نموذج رقم (١)

إقـــــــــــــــــــــرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

عوامل نجاح الشراكة، الأهمية، العوائق، قابلية التطبيق في صناعة التشييد في قطاع غزة

أقر بأن ما اشتملت عليه هذه الرسالة إنما هو نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وإن هذه الرسالة ككل أو أي جزء منها لم يقدم من قبل لنيل درجة أو لقب علمي أو بحثي لدى أي مؤسسة تعليمية أو بحثية أخرى.

DECLARATION

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification

Student's name: اسم الطالب: هيام محمد أبو شعبان

Signature: التوقيع: صحبا أبو شعبان

Date: التاريخ: 1/12/2015

The Islamic University of Gaza

Faculty of Engineering

Civil Engineering Department

Engineering Construction Management

عوامل نجاح الشراكة، الأهمية، العوائق، قابلية التطبيق في صناعة التشييد في قطاع غزة

Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip

Prepared by
Hayam M. AbuShaaban

Supervised by
Dr. Khalid Al Hallaq

A Thesis Submitted in Partial Fulfillment of Requirements for the Degree of Master in Civil Engineering
2015

بسم الله الرحمن الرحيم

الجامعة الإسلامية – غزة
The Islamic University - Gaza

مكتب نائب الرئيس للبحث العلمي والدراسات العليا   هاتف داخلي 1150

الرقم: ج ت غ/35/.......... Ref

التاريخ: 2015/011/21م .... Date

نتيجة الحكم على أطروحة ماجستير

بناءً على موافقة شئون البحث العلمي والدراسات العليا بالجامعة الإسلامية بغزة على تشكيل لجنة الحكم على أطروحة الباحثة/ هيــام محمـد حمـدي ابوشـعبان لنيــل درجـة الماجسـتير فـي كليــة الهندسـة قسم الهندسة المدنية–إدارة المشروعات الهندسية وموضوعها:

عوامل نجاح الشراكة، الأهمية، العوائق، قابلية التطبيق في صناعة التشييد بقطاع غزة
Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip

وبعد المناقشـة التـي تمت اليـوم السبت 09 صفـر 1437هـ، الموافـق 2015/011/21م السـاعة الواحـدة ظهراً، اجتَمعت لجنة الحكم على الأطروحة والمكونة من:

د. خالـد عبـد الـرؤوف الحـلاق	مشـرفاً و رئيسـاً	....
د. نبيـل إبـراهيم الصـوالحي	مناقشـاً داخليـاً	....
د. عـزام أحمـد أبـو حبيـب	مناقشـاً خارجيـاً	....

وبعد المداولة أوصت اللجنة بمنح الباحثة درجة الماجستير في كلية الهندسة/ قسم الهندسة المدنية– إدارة المشروعات الهندسية.

واللجنة إذ تمنحها هذه الدرجة فإنها توصيها بتقوى الله ولزوم طاعته وأن تسخر علمها في خدمة دينها ووطنها.

والله ولي التوفيق ،،،

نائب الرئيس لشئون البحث العلمي والدراسات العليا

أ.د. عبدالرؤوف علي المناعمة

Dedication

To my caring, supportive, generous husband and to my lovely family for their endless encouragement.

Hayam AbuShaaban

Acknowledgement

I also would like to express my deepest gratitude to my supervisor, Dr. Khalid Al Hallaq for his generous advice, kind assistance and patiently guidance and support.

Also many thanks to all the respondents from different construction companies, who generously spent their precious time to participate in the questionnaire survey of this study, as well as sharing their knowledge and experience.

Last but not least, I want to thank my entire friends who directly or indirectly assisted me in this thesis study.

Hayam AbuShaaban

Abstract

Construction industry is considered to be one of the most unique and complex industries. It involves enormous number of activities that are accomplished by large number of parties from different sectors such as the owner, the consultant, the contractor, the supplier, the project manager, the man power, finance and other sectors. Those parties could have different goals and sometimes opposite ones, so there should be "Partnering" to arrange the relationships between them and to lead to construction projects being delivered quickly, efficiently and cost effectively, as the partnering arrangements can reduce construction time and can lead to efficiency on site by partnering every party of the project team such as consultants, contractors, manufacturers, and project managers.

The aim of this research is to improve and enhance the construction industry throughout providing valuable research contribution that supports integrating partnering concept in construction industry. The general aim in this research will be achieved throughout the following objective: study the partnering concept in construction industry, identify the success factors required for the success of partnering, investigate the benefits expected from adopting partnering concept, highlight the obstacles that would be faced during the implementation of partnering, identify the appropriate conditions for applying partnering concept and practices. To fulfill these objectives, research was carried in two stages: literature review, and questionnaire survey. A total number of 73 questionnaires targeted contractors have been analyzed to obtain more in-depth and valuable information.

Based on the results, there is about 91.8 % of the surveyed contractors found to have background about partnering concept. 87.7% have worked on at least one project that involved partnering concept and practices. 76.7% have worked in projects that partnering had occupied a significant proportion of work undertaken. Finally, recommendations were suggested for individuals and the various stakeholders in the construction industry in order to improve construction industry by applying partnering concept and practices.

ملخص البحث

تعتبر صناعة الإنشاءات من أكثر الصناعات تعقيداً، حيث اجتاحت التعقيدات كافة مناحي هذه الصناعة من حيث التصميم وإدارة المخاطر والإشراف ..الخ. كما أن بيئة العمل في هذه الصناعة تعتبر بيئة تنافسية حيث تحتوي على عدد هائل من النشاطات التي يقوم بها عدد كبير من الأفراد مثل: المالك، الاستشاري، المراقب، المقاول، مدير المشروع، المورد وعمال التمديدات والصيانة والبناء. هؤلاء الأفراد لهم أهداف مختلفة وأحيانا متضادة، مما يستدعي وجود وتطبيق لمبدأ الشاركة لترتيب هذه العلاقات ولتحسين جودة المشروع وتقصير مدة تسليمه .

