4	5

Please provide three main reasons why;

Relationships with other members of the supply chain either up or downstream are monitored. (Please circle relevant boxes) 1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.

Upstream;	1	2	3	4	5
Downstream;	1	2	3	4	5

If your answer indicates relationships are monitored please identify the three main tools/techniques?

Figure 8.3; Phase 3 - Validation Questionnaire

Respondent:

Company:.....

Name:.....

Role:.....

1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree.

The construction industry currently has no clear way of spreading a consistent message as to what partnering is?

1	2	3	4	5
---	---	---	---	---

Partnering can be used as a suitable vehicle for change?

1	2	3	4	5
---	---	---	---	---

A generic representation would provide better wholesale comprehension, engagement and control?

1	2	3	4	5
---	---	---	---	---

The overview (macro contextual model) is a simple/understandable concept that could be woven into any plan of work/work sequence i.e. It provides the blue print of key activities and roughly when these should be undertaken?

1	2	3	4	5
---	---	---	---	---

The concept model, as a flow chart that picks up each partnering activity supplement, is presented in a simplistic format?

1	2	3	4	5
---	---	---	---	---

The issuing of the overview, concept model and micro analysis (i.e. the partnering framework) to all supply chain members at the outset would engage the whole project team and promote engagement and control that ensures continuity and create efficiencies both within and between relationships?

1	2	3	4	5
---	---	---	---	---

APPENDIX 9

Example of Coding Matrix Responses

Figure 9a; Phase 1 – Qualitative Coding Process

Interviewee ID	Question No.	QUESTION(s)/Raw Data	Initial Coding	Focused Coding	Theoretical Coding
	2.1	WHAT IS YOUR PERCEPTION OF THE CONSTRUCTION INDUSTRY?	-	-	-
Main Contractor 01		Well I just think there its slow to change and under performs. I think this is general of the construction industry. Certainly in traditional routes of procurement. Relatively low profit margins, but its not about profit margins always, its about turn over.	Slow to change. Under performs. General of the construction industry. Does depend on the procurement route. Low profit margins. Not about profit but turnover.	Whilst influenced by the procurement route selected, overall a general negative perception.	Fundamentally the construction industry is negatively perceived by the four disciplines targeted i.e. with a cut throat mentality that leads to low profit margins, cost cutting, under performance, adversarialism, etc.
		...companies our size.. all main contractors, profit margin isn't the main...its return on capital and we get return on capital by positive cash flow. So thats how we work. *** probably used to be the best I've ever worked for because they would have about a 30% return on capital but that was in the mid-nineties.	With larger companies its about return on capital not profit margins (so positive cash flow). Best times mid-nineties about 30% return on capital (not now).	Positive cash flow key for larger companies.	
		Essentially we've got to get paid more than we are paying out. Thats were a lot of the profit is in terms of money in the bank. But I think there is cost cutting, but that again comes down to the type of procurement. You could apply any of these to various forms of procurement because if its a single stage tender you get more adversarial, cost cutting, less customer focus, lower profit margins and the benefit of partnering as I see it is that it can be more dynamic, it is more customer focused, the corner cutting is done mutually – you know a lot of those more positive things would apply to partnering than traditional single stage procurement.	Current economic climate makes it increasingly difficult, but whilst profit must be made the key is return on capital i.e. money in the bank (more money coming in than going out). Thats where the profit is. Does depend on the procurement route i.e. traditional single stage tender makes the process more adversarial, cost cutting, less customer focused, lower profit margins. Partnering more dynamic, customer focused, corner cutting (or value engineering) is agreed. Partnering route generally more positive.	Experiencing lean times. More positive outcome with partnered schemes than traditional single stage procurement.	
		But clients aren't, not in this market. *** didn't single stage a job for...probably all its existence until this year – single stage tender.	More of the positives would apply to partnering than single stage traditional procurement. Yet private sector clients continue to drive towards lowest price. Therefore single stage tendering remains a frequently used method of procurement.	Clients focus lowest price so single stage tendering prevails.	
		Private sectors driving that now. And there isn't much in the public sector anyway. So the private sector is going back to the old ways – that means lowest cost, get them in, we'll have a fight so we'll end up where we were twenty years ago.	Private sector driving the procurement methods adopted i.e. single stage competitive tender. Back to back work a thing of the past.	Back to the old days, with all jobs tendered.	
		We've seen...yes and I'm seeing developers going down that route getting caught out and coming back to us to negotiate again because they've had their fingers burnt going single stage tendering. So pick the bones out of that, but it depends which route you go down as to which of these apply more.	Single stage competitive tendering doesn't always working.	Witnessed bad experiences with single stage tendering.	
Consultant 01		Low profit margins, slow to change; customer focused; fragmented; meets clients expectations – I'll caveat that, thats what it intends to do, and we always set out to do that. Thats the basis of the construction industry is to try and meet the clients aspirations but sometimes we fail to do that. Also low profit margins, I think I've already said that, but they are currently so low it affects the ability to meet client expectations.	Generally, slow to change, under performs (although it does intend to meet client expectations), fragmented and low profit margins. The industry is also customer focused and whilst trying to meet client aspirations it sometimes fails to do so due to the low profit margins.	General negative perception. Experiencing lean times, which can impact service delivery.	
Main Contractor 02		Its interesting actually because for various clients you could at any one time pick anyone of those. Corner cutting I'd say no not that. Not so much litigious, I wouldn't say that really, it can be parochial, it can be customer focused, cost cutting, cost saving I would say in today's environment. Thats a difficult one it can be successful. No I don't believe we are slow to change, I believe we've had to change for the industry to survive. And I don't believe we under perform. hope we meet clients expectation. I think this is probably the main one here (dynamic) as you have to be changing all the time.	Whilst you could pick anyone of those for various clients at any given time, don't believe its slow to change: as its had to in order to survive. Can be parochial, it is customer focused, cost cutting (or cost saving) and strives to meet clients expectations. However the main one is dynamic as you have to change all the time. Don't believe its corner cutting nor is it so much litigious. It doesn't under perform and I hope we meet client expectations.	Generally a positive perception.	

Main Contractor 02	Its interesting actually because for various clients you could at any one time pick anyone of those. Corner cutting I'd say no not that. Not so much litigious, I wouldn't say that really, it can be parochial, it can be customer focused, cost cutting, cost saving I would say in today's environment. That's a difficult one it can be successful. No I don't believe we are slow to change, I believe we've had to change for the industry to survive. And I don't believe we under perform. I hope we meet clients expectation. I think this is probably the main one here (dynamic) as you have to be changing all the time.	Whilst you could pick anyone of those for various clients at any given time, don't believe its slow to change: as it's had to in order to survive. Can be parochial, it is customer focused, cost cutting (or cost saving) and strives to meet clients expectations. However the main one is dynamic as you have to change all the time. Don't believe its corner cutting nor is it so much litigious. It doesn't under perform and I hope we meet client expectations.	Generally a positive perception.	
Sub-contractor 01	Dynamic, customer focused, uncoordinated, adversarial, innovative, cost cutting, low profit margins, meets client expectations, mutually beneficial.	Dynamic, customer focused, uncoordinated, adversarial, innovative, cost cutting, low profit margins, meets client expectations and mutually beneficial.	Mixed perception.	
Consultant 02	Cost cutting definitely, low profit margins, I'd say uncoordinated as well.	Cost cutting, low profit margins and uncoordinated.	Negative perception.	
	I suppose innovation is coming through quite well – I suppose we are looking at a lot more renewable, sustainable energy systems so from that point of view it is doing well but that is probably it at the moment in the current decline.	Current economic climate makes it increasingly difficult, but innovation coming through.	Limited signs of innovation.	
Main Contractor 03	At the moment fragmented but a lot which is still customer focused: there are certainly parts of it that are corner cutting: there are parts that are adversarial, cost cutting definitely, in some cases innovative: there is still good communication amongst some, low profit margins definitely but there is still some meeting of client expectations and mutually beneficial – a mixed bag really.	A mixed bag. Fragmented, generally customer focused, in parts corner cutting and adversarial, cost cutting, elements of innovation, good communications (amongst some), low profit margins, whilst some meeting of client expectations whilst being mutually beneficial.	Mixed perception.	
Consultant 03				
Main Contractor 04	Dynamic, litigious, fragmented, poor productivity – sometimes I think we do suffer from that, transient, successful – no I don't think it's successful. I think some people are successful but I don't think the industry as a whole is successful, uncoordinated, adversarial, cost cutting yes it's obsessed with cutting costs, low profit margins, under performs – yes generally it does, slow to change, creative, no I don't think we are creative, doesn't meet clients expectations and it's not mutually beneficial.	Dynamic, litigious, fragmented, poor productivity, sometimes transient, uncoordinated, adversarial, cost cutting, low profit margins, under performs, slow to change, not creative, doesn't meet clients expectations and it's not mutually beneficial. Whilst some elements are successful the industry as a whole isn't.	Negative perception.	
Client 01	Out of the list I would pick... cost cutting, successful, low profit margins, meets client expectations, and still slightly adversarial.	Generally, successful and meets client expectations, albeit adversarial, with low profit margins and cost cutting.	Mixed perception.	
Client 02	I think it's very different... I'm a true believer that all of these projects are based on the people and who you deal with. So going back to your partnering thing adversarial – no in my experience as we deal with partners, although it can be adversarial in other ways. I think it is quite litigious, I think they like to think they are customer focused but I'm not sure they really are. I think it's unnecessarily innovative. As in we reinvent the wheel every time. Poor productivity I'll go with and I would say I don't think it very often meets client expectations. It's definitely got low profit margins... sorry it has low declared profit margins and slow to change defiantly. And in terms of low profit margins, if you look at the *** and *** schemes we'd agreed a contract payment period with *** of 28 days. *** generally paid within a week to 10 days and it went straight to them (***). So because they were on 28 days they had all their suppliers on at least 60 days, so it meant for the entire job they probably had £5 to £8m on 60 days that none of us benefited from. You can argue that they were on 4% overheads and profit... whatever the number was and no one can run a business on 4% overheads and profit. So you can argue whichever way you want to but this isn't declared as profit. They would have made other buying gains that weren't declared but that's also down to how we procured the work and how we prefer to procure the work.	Whilst it depends on the people and who you deal with, generally adversarial (in some ways), litigious, unnecessarily innovative (re-invents the wheel every time), poor productivity, rarely meets client expectations, low (declared) profit margins and slow to change. Also the industry likes to think that it's customer focused but it isn't.	Depends on individuals but general negative perception.	

Sub-contractor 02	Corner cutting definitely, uncoordinated at times, cost cutting, transient, low profit margins definitely. I won't say any of the others. I wouldn't tick any more.	Corner cutting, uncoordinated (at times), transient, low profit margins and cost cutting.	Negative perception.	
Consultant 04	Currently, definitely low margins, I don't think it's creative. I don't think it's a lot of these.... probably, at the moment, I think there might be some corner cutting at the moment, and cost cutting. I think that's about it at the moment... Everything is very very tight at the moment and on the limit, if there is a word for that... but getting by. I haven't heard of a lot of consultants going under to be honest, I think everybody has reacted quite well to the recession.	Generally, corner cutting, it isn't creative, low profit margins and cost cutting. Current economic climate makes it increasingly difficult but the industry is getting by as consultants reacting quite well in the recession.	General negative perception. Experiencing lean times, but consultants adaptable.	
Sub-contractor 03	Certainly fragmented, low profit margins that's the way its going. Some would apply to some aspects of the market and some wouldn't. Its hard to give a comment that would apply to the whole industry. It needs breaking down a little. For example there are examples of adversarial behaviour. Innovative and cost cutting and so on but you cannot apply it to every part of the industry its a bit of a difficult one to answer. Certainly cost cutting generally speaking because there is too much supply and not enough demand. As you know that goes in cycles, transient yes you could say that, good communication, depends on whose communicating, generally meets clients standards well generally yes or else they wouldn't be around, mutually beneficial again it depends on the job - if you have low profit margins all the time it isn't going to be mutually beneficial to anybody - you're not going to survive are you...	Whilst you could pick anyone of those for various aspects of the market at any given time, it's hard to identify any that would apply to the whole market. Yet considered transient, fragmented, with low profit margins and cost cutting as there is too much supply and not enough demand. There are examples of adversarial behaviour and good communication but that depends on whose communicating. Also generally meets client standards (or else wouldn't remain in business) although not considered mutually beneficial as a result of low profit margins.	Dependant upon the market but general negative perception. Experiencing lean times.	
Consultant 05	1) Adversarial, cost cutting, fragmented, low profit margins, slow to change ...			
	2) I would definitely say low profit margins. I feel the same as *** but there are some positives in the industry as well... having said that they're not customer focussed (they are their own focus), not dynamic, they can be innovative if there's cost savings but they need to be pushed into being innovative.	Difficult to answer but adversarial, cost cutting, fragmented, slow to change and low profit margins. Not customer focused (but their own focus), not dynamic, but can be innovative if pushed and there are cost savings to be made.	Negative perception.	
	1) I don't think it is cost saving... there is some creativity - again that's down to the client.			
	2) Its down to the clients brief telling them to be that as well.			
Sub-contractor 04	All about cost cutting, it depends on which client you are working for, it is certainly low profit margins at the moment, you always try to meet clients expectations, you want good communication sometimes you get it sometimes you don't. With some companies you have a successful relationship, co-ordinate - again depends on the company we always try and do our best for each company but sometimes it doesn't always go as planned or you come across a problem that you didn't see but you try and work around it with the company - that's the good thing about working with *** because you are all on the same team - with the main contractors like *** they are always trying to find a way to wipe some money back from you whereas if you are on the same team like you are with **** everyone is trying to get the job done they are not trying to trip each other up.	Depends on who's the client, though whilst issues around the people and who you're dealing with it's all about cost cutting. Profit margins are also low. There can be good communications (amongst some), and the intention is to meet client expectations. Also depends on each company for when a problem is identified need to be one team rather than taking an adversarial stance.	Depends on individuals but general negative perception.	
Sub-contractor 05				
Client 03	I think it is customer focused because they are desperate for the business. I think it is innovative and that innovation can lead to cost cutting and I think there are low profit margins and that's as far as I would go.	Customer focused (as they are desperate for the business), innovative (which can lead to cost cutting) and low profit margins.	Mixed perception.	
Client 04	Timing is everything and at the moment I am in dispute with 2 separate Building Contractors one is the largest Building Company in the Country... I think dynamic, fragmented definitely, customer focused they have to be other wise they do not get repeat business, cost cutting definitely, low margins I would agree with, definitely under perform and I still think that despite the partnering ethos they are quite adversarial.	Dynamic, fragmented and customer focused otherwise no repeat business. Under performs and adversarial despite the partnering ethos.	Mixed perception.	