هدف هذا البحث هو تطوير وتحسين مجال الإنشاءات عن طريق تقديم الأفكار و المقترحات لتطبيق مفهوم الشراكة في هذه الصناعة بين كافة العاملين فيها لما لهذا المفهوم من تأثيرات ايجابية علي المشروع من حيث توفير الوقت والجهد وتحسين الجودة و ظروف السلامة. الهدف الرئيسي من هذا البحث سيتم تحقيقه عن طريق: دراسة مفهوم الشراكة في مجال صناعة الإنشاءات، تحديد أهم العوامل التي تساعد على نجاح هذا المبدأ، تحديد الفوائد والآثار الايجابية المترتبة على تطبيق هذا المبدأ، إلقاء الضوء على المعوقات التي تقف في طريق تطبيق مبدأ الشراكة، تحديد الظروف المناسبة التي تستدعي تطبيق هذا المبدأ، وأخيرا وضع منهجية عمل لتحسين مبدأ الشراكة وتطبيقاتها في مجال صناعة الإنشاءات.

لقد تم بناء هذا البحث على مرحلتين: الدراسات السابقة، و توزيع وتحليل الاستبيانات. لقد تم جمع وتحليل 73 استبانه على فئة المقاولين العاملين في صناعة الإنشاءات في قطاع غزة.

واستنادا إلي النتائج، تم استنتاج أن أكثر من 91.8% من المقاولين لديهم خلفية عن مبدأ الشراكة و أن 87.7% منهم قد عملوا في مشروع واحد على الأقل تم تطبيق مبدأ الشراكة في مراحله، وأيضا تم استنتاج أن 76.7% من المقاولين قد عملوا في مشاريع قد احتل فيه مبدأ الشراكة نسبة غير بسيطة

وأوضحت النتائج أن ثقافة الشراكة و معرفة أهمية تطبيقها في مجال الصناعات تعتبر ثقافة عالية حيث بلغت نسبة الاستجابة 91.8%

وأخيرا، قدمت الدراسة توصيات للإدارة العليا للشركات الإنشائية وأصحاب القرار في المشاريع كذلك للمقاولين و جميع العاملين في مجال الصناعة الإنشائية بأهمية مبدأ الشراكة وضرورة تطبيقه في كافة المشاريع الإنشائية.

$\mathbf{T}$able of Content

Chapter 1 Introduction

Chapter 2 Literature Review

Chapter 3 Methodology

Chapter 4:Data analysis and discussion

Chapter 5: Conclusion and recommendations

List of abbreviations

TQM   Total Quality Management

PSC   Palestinian Statistical Center

CI   Construction Industry

NEC   New Engineering Contract

NEDC   New Engineering and Deconstruction Contract

SPSS   Statistical Package for Social Science

PCU   Palestinian Contractors Union

RII   Relative Importance Index

List of Tables

List of Figures

Chapter 1

Introduction

This chapter outlines the project specifications by giving background to the subject area, state the objectives of the research and the structure used for the presentation of the dissertation.

1.1 Introduction

Construction industry is considered to be one of the most unique and complex industries (Balkiz and Theresea, 2014) (Pesamaa et al., 2009). Complexity has infiltrated all areas of construction from design, code compliance, risk management, estimating, supervision, change orders, bonding, etc. It now appears there is no area of construction that is without complication (Naoum, 2003). The construction environment is a very competitive one as It involves enormous number of activities that are accomplished by large number of parties from different sectors such as the owner, the consultant, the contractor, the supplier, the project manager, the man power, finance and other sectors (Huemer, 2014).Those parties could have different goals and sometimes opposite ones, so there should be partnering to arrange the relationships between them and to lead to construction projects being delivered quickly, efficiently and cost effectively, as the partnering arrangements can reduce construction time and can lead to efficiency on site by partnering every party of the project team such as consultants, contractors, manufacturers, and project managers.

Lack of cooperation has been identified as one of the major causes of inefficiency in the construction industry (Cheung et al., 2003). Industry wide studies have suggested the use of partnering as a way to promote co-operative contracting (Packham et al., 2003). Previous research has yet to provide a definitive definition of partnering. Partnering is a simple form of strategic planning or a variant of Total Quality Management (TQM) (Cheng et al., 2001). Partnering was also defined as the establishment of an informal group among construction partners that creates non-legitimate but `permanent' relationships (Huemer, 2014). It is basically used to resolve disruptive inter-organizational conflicts (Black and Chan, 2003). According to Naoum (2003) Partnering involves the parties to a construction projectworking together in an

environment of trust and openness to realize the project efficiently and without conflict. Wong and Cheung (2004) has defined partnering as an arrangement between two parties

(e.g. client and contractor or contractor and sub-contractor) which can be either open-ended, for a specified term or for a single project. The partnering procurement method aims to eliminate adversarial relationships between client and contractor by encouraging the parties to work together towards shared objectives and achieve a win-win outcome.

1.2 Features of construction industry in Gaza Strip

The construction industry is considered to be the most important industry in Gaza Strip and in West bank as well. The construction industry had managed to rebuild and support the infra-structure, government buildings, and houses in the Palestinian regions that had been released from the Israeli occupation.

The last accurate records reported that the Palestinian construction industry had contributed with 9.5% from the national income in 2012 and had increased the operating ratio with 12%. There are tens of thousands of workers in this industry and there are hundreds of construction firms that depend on the donors' funds and these funds are expected to grow significantly in the coming period due to the reconstruction stage after the last war on Gaza Strip. The Palestinian Statistics Center (PSC) has confirmed that the construction industry generally contributes within 35% of the national income in Gaza Strip. In 2010, the donors funds had supported the construction industry with 300 million dollars. 500 million dollars in 2011 and 800 million dollars in 2012.

1.3 General features of construction industry

The situation in construction projects between parties involved in these projects seems to be very similar not only in Gaza-Strip but also worldwide (Spang, 2009). The construction industry suffers from too many disputes and litigations that result in cost and time overflows and an adversarial relationship between the parties (Chan et al., 2006). The main reasons for the unfavorable construction project outcomes mostly fall into several categories (Chen et al., 2007). Construction projects rely on integrated efforts of several hierarchically linked parties (including architects, engineers, surveyors, general contractors, subcontractors and suppliers) using their differentiated skills, knowledge and technology (Bresnen, 2007). These parties are generally independent organizations with separate objectives and goals, management styles and operating procedures. They drive the construction project through stages of concept, scheme design, bidding, contracting, construction, service and maintenance (Chen, 2007). The

main participants differ among stages, as does the related professional know-how, technologies and experience. In practice, project management has focused on maximizing performance in terms of time, costs and quality. However, relatively little attention has been paid to the organizational structures of each participant. (Laan et al., 2011).Due to that fragmented nature of construction, communication and coordination problems are common and affect project performance and productivity (Portier et al., 2010).

1.4 General challenges faced by construction industry

The construction industry generally all over the world has faced major new challenges, including increased competition between construction firms, more exacting quality standards, increased competition for available resources (Horta, 2014). The Palestinian construction industry especially in Gaza-Strip suffers, on addition to the previous challenges, from the Israeli siege that is the main reason for the increased various risks, so better management approaches for improving performance and maintaining a competitive advantage are urgently needed.

1.5 Definition of partnering

Many developed countries such as Germany, USA, Australia and China has supported the studies that recommend the use of project partnering (Rose et al., 2002), as it leads to significant improvements and potential benefits to the construction industry.Partnering defined by Sward (2010) is a long-term commitment between two or more parties in which shared understanding and trust develop for the benefits of improving construction.Partnering is a simple form of strategic planning or a variant of Total Quality Management (Cheng et al., 2001).

1.6 Benefits of partnering

The effective implementation of the project partnering arrangement has eliminated the disadvantages of the traditional construction contracting (Marshal, 2002). As the traditional construction contracting has always been characterized by adversarial attitudes between parties of the project, often resulting in loss of productivity and increases in costs (Adnan et al., 2012). The concept of partnering overhauls the ethics of traditional contracting with the attendant paradigm shift towards co-operative and

caring environments and a ''win–win'' situation could be attained by all stakeholders involved in the partnering process (Dewulf, 2011). In addition to previous effects of partnering, it also identifies some opportunities for better risk allocation mechanism and contracting strategies that are based on a trust relationship between the contracting parties(Hartman et al., 2003). The opportunities that are based on a trust relationship can be the root cause for a significant saving in the annual bill for construction. Hafezi (2014) has illustrated that moving from traditional adversarial relationship into cooperative and collaborative relationship would reduce; Complexity, uncertainty and time pressure that characterize construction projects (Kamal et al., 2014).

1.8 Problem statement

Partnering is considered a key driver for the success, competitive advantages and distinguishing that all construction companies strive to gain. Nowadays, partnering applications, benefits, success factors and other integrated issues are becoming too important to be understood and highlighted for all parties operating in the construction industry. The dynamic changes in this industry necessitate continuous improvements in all project lifecycle stages within construction industry. Adapting a new process facing the dramatically changes and demands for all parties operating in construction industry is becoming crucial for the construction sustainability and success. From this ideology, partnering in construction was born.

On the other hand, traditional project management has huge challenges to control; it reduces the dynamic changes and loses construction project's resources over each stage in the project life cycle which is expected to be improved using partnering concept. The critical success factors that enable this concept to be adopted, the key tools and strategies that are used effectively to support the partnering concept as well as the benefits and challenges will be investigated. Moreover, this research is expected to enable the decision makers and the key players in the construction industry in Gaza-Strip to integrate partnering practices effectively in the projects.

1.9 Research aim

The aim of this research is to improve and enhance the construction industry throughout providing valuable research contribution that supports integrating partnering concept in

construction industry. The general aim in this research will be achieved throughout the following objectives;

1.10 Research objectives

- Study the partnering concept in Construction Industry.
- Compare the views of parties in the construction project team.
- Investigate the critical factors (Key enablers) supporting the adoptability of partnering concept in construction projects.
- Evaluate the practical benefits of adopting partnering in construction projects.
- Evaluate the obstacles, challenges that would face the adoption of partnering.
- Indicate the appropriate conditions for using partnering in construction industry.

1.11 Research questions and hypothesis

The following questions were asked to the respondents to gather valuable information that can richen the study:

RQ1 : Do you have background about partnering concepts and practices?

RQ2: Have you worked on at least one partnered project?

RQ3: Has partnering represented a significant proportion (at least 25%) of work undertaken?

RQ4: Have you been encouraged to practice partnering in projects you work on?

RQ5: If you have been encouraged to practice partnering, what kind of encouragement have you received? if no, explain why?

The following statements are the statements that have been hypothesized to identify the relationship between two variables related to the subject of the study.

- ❖ **H1:** There is a positive relationship, statistically significant at $\alpha \leq 0.05$ between the requirements of the success of partnering and the benefits of partnering.

- ❖ **H2:** There is an inverse relationship, statistically significant at $\alpha \leq 0.05$ between the requirements of the success of partnering and the obstacles of partnering.

- ❖ **H3:** There is a positive relationship, statistically significant at α≤ 0.05 between the requirements of the success of partnering and the appropriate conditions for applying partnering.