Figure 9b; Phase 1 – Qualitative Coding Process

Interviewee ID	Question No.	Raw Data	Initial Coding	Focused Coding	Theoretical Coding
	2.4	Is there a general 'industry' consensus when a particular procurement method should be used?	-		
Main Contractor 01		My view is partnering is the best outcome for any project but its going to cost more. It will cost more, but you won't have all the negative sides of it. All the adversarial sides which you will get single stage traditional contracts. The only way a traditionally procured scheme, be it client design or contractor design is if that design is pretty much 100% where you go to the market and the client just says build it and doesn't get involved but that very rarely happens.	Partnering the best method but a premium paid. The best method is collaborative working which prevents the adversarialism you get with single stage traditional contracts. Only way traditional contracting works is if the design 100% complete and no changes made.	Partnering the best method.	There is no industry consensus when a procurement method should be used, and while competition is fundamental, the modus operandi is client driven.
Consultant 01		Most times you try to get D&B to work and the NEC form of contract is a D&B form - but its slightly different from JCT in that it allows a risk register to form part of the contract which allows risk to be apportioned and costed. So its not true D&B with full risk transfer, its a form of D&B where a high percentage of the risk is fixed, but it allows a risk register to apportion those elements of the risk that are not deemed suitable to be taken on by either party.	Try to get design & build (with the NEC contract) to work because of the issues around risk and risk transfer. JCT slightly different as it allows risk apportionment hence not true D&B with full risk transfer.	D&B the first choice as allows risk transfer.	
Main Contractor 02		I think its viewed, two sided. The view is that partnering is the way to go. A lot of local authorities are going down the partnering route, not sure the people on the ground believe in it - which is part of the problem. From our point of view partnering is the better way because we will commit...and always give priority to our partnering frameworks whether it be schedule of works or true partnering. So for me the better way is partnering as it creates job stability, it creates a much less stressful environment and the speed to market is there.	Partnering the best method and utilised heavily by local authorities. Yet issues at site level due to the lack of a partnering ethos. Partnering leads to better commitment and a priority being given to the partnering frameworks. It also creates job stability and a much less stressful environment with a faster speed to market time.	Partnering the best method, albeit the message fails to reach site level.	
Sub-contractor 01		No. I would say that quite strongly for we as an industry don't...we should try to go back to back wherever possible so the whole supply chain is under the same level of restriction or freedom, which is particularly relevant when you get a main contractor wanting a design and build contract then he employs a designer to design and a contractor to do the contracting. He's then left with a load of holes. Where as...and again if you're partnering or have a partnering agreement between a main contractor and a client, you pass that onto your subcontractor supply chain, you have a much better change of them reacting. This happens more so with companies like *** where they say look we'll give you this main contract to build a store and we want you to use this, this and this supplier. So that generally seems to work more, thats actually competitively tendered but its a much more set of people and you don't necessarily need to produce the same level of details. *** have the same ceiling detail, the same wall detail, etc.	No industry consensus - but back to back with the whole supply chain were possible therefore same level of restrictions/freedom. So if a partnering agreement between client and main contractor this passed throughout the supply chain. For this gives you the best chance of the sub-contractors reacting.	No industry consensus, but subsequent work following on from the first scheme preferred (back to back).	
	a	Q. Almost an off the shelf product?	-		
		Exactly. And same for yourselves at ***, you have certain ideas of what you want a building to be. You know what you want a desk socket to be if your supply chain knew that then you would have to worry about it any more it would just happen.	When you have a set idea of what a building is to be and a set supply chain to deliver then this something less to worry about. There are good examples of this type of building where standardised components/elements used.		
Consultant 02		I think it depends on the Sector - I think if you look into Healthcare they have obviously got their own method which is Procure 21 and PFI, Law and Order were doing it all different kinds of ways, D&B, Partnering and PFI.	No industry consensus - depends on the sector.	No industry consensus - depends on the sector.	
	b	Q. So very fragmented?	-		

		Yes.	Fragmented.		
Main Contractor 03		No there are those contractors who I call the "Enlighten ones" like ourselves who see the value of frameworks because you have to go through a lot of hard work to get in it to start with. A lot of people aren't up for that. There are contractors out there who just prefer to do straight competitive tenders but I think they are on particularly low margins and they have very high risk profiles at the moment so there are two schools out there to be fair. So there is no real consensus. I think those that aren't in frameworks are realising its one to get into that but the behaviours of those companies and their ethos doesn't sometimes suit that.	No industry consensus - but those on frameworks see the value of them albeit needing to do a lot of hard work at the beginning. Those not in frameworks realising this can be a route to secure works though they don't necessarily adopt the partnering ethos. Some contractors prefer to do straight competitive tendering but are on lower margins and high risk profiles.	No industry consensus - but frameworks proving beneficial.	
	c	Q. No because once they have won the job they then potentially look at ways to build their costs don't they and money coming in?	-		
		And there are those out there who do that to the detriment of the supply chain as well and they are not taking the long term sustainable view on that.	In some instances where a contractor wins work they then look to build costs at the detriment of the supply chain. This is not taking the long term sustainable view.		
Consultant 03					
Main Contractor 04		No, I don't think there is. I think...I mean I'm speaking because we concentrate on government funded procurement, which is the majority of our work. We still do standard commercial stuff but the majority of our work is from government funded sources and I think they use the procurement methods that they are told to use by central government, rather than thinking is it the most appropriate form of procurement and they regularly corrupt the procurement route that they are told to use. So it isn't what it's supposed to be. One example is "University where that's supposed to be a partnering arrangement and the reality is, it's nothing more than a very expensive select list.	No industry consensus - depends on the sector. Whilst still do standard commercial work, public sector driven down the route of partnering by central government. Though this merely an expensive select list as they corrupt the procurement route that they are told to use as.	No industry consensus - depends on the sector, though public sector driven down the partnering route (where contractors have increased costs).	
	d	Q. Right, so they've identified it as partnering?	-		
		As partnering, and you've got all the costs that are associated with partnering as a contractor, but not necessarily any of the benefits.	Contractors have all the costs associated with partnering but not necessarily the benefits.		
Client 01		A consensus...no I don't think you are going to find a consensus across the whole industry. I think it does change from sector to sector. Sometimes it changes whether it's private work, whether you've not got the same restrictions in terms of OJEC or the demonstration of best value, then clearly you've got a free hand to do or work in more innovative ways - or give it to your mate or whatever if it's your own company, private sector has got greater autonomy there, yet some parts of the private sector are turning out relatively similar projects such as school work so there's opportunity to look at buying on mass and bringing around the partnership route to that more open book approaches - we rarely have two projects the same and so from that point of view it is difficult for us to say that we can use a particular process and then say it will follow through for subsequent number of following subsequent projects of course our capital programme isn't continuous anyway so traditionally we have not had our own framework in place for consultants or contractors either, even though we have a measured term contractor framework for small value work.	No industry consensus - depends on the sector, but private sector got greater autonomy. Not find a consensus across the whole industry as it changes in terms of private/public sector work, OJEC restrictions, demonstrating best value, etc. Generally some parts of the private sector turning out relatively similar projects i.e. schools work and therefore buy on mass in order to bring about partnering, meaning more open book approaches. Some clients rarely have two projects the same so no framework in place.	No industry consensus - depends on the sector, even maintenance work.	
Client 02		I don't think there is a consensus, it depends on what the client wants. I think most of the procurement methods that you've got are risk driven - what's the flavour for risk and certainty, and we would rather, as a business generally...I wouldn't say we pay more, though we pay a slight premium, but we deliver certainty. For us we have...if you take the "..." if we'd done a lease scheme for "..." then we would be committed to finishing on that day and so having a rent roll from there. Now what we can't afford is for it to drift out. We need certainty of that so therefore we would procure with certainty and the way we would procure is to design further than most to try and drive out the risk. So it's not just a case of happily passing the risk to the contractor but designing it out. You put the risk in the right place and if there's a risk were someone needs to do more investigation for, we'll do the investigation up front. For it's not just a case of I want a scheme over there take on board all the ground conditions, etc., etc. because effectively "..." "..." took all the ground condition risks but it was based upon an SI (site investigation) that was done and paid for as part of the design. So you're sort of driving down so it's a reasonable level of risk rather than all of it.	No industry consensus - depends on what the client wants. Most of the procurement routes being risk driven. Yet whilst we may pay a premium we deliver certainty. For we design more than most to try and drive out the risk. Therefore we don't just pass the risk to the contractor we design it out. Also put the risk in the right place and investigate as necessary.	No industry consensus - depends on what the client wants (which is generally based around driving out risk, risk allocation and avoidance).	

Sub-contractor 02		No there is a definite general... this day and age, bottom line it is who is the cheapest. There is very little favouritism, it is cut throat and if you are the cheapest you will get it unless there is some kind of... if you are written into a tender they will still screw you down to the last nut and bolt but you stand a better chance. Otherwise people will just cut the backside out of tenders just to win them and then hopefully gain something back during construction.	No industry consensus - but cheapest invariably wins. Very little favouritism as its cutthroat and if you are cheapest you get the job. Even if you are nominated by the client the main contractor will still screw you down.	No industry consensus but driven by cost i.e. cheapest wins. Therefore moving away from partnering to traditional.	
	h	Q. Do you think it is going more down the road of traditional rather than partnering – everyone working together on a scheme?	-		
		I do, yes.	Going more traditional than partnering.		
Consultant 04		I think there is, yes – the text book answer is really...I think when it needs to be more ... I think people look for D&B in the first instance, but where it is very much specific to a clients' needs of what he actually wants well then you favour the traditional route.	Yes think there is an industry consensus. Try to get D&B to work because of the issues around risk and risk transfer. But when clients needs are specific better client control with traditional.	D&B the first choice as allows risk transfer. Unless client specifically wants to keep full control then traditional.	
Sub-contractor 03		Again I would say going back 8 - 10 years then yes but I don't think that applies anymore.	No industry consensus - but going back eight to ten years would have said yes.		
	I	Q. So it's almost horses for courses...	-		
		Yes there is no loyalty any more or...obviously you still try and build relationships, so as I was saying to these guys yesterday, look its far easier...we are doing business down in London at the moment and its a real pain, we don't want to be dealing in London really and we certainly don't want to be filling doors down in London (which we are doing) as its a complete logistical nightmare, but if people like you don't give use the work up here we are having to look for work further afield...Now what happened was when the market started to really bite two or three years ago these guys, the social housing groups had these arrangements in place were going back to the contactors and saying I know we have a framework agreement but we want your best price – in other word give us a better price than what you've already done. And if you can't...for example they would say right we want 5% off those prices or we go out to the market. The company in question wouldn't want them to go to the market because someone else would undercut them so they end up dropping their money...so there's allsorts of these things going on so where is the Egan principles in that. And I think its pretty general that, though there will be a few examples where its holding true but generally its every man for himself, in a cut throat market. Every single job we get into this business we have to elicit a quote and price it even for a single door. We get an enquiry, we price it and if that person wins the job we get an order but even then our price has to be right or they can go elsewhere, but thats ridiculous it can be one door to hundred doors, every job you're pricing and you're up against fierce competition and there is very little loyalty.	No loyalty any more in the industry. But as you try and build relationships looking further afield. Therefore no industry consensus. So even with contractors on frameworks clients say give us your best price even when a price has been received i.e. a better price than the submitted price. Therefore, unless a further reduction made the client goes to the open market. There will be a few good examples of partnering but generally it's every man for themselves within a cut throat market. For every job coming through the door has been won via competitive tender.	No industry consensus, but every job through the door has been won competitively.	
Consultant 05		We should advise the client on the best procurement route and that's based on a number of aspects - around time, cost, quality, output and things and you should always investigate that particular project to identify the route – that's the preferred, but I think people jump into it without actually going through the analysis first, they say this has got to be design and build because I don't want any risk - there are down sides to design and build other than shifting the risk to the Contractor	No industry consensus - depends on what the client wants. Most of the procurement routes being risk driven as the client jumps into it without actually going through the analysis first. So they say its got to be D&B but there are down sides to this method as well as it shifting the risk.		
		If you look at the actual procurement methods whether its traditional, design then tender or D&B that's a traditional one as it were, but people jump into "this is going to be design and build" like the "" will always go "I'm going to use a regional prime contract" which is kind of...they've set up regional contractors who do work in that area, we do the assessment study and it just gets automatically given to the Regional Prime Contractor on a D&B basis that's the only procurement open to them so they have to go that way. But its not always the best way forward but they can't go that way so it is quite dependant on your client organisation and you do get prescribed routes without actually doing an analysis – I always like to step back and do the analysis, but not many people do unfortunately.	Whilst having various procurement methods clients jump into D&B or regional prime contracting, which they have set up, even when an assessment study done that recommends another route. So dependant on the client. It can be a prescribed route without doing an analysis e.g. setting up regional contractors and automatically giving them the work in that area irrespective of any analysis.	No industry consensus - depends on what the client wants (which is generally based around driving out risk avoidance).	