- ❖ **H4:** There is a positive relationship, statistically significant at α≤ 0.05 between the benefits of partnering and the appropriate conditions for applying partnering.

- ❖ **H5:** There is a positive relationship, statistically significant at α≤ 0.05 between the obstacles of partnering and the appropriate conditions for applying partnering.

- ❖ **H6:** There is a statistically significant differences attributed to the background information of the respondents at the level of α≤ 0.05 between the means of their views on the subject of partnering success factors, benefits, obstacles and appropriate conditions in construction industry in Gaza Strip.
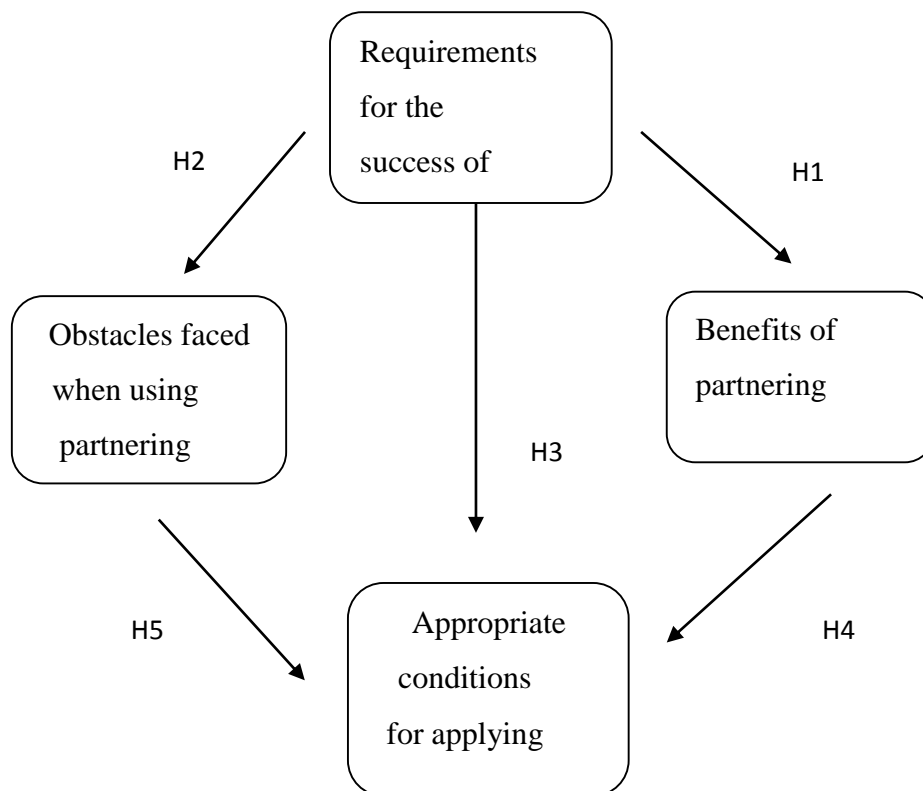
Figure (1.1): Hypotheses Model

1.12 Organization of study

The following is a summary of the study methodology to fulfill the research objectives by implementing the following tasks:

- It was initiated to identify the problem, establish aim, objectives, key research questions and hypothesis, and develop research plan by deciding on the research approach and technique.
- Intensive literature review was conducted to review the previous studies made in this field by reading and taking notes from many and different sources.
- Based on the intensive literature review, a questionnaire was designed.
- Faced validity was conducted by experts in the construction field as well as experts in statistical field to check whether the questionnaire of this study was valid or not.
- Pre-testing the questionnaire was done by launching a pilot study, 30 copies of the questionnaire were distributed to respondents from the target group in order to measure the validity and reliability of the questionnaire.
- After that, the questionnaire was adopted and distributed to the whole group.
- The collected data of the questionnaire have been analyzed quantitatively by Statistical Package for Social Science (SPSS).
- Tables were obtained from the statistical analyses and findings were concluded from the questionnaires.
- Recommendations were suggested through the conclusion of the research.

1.13 Structure of the dissertation

- Chapter 1: Introduction.
- Chapter 2: Literature review
- Chapter 3: Methodology including designing a questionnaire. The data then will be analyzed using descriptive methods.
- Chapter 4: Analyses of the results of the questionnaire, discuss the problems.
- Chapter 5: Conclusion and recommendations.

Chapter 2
Literature Review

This Chapter demonstrates a detailed review on partnering concepts, the requirements needed for the success of partnering, its benefits, barriers and appropriate conditions to implement partnering.

2.1 Nature of construction industry

The importance of construction industry (CI) in the economy of both developed and developing countries has increased in recent years (Camanho et al., 2014). This sector has also witnessed major structural changes, such as globalization, technological evolution and increased regulation, which contributed to a considerable increase in competition among construction companies (Venseelar et al., 2015) (Mishra et al., 2015) (Chen et al., 2004).The CI is a very fragmented industry with a huge proportion of small companies (Briscoe et al., 2001). It is driven by unique construction projects undertaken by specific teams integrating different types of companies (Errasti et al., 2007). The construction projects are typically characterized by the involvement of many agents, including the owner, architectural and engineering companies, general contractors, subcontractors, and construction materials' suppliers. In addition, the CI is a labor intensive sector with low qualified labor force (Mitkus, 2014). The increased regulation of the CI activity worldwide has contributed to a significant change in the way of working and partnering in the CI (Tang et al., 2014). This lead to a more accurate selection of companies and improvements in transparency in the industry. The highly competitive environment of the CI has caused performance improvement to be an increasingly relevant objective. The construction companies are aware of the challenges imposed by this environment and attempt to implement systematic methods to measure performance and search for best practices to achieve competitive advantage and prosperity in the long-run (Horta, 2014). The topic of performance improvement is also of particular interest to encourage excellence in the sector, which is essential to foster economic development.

2.2 Partnering in construction

Partnering has become an important approach for construction project management and there exists a wide range of tools to facilitate the implementation of partnering in construction projects (Cheung, 2003). Partnering is now being implemented to enhance project performance through improved working relationship (yeung et al., 2012). It is widely used in the delivery of construction projects in countries such as the USA, UK, Australia, and Hong Kong, and should be widely used in our Palestinian construction industry.

Strategically, organizations may enter into alliances (a form of partnership) in order to innovate, access new markets, overcome local market restrictions, raise entry barriers and share risk for mutual benefit (Beach et al., 2005). Operationally, factors such as the strategic importance of a product/service and its criticality to the final product, the cost of procurement relative to its internal manufacture, the capability of the organization, and/or the need to focus on core competences may influence the decision to outsource.

2.3 Definitions of partnering

It is believed that the concept originates from Japan and the USA from the early 1980s where team building, cooperation and equality, rather than the single-sided relationship of adversaries to a project, were encouraged (Alderman and Ivory, 2007).

The principle of partnering is reviewed in various reports and research projects: Partnering is a concept which provides a framework for the establishment of mutual objectives among the building team with an attempt to reach an agreed dispute resolution procedure as well as encouraging the principle of continuous improvement (Haussler, 2005). This framework enthuses trust, co-operation and teamwork into a fragmented process which enables the combined effort of the participants of the industry to focus upon project objectives (Wong et al., 2008). Partnering focuses upon the importance that all parties have to play in the construction process as opposed to the 'top down' approach (Takim, 2013).

It appears to be a device that encourages greater integration of the project team and create competitive advantages to all that participate in the project (kadefors 2007).

Partnering is considered to be a long term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each of the participants (Meng, 2012).

Partnering can be defined as the development of long-term relationships between the participants that are based upon mutual trust that has the ability to transform contractual relationships into a cohesive team with a set of common goals and established procedures for resolving disputes.

2.4 The nature of partnering and general contractual issues

Partnering in construction is not a nearly defined concept which can be deposited in a single pigeon hole to be extracted as required (Mentzer et al., 2000). At its loosest it can mean no more that informal agreement between participants to eradicate the adversial aspects of their respective culture and substitute an ethos of good will and cooperation (Abudayyeh, 1994). At its strictest it can donate a sophisticated contractually significant matrix regulating successive contracts over a long period. Its, perhaps more illuminating to define it by its aims rather than its mechanics. For although the specific aims of patterns differ from a relationship to another, and this reflected in the arrangement adopted, the differences are largely of degree. In each instant the partners desire to work together, in the spirit of cooperation, as to maximize profit and efficiency (Heng et al., 1994).

Within the context of that definition there are two important dichotomies. The first is between strategic, or long term, partnering on the one hand, and project partnering (sometimes called alliancing), which is project specific, on the other hand.

The second dichotomy is between non-contractual agreements which express the partners' joint policy which are not intended to be legally binding, and contractually binding agreements (Liu et al., 2008). Although contracts can be formulated so as to promote a confluence of interest between the parties, there are difficulties in rendering agreements for successive contracts binding, or incorporating the good relationship aspect ofpartnering into a contractual framework (Lazar, 2000).

A further distinction to be drawn is between vertical and horizontal arrangements. Vertical arrangements are those made a long with the contractual chain of procurement or supply, e.g. between employer and contractor, or contractor and subcontractor (Wood and Ellis, 2005). Horizontal arrangements are made by parties operating at the same point in the contractual chain, e.g. between members of a consortium or partnership of contractors all jointly responsible to a single employer. When partnering is mentioned it is most commonly in the context of vertical arrangements (Marshall, 2004).

2.4.1 Strategic partnering

The NEC Report "New Engineering Contract" usefully identifies three principal categories of association: pre-selection agreements, coordination agreements, and full partnering agreements.

In pre-selection agreements the employer identifies a pool of contractors or will provide work or materials under discrete contracts which are entered into as required. The employer regularly provides the selected contractors with information as to projected requirements so as to assist them in anticipating resources.

Coordination agreements defined as setting out the basis upon which the partners intend to do business. They may recite that the partners will cooperate in a spirit of openness and team work. In this form they are often called partnering charters. Alternatively, they may set out intended terms of trading for future contracts.

Full partnering provide for a much closer integration of a partner's personnel and facilities and may include the information of joint teams to execute various aspects of a project, or series of projects, and the sharing of premises.

2.4.2 Project partnering

The individual project is susceptible to partnering principles into two ways. First by the incorporation into the contract of terms intended to promote an identity of interests between the parties. For example, the contract may provide for a project target cost for any saving below the target being shared between the parties. Secondly, the project may incorporate some of the elements of strategic partnering noted above, e.g. by requiring ,in general terms, a spirit of cooperation and openness or, alternatively, may establish systems to facilitate the cooperative process.

2.5 Contractual and non-contractual agreements

As indicated above, some aspects of partnering can require embodiment in contractual terms, e.g. bonus sharing provisions. However, other aspects of partnering are less readily articulated contractually. The employer, the contractor, the project manager, and the supervisor shall act as stated in this contract in a spirit of mutual trust and cooperation. As a binding contractual provision, this clause is a source of uncertainty, and uncertainty is a breeding ground of disputes (Manely and Shaw, 2007).

A further limitation on the assistance that can be given to the partnering through the contract terms relates to strategic partnering (Cheng et al., 2001). Strategic partnering is most effective where the employer is able to provide a significant workload to contractor partner over a period (Chan et al., 2012). However, it's the nature of construction, and the economic environment in which it takes place that neither the precise scope of future works nor their future value is pre-ascertainable. This severely inhabits the parties' ability to embody the arrangement in a contractual structure. Thus, a purported contract for a contractor to undertake future works, the scope and price of which is expressed to be agreed later, is likely to be void with uncertainty (Glagola and sheedy, 2002).