Figure 9c; Phase 1 – Qualitative Coding Process

Interviewee ID	Question No.	Raw Data	Initial Coding	Focused Coding	Theoretical Coding
	2.5	Has the company noticed a shift from promoting broadest competition towards integrated supply chain mechanisms that encourage mutual benefit?			
Main Contractor 01		I mean we used to have a very wide supply chain – huge supply chain, and over the last five years it's been narrowed down to half a dozen, if that in each package. And that's because we could control the quality, we could demand safety, we could demand performance as we were promising them so much work – which was a percentage of our turnover and they had to give us a service. When you just go to the yellow pages i.e. go out for a price, but now we are having to do that unless we can't compete in the single stage tender market without opening up our supply chain to every Tom dick and Harry – which in itself is going to create problems.	Supply chain had narrowed (6no per package) but this helps control quality, H&S, etc. due to the promise of future work. In the current market however, going back out to open market in order to reduce costs to ensure they remain competitive. For lowest price wins in the single stage tender market.	Saw reduction in supply chain numbers on select lists competing for work, but as more and more schemes procured via single stage tenders (where lowest price wins), now needing to go to the open market in order to remain competitive.	The shift from promoting broadest competition towards integrated supply chain mechanisms that encourage mutual benefit has been limited, with only conical supply chains and public sector frameworks observed across the four disciplines.
Consultant 01		I think in the private sector lowest price is probably still the most important factor because they are driven by margins. The private sector commercial, residential, retail is all driven by margins. We're finding more and more where the private sector isn't driven by margins that they are more willing to look at the quality of the main contractor organisation. One in particular, we're working for *** at the moment and they're not a commercial organisation – they're not public sector but they're not a private sector commercial organisation, so they can afford to rank quality highly in their assessment criteria. Public sector I think lowest price is still a big determining factor but because of their governance they have to take it more into consideration corporate responsibility, environmental management, quality management. Much more than private sector does, but even that it's still high 60% I would say is the determinant factor even in public sector. And then you get some projects that are so bespoke – example the Shard that you just can't afford to take the lowest price. As there are far more determining factors than the lowest price – depending on the complexity of the scheme and how difficult it is to get a lump sum fixed price for it.	In the private sector lowest price invariably wins, as driven by margins. On the rare occasion where it isn't, private sector more willing to look at the other determinant factors i.e. quality, uniqueness, complexity, etc. of the main contractor organisation. Public sector lowest price still the determining factor but because of governance must also take into consideration corporate responsibility, environmental management and quality management. Only time lowest cost isn't a determinant factor is when a scheme is a complete one off.	Whilst public sector more likely to look at other factors in respect of corporate responsibility, lowest price still the determining factor.	
Main Contractor 02		Within sectors yes, we've also seen it go the other way. Local authorities defiantly more towards partnering. Seems to be almost like a central government dictation that they have to go down that route. We also have some other larger clients where are also feeling the pressure of cost and they are looking at tendering everything where by once upon a time they would have gone to the schedule of rates and purely because they believe they are getting best value out of that. So there has been a shift towards partnering in certain sectors but there has been a shift away from it particularly in the more private sector who are going more for the competitive tender as they believe it's giving better value.	Within local authorities (public sector) yes more towards partnering. Seems to be lead by central government. But private sector increasingly focusing on competitive tender in order to achieve lowest price/best value. Therefore everything going out to tender whereby once upon a time they would have used the schedule of rates.	Within local authority organisations (public sector) as this lead by central government. Everything goes out to tender in private sector as lowest price wins.	
Sub-contractor 01		There was a shift I think. I would suggest we've gone away from that shift as the recessions got deeper, and with the recession we tend to find, certainly from my experience, people are becoming more and more cost conscious and it goes back to harsh competitive tendering and nothing but. It's the same thing from a client's point of view, you go out in good times and you have five contractors who you could potentially choose to do a building, that building you want to make sure you get so you sometimes, in good times when everyone has work you have to do a deal and partner with someone to get them to give you that service and guarantee you that service. In bad times all five contractors bend over backwards for the job so suddenly the power goes back the other way and we want the cheapest price by competitive tender. Suddenly everyone sees the pound notes, there are very few customers who see the pain and the gain and you almost open book it we'll make this percentage on your jobs and they do that in the good and bad times. It's difficult.	Was a shift but in the current market, with more emphasis on costs, harsh competitive tendering returned. For lowest price wins. In good times when everyone had work the client would have to deal with the main contractor and possibly partner with someone to get the service. In bad times all contractors bend over backwards for the job so suddenly the power goes back the other way. Hence the client wants the cheapest price by competition. For very few clients see the pain/gain and open book arrangements both in the good and bad times.	Was a shift but now back to harsh competitive tendering - lowest price wins, with contractors desperate to win work.	

Consultant 02		We have noticed a lot of frameworks being set up particularly in education but also in law and order and they seem to be the ones a lot of the major organisations such as yourself are using to try and cherry pick the companies you are comfortable working with, the people you use on a regular basis.	Noticed a shift towards frameworks particularly in the public sector bodies.	Shift towards frameworks particularly in public sector.	
Main Contractor 03		Only with certain clients. I would say up to 3 or 4 years ago there was a definite move that way, then the market took a turn for the worse and I think people were more towards lowest price.	Was a shift, with certain clients, but in the current market, with more emphasis on costs, harsh competitive tendering returned. For lowest price wins.	Was a shift towards frameworks by some but current economic climate has meant a move back to lowest price wins.	
Consultant 03					
Main Contractor 04		I don't think there has been a change. I think it's hinted at regularly by purchasing bodies but how you actually deliver on it always seems to be the sticking point. Nobody seems to have come up with a way of delivering.	No change. For whilst more collaborative arrangements muted not effectively delivered.		
	i	Q. The key thing is money isn't it. Once you start talking money, whilst you can all be working together?	.		
		I think an example of the procurement benefits that were perceived by an organisation is *** Council. For they wanted everybody to use a procurement card system through the banks that would obviously save them tremendously on the paperwork and administration costs, and whilst we could see the benefits for us, although there were costs associated with it, they wanted to cascade it right down the supply chain. And once you start saying to somebody that they're having to pay 112% plus this, plus that but you'll get paid immediately, they start saying well ½% it's not worth me doing that and they won't.	An example being one client wanted to introduce a procurement card system. This meant the supply chain got paid immediately but at an initial set up cost of ½% so there was a reluctance.	No shift noticed.	
Client 01		I think the broadest answer to that is no I don't think we have noticed that. I think that there are a number of principles around the way in which you can procure be it your review of the supply chains be it how you decide to award contractors so we don't award contractors purely on price for larger projects there is a cost quality element to tenders. We have on a number of occasions on larger projects we have recently found ourselves not recommending the lowest price contractor we don't have to go with lowest price so some of the principles that have come out from the various reports on the way in which construction is procured we have taken note of to take parts of those but we have never, I don't believe, gone for full supply chain review along with partnership approach no but we do, I suppose, selected parts of what have been recommendations through various reports into the construction industry.	No change noticed. For whilst more collaborative arrangement principles around the way of procuring i.e. not rewarding purely on price, still whilst taking note of the various reports on procurement never gone for full supply chain review along the partnering approach. Hence cherry picked various aspects of the numerous published reports.	No shift noticed.	
Client 02		I think the contractor supply chains strike me as being a lot tighter than they used to be. We've got two or three, and one I'm doing at the moment with a company called *** and they very much are we'll use these guys for groundwork's, those guys for steel...because they know they can perform. For its big sheds and that sort of stuff and I think theirs have, but mutual benefit – minimal other than it's the same certainty that we've got. As I think the whole issue about partnering if you have a problem we would expect our contractor to throw money at the problem and sort it. And they can only do that if they think they are going to get another job. Otherwise they are forced down the route of saying well why should I work for you as I'm going to lose a fortune. So what you are trying to say to them is we're playing the long game here.	The supply chain has narrowed, but in terms of partnering, real dependency on guaranteed future work, whilst keeping a degree of competition. The whole issue of partnering is if you have a problem it is expected that the contractor throws money at it and sorts it out. But they will only do that if they believe they are getting another job. So what I'm trying to say is we're playing the long game.	Noticed a reduction in supply chain numbers, albeit it's now more competitive (compete for every job). Partnering/collaborative working all boils down to guaranteed future work.	
	j	Q. Yes, for if they do a good job this time round they get another job.	.		

		Historically in *** days pretty much if you were the contractor who did the first scheme on a park you did the park. And we've probably gone more competitive than we used to be in that respect because you'd just go to them and say right open book, three tenders for everything, and we'd negotiate your prelims because we know roughly what it should be and off we go. But...I'm not sure...it's more a mutual benefit of certainty.	More competitive now than in previous years, as each job is competed for, whereas previously on the second scheme it was more open book with the main contractor (having agreed prelims) and three tenders for all subcontractor works packages.		
Sub-contractor 02		No I still stick with my previous answer.	No change - as cheapest invariably wins. Very little favouritism.	No shift noticed.	
Consultant 04		Yes I notice that perhaps 3 or 4 years ago particularly from public organisations and the housing associations, but I don't know whether it is the recession or not, but that does seem to have been relaxed a little more and... it seems to me there is less emphasis and pressure on that and they are doing more sort of traditional or D&B jobs rather than Partnering.	Was a shift but in the current market, with more emphasis on costs harsh competitive tendering returned in the form of traditional and D&B rather than partnering. For lowest price wins.	Was a shift towards frameworks by some but current economic climate has meant a move back to lowest price wins.	
	k	Q. Even with us we had this framework set up because we were being pushed in that general direction but now its come to an end we haven't renewed it, we just let it slip away?	.		
		Great example, I think that is quite typical really - I have seen a little bit of that.	A number of frameworks that had previously been set up are not being renewed. Therefore returning to traditional methods.		
Sub-contractor 03					
Consultant 05		I think there has because our experience is partnering now. The last two significant projects we have done were partnering projects.	Noticed a shift towards partnering - last two jobs partnered.	Shift towards frameworks particularly in public sector.	
	l	Q. Is that ***?	.		
		Both *** and ***.	Last two large schemes completed were both partnered.		
	m	Q. Away from *** are there any more jobs where you have partnered?	.		
		I used to Partner at ***. The procurement strategy there was always to partner and we had 3 preferred Contractors that we partnered with. We used to do either mini competitions or on the best fit. So I have used partnering before but that's because of the *** ethos - they always partner with their sub-contractors so we were taking their ethos and the construction industry was actually developing partnering at that time as well so we did that very early on.	Last company worked for partnered all works with three preferred contractors. Given the partnering ethos the main contractors always partnered with their sub-contractors. Less so with current employer.		
		We've done that with private developers...contractors won the first tender, the second building would be "oh we'll just use them again". *** do that, *** in Sheffield...so once you know the team, same team, it might be two years later but you move on to the next one.	Does happen on occasion with private developers with the contractor winning the first tender then negotiating the second scheme albeit some years later.		
Sub-contractor 04		There are still not that many companies who will... in the Construction Industry they have the pain/gain type contract sometimes but you certainly do not get any gain.	Not that many companies who successfully implement the pain/gain principles. Generally only ever evidence the pain.		
	n	Q. So even on a job where you are partnering with *** if there is any gain do you see that gain or is it a case that you have priced the job, that's the price and that's what you are going to get for the job?	.	To a degree, as noticed a shift in respect of better communication, but not in any pain/gain sharing mechanism, etc.	
		No it's the case that if we price the job that's what we will get but the benefit of the schools for the future with *** some Builders can hit you with huge delays but when *** set up the partnership with *** Council for building the schools because they were mindful that they didn't want to get sub-contractors with the thumb screws on. It meant that the liquidated damages were a fortune and so if you went over by £50.00 per day - we will get jobs - at the weekend obviously its a different scenario because we were working for *** we had to knock a signal box down but if we had gone over by 1 hour it was around £10,000 on our delays, but that is a bit different to holding trains up but	If a jobs priced then that's what we'll get, albeit a number of partnerships have created advantages in respect of liquidated damages.		
	p	Q. So you have noticed a shift towards more working together?	.		
		I think so yes.	Noticed a shift towards better working relationships.		
Sub-contractor 05					

Figure 8d; Phase 1 – Qualitative Coding Process

Interviewee ID	Question No.	Raw Data	Initial Coding	Focused Coding	Theoretical Coding
	3.4	Please identify (in order of preference) the top five critical factors that influence the success of relationships within partnering?	.		
Main Contractor 01		Well upstream I think its complete open understanding what the priorities are, what the real drivers are. You know... that's difficult sometimes when you've got a developer and an end user – because they'll be different and you're trying to meet them both. And sometimes they aren't the same thing.	1. Understanding what the priorities are as the developer and end user will have different views. So you need to get inside and live it with the client in order to understand what's driving the scheme.	Understanding.	The fundamental critical factors to ensure a successful partnering relationship are; teamwork (relationships); communication; trust; understanding roles; commitment.
	a	Q. So that's the main one what else, critical factors?	.		
		Relationships, personal relationships, I think those two sort of go together to an extent, but I think... I mean... I really do try. Going from old fashioned contracting with loads of arguments and people falling out, although I wasn't senior at that point, but seeing how hard it made the job, then going into construction management – which was a breath of fresh air as you worked side by side with the client, developing the design... you know, that's what I then... the industry started to change and become more like that which was necessary as it was losing so much work to construction management. So again number one is really getting inside and living it with the client to understand absolutely what's driving it. Obviously you have the time cost, quality, sustainability (although sustainability is a fairly recent one I suppose).	2. Relationships/personal relationships, for this can really made the job hard if people fall out 3. Time, cost, quality sustainability; 4. Commitment. No fifth given.	Relationships, time, cost, quality (identified as one) and commitment. No fifth given.	
	b	Q. What else, what others have you got or are you pretty much saying just them?	.		
		That's it, if you understand that you understand what the client is trying to get out of the design, what's important whether its cost, quality, time because they all conflict with each other. Commitment is just commitment isn't it? I think that's just, you know do you get more commitment – I think you get that with partnering; you don't get it with single stage tendering. You get more communication through partnering. If we single stage tender we're going in really tight and we want more money out of it and we will be looking as to where this can come from. All of that should come out of it e.g. customer satisfaction but I think the two there outweigh everything else – so you're working together as one in planning, developing design – in any	That's it. If you understand that you understand what the client is trying to get out of the design, what's important in terms of costs, quality and time as they conflict. I also think you get more communication and commitment with partnering. And these two outweigh the rest for if you have these the rest should fall into place. If its single stage tender as going in really tight the tender figure isn't the final project cost.	Communication.	
	c	Q. So if you get those two right the others should follow suite?	.		
		They do, yes it will	If you get communication and commitment right the other partnering elements that lead to a satisfied customer should fall into place.	If get communication and commitment right other elements fall into place.	
Consultant 01		Risk – appropriate risk apportionment I would say the robustness of the employers requirements and the contractors proposals. If there's errors in those then there's conflict; change, once a client starts to change something the relationship can deteriorate.	1. Correct risk apportionment 2. Robustness of employers requirements (reduces conflict); 3. there being no client changes (as changes disrupt the process); 4. Individual personalities.	2. Risk, clear requirements, no changes, relationships. No fifth given.	
	d	Ala ***...;			
		Yes, and that's when you start to disrupt the process...and the one thing the industry doesn't like is change. Once its signed a contract and the ERs and CPs are robust and there's enough money in the bid basically the team just want to get on and build it so change can be a bad thing; I'd say individual personalities. There are far more things go wrong due to individual personalities clashing than is capable of going wrong in the contractual arrangement. Because people then tend to look for things to cause trouble about because they don't like the person on the other side of the table.	The one thing the industry doesn't like is change. For once its signed a contract and the ERs and CPs are robust and there's enough money the team just want to get on and build so change can be a bad thing.	Industry doesn't need change as prevents developer getting on and building without disruption.	
	e	Even down to a phone call, if you know it's from a person you don't like then you don't answer it...;	.		

		Yes. Last one I'd say possibly, not necessarily in a recession, but when the market is overheated people start to reduce their service offer and therefore you are winning so much work that your best intentions are to provide a high service but you can never turn work away so you become spread too thin and then you start to take a risk by employing individuals who are not as good as you want them to be because you want to keep your service offer high. I think that can cause problems on both sides because there is an awful lot of poor quality individuals in the industry and in a buoyant market that tends to show itself more because there is so much work going around you spread yourself too thin and that's one of the problems we've had when we scaled back to the twenty three guys who we know will never let us down. Moving forward we are going to be far more selective about taking on additional work and we'll only take it on if we can find top quality individuals. For it's just not worth it because your turn over doesn't increase dramatically, your profit doesn't increase that much so it's not worth the hassle or the risk.	5. Not necessarily in a recession but sufficient resources in relation to workload, but when market overheated people start to reduce their service. Then you are winning so much work that your best intentions to produce a high service become so thin you take the risk by employing individuals who are not as good as you want them to be. That can cause problems as in a buoyant market that tends to show itself more.	Sufficient resources in respect of workload.	
Main Contractor 02		Culture and willingness number one...;	1. Culture & willingness number one.	Culture and willingness.	
	g	Q. So in terms of culture they have to buy into partnering?	-		
		Yes, there has to be a willingness to work on it. Involvement, quick example of that, we were on a framework and we were sat at the core group meeting and the minute read contractor and all so we were outside the loop and it was meant to be a partnering arrangement. So yes there has to be a willingness to work together and we have to be part of the team.	2. Involvement (that sense of inclusion), a willingness to work together and be part of the team.	Being involved/included as part of the team.	
	h	Like you say with partnering you are all there together. So whilst they use the buzz words in their formal documentation, they don't involve you...;	-		
		Some do and some don't. We have framework arrangements like *** is more like a partnership than any partnership that we have ever been in even though it's traditionally a measured term contract but the partners in there always used it as a vehicle to deliver best value. Honesty is another - you have to be honest with each other. Another thing is an understanding of the partnering arrangements and inclusion, everyone to be included. It's not just about I want this and you want that because there are other factors you have to bring in. A partnership really is about that core group right at the beginning and that early involvement.	3. Honesty (trust) you have to be honest with each other; 4. Understanding of the partnering arrangement; 5. Early involvement and inclusion (not just I want this and you want that) everyone to be involved because there are other factors to consider. A partnership really is about that core group right at the beginning and the early involvement.	Honesty (trust). Understanding. Early involvement.	
Sub-contractor 01		From our point of view, critical factors...mutual benefit, which obviously breaks down into finance and time, from our point of view we need to make sure they are confirming to our standard procedures, which if they are a preferred known supplier they will know what we want, value for money, personal relationship is good, and they complete the project successfully.	1. Mutual benefit which obviously breaks down into finance and time; 2. They conform to our standard procedures (which they'll know what they are if they are a preferred supplier); 3. Value for money; 4. Good personal relationships; 5. Successful scheme.	Mutual benefits. Conforming to our terms and conditions. Value for money. Relationships. Success.	
Consultant 02		Communication, openness, honesty - working together.	1. Communication; 2. Openness; 3. Honesty (trust); 4. Working together (inclusion). No fifth one given.	Communication. Openness. Honesty (trust). Inclusion. No fifth given.	
Main Contractor 03		Trust - if there is no trust there is no relationship; openness; its problem identification and identifying problems early an early warning if you like; shared values - they have to have the same shared values; and innovation - being able to help us.	1. Trust (if there's no trust there's no relationship); 2. Openness; 3. Problem identification (early warning); 4. Shared values; and 5. Innovation.	Trust. Openness. Problem identification. Shared values. Innovation.	

Main Contractor 04		Communication has to be the first one. Understanding. I'm not saying we always do it but you have to try to understand where everybody is coming from. Establishing a common goal. I think they're probably....I'm trying to think what else....there the ones that I think are key, but obviously you can build on those three.	1. Communication has to be the first; 2. Understanding (of each other) for you have to try to understand where everybody is coming from; 3. Establishing common goals. No fourth given. No fifth given.	Communication. Understanding. Common goals. No fourth or fifth given.	
Client 01		Trust, clear understanding as to who is taking the risk – partnering doesn't work if only one side is taking the risk you might as well not bother, transparency, customer focused, very good clear communication and timely.	1. Trust 2. Risk apportionment (and understanding who's taking that risk) for partnering doesn't work if only one person is taking that risk; 3. Transparency; 4. Customer focus; 5. Good, clear communication that is timely.	Trust. Risk apportionment. Transparency. Customer focus. Communication.	
Client 02		Trust, performance, value for money. That's about it really, I can't think of anything else. It's trust and performance and that's both ways. They have to trust us in the same way we trust them. I suppose the fourth is respect, but again I think it's very much a two way street.	1. Trust (both ways); 2. Performance (both ways); 3. Value for money; 4. Respect (which again is a two way thing). No fifth given.	Trust (both ways). Performance. Value for money. Respect. No fifth give.	
	i	Q. In terms of the respect one, if you have individuals round a table and they don't respect each other, or they aren't prepared to work together then it's on a hiding to nothing anyway?	-		
		And our whole principle works around the pieces of paper and sign off so they have to know and you have to know when I've told you to do it you need to do it. And that takes time and that took a while with *** to get to the point where it was like come on just do it. And equally you have to deliver on that basis...stand by your decision.	Our whole principle works around the pieces of paper and sign off so they have to know when I've told them to do it they have to do it. Also you have to deliver on that basis.		
Sub-contractor 02		An understanding from both parties on what you require. I understand the principle of partnering that everyone as you have just pointed out, everyone wins but there seems to be some people win more than other people, if you know what I mean.	1. Understanding from both parties on what you require, for whilst understanding the principles of partnering there seems to be some people who win more than others; 2. Mutual benefits. No third given. No fourth given. No fifth given.	Understanding. Mutual benefits.	
	j	Better winners?	-		
		Correct yes so to be totally fair the people with the bigger contract will always win more and the smaller people, even though we work for a huge organisation the product that we supply can be fairly inexpensive, the cost of ***, the cost of here in comparison to the construction... it was peanuts.	Bigger winners for the people with the bigger contract will always win more.	Dominant members who win more.	
	k	Q. So basically you are saying if you are a smaller cog in the machine you almost get ...	-		
		...railroaded into the partnering agreement but you are getting no benefits from it	Smaller cogs in the machine get railroaded into the partnering agreement but you are not getting the benefits.	Not equal partners, therefore lip service paid by larger contractors, etc.	
	l	Yes and if there is any pain the pain is passed. What other critical factors do you think need to be there, an understanding on both parties..	-		
		Not dealing with it a great deal I don't really know. I am trying to think of some of the ..	Don't get involved that often.	Don't really get involved with partnering.	
Consultant 04		The top one has to be communication really. Understanding of other peoples roles. Knowledge of the actual partnering contract and the rules. Teamwork. One more, I'm struggling...let me think about that one as we're going along.	1. Communication; 2. Understanding of other peoples roles; 3. Knowledge of partnering (contract & rules); 4. Teamwork. No fifth given.	Communication. Understanding. Knowledge of partnering. Teamwork. No fifth given.	

Consultant 05		Communication... Well for us I always think client satisfaction – it's giving the client more than they anticipated. I also think completion on time...	1. Communication; 2. Successful scheme, which means giving the client more than what was anticipated (which is on time); 3. Accountability; people being given tasks and following them through; 4. Correct personalities (personal relationships) as that's what we deal in, given we don't provide products its people that we serve. Personal relationships is probably the main one; No fifth given.	Communication. Exceeding expectation. Accountability. Relationships. No fifth given.	
		...and getting information out of people as well when you want it			
		Well there's good and bad. You always start with good intent and you've always got examples of things falling down but the intent was there.			
	q	Q. So basically right information right time – have you got two more?	-		
		Accountability – you give people tasks..			
		I was going to say personalities. If you get the right people its easier...			
		...because that's what we deal in, we don't provide any products as it were - its people that we serve. Personal relationships is probably the main one, its having the... its just picking up the phone and talking to someone			
		rather than someone sending you an email when they are sat at the other end of the office			
		covering their backside - I don't like emails like that.			
Sub-contractor 04		Financial is one of them and communication would be another one. I suppose Health and Safety is all part of it.	1. Finances'; 2. Communication; 3. Health and safety. No fifth given.	Finances. Communication. Health and safety. No fourth or fifth give.	
	r	Q. In terms of financial it's a case of you have to win as well as the main contractor – basically it has to be a win/win because otherwise there is no point?	-		
		Well on the partnering thing basically what they do is on *** Build you price when you are trying to win the partnership they will give all various scenarios and buildings to be demolish and you will price all those buildings as a virtual job and then give them rates for certain labour so they know what.	With partnering you price virtual schemes with various scenarios in order to give then rates.		
	s	Q. So when a real job comes up?	-		
		Yes they have those rates but 9 times out of 10 because they will do houses, lower blocks, schools they do various so you have priced as if they are a live job – that's how they do it.	So when a real job comes in they have your rates.		
Sub-contractor 05					
Client 03		A willingness to make it happen, an understanding of each others objectives, the ability to compromise an ability to listen to what other people's needs are and an enthusiasm to make it happen despite all the challenges and problems that you meet along the way and to remember through all those difficult times what you are actually trying to achieve sometimes people lose sight of what we are actually trying to achieve.	1. Culture & willingness (to make it happen); 2. Understanding of each others roles and objectives; 3. Ability to compromise; 4. Ability to listen to others needs; 5. An enthusiasm to make it happen despite all the challenges and problems and remering through all the difficulties what you are trying to achieve.	Culture and willingness. Understanding roles. Able to compromise. Ability to listen. Enthusiasm (commitment).	
Client 04		Absolute critical factor is economic fee level so whether that is your contract done or your professional fees. What has been happening in the market recently since 2007 the competition has just become absolutely intense and that is for both professional services and winning building contracts so we have had the situation where on framework tendering we have had fee quotes of below 1% which are just not real and your first meeting is with the Senior Partners of the organisation and that is the last time you see them and the people you see next are the young students who have just finished Uni and it creates huge problems, secondly with Contractors we have had ridiculous tenders that have looked fantastic – you get them in and get the contract in place and the pre-contract meeting is with Senior people again and there is a team of Claim surveyors sat around the table so you know what is coming so I think an appropriate level of fees and an appropriate building contract sum is critical. The other thing is developing a relationship of trust, repeat work that is the carrot to dangle to ensure you get the productivity and the output you are looking for. There is not a guarantee but you can be fairly confident that if this contractor or consultant performs there is scope for them to go further.	1. Economic fee level because since 2007 competition has become intense with framework tenders with fee quotes below 1% which are just not real. So on the first meeting you see the senior partner but from then on its the young student; 2. Trust; 3. Repeat work (incentive) for there is no guarantee but you can be fairly confident that if this contractor performs there is scope for future schemes; 4. Communication - not email tennis but face to face and regular telephone conversations; 5. Relationships.	Finances. Trust. Incentive (repeat work). Communication. Relationships.	
		The other advantage for *** is because we are part of a big group there are opportunities within that group so that does work in our favour.	As we are part of a larger group, so there are opportunities within the group therefore we do have future projects which we use to our advantage.		

Figure 8e; Phase 1 – Qualitative Coding Process

	5.1	Q. Is partnering an informal ambition that develops and strengthens over time or something more formal that can be actively engineered from the outset?	-		
Main Contractor 01		We do... try to engineer it from the outset, by that expectations list I suppose, that you sign up to – this is what we expect from you and this what they expect from you and they sign it at directors, board level or whatever, you know.	Try to engineer from the outset, though at this stage more an expectations list that you sign up to i.e. this is what we expect from you.	Develops and strengthens over time, albeit try to engineer from outset	The good partnerships develop over time, though from the outset principles can be set. For whilst you can have documentation in place with parameters and principles set there is a lot of learning to do before the supply chain is partnering.
	a	Q. But at that stage you're not really partnering with them, the trust hasn't built up you're working with them and over time it would develop?	-		
		Yes, but I guess it's different because a lot of the partners we've worked for, the first job we did we weren't in a partnering agreement, we just did a good job for them and they said right we want you to be our	Partnering builds up over time for on the first job you're not partners. You just do a good job and they say they want you doing the next.	Partnering builds up over time, generally as a consequence of the first good job.	
	b	Q. So yes it built up from that. So you now, you could put your ... you could name some subcontractors who you would work with because you know they do a good job, as you've worked with the over years?	-		
		Yes, absolutely for its built up.	It builds up over time.	Build up, and relationships form over time.	
Consultant 01		I'm not sure if partnering will ever be a formal means of procurement. There are partnering frameworks, but even those are...even the public sector frameworks are governed by very robust contracts. And quite onerous ones in favour of the public sector. So I seem to recall there was a partnering form of contract that was developed a few years ago.....;	Partnering is not a formal means of procurement and not sure it will ever be. Even partnering frameworks are backed by robust contracts. And quite onerous ones in favour of the public sector.	Partnering not a formal means of procurement. Even frameworks backed by robust contracts (generally in favour of the public sector).	
	c	Yes PPC 2000.....;			
		I never came close to even having it be considered on a project. And I'd love to know how many projects its actually been used on, you know 10 years 12 years on. I would hazard a guess year on year the amount of times a partnering contract has been used has dropped over the last 10 years.	Never used partnering as a procurement method. Don't know how many projects use it but hazard a guess its dropped over the last ten years.	Never used partnering as a procurement method - but guess its dropped over recent years.	
		I think a clear indication is most of the public sector stuff where they have framework organisations, if they firmly believed in a partnering contract they would use a partnering form of contract – they don't, they use more robust forms of contract where the risk is clearly defined.	A clear indication is most public sector organisations work under the framework, but if they firmly believed in partnering would use a partnering contract - they don't.	Don't believe most public sector organisations use a partnering contract.	
Main Contractor 02		Its a difficult one that, partnering frameworks are set out from day one that we have x, y and z to do. There's not always the understanding from all parties what their roles are in it so it is about developing it over time. So whilst they are setting the documents and setting the parameters, once the partnering starts no there isn't instant initial partnering. For there is still a lot of learning to do, but the good partnerships are the ones that develop over time.	Develops over time for not always the understanding from all parties what their roles are. Documents in place and parameters set, but not initial partnering as a lot of learning to do. The good partnerships develop over time.	Develops over time, as lack of understanding from the outset. Documents in place and parameters set but not partnering.	