Finally, on the question of general contractual issues, a view sometimes encountered is that where a partnering arrangement is put in place, a formal binding contract is unnecessary: indeed, contracts are seen as anathema to the partnering process (Lahdenpera, 2012). In fact, successful partnering demands, where possible, to be underpinned by a sound contractual structure. There is nothing intrinsically adversial about contractual terms themselves; rather than the contrary. It is the manner in which they are operated and relied upon that determines the extent of conflict. A pre-requisite a concordant relationship is that the parties know what is expected of them, knowing that they can be obliged to perform their obligations on pain of payment of damages and are bound to adhere to a dispute resolution system calculated to minimize conflict.

Once that structure is in place, a partnering regime can be superimposed upon it to ensure that it is operated in a manner that maximizes efficiency and limits disputes (Chan et al., 2004).

Finally, in respect to the question of definition, it is necessary to compare partnering with other similar or related processes. For it is essential that a partnering agreement, of whatever nature, accurately reflects the parties' legal requirement. Not only it is important that a binding agreement is avoided where legal relations are not intended, but care must be taken to avoid the inadvertent formation of an enforceable legal arrangement, such as joint venture or partnership, each with its particular legal consequences, unless the parties are clear that this is what they desire.

2.5.1 Joint ventures

Joint ventures themselves assume various forms and can be divided into equity joint ventures, where the parties acting in concert for a common purpose form a new and distinct legal entity owned jointly, and unincorporated joint ventures where there may be

integration of personnel and resources but no legal person is created (Buckley et al., 2002). Attempts are made to distinguish joint ventures from partnering arrangements but it may be more accurate to regard them as a highly integrated form of partnering (Lu and Beamish, 2006). By means of joint venture vehicle the parties achieve a close identity of aims; and the joint venture agreement itself usually exhibit many or all of the characteristics commonly associated with partnering, such as mutual interest of maximizing profit and integration of personnel and systems.

2.5.2 Partnership

Partnership share many features with unincorporated joint ventures (Lu and Beamish, 2006). However, in England, partnership has a specific meaning, being an arrangement related by the Partnership Act 1890. As distinct from unincorporated joint ventures, each party can usually bind the partnership as a whole in transactions with third parties, and tax is assessed on the partnership profit as a whole (Powell, 2004). Moreover, partnerships automatically embody an obligation that the parties conduct their affairs with the utmost good faith (within the specific legal meaning of that term). To the extent that they are, or incorporate, partnering arrangement, they are also of the horizontal type, i.e. the partners profits are generated by the pursuing of a common endeavor and accrue from an external source, and are then shared by the partners, as opposed to the vertical type where one partnering participant is usually the source of the other's remuneration (Brinkerhoff, 2002).

2.5.3 Total quality management/project management

Partnering also shares important characteristics with total quality management (TQM) and with project management. Each aims to improve efficiency, quality and productivity, and TQM and project management methodology is often employed in partnering arrangements. Thus, systems are established to identify participants, their roles and their aims, to promote communication, to monitor progress, and to manage conflict. However, partnering can be distinguished from TQM in that TQM is a tool for optimizing the performance of an organization considered as discrete entity, whereas, partnering optimizes performance within a context of a relationship between two or more parties (Burati and Oswald, 1993). Further, the application of TQM and project management principles is only one facet of the partnering process; partnering techniques are found on

a much broader basis, such as promotion of mutual aims through selection of procurement routes and amendment to standard contractual arrangements (Dayton, 2003).

2.6 Key drivers to adopt partnering

Several researchers such as Black et al., (2000), Cheng et al., (2004), Lu and Yan (2007) and Errasti et al., (2007) showed many drivers and factors to adopt partnering in the construction industry such as; the highly fragmented and divisive market and organizational structure in the construction industry, the highly competitive environment of construction industry as it is occupied by large number of medium and small sized firms. Construction projects are organized by different parties linked hierarchically together by contracts with highly restricted terms and conditions. These parties include clients/owners (private or public), architects, engineers (e.g., structural, mechanical), general contractors, subcontractors, suppliers, etc. They possess various skills and knowledge although they belong to the same industry. Because of the diversity of these parties, they tend to have their own goals and objectives, which can be conflicting and may induce adversarial relations. Therefore, partnering is recommended to involve the parties to a construction project working together in an environment of trust and openness to realize the project efficiently and without conflict (Black, 2000).

2.7 The case for partnering

2.7.1 Advantages

It is fundamental to successful partnering that each participating entity is committed to the process at all levels. In particular, unless senior management is convinced that a commercial business case can be made for its implementation, partnering arrangement will not even fall to be considered. It is necessary, therefore, to analyze the advantages and disadvantages of partnering with a view to establishing such a business case.

2.7.1.1 Reduction of conflict

This is, in truth, an ancillary rather than a direct advantage; its merit is that it assists the primary aims such as; reduction of cost, and increase of quality. However, it goes to the heart of partnering process. Except, perhaps where partnering becomes joint venture or partnership, potential conflict is a necessary adjunct to construction (Wong and Tjosvold, 2010).

Whatever bonus schemes or other mutual aims are identified and promoted, it is an inescapable facet of the process that, by and large, the more the contractor receives the more the employer pays. And even when parties have entered in a construction agreement with the best of intentions and with good will on all sides, external factors can rapidly corrode the relationship. For example, one or other party may experience general financial difficulties, and subcontractors in construction are especially vulnerable to cash flow difficulties, or the contactor may have been under-priced, or the employer may suffer from a fall in land values (Lin et al., 2011).

In all such instances it is often a natural reaction to seek lost ground by detailed and critical examination of the contract terms to see if the claimed can be manufactured or payment received otherwise enhanced, or payment out reduced or delayed as required. Other conflicts arise through breakdown in the personal relationships of the respective individuals or teams engaged in the construction process through misunderstanding, in adequate communication, or personality clash. Such disputes are even more pernicious because they are wasteful and generally unnecessary, serving no commercial end for either party (Drexler et al., 2000). But such conflicts can permeate project teams, severely inhibiting physical progress on site and, ultimately, even leading to termination of the contractual relationship. Often the consequence is litigation with its attendant delays and expenses (Mitropoulos et al., 2001).

Central to partnering is the reduction of the incidence of disputes and the management of disputes when they arise (Ross, 2009). The NEDC Report recites that the US corps of Engineers in 1986 was involved in 1,100 claims for total of $1 billion and 700 cases in litigation for $600 million dollars. In 1991, following the adoption of partnering, it had just 300 claims for $360 million dollars and 300 cases in litigation for $250 million. Just one partnering agreement out of 400 had become the subject of proceeding.

2.7.1.2 Reduction in development costs

The means by which partnering has the potential for reducing costs are various. Reduction of conflicts is one (Rose, 2009). Another is the benefit of repetition. As the participant's respective gain in mutual understanding and formulate common systems, so efficiency increase and internal costs are reduced (Rgn, 2008). A further important saving is by reduction of tendering costs. Once a suitable partner has been selected for a range of projects, contract prices can be negotiated rather than put out to competitive tender.

2.7.1.3 Speed

Partnering can be instrumental in reducing delays so as to assist the completion of projects on time, or earlier. AMEC (partnering in civil engineering) record that in respect of 32 projects completed in the context of their partnering agreement with BAA, 90% were completed within the original program and 100% within the program as subjected to contractual extensions of time.

2.7.1.4 Quality

Partnering can include greater understanding of client needs (especially the parties engage in projects of a broadly repetitive nature), greater contractor responsiveness to client demands, improved communication-especially where contractor and client teams are integrated, joint application of TQM techniques, a relationship existing long enough for the benefits of joint systems and an environment conductive to innovation, and effective research and development programs (Brinkerhoff, 2002; Dayton, 2003).

2.7.1.5 Safety

The NEDC Reports point to improved safety records associated with projects proceeding on a partnering basis, it refers to a research in US by the Construction Industry Institute and the NEDC Report pointing specifically to the experience of the Union Carbide/Bechtel arrangement at Texas city. Improved safety flows naturally from the partnering techniques adverted to above, especially the application of a strict TQM regime (Matthews and Steve, 1999).

2.7.1.6 Work and resources

A material benefit for contractors from partnering is the increased prospect of a steady flow of work; desirable at all times but fundamental in a depressed market. It was observed earlier that the contractor's ability to anticipate workloads can deliver to the employer the benefit of narrower margins (Cheng et al., 2002). Similarly, employers can have great confidence that resources will be available from chosen providers as projects materialize (Chan et al., 2004).

2.7.1.7 Benefits of association

An indirect advantage to contractors is the potential enhancement to their reputation of being publicly liked to a commercially important client (Chan et al., 2008). In the market this might be said to indicate competence, stability, significant resources, and trustworthiness.

2.7.1.8 Job satisfaction

A natural consequence of the more efficient, less adversarial work environment which may be promoted by partnering arrangement is that, in human terms, it reduces pressure on those involved, and the easier and greater success of projects can give rise to increased personal satisfaction (Rgn, 2008). This may appear to be desirable by-product of partnering rather than a material commercial advantage, and such increased satisfaction is certainly difficult to measure. However, it is suggested that the benefit should not be under estimated (Bresnen, 2008). For, at least in a market characterized by an inadequate workforce, the attracting and retaining of suitable employees is itself an important commercial factor; and job satisfaction can assist both recruitment and retention.

2.7.2 Disadvantages

A balanced evaluation of partnering also requires the identification and assessment of its potential disadvantages. This is necessary to determine the overall benefits of partnering, to establish whether partnering is appropriate in the circumstances of a given development, and to enable any weakness in the process to be identified and controlled.

2.7.2.1 Direct Costs

The advantages of partnering is not acquired wholly free of cost albeit that, as observed above, there is good evidence to indicate that successful partnering agreements can reduce allover costs significantly (Heng et al., 2000). Additional costs may include training costs for each entity separately and in particular that cost of running joint workshops, including the cost of employing a facilitator (Bresnen and Marshall, 2002). Further considerations include additional managerial costs of finding partners and negotiating partnering arrangements (as well as legal costs) setting up joint systems with partners, monitoring the progress of the arrangement and evaluating its performance, and attending workshops (Alderman and Ivory, 2007).

2.7.2.2 Tender Costs

It is remarked earlier that greater certainty as to future workload promotes reduction in tender prices (Bresnen and Marshall, 2002). However, not only is that itself a potential disadvantage for the contractor, especially in a rising market and where the partnering arrangement is long established, but the converse of that is that if, in partnering arrangement, the contractor finds the exposure to competition is reduced, there is a tendency to seek an increase of margins; a tendency which is exacerbated in difficult marketplace where the contractor is facing losses on other contracts (Manely and Shaw, 2007).

2.7.2.3 Complacency

Associated with the tender price issue is the possibility of a general complacency subverting the relationship. The employer's work procured through partnering arrangement can come to be regarded as already won and especially if margins on this work are keen, less exciting, and requiring a lower level of commitment than newly acquired projects. Moreover, teams can become stale, thereby diminishing rather than promoting efficiency and innovation (Heng et al., 2000).