Sub-contractor 01		No its very much informal ambition that you develop, and it's about people. For without doubt in all walks of life and business, you deal with people you get on with and you start to...things go wrong in everything, but its knowing you can pick up the phone to a person and you know if they are saying no they are saying it for a reason and if they are then its our problem and we'll deal with it, but you know there's a fair chance they're playing it straight. I'm very fortunate to work for a company where I can make a decision, say the water heaters, I've looked at it, its our problem and we are going to deal with it. In other walks of life that I've had, as contractors we would have done everything we could to avoid living up to our responsibilities...and thats not the way. Equally if another building came along and "" had been identified then you say they did an OK job for us last time and you'd be happy for us to be involved. Thats the way it works but it has to be informal. Its difficult to engineer because everyone in the chain is being forced into a hole and people dont like to be forced. If you're working with people you get on with ...and different people get on with different people, these no doubt I get on with some people and "" ... gets on with some people, but we are both good engineers, we both know what we are doing.	Informal ambition that develops. Its about people. But difficult to engineer as everyone in the supply chain is forced into a hole and people don't like to be forced. Also people get on with different personalities/relationships. Partnering is about knowing you can pick up the phone when things going wrong (as they will) in order that the problem can be resolved, with the relevant parties playing it straight and fair.	Informal ambition that develops. But its about people so difficult to engineer as those in the supply chain are forced into a hole and people don't like to be forced.	
Consultant 02		I think it develops over time. You could have a formal partnering agreement then someone lets you down you are not going to use them again.	Develops over time. For you can have a formal partnering agreement then someone lets you down, you aren't going to use them again.	Develops over time.	
Main Contractor 03		Yes it can be more formal and actively engineered from the outset - what we do with our business and our teams is we engage on a partnering basis on any job regardless of the conditions of the contract and we find that leads to enhanced levels of customer satisfaction, better results and repeat business.	Can be formally engineered from the outset. This leads to enhanced levels of customer satisfaction, better results and repeat business.	Can be formally engineered from the outset	
	h	Q. Because you are not always arguing between yourselves.	.		
		Absolutely.	The partnering ethos leads to less adversarialism.	Partnering leads to less adversarialism	
Consultant 03					
Main Contractor 04	i	It can be either of those. I think if you have a big project where you can bring a team together and talk, and perhaps have various workshops prior to commencement you can sit down and engineer that relationship. But some partnering relationships build over time.	Can be either. For develops over time for not always the understanding from all parties at the outset what their roles are. However, on a large scheme where parties can sit down and talk, having documents in place and parameters set you can engineer	Can be either for single large projects can be partnered from inception with various workshops whilst other, smaller schemes develop over time.	

Client 01		At the outset I believe the only thing you can really set up is principles. Partnering will only be demonstrated once you are walking the walk. You can set up all the principles at the beginning you can set up what you, you can set up your KPIs, your milestones, your metrics and everything else but in reality it will only be demonstrated once the relationship is up and running to see whether it will work and to see whether anybody feels that they are not getting their correct balance of the partnership.	From the outset can only have principles. Partnering will only be demonstrated once you are walking the walk. For with all the paperwork in place i.e. KPIs, milestones, etc. it will only work if everyone is getting their correct balance of the partnership.	Develops over time as only principles can be in place from the outset	
Client 02		I think it develops and strengthens - I think its the first.	Develops over time.	Develops over time.	
	j	Q. So its something which comes with time.	.		
		Yes			
Sub-contractor 02		Develops over time you find out what people can bring to the table something that you didn't realise in the first place - potentially someone comes to me and asks for an intruder alarm system and whilst discussing - oh we need a CCTV system as well - we can do that, oh I didn't realise you did that - oh well what else can you do - I can do this and do that I can provide your key holding companies. I didn't know you did that. can you get me a safe yes I can do that so it will develop.	Develops over time for not always the understanding from all parties what their roles are. For you find what people can bring to the table.	Develops over time, as little understanding from all parties at the outset.	

Consultant 04		I think it can be successful from the beginning, but obviously there are benefits over periods of time because you get used to people you know how they work and you can accommodate that but I think with the right people and the right attitude yes there is no reason at all why it can't work straight from the start.	Can be formally engineered from the outset and therefore be successful from the start, with the right people and attitude to partnering. But develops/improves over time because you get used to people you know how they work and you can accommodate.	Develops over time but can be engineered from the outset with the right people and attitude to partnering.
Sub-contractor 03		I think it can because you set out your objectives to them and say here's what we want, we want... if it's a supplier we want a fixed price for 12 or 6 months, 2 deliveries a week, we'd want you to respond to any complaints within 24 hours so you could formalise it to a lesser or greater degree from the start, it depends on what you'd expect from the supplier - if you're in an arrangement with a supplier and you are going to demand as much as you can get away with and by the same token we're going into an arrangement with a customer then the shoe is on the other foot as you have to react to what they are demanding from us and consider whether that's fair or not so for example a partnering agreement where the incentives a 2 year contract we want you to hold your prices for 2 years, here's the specification we require, then you could set off on that and say we will pay you within normal payment terms so you could set off and engineer that for a start.	Can be formally engineered from the outset, with relevant documents in place and parameters set, as you set your objectives to them and say here's what we want. But not initial partnering as a lot of learning to do. Improves over time. With a supplier you demand as much as you can get away with but with a main contractor the shoe is on the other foot as you react to what they are demanding from you.	Can be formally engineered from the outset, with the right people and documentation.
	k	Q. But in terms of that actual better working relationship that is something that would develop over time?	-	
		Yes I think the proof is in the eating you can only develop that over a period and see if they deliver their promises and you deliver on your promises to them you will only find that out after a certain period of time.	Proof is in the eating as you can only develop the collaborative working over time. You need to see if they deliver on their promises.	But develops over time, when you see if the relevant parties deliver on their promises.
	l	Yes you miss one payment and then its ...	-	
		Yes or you get a complaint and you present them with it and they don't react and they ignore your complaint or they don't respond in the right frame of mind or they are obstructive or whatever you are only going to find that out when - that's why sometimes it's a good thing to get a problem from a client to see how they react to you quickly? Well yes I am happy with these people they have delivered what they said they were going to, they have reacted in the right way.		
Consultant 05		Well it's like we said, it goes back to trust doesn't it - if you don't trust someone from the outset you need to earn that trust. So I think you set out saying it is partnering but it does take time to get into a true partnership because you always look a bit guarded. An example of that would be *** when we changed the contractor we went from *** to ***. Me and *** had a big discussion do we give our budget to ***? and what we did is say yes because we wanted to foster that trust and openness. So if we are saying "by the way you partner with us but we are not telling you what it is" - so what we did we had to work on it and we thought that we would make the first stance as it were and we actually gave it to them - we wanted them to be open book so we gave them our full costings. We didn't do it on *** by the way (the second job) we kept a little bit back. We were open to 95% but we kept 5% back for ourselves - but that was lessons learnt from the first job with the same team. But you have to work on it, you have to state this is a partnering project because that does give different drivers/behaviours from different people. The second project you already know the peoples' strengths and weaknesses. People are there for their strengths but they have their weaknesses as well as nobody's perfect. You know peoples' strengths and weaknesses 2nd and 3rd time down the line and you need to say we are in a team environment. From the outset I don't think it is a true partnership because it's the first time we've worked together and it's this trust thing, you've got to earn trust, for me anyway, and you have got to earn the relationship and once it's earned great! - the very first job is difficult. As I say *** and I made that decision of giving them our budget to try and hopefully ... this is a trust that way we now need it back as it were - yes it is difficult early on but hopefully once you get into that relationship it will be easier. And as *** said on some of the *** jobs it's tendered first of all and then you start working with the contractor and then on the next project after that you partner.	It goes back to trust, for if you don't trust someone from the outset you need to earn that trust. So you set out saying it's partnering but it does take time to get into true partnering. A bit guarded at the outset. It needs to be worked at and you have to state this is a partnering project which initiates different drivers/behaviours from different people. The second project with the same team you really know their strengths and weaknesses. From the outset it is not a true partnership as you have to earn trust and therefore the relationship. The first job is difficult. The first job is all about the tender, with the subsequent jobs hopefully partnered.	Develops over time. For at the outset whilst it's partnering it's not true partnering.
	m	The problem is though a lot of clients don't have, like the *** programme of works, do they...and ***'s is the same...	-	
		1) Correct - a lot of clients it's a one off the first time they have ever built and it's a one off build.	Problem a lot of clients have one scheme and it's the first time they've built. Therefore they don't have a defined programme of works.	A lot of clients don't have multiple schemes in order for partnering to develop.

Sub-contractor 04		I think you could do it from the outset if everything is in place but it usually develops over a few jobs because if you do well on the first job, then they think "" did well on that job lets get them back so I think it takes a few jobs. I priced a job down in Leicester I don't know whether I have it yet for "" Construction who we have not done any work for but the guys on that site used to work for "" who we worked for doing the Greater Manchester ... and they said ring "" they did a good job for us so see what their price is like. I couldn't remember the fella who recommended us but he obviously remembered us so it develops over time Unless it is a specific partnering thing where they send out Councils like "" - we haven't worked for "" Council but we sent off the pre-qualification and now we are partnering.	Can be formally engineered from the outset, with relevant documents in place and parameters set, but not initial partnering as a lot of learning to do. Improves over time. Generally if the first job has been a success then called back to do subsequent work. Therefore in order for it to be working effectively it takes a few jobs.	Develops over time but can be engineered from the outset with the right documents in place and parameters set. Generally reliant on completing the first job successfully.	
	o	Q. So if they sit down and it is fully explained in terms of this is a partnering job and you all work together with the right documentation it can work?	-		
		Yes.	So if all parties sit down and it is explained that this is a partnering job, with all the right documentation in place it can work.	The partnering concept, with the right documentation, needs to be fully explained from the outset.	
Sub-contractor 05					
Client 03		I think no because what you have to do early on is you have to develop that trust. You have ... and know that the people on the other side do want to achieve the same things as yourselves so I don't think with all the will in the world a client can decide they want to partner with such a body and it is our role to make it happen which is really difficult to do that because you have to get to know people and the relationships that you have to be partners are important and you have to build trust and make sure they do actually know what we are talking about and they are in it for the right reasons	Develops over time for not always trust from the start. You need to establish what the other parties want to achieve - there needs to be agreeable objectives. You need to get to know people before relationships develop and establish that they are in it for the right reasons.	Develops over time as trust needs to be earned. Agreeable objectives need to be set and relationships formed.	
Client 04		I think both. Again it comes back to the strength of the contract the strength of the document you are using but over time it is impossible to deliver without building a relationship that fosters trust and mutual integrity.	Can be formally engineered from the outset, with relevant documents in place and parameters set, but not initial partnering as a lot of learning to do in terms of building relationships that foster trust and mutual integrity. Improves over time.	Develops over time but can be engineered from the outset with the right documents in place and parameters set. Not partnering at the outset as relationships not formed.	
	q	Q. So from the outset are you saying Partnering will not be there it develops?	-		
		Yes I think it develops over time but I think it can get off to a good start provided your contract documentation is robust and is clearly set out to achieve a common set of objectives and goals.	Develops over time but can get off to a good start provided your contract documentation is robust and clearly set out to achieve a common set of objectives and goals.	Develops over time but can be engineered from the outset with the right documents in place and parameters set.	

Figure 8f; Phase 1 – Qualitative Coding Process

Interviewee ID	Question No.	Raw Data	Initial Coding	Focused Coding	Theoretical Coding
	5.2	Q. With reference to the partnering ethos is there sufficient senior management support within your organisation to move away from short term thinking in favour of ways that incentivise long term relationships?	-		
Main Contractor 01		Well it comes from the top and filters down.	Comes from the top.	Comes from the top.	Majority confirm the partnering ethos cascades from senior management level, as partnering builds relationships, which in turn develops future work prospects. Repeat work is fundamental to the business.
Consultant 01		Yes, you just have to face facts that most private sector clients won't enter into contract with you until they have the necessary funding. Most of the time they don't have that necessary funding until the final piece of the jigsaw is delivering a fixed price lump sum for the works. So up to that point the job can stop at any time. And they can decide to change and use someone else. So it's just something we deal with every day and even more so in the tight times were you'd probably take work where you can. The risk is greater but the overall risk is if you don't take it you go bump, and our business is fairly simple, you have to turn over £160k a month, our overheads are about £120k and that's how we make £400k/£500k pre tax profit a year. And we know that if we do that every month we can keep sufficient reserves in the account to deal with a pretty major catastrophe in the business like losing a major client or one of the major clients not paying us. So it's not really a complicated business and it's just about how do we get £160k's worth of work. I mean I'd busk on the street if I had to in order to get that last thousand pound in in the month and that's the way life is.	Yes. But you have to face facts in the private sector clients won't enter into contracts until a fixed price lump sum received. Therefore up until that point the job can be stopped or they can use someone else. But from that point if successful then partnering arrangements, principles can be developed/implemented.	Yes, but difficult to partner until project formally won - for up until that point scheme can be pulled.	Repeat work for consultants, main contractors and sub contractors is fundamental to the business.
Main Contractor 02		It comes from the top in our organisation. Partnering is the way forward. In fact it's one of our drivers for as you can see the eleven boxes are all partnering or framework long term stuff.	Yes, as partnering or long term frameworks one of our drivers. It comes from the top as partnering seen as the way forward.	Comes from the top as long term frameworks one of our deliverables.	
Sub-contractor 01		Yes, because our ethos is to partner with people and make everyone take the benefits of it.	Yes, as our ethos is to partner and deliver the win/win scenario.	Comes from the top as our ethos is partnering.	
Consultant 02		There is, that is what we mainly do 80% of our business is repeat business so that is what we work on.	Yes, as 80% of our business repeat business.	Yes, comes from the top as most of our business from the same client base.	
Main Contractor 03		Yes definitely. For *** what they've done is take 6 operating companies and they've taken it down to 1 across the UK - *** bringing together the different strands and certainly under the three strands: *** Regional, Major Projects and Engineering Services our M & E arm, and certainly within *** Regional, the guy who heads that up is the Ex *** Managing Director and that's their ethos all the way through partnering - repeat business. That's the way we work so yes there is a very senior support and when we see a framework opportunity if it's the right one we will go for it because we can see the benefit of frameworks even if it's not an immediate short term gain, we look to get on the framework for the future.	Yes, as repeat business is the company's ethos. So when we see a framework opportunity if it's the right one we will go for it. For we see the benefits of frameworks even if not an immediate short term gain.	Yes, from the top as company see the benefit of frameworks.	
Main Contractor 04		Yes, as its key, from the chairman right down that's key to *** business ethos.	Yes, as partnering is the company's ethos. Its key to the business.	Yes, as partnering is the company's ethos. Its key to the business.	
Client 01		We'd find it very difficult to incentivise long term relationships because right now I don't have a major building scheme on site yet I might have two by the end of the year again then I might have no more for a while again. I am not in a position where I will be delivering 3 high schools this year, 3 more next year, 3 more the year after and lets keep on getting better and better. Everybody knows its the old issue of no car manufacturer will put the first model they ever make on the road most people that make something that's quite complex go through a whole series of testing prototype and eventually producing what they want, which is a fine-tuned product. That works well where you are doing repeat business or repeat work of a similar nature but of course when all your projects are individual and more or less unique each time, you can round the edges of uniqueness and you can start to work to what you want but we just don't have that level of flow that allows us to do that. It doesn't work for us, we'd end up re-starting every time and from working on construction projects what you soon work out is it's the people involved not the name or the brand at the end of the day.	Difficult to incentivise long term relationships as no major building scheme/schedule. Not in a position where we will deliver three high schools this year, three more next year and three the year after and lets keep getting better. Also building projects when they come along are individual/unique, unlike the car industry where it's well known the first model doesn't go on the road but put through a series of tests, etc. therefore it's the individuals and not the brand.	Difficult to incentivise long term relationships as no major building scheme/schedule.	

Client 02		Yes.	Yes.	Yes.
Sub-contractor 02		Yes, we have a management structure which is increasing by the minute	Yes, as management structure in place.	Yes, as management structure in place.
	a	Q. And they are more on board with working in Partnerships and developing long term relationships?	-	
		Yes		
Consultant 04		Yes, it is definitely at the top of our list when the opportunity arises but as I have said there isn't much opportunity but the way we work that is partnering I suppose and our mission statement.	Yes, top of our list when the opportunity arises, as partnering part of the company's mission statement.	Yes, as partnering part of the company's mission statement.

Sub-contractor 03		Absolutely, the key issue at the moment in this industry is inconsistency and a lack of long term stability you cant plan anything. We bought a router before Christmas it cost £86,000.00 thats a lot of money but we felt.. there were two factors in that 1) it would help us to expand if the demand is going to be there...but there's no way we could get any concrete evidence - no one is going to commit to us - we had to make a commercial decision on it and 2) we felt that we needed it so if we got a breakdown on one of the other routers it would put us in a very difficult position in that we wouldn't be able to meet our promises... so we said that if we could get into an arrangement like the one we used to have when we were at *** were we were supplying a lot of merchants, so if you can set the deal up and it was a long term arrangement, we didn't balls it up, the job was ours until someone tried to undercut you or tried to present them with a better value for money proposition but generally yes absolutely we would be in favour of that if we could engineer that for as many customers thats good for our business, it gives us stability, it gives us confidence to invest.	Yes, but current economic climate means instability so difficult to develop long term relationships.	Yes but current economic climate means instability so difficult to develop long term relationships.
Consultant 05		Its difficult because we are *** but we are not ***	No set strategy or values in respect of partnering, but management services in the project management section would like to think they will want to partner but no set strategy or values.	No set partnering strategy.
		We are management services so we are Project Managers, QSs and Health and Safety or CDMCs as it were thats a slightly different environment to the Engineers because they work within various different projects that are already set and they giving out structure and they are designing a frame in an environment so we haven't really got a strategy on partnering I must admit		
		No I don't think there is		
		But Management Services is the Project Management section and they would like to think they will want to partner but there is no set strategy or values. When I go back to *** one of their values was partnership. They had 5 values and one of them was partnership that was part of their values, part of their ethos of how they are going to work as it were, one of them was performance and people and customers and information technology they were the five values we don't have that we have more around the customer satisfaction drivers as it were rather than a procurement strategy.		
Sub-contractor 04		Yes thats why we have *** and *** and I and my other colleague *** we work. There is enough senior management so to speak to try and ..	Yes.	Yes.

Figure 8g; Phase 1 – Qualitative Coding Process

Interviewee ID	Question No.	Raw Data	Initial Coding	Focused Coding	Theoretical Coding
	8.2	Q. Is there sufficient experience/understanding of partnering within the construction industry?	-		
Main Contractor 01		No not true partnering. Probably they get 70% of it though I don't think there is any true partnering is there.	No. Partnering probably about 70%, don't think there is true partnering.	No.	No, as very philosophical and never clearly defined. Therefore easy to say but hard to do. Used as a way to win work without necessarily following the ethos
Consultant 01		No, I don't think it was ever defined. With Latham and Egan, for its alright....its very philosophical to lay down these imperial ideals but then these guys just go and they don't think about the next year. I've never seen anyone of them yet stay around and write the rules for this because its easy to say but harder to do. So no I don't think its ever going to happen that way.	No never defined. Very philosophical to lay down these imperial ideals then these guys just go and don't think of the next year. Never seen any of them stay around and write the rules for its easy to say but hard to do. So no don't think its going to happen that way.	No never defined.	The high level people within local government organisations get the paperwork and briefings but the delivery team have no understanding, albeit need to get on with it as senior management say from next week we are partnering. So definitely a lack of understanding at lower level.
Main Contractor 02		Its mixed, but generally I would say no. The word partnering is over used and the use of partnering is used in the wrong terms. People say they are partnering but strictly speaking they're not. They've just gone down that route because they have been told to. Again I go back to local government, and whilst I'm not bashing them they gone down the partnering route and they've been told to go down the partnering route. These a difference between were thinking of going down the partnering route can we discuss it. So what tends to happen the high level people within the organisations get all the documentation/briefings on partnerships and the delivery team have no understanding as management just say next week "" are on board as our new partners. So they've no training or concept and so ask what is partnering. What are we doing differently so there is definitely a lack of understanding at a lower level, and I don't mean a lower level disparagingly its just that the top guys go to all the framework meetings and then its next week we are partnering;	Mixed but overall no. The word partnering is over used. People say they are partnering but strictly speaking they are not. Just go down the route as told to do so. So whilst the high level people within local government organisations get the paperwork and briefings the delivery team have no understanding, but need to get on with it as senior management say from next week we are partnering. So definitely a lack of understanding at lower level.	No, albeit can be mixed.	Not sufficient understanding with project managers believing partnering is the supply chain doing what they are told rather than pain/gain sharing.
Sub-contractor 01		No, there's certainly not a sufficient understanding of it. That comes from the very top down where there's a lot of project managers who believe partnering is the supply chain doing as their told when reality it should be a pain and gain sharing.	No sufficient understanding of partnering. That comes from the top with project managers believing partnering is the supply chain doing as they are told rather than pain/gain sharing.	No.	
Consultant 02		I think everyone thinks they know what it means but I don't think everyone embraces it fully. I think the understandings there but the actual implementation isn't.	Not embraced fully, whilst everyone thinks they know what it means not implemented.	Understood but not embraced.	
Main Contractor 03		No.	No.	No.	
Consultant 03		No it was all promoted years ago and nothing has happened since. People talk about partnering but I don't think it has really taken off as it was intended to.	All promoted years ago but nothing happened since. People talk about partnering but not implemented as intended.	Understood but not embraced.	
Main Contractor 04		I think we like to think there is.	We like to think there is used as a way to win work not necessarily of following the ethos.	Like to think it is but used as a way to win work rather than following the ethos.	
	8.2a	Q. Is that a yes or is that a no?	-		
		I think that's a yes, but I think sometimes its looked at as a way of winning work, not necessarily of following the ethos. Its therefore seen as another procurement method to win work.		Therefore yes.	

		winning work, not necessarily or following the ethos. Its meritore seen as another procurement method to win work.			
Client 01		If you want to get into partnering now there is enough experience out there. There are enough consultants who can advise you how to try and do it right and there are enough contractors prepared to try and be open and enter into partnering relationships because generally it is good for contractors. Maybe clients, not all, move into that relationship and sometimes public sector clients such as ourselves struggle to get away from ensuring that we've somehow achieved good price at the beginning but then one could argue that the private sector, depending on its accountability to shareholders, has had the ability to partner for years because it can just go along to somebody and say do you want to do the job.	There is enough experience within the industry. There are enough consultants out there and enough contractors prepared to be open and enter into partnering relationships because its good for contractors. Maybe clients move into that relationship and sometimes public sector clients struggle to get away from ensuring that we've somehow achieved a good price at the beginning. Could be argued the private sector depending on its accountability has had the ability to partner for years as they can just go along to someone and say do you want to partner.	Yes, enough experience in the industry.	
Client 02		I think there is quite a lot of understanding its... I think people are... particularly in this market they are just driven by lowest price. And they all think they can get a better deal and our view is even in this market we don't go away from our standard people. So I won't say there is insufficient experience and understanding its almost is there enough drive to do it. And I think the drive comes from the client. If the client can't be bothered because he wants the next cheapest thing then it all goes... I mean if you beat the guy up up-front all he can do is go down his supply chain. I think contractors have a greater understanding of partnering down their chain than possibly up.	Think there is quite a lot of understanding but driven by lowest price. They all think they can get a better deal but our philosophy is we continue to use our standard people. So think there is sufficient experience but is there the drive to do it. The drive must come from the client so if they can't be bothered because they want the next cheapest thing then it doesn't work. For if you nail the main contractor on price they then push it down the supply chain. Contractors have a greater understanding of partnering down their supply chain than up.	Quite a lot of understanding but driven by lowest price.	

Sub-contractor 02		I don't know I couldn't answer that one properly. I am sure there is at very high level.	Assume there is at very high level.	At senior levels albeit less at site level (i.e. more academic than practical).	
	8.2e	Q. But in terms of sub-contractor level?	-		
		The very little experience I have had I would say no but I couldn't answer it for definite	At lower sub contractor level no.	Also no at sub contractor level.	
Consultant 04		No I don't think there is... and that's the problem	No there isn't and that's the problem.	No and that's the problem.	
Sub-contractor 03		Certain elements of it they will but not all – what you get down the supply chain is less and less, and the further out you are away from the actual main contractor on a job the less likely you are going to be – like a builders merchants on a job who's supplying a lot of products might not have a clue about partnering. They will just have an arrangement, a national deal with *** or someone to supply cement. They are not going to ... that's purely a price driven decision, nothing to do with partnering – that's just a contract so no the further down the chain you probably wouldn't do. Again the experience is becoming less and less within the industry as there is less and less demand. The people who are specialists and employed to win the business on that basis probably aren't employed anymore in that respect – its becoming less.	So whilst elements will have the knowledge not all and as you go down the supply chain its less and less. For example take building suppliers who are only supplying products probably won't have a clue about partnering. There will just be an arrangement, a price driven decision. The experience is becoming less and less as there is less and less demand.	Within elements but not throughout the supply chain (less and less as you get lower and lower).	
Consultant 05		Yes	Yes.	Yes.	
		I think it is a well recognised, the contractors are all geared up for it, the consultants are getting more and more familiar with that as well. I think you still need to get the bespoke procedures in place because the Contractors view of partnering is not necessarily the view of everybody as it were.	All recognise partnering but the bespoke procedures need to be in place because the contractors view of partnering is not necessarily the view of everyone.	All recognise partnering but the procedures need to be in place, as the contractors view of partnering not necessarily everyone elses	
	8.2f	Q. What about the lower tiers, the sub-contractors and suppliers pretty much at the bottom of the tree?	-		
		Again a lot of our suppliers e.g. soil investigation or topographical surveys they are one off surveys they don't really need to be in that, because a lot of our work in the supply chain is undertaken early on. Bat surveys and things like that.	The lower tier supply chain members don't need to be involved as one off surveys.		
		Q. What about sub-contractors to the main contractors -			

APPENDIX 10

Quantitative Findings

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	Due to the nature of the industry a dominant upstream partner (who dictates terms and conditions, proceedings, etc.) will always exist.	The distribution of 'Due to the nature of the industry a dominant upstream partner (who dictates terms and conditions, proceedings, etc.) will always exist' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.587 .583	Retain the null hypothesis
2	From an organisation perspective there is a greater focus on the upstream relationship with the dominant partner.	The distribution of 'From an organisation perspective there is a greater focus on the upstream relationship with the dominant partner' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.814 .363	Retain the null hypothesis
3	A partnered approach is an effective strategy to improve relationships throughout the supply chain (not just with the dominant partners).	The distribution of 'A partnered approach is an effective strategy to improve relationships throughout the supply chain (not just with the dominant partners)' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.218 .934	Retain the null hypothesis
4	A positive relationship has a constructive effect on each particular project.	The distribution of 'A positive relationship has a constructive effect on each particular project' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.085 .856	Retain the null hypothesis
5	A positive relationship has a constructive effect on future work prospects.	The distribution of 'A positive relationship has a constructive effect on future work prospects' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.703 .744	Retain the null hypothesis
6	An effective relationship between relevant supply chain members can be engineered/established during the period of a single project.	The distribution of 'An effective relationship between relevant supply chain members can be engineered/established during the period of a single project' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.593 .763	Retain the null hypothesis
7	It is necessary to have good working relationships both up and downstream that go beyond the 1 st tier.	The distribution of 'It is necessary to have good working relationships both up and downstream that go beyond the 1 st tier' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.282 .614	Retain the null hypothesis
8	Relationships with other members of the supply chain, either up or downstream are monitored.	The distribution of 'Relationships with other members of the supply chain, either up or downstream are monitored' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.157 .049	Retain the null hypothesis

Table 10.1a: Relationships – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	Due to the mature of the industry a dominant upstream partner (who dictates terms and conditions, proceedings, etc.) will always exist.	4.00 24.7%	4.00 25.3%	4.00 24.1%	4.00 25.9%	4.00 100%
2	From an organisation perspective there is a greater focus on the upstream relationship with the dominant partner.	4.00 27.7%	4.00 24.5%	4.00 23.9%	4.00 23.9%	4.00 100%
3	A partnered approach is an effective strategy to improve relationships throughout the supply chain (not just with the dominant partners).	4.00 25.5%	4.00 22.9%	4.00 27.4%	4.00 24.2%	4.00 100%
4	A positive relationship has a constructive effect on each particular project.	4.00 25.1%	4.00 24.0%	5.00 26.9%	4.00 24.0%	4.00 100%
5	A positive relationship has a constructive effect on future work prospects.	4.00 25.4%	4.00 23.7%	4.50 25.4%	4.00 25.4%	4.00 100%
6	An effective relationship between relevant supply chain members can be engineered/established during the period of a single project.	4.00 25.0%	4.00 25.0%	4.00 26.3%	4.00 23.7%	4.00 100%
7	It is necessary to have good working relationships both up and downstream that go beyond the 1 st tier.	3.00 21.8%	4.00 28.9%	4.00 23.2%	4.00 26.1%	4.00 100%
8	Relationships with other members of the supply chain, either up or downstream are monitored.	3.50 26.3%	3.50 29.7%	3.00 23.7%	2.50 20.3%	3.00 100%

Table 10.1b: Relationships – Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	The main area of mistrust is financially centred.	The distribution of 'The main area of mistrust is financially centred' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.375 .249	Retain the null hypothesis
2	Either upstream or down there will never be complete trust. 100% trust will therefore only ever be an aspiration.	The distribution of 'Either upstream or down there will never be complete trust. 100% trust will therefore only ever be an aspiration' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.024 .009	Reject the null hypothesis
3	The implementation of a partnered approach has resulted in a positive shift in terms of trust throughout the supply chain.	The distribution of 'The implementation of a partnered approach has resulted in a positive shift in terms of trust throughout the supply chain' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.002 .047	Reject the null hypothesis
4	Trust is reliant upon inter-organisational relationships that develop over time.	The distribution of 'Trust is reliant upon inter-organisational relationships that develop over time' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.102 .897	Retain the null hypothesis
5	When schemes are partnered, separate contractual documentation must always be in place (for when things go wrong).	The distribution of 'When schemes are partnered, separate contractual documentation must always be in place (for when things go wrong)' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.102 .025	Retain the null hypothesis
6	As an organisation you will still collaborate with an upstream supply chain member without trust.	The distribution of 'As an organisation you will still collaborate with an upstream supply chain member without trust' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.027 .106	Reject the null hypothesis
7	As an organisation you will still collaborate with a downstream supply chain member without trust.	The distribution of 'As an organisation you will still collaborate with a downstream supply chain member without trust' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.352 .623	Retain the null hypothesis
8	The development of and implementation of a partnering strategy that engages all members of the supply chain from the outset, engenders trust throughout the project team.	The distribution of 'The development of and implementation of a partnering strategy that engages all members of the supply chain from the outset, engenders trust throughout the project team' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.093 .277	Retain the null hypothesis

Table 10.2a: Trust – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	The main area of mistrust is financially centred.	4.50 28.2%	4.00 24.2%	4.00 22.8%	4.00 24.8%	4.00 100%
2	Either upstream or down there will never be complete trust. 100% trust will therefore only ever be an aspiration.	5.00 29.4%	4.00 25.5%	3.00 21.6%	4.00 23.5%	4.00 100%
3	The implementation of a partnered approach has resulted in a positive shift in terms of trust throughout the supply chain.	4.00 27.5%	3.50 23.9%	4.00 27.5%	4.00 23.5%	4.00 100%
4	Trust is reliant upon inter-organisational relationships that develop over time.	4.00 23.7%	4.50 26.0%	5.00 26.6%	4.00 23.7%	4.00 100%
5	When schemes are partnered, separate contractual documentation must always be in place (for when things go wrong).	4.00 26.9%	4.00 28.3%	4.00 22.8%	3.50 22.1%	4.00 100%
6	As an organisation you will still collaborate with an upstream supply chain member without trust.	9.00 42.5%	2.00 20.4%	3.00 17.4%	3.00 19.8%	4.00 100%
7	As an organisation you will still collaborate with a downstream supply chain member without trust.	3.50 26.1%	2.00 28.9%	2.50 24.4%	3.00 30.3%	3.00 100%
8	The development of and implementation of a partnering strategy that engages all members of the supply chain from the outset, engenders trust throughout the project team.	4.00 23.4%	4.00 25.9%	4.00 27.8%	4.00 22.8%	4.00 100%

Table 10.2b: Trust - Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	As a whole the construction industry remains committed to the concept of partnering?	The distribution of 'As a whole the construction industry remains committed to the concept of partnering' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.089 .644	Retain the null hypothesis
2	As an organisation you are committed to partnering upstream?	The distribution of 'As an organisation you are committed to partnering upstream' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.026 .286	Reject the null hypothesis
3	As an organisation you are committed to partnering downstream?	The distribution of 'As an organisation you are committed to partnering downstream' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.027 .027	Reject the null hypothesis
4	Partnering is an achievable ethos rather than an unobtainable concept?	The distribution of 'Partnering is an achievable ethos rather than an unobtainable concept' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.213 .532	Retain the null hypothesis
5	The fact everybody says they are partnering is not enough to realise effective collaboration – there must be a partnering strategy?	The distribution of 'The fact everyone says they are partnering is not enough to realise effective collaboration – there must be a partnering strategy is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.271 .050	Retain the null hypothesis
6	A partnered approach to project procurement will not succeed unless all members of the supply chain are fully committed?	The distribution of 'A partnered approach to project procurement will not succeed unless all members of the supply chain are fully committed' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.244 .192	Retain the null hypothesis
7	Whilst members of the project supply chain say they are committed to collaborative working the partnering ethos must always be driven by the client?	The distribution of 'Partnering ethos must be driven by the client' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.023 .486	Reject the null hypothesis
8	The complete supply chain is not actively engaged in the partnering ethos i.e. from the client to the lower tiered sub-contractor?	The distribution of 'The complete supply chain is not actively engaged in the partnering ethos' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.993 .934	Retain the null hypothesis
9	A strategy can be implemented to encapsulate the complete supply chain?	The distribution of 'A strategy can be implemented to encapsulate complete supply chain' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.480 .799	Retain the null hypothesis
10	The partnering concept does filter down to all levels of the supply chain?	The distribution of 'The partnering concept does filter down to all levels of the supply chain' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.530 .808	Retain the null hypothesis
11	There is a need for a partnering strategy to be developed and	The distribution of 'There is a need for a partnering strategy to be developed and	Independent-Samples	.401	Retain the null

	implemented in order to set out the complete supply chains prescriptive aims and objectives, which is then measured throughout the scheme?	implemented in order to set out the complete supply chains prescriptive aims and objectives, which is then measured throughout the scheme' is the same across categories of discipline.	Kruskal- Wallis Test Spearman's test of Association	.387	hypothesis
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Table 10.3a: Commitment – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	As a whole the construction industry remains committed to the concept of partnering?	3.00 24.8%	3.00 24.0%	4.00 29.5%	3.00 21.7%	3.00 100%
2	As an organisation you are committed to partnering upstream?	3.50 10.3%	4.00 24.8%	4.50 36.8%	3.00 28.2%	4.00 100%
3	As an organisation you are committed to partnering downstream?	3.50 21.2%	3.50 23.8%	4.50 29.1%	3.00 25.8%	4.00 100%
4	Partnering is an achievable ethos rather than an unobtainable concept?	4.00 25.8%	4.00 23.8%	4.00 27.2%	4.00 23.2%	4.00 100%
5	The fact everybody says they are partnering is not enough to realise effective collaboration – there must be a partnering strategy?	4.00 26.5%	4.00 25.9%	4.00 24.7%	4.00 22.8%	4.00 100%
6	A partnered approach to project procurement will not succeed unless all members of the supply chain are fully committed?	4.00 27.3%	4.00 24.2%	4.00 23.6%	4.00 24.8%	4.00 100%
7	Whilst members of the project supply chain say they are committed to collaborative working the partnering ethos must always be driven by the client?	3.00 22.6%	4.00 29.0%	2.50 20.2%	4.00 28.2%	3.00 100%
8	The complete supply chain is not actively engaged in the partnering ethos i.e. from the client to the lower tiered sub-contractor?	3.50 25.0%	3.50 25.7%	4.00 24.3%	3.50 25.0%	4.00 100%
9	A strategy can be implemented to encapsulate the complete supply chain?	4.00 25.0%	3.00 22.9%	4.00 27.1%	3.50 25.0%	4.00 100%
10	The partnering concept does filter down to all levels of the supply chain?	3.00 24.8%	3.00 24.8%	3.00 27.4%	3.00 23.0%	3.00 100%
11	There is a need for a partnering strategy to be developed and implemented in order to set out the complete supply chains prescriptive aims and objectives, which is then measured throughout the scheme?	4.00 27.4%	3.00 23.0%	4.00 25.2%	3.00 24.4%	4.00 100%

Table 10.3b: Commitment - Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	The construction industry is successful in terms of projects being finished on time.	The distribution of 'The construction industry is successful in terms of projects being finished on time' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.128 .080	Retain the null hypothesis
2	Initial project programmes are generally optimistic and focus on what the client wants to see with little chance of success.	The distribution of 'Initial project programmes are generally optimistic and focus on what the client wants to see with little chance of success' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.139 .438	Retain the null hypothesis
3	Where schemes are partnered the prospect of completing on time is increased due to the early involvement of relevant supply chain members who help develop a realistic programme.	The distribution of 'Where schemes are partnered the prospect of completing on time is increased due to the early involvement of relevant supply chain members who help develop a realistic programme' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.984 .787	Retain the null hypothesis
4	The introduction of an incentive scheme that all members of the supply chain benefit from provides a realistic opportunity for a project to finish on time.	The distribution of 'The introduction of an incentive scheme that all members of the supply chain benefit from provides a realistic opportunity for a project to finish on time' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.823 .495	Retain the null hypothesis
5	Incentive schemes should replace penalties as part of the contract, because this leads to a blame culture that invariably gets passed down the supply chain.	The distribution of 'Incentive schemes should replace penalties as part of the contract, because this leads to a blame culture that invariably gets passed down the supply chain' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.037 .004	Reject the null hypothesis
6	In order for partnering to have a positive impact on project time there has to be trust and an effective management strategy.	The distribution of 'In order for partnering to have a positive impact on project time there has to be trust and an effective management strategy' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.550 .884	Retain the null hypothesis
7	On a typical partnered project there are suitable/sufficient procedures, tools and techniques which engage all members of the supply chain, to manage programme.	The distribution of 'On a typical partnered project there are suitable/sufficient procedures, tools and techniques which engage all members of the supply chain, to manage programme' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearmans test of Association	.018 .001	Reject the null hypothesis

Table 10.4a: Time – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	The construction industry is successful in terms of projects being finished on time.	4.00 27.1%	3.00 24.1%	3.00 25.6%	3.00 23.3%	3.00 100%
2	Initial project programmes are generally optimistic and focus on what the client wants to see with little chance of success.	3.00 25.3%	4.00 24.4%	2.00 21.0%	4.00 29.4%	3.00 100%
3	Where schemes are partnered the prospect of completing on time is increased due to the early involvement of relevant supply chain members who help develop a realistic programme.	4.00 24.0%	4.00 24.7%	4.00 25.3%	4.00 24.7%	4.00 100%
4	The introduction of an incentive scheme that all members of the supply chain benefit from provides a realistic opportunity for a project to finish on time.	4.00 24.0%	4.50 24.7%	4.00 25.3%	4.00 26.0%	4.00 100%
5	Incentive schemes should replace penalties as part of the contract, because this leads to a blame culture that invariably gets passed down the supply chain.	3.00 20.0%	3.50 25.7%	4.00 25.7%	4.00 28.6%	4.00 100%
6	In order for partnering to have a positive impact on project time there has to be trust and an effective management strategy.	4.00 24.9%	4.00 24.9%	4.50 26.0%	4.00 24.3%	4.00 100%
7	On a typical partnered project there are suitable/sufficient procedures, tools and techniques which engage all members of the supply chain, to manage programme.	4.00 29.3%	4.00 25.0%	3.00 23.6%	3.00 22.1%	4.00 100%

Table 10.4b: Time - Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	The implementation of a partnering approach has resulted in a positive shift in terms of improved communication throughout the supply chain.	The distribution of 'The implementation of a partnering approach has resulted in a positive shift in terms of improved communication throughout the supply chain' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.159 .159	Retain the null hypothesis
2	The primary focus of partnering is on the relationship between client and main contractor.	The distribution of 'The primary focus of partnering is on the relationship between client and main contractor' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.023 .105	Reject the null hypothesis
3	Supply chain communication is restricted to those one tier removed.	The distribution of 'Supply chain communication is restricted to those one tier removed' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.911 .748	Retain the null hypothesis
4	There is a tendency for the upstream supply chain member to dictate terms and conditions upon the lower tiered supply chain members.	The distribution of 'There is a tendency for the upstream supply chain member to dictate terms and conditions upon the lower tiered supply chain members' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.046 .603	Reject the null hypothesis
5	Effective and appropriate communication is necessary in order to build relationships.	The distribution of 'Effective and appropriate communication is necessary in order to build relationships' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.398 .362	Retain the null hypothesis
6	Good communication relies on commitment, cooperation and supply chains understanding of the partnering concept.	The distribution of 'Good communication relies on commitment, cooperation and supply chains understanding of the partnering concept' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.757 .783	Retain the null hypothesis
7	Whilst tender documentation generally talks about a partnered approach this is rarely delivered in practice.	The distribution of 'Whilst tender documentation generally talks about a partnered approach this is rarely delivered in practice' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.067 .893	Retain the null hypothesis
8	Whilst supply chain members often embrace the partnering methodology and abide by the rules on which they are based, once a scheme becomes problematic partnerships are frequently abandoned.	The distribution of 'Whilst supply chain members often embrace the partnering methodology and abide by the rules on which they are based, once a scheme becomes problematic partnerships are frequently abandoned' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.054 .140	Retain the null hypothesis
9	If a scheme benefits from a partnered approach this is generally restricted to upstream supply chain members only.	The distribution of 'If a scheme benefits from a partnered approach this is generally restricted to upstream supply chain members only' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.002 .521	Reject the null hypothesis
10	A formal partnering strategy needs to be implemented on each project.	The distribution of 'A formal partnering strategy needs to be implemented on each project' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.798 .650	Retain the null hypothesis

Table 10.5a: Communication – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	The implementation of a partnering approach has resulted in a positive shift in terms of improved communication throughout the supply chain.	4.00 27.5%	3.50 23.5%	4.00 26.1%	3.50 22.9%	4.00 100%
2	The primary focus of partnering is on the relationship between client and main contractor.	4.50 29.8%	3.00 21.9%	4.00 23.2%	4.00 25.2%	4.00 100%
3	Supply chain communication is restricted to those one tier removed.	3.00 25.4%	3.00 26.2%	3.00 23.8%	3.00 24.6%	3.00 100%
4	There is a tendency for the upstream supply chain member to dictate terms and conditions upon the lower tiered supply chain members.	4.00 28.9%	4.00 24.3%	3.00 20.4%	4.00 26.3%	4.00 100%
5	Effective and appropriate communication is necessary in order to build relationships.	5.00 25.3%	5.00 25.3%	5.00 25.8%	5.00 23.7%	5.00 100%
6	Good communication relies on commitment, cooperation and supply chains understanding of the partnering concept.	5.00 25.3%	4.00 24.2%	5.00 25.3%	5.00 25.3%	5.00 100%
7	Whilst tender documentation generally talks about a partnered approach this is rarely delivered in practice.	3.00 22.8%	4.00 29.9%	3.00 21.3%	3.00 26.0%	3.00 100%
8	Whilst supply chain members often embrace the partnering methodology and abide by the rules on which they are based, once a scheme becomes problematic partnerships are frequently abandoned.	3.00 21.1%	3.00 28.5%	3.00 23.6%	3.00 26.8%	3.00 100%
9	If a scheme benefits from a partnered approach this is generally restricted to upstream supply chain members only.	2.50 24.1%	4.00 30.1%	2.00 18.0%	4.00 27.8%	3.00 100%
10	A formal partnering strategy needs to be implemented on each project.	4.00 26.7%	3.00 24.4%	3.00 23.7%	4.00 25.2%	3.00 100%

Table 10.5b: Communication - Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	There is sufficient understanding of partnering within the construction industry.	The distribution of 'There is sufficient understanding of partnering within the construction industry' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.091 .814	Retain the null hypothesis
2	There is sufficient collaborative working.	The distribution of 'There is sufficient collaborative working' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.893 .995	Retain the null hypothesis
3	Signing up to a framework agreement constitutes partnering.	The distribution of 'Signing up to a framework agreement constitutes partnering' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.045 .021	Reject the null hypothesis
4	Partnering still means adhering to the terms and conditions of the up-stream supply chain member.	The distribution of 'Partnering still means adhering to the terms and conditions of the up-stream supply chain member' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.852 .847	Retain the null hypothesis
5	The term partnering is used too often and out of context.	The distribution of 'The term partnering is used too often and out of context' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.976 .979	Retain the null hypothesis
6	Egan's vision of partnering where reciprocal working as opposed to fragmentation is the way forward can be achievable within an industry where subcontract labour is utilised extensively.	The distribution of 'Egan's vision of partnering where reciprocal working as opposed to fragmentation is the way forward can be achievable within an industry where subcontract labour is utilised extensively' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.027 .372	Reject the null hypothesis
7	Organisations tend to pay 'lip service' to the partnering ethos in order to win work.	The distribution of 'Organisations tend to pay 'lip service' to the partnering ethos in order to win work' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.053 .211	Retain the null hypothesis
8	Where a scheme has been partnered all relevant supply chain members realise their correct balance of the partnership.	The distribution of 'Where a scheme has been partnered all relevant supply chain members realise their correct balance of the partnership' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.802 .635	Retain the null hypothesis
9	Partnering is an approach to procurement and not a contractual arrangement.	The distribution of 'Partnering is an approach to procurement and not a contractual arrangement' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.549 .193	Retain the null hypothesis
10	In order for a partnered scheme to be successful there has to be a good level of cooperation/understanding of the partnering ethos throughout the supply chain.	The distribution of 'In order for a partnered scheme to be successful there has to be a good level of cooperation/understanding of the partnering ethos throughout the supply chain' is the same across categories of	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.421 .542	Retain the null hypothesis

		discipline.			
11	There currently isn't a good level of cooperation/understanding of the partnering ethos throughout the supply chain.	The distribution of 'There currently isn't a good level of cooperation/understanding of the partnering ethos throughout the supply chain' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.410 .955	Retain the null hypothesis

Table 10.6a: Co-operation Understanding – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	There is sufficient understanding of partnering within the construction industry.	3.00 28.0%	2.00 20.6%	3.00 25.2%	3.00 26.2%	3.00 100%
2	There is sufficient collaborative working.	2.50 26.3%	2.00 23.2%	2.50 25.3%	2.50 25.3%	2.00 100%
3	Signing up to a framework agreement constitutes partnering.	2.00 19.1%	2.00 23.4%	2.50 30.9%	2.00 26.6%	2.00 100%
4	Partnering still means adhering to the terms and conditions of the up-stream supply chain member.	4.00 25.0%	4.00 25.0%	4.00 24.3%	4.00 25.7%	4.00 100%
5	The term partnering is used too often and out of context.	4.00 25.5%	4.00 24.2%	4.00 25.5%	4.00 24.8%	4.00 100%
6	Egan's vision of partnering where reciprocal working as opposed to fragmentation is the way forward can be achievable within an industry where subcontract labour is utilised extensively.	2.50 22.4%	3.00 24.0%	4.00 30.4%	3.00 23.2%	3.00 100%
7	Organisations tend to pay 'lip service' to the partnering ethos in order to win work.	3.50 25.2%	4.00 28.8%	3.00 24.5%	3.00 24.5%	4.00 100%
8	Where a scheme has been partnered all relevant supply chain members realise their correct balance of the partnership.	3.00 25.5%	3.00 25.5%	3.00 26.4%	3.00 22.7%	3.00 100%
9	Partnering is an approach to procurement and not a contractual arrangement.	3.00 22.1%	3.50 26.0%	4.00 24.4%	4.00 27.5%	4.00 100%
10	In order for a partnered scheme to be successful there has to be a good level of cooperation/understanding of the partnering ethos throughout the supply chain.	5.00 25.8%	4.00 24.2%	5.00 25.8%	4.00 24.2%	4.00 100%
11	There currently isn't a good level of cooperation/understanding of the partnering ethos throughout the supply chain.	3.50 27.0%	3.00 23.0%	3.00 23.0%	3.00 27.0%	3.00 100%

Table 10.6b: Co-operation Understanding - Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	The construction industry is not considered successful in terms of projects being finished on/under budget.	The distribution of 'The construction industry is not considered successful in terms of projects being finished on/under budget' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.791 .984	Retain the null hypothesis
2	Where schemes are partnered the prospect of completion on/under budget always improves.	The distribution of 'Where schemes are partnered the prospect of completion on/under budget always improves' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.064 .244	Retain the null hypothesis
3	In order for partnering to have a positive effect on cost/productivity there must be trust between the relevant supply chain members.	The distribution of 'In order for partnering to have a positive effect on cost/productivity there must be trust between the relevant supply chain members' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.941 .856	Retain the null hypothesis
4	The complete supply chain (client through to lower tiered sub-contractor) benefit from a partnered approach because, by working on an incentive arrangement, all members share the pain/gain ethos.	The distribution of 'The complete supply chain (client through to lower tiered sub-contractor) benefit from a partnered approach because, by working on an incentive arrangement, all members share the pain/gain ethos' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.133 .980	Retain the null hypothesis
5	On a partnered scheme it is standard practice for an Agreed Maximum Price to be established between the client and main contractor before all work packages are let.	The distribution of 'On a partnered scheme it is standard practice for an Agreed Maximum Price to be established between the client and main contractor before all work packages are let' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.545 .274	Retain the null hypothesis
6	Organisations are compelled towards competition because best cost at day one always wins.	The distribution of 'Organisations are compelled towards competition because best cost at day one always wins' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.804 .486	Retain the null hypothesis
7	Relevant work packages are regularly priced competitively even though the scheme is being partnered.	The distribution of 'Relevant work packages are regularly priced competitively even though the scheme is being partnered' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.135 .570	Retain the null hypothesis
8	When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is common.	The distribution of 'When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is common' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.264 .915	Retain the null hypothesis
9	When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is effective/successful.	The distribution of 'When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is effective/successful' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.497 .502	Retain the null hypothesis
10	Generally on partnered projects the vast majority of disputes centre around money.	The distribution of 'Generally on partnered projects the vast majority of disputes centre around money' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.423 .601	Retain the null hypothesis

11	There is an increased tendency to go to the open market for competitive prices due to the rise in single stage tendering.	The distribution of 'There is an increased tendency to go to the open market for competitive prices due to the rise in single stage tendering' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.227 .568	Retain the null hypothesis
12	On each project a strategy exists that clearly identifies suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain/gain, etc.	The distribution of 'On each project a strategy exists that clearly identifies suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain/gain, etc.' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.012 .014	Reject the null hypothesis

Table 10.7a: Cost & Productivity – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	The construction industry is not considered successful in terms of projects being finished on/under budget.	4.00 24.5%	4.00 25.9%	3.50 23.8%	4.00 25.9%	4.00 100%
2	Where schemes are partnered the prospect of completion on/under budget always improves.	4.00 25.2%	3.00 20.9%	4.00 28.1%	4.00 25.9%	4.00 100%
3	In order for partnering to have a positive effect on cost/productivity there must be trust between the relevant supply chain members.	4.00 25.1%	4.00 24.6%	4.00 25.1%	4.00 25.1%	4.00 100%
4	The complete supply chain (client through to lower tiered sub-contractor) benefit from a partnered approach because, by working on an incentive arrangement, all members share the pain/gain ethos.	3.50 24.6%	3.00 23.1%	4.00 29.1%	3.00 23.1%	3.00 100%
5	On a partnered scheme it is standard practice for an Agreed Maximum Price to be established between the client and main contractor before all work packages are let.	4.00 24.5%	3.00 23.8%	4.00 25.2%	4.00 26.6%	4.00 100%
6	Organisations are compelled towards competition because best cost at day one always wins.	3.50 22.3%	3.50 25.9%	3.50 25.9%	3.00 25.9%	3.00 100%
7	Relevant work packages are regularly priced competitively even though the scheme is being partnered.	4.00 24.7%	4.00 23.4%	4.00 27.9%	4.00 24.0%	4.00 100%
8	When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is common.	4.00 25.0%	4.00 26.4%	3.00 21.4%	4.00 24.0%	4.00 100%
9	When work packages have been successfully won by the relevant sub-contractor further negotiations to reduce the tender price is effective/successful.	2.50 22.4%	3.00 25.9%	3.00 27.6%	3.00 24.1%	3.00 100%
10	Generally on partnered projects the vast majority of disputes centre around money.	4.00 25.0%	4.00 25.0%	4.00 23.0%	4.00 27.0%	4.00 100%
11	There is an increased tendency to go to the open market for competitive prices due to the rise in single stage tendering.	4.00 24.8%	4.00 27.7%	3.00 22.0%	3.50 25.5%	3.50 100%
12	On each project a strategy exists that clearly identifies suitable/sufficient procedures, tools and techniques to manage cost, budgets, pain/gain, etc.	4.00 28.8%	3.00 22.7%	4.00 26.5%	3.00 22.0%	3.00 100%

Table 10.7b: Cost & Productivity - Median Scores

Ref.	Null Hypothesis	Hypothesis Test Summary	Test	Sig.	Decision
1	There is a definite lack of customer focus which inhibits the industry?	The distribution of 'There is a definite lack of customer focus which inhibits the industry' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.234 .214	Retain the null hypothesis
2	The partnering ethos must be driven by the client in order to achieve customer satisfaction?	The distribution of 'The partnering ethos must be driven by the client in order to achieve customer satisfaction' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.020 .238	Reject the null hypothesis
3	Within client organisations there is too much focus on lowest price in order to realise the full benefits of true partnering?	The distribution of 'Within client organisations there is too much focus on lowest price in order to realise the full benefits of true partnering' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.010 .004	Reject the null hypothesis
4	The implementation of partnering as a procurement method has resulted in more construction projects being completed successfully?	The distribution of 'The implementation of partnering as a procurement method has resulted in more construction projects being completed successfully' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.468 .990	Retain the null hypothesis
5	As long as construction projects are delivered to time, cost and quality client organisations have little concern/interest in the procurement method implemented – therefore will be guided by consultants?	The distribution of 'As long as construction projects are delivered to time, cost and quality client organisations have little concern/interest in the procurement method implemented – therefore will be guided by consultants' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.003 .034	Reject the null hypothesis
6	Client organisations generally don't have sufficient knowledge around partnering, procurement, etc. in order to push forward the partnering ethos?	The distribution of 'Client organisations generally don't have sufficient knowledge around partnering, procurement, etc. in order to push forward the partnering ethos' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.480 .138	Retain the null hypothesis
7	Partnering is the 'master key' to initiate customer satisfaction?	The distribution of 'Partnering is the 'master key' to initiate customer satisfaction' is the same across categories of discipline.	Independent-Samples Kruskal- Wallis Test Spearman's test of Association	.195 .858	Retain the null hypothesis

Table 10.8a: Customer Satisfaction – Differences Between Groups & Associations

Ref.	Null Hypothesis	Client	Consultant	Main Contractor	Sub-contractor	Total
1	There is a definite lack of customer focus which inhibits the industry?	3.00 24.8%	3.50 29.2%	2.50 23.0%	3.00 23.0%	3.00 100%
2	The partnering ethos must be driven by the client in order to achieve customer satisfaction?	2.00 21.4%	4.00 29.4%	2.00 20.6%	4.00 28.6%	3.00 100%
3	Within client organisations there is too much focus on lowest price in order to realise the full benefits of true partnering?	4.00 22.2%	4.00 24.7%	4.00 24.1%	5.00 29.1%	4.00 100%
4	The implementation of partnering as a procurement method has resulted in more construction projects being completed successfully?	3.00 24.8%	3.00 24.1%	4.00 27.7%	3.00 23.4%	3.00 100%
5	As long as construction projects are delivered to time, cost and quality client organisations have little concern/interest in the procurement method implemented – therefore will be guided by consultants?	3.00 21.0%	4.00 28.3%	3.00 21.7%	4.00 29.0%	4.00 100%
6	Client organisations generally don't have sufficient knowledge around partnering, procurement, etc. in order to push forward the partnering ethos?	4.00 26.1%	4.00 26.1%	3.50 24.6%	3.00 23.2%	3.00 23.2%
7	Partnering is the 'master key' to initiate customer satisfaction?	3.50 25.6%	3.00 23.3%	4.00 27.8%	3.00 23.3%	3.00 100%

Table 10.8b: Customer Satisfaction - Median Scores

Key

1 = Strongly Disagree; 2 = Disagree; 3 = Split/Mixed; 4 = Agree; 5 = Strongly Agree

% = Percentage of total sum.

 Negative Perception

 Neutral Perception

 Positive Perception

APPENDIX 11
Work Plan Variety

	JCT	BPF	BS7000	R2000	CIC	CIB	PACE
Stages	12	5	8	11	12	5	5
Operations	135	127	62	186	107	22	144
Complexity	937	556	259	1020	424	138	1172
Load	1.4	1.4	1.3	1.1	1.2	2.0	1.3
Decentralisation	2.8	2.2	2.6	3.2	3.0	2.0	2.6
Interfaces	577	566	259	1046	412	83	1294
Control	18	27	25	0	12	80	17
Co-ordination	72	27	56	38	2	22	41

(Source: Hughes and Murdoch, 2001)

Table 11.1; General Overview of Various Work Plan Structures

JCT	BPF	BS7000	R2000	CIC	CIB	PACE
A. Appraisal	1. Concept	Inception & Initial Brief	A. Appraisal	A&B Appraisal & Strategic Briefing	Getting Started	Stage 1
B. Strategic Briefing	2. Preparation of brief	Feasibility Study & Brief Development	B. Strategic Briefing		Defining the Project	
C. Outline Proposals		Conceptual Design	C. Outline Proposals		Assembling the Team	
D. Detailed Proposals	3. Design Development	Scheme Design	D. Detailed Proposals			Stage 2
E. Final Proposals		Detail design	E. Final Proposals			
F1. Production Information		Information for Construction	F. Production Information			
F2. Production Information						
G. Tender Documentation	4. Tendering		G. Tender Documentation			Stage 3
H. Tender Action			H. Tender Action			
J. Mobilisation			J. Mobilisation	J, F2 & K Mobilisation, Post-production Information & Construction		
K. Construction to Practical Completion	5. Construction	Construction	K. Construction to Practical Completion		Designing & Constructing	Stage 4
L. After Practical Completion			L. Construction After Practical Completion		Completion & Evaluation	Stage 5

(Source: Hughes and Murdoch, 2001)

Table 11.2; Detailed Review of Various Work Plan Structure