2.7.2.4 Career prospect

It should be noted that a possible disadvantage of partnering is that it can sometimes lead to reduced career prospects for those involved: or at least the perception of such a reduction (Marshall, 2004). Employees may regard themselves as sidelined into a static part of their organization, isolated from the main commercial impetus of the business (Wong et al., 2010). Individuals must be seen to be regarded as valued for their contribution to the partnering arrangement and career structure should be maintained or enhanced.

2.7.2.5 Legal difficulties

In addition to the difficulties involved in encompassing partnering in a legal framework is the more acute problem which arises from the possibility that contractual terms binding on the parties fail to reflect the intention of one or other of them (Gadde and Dubois, 2010). Sometimes what was believed to be a general expression of good will and cooperation could be held by the Court to have a binding legal consequence which was

unforeseen (Hartmann and Bresnen, 2011). In other circumstances, the parties may find that what were intended to constitute innovative solutions to the adversarial mentality misfire, e.g. because a bonus sharing provision allows the contractor to increase his profit easily or because the bonus is so difficult to achieve that the contractor is content to allow costs to escalate (Tazelaar and Snijders, 2010).

2.7.2.6 Multi-party arrangement

 A final point which constitutes a limitation on partnering rather than a disadvantage as such, relates to the multi-party nature of construction (Adnan et al., 2012). Thus, however good the relationship between the employer and the contractor, neither the positive advantages outlined above, nor the ability to control disputes, is readily preserved where third parties such consultants or subcontractors are involved in a project who are not parties to the partnering arrangements which do exist to unravel and for the various relationships to resolve themselves into their strict contractual components (Brinkerhoff et al., 2002). This emphasizes the importance of extending the partnering agreement to all important relationships in the construction process.

For the reason noted above, it is important to highlight the disadvantages as well as the advantages to which partnering is subject as the advantages can be maximized and the disadvantages can be minimized and controlled.

2.8 Identifying measures of partnering status

Cheung et al.,(2003) illustrated that different types of measures for partnering projects exist: result, process, and relationship. Inpartnering where relationships are to be managed,measures can be divided into two main heads: hardand soft which are explained in Table (2.1). Typical examples of hard measure are time,cost and quality. These are used to measure how wellthe project performs against the original targets. For example, time measure seeks to assess how well theproject adheres to the planned schedule over a periodof time (Burati and Oswald, 1993). Cost is a measure of how well the projectadheres to the agreed budget. Quality is a measure ofhow well the work is completed in accordance withthe design requirements (Dayton, 2003). Each measure has a specificfunction to perform and it is the decision-maker's taskto decide as to which measures should be included.However, hard measures alone do not provide a clearpicture of partnering status, as partnering is about cooperative working relationships between

parties. It's necessary to turn to another type of measure toassess the partnering status (Eriksson, 2015).

Relationship measures,sometimes known as soft measures, are used to trackthe behavioral aspects of partnering. Some commonsoft measures are teamwork and trust.Compared to hard measures, these are more subtle and rely heavily on personal experience and subjectiveassessment. These are important because theperception of partnering by participants often influence their performance.

Table(2.1): Selected partnering status measures

Hard measures	Soft measures
Time	Communication
Cost	Contact relations
Quality	Claims and issue resolution
Safety	
Environment	

2.9 Elements of successful partnering

Black et al., (2000) listed some of these requirements needed for successful partnering: high level of commitment to shared goals, preferably including those of the client.frequent communication, both formally and informally, co operative attitudes, trust between the parties, a win-win approach to negotiation, sharing of information and a multi-disciplinary involvement. Also the partners to understand the nature of the partnership and, in this light, formally expressed terms and conditions emphasizing openness, co-operation and TQM principles.

Li et al., (2001) found that partnering success is influenced by the budget of the project, duration, and uncertainty as large projects with long duration and high uncertainty will accrue more benefits from partnering than small projects with short duration and low uncertainty. While Chan et al., (2007) mention that parties should be; acting consistently with their joint objectives, Committed to continuous improvement and shared goals. Trust, clear understanding of roles, consistency, flexible attitudes, cooperative attitudes, win-win approach to negotiations should be available in the work environment between parties. Alderman and Ivory (2007) highlighted the role of senior management as they should be committed toward shared goals, encourage communication between parties, involve employees in the decision making. Lu and Yan (2007) believe that involved parties with partnering experience and top management support will help for the smooth execution of partnering. They suggest that the owner's representatives familiar with

partnering principles will help for implementing an informal version of partnering as that factors under organizations should be taken into consideration when deciding whether use partnering or not. Partnering can become successful by using appropriate management mechanisms which include partnering tools, individual measures etc.

They suggested that the process of partner forming should include the following steps: (1) ensure parties are willing to participate, (2) choose a facilitator, (3) determine who will attend the partnering workshop, (4) schedule the partnering workshop, (5) select and provide read-ahead materials and (6) set the agenda and hold the workshop.

The relationships between involved parties are of critical importance for success of partnering, such relationship is characterized as mutual trust, long-term commitment and compatible objectives etc. Yeung et al., (2009) mentioned; trust, commitment to continuous improvement, commitment to shared goals, commitment from senior management, flexible attitudes, communication. Bygballe et al., (2010) listed; Parties acting consistently with their joint objectives, trust, commitment from senior management towards shared goals, considerable efforts from all parties, open sharing of information, communication. Gradde and Dubois (2010) mentioned; parties acting consistently with their joint objectives, commitment to shared goals, commitment from senior management, cooperative attitudes, open sharing of information. Mazet and Portier (2010) mentioned; clear understanding of roles, consistency, cooperative attitudes. While Adnan et al., (2012) mentioned; Parties acting consistently with their joint objectives, trust, clear understanding of roles, open sharing of information, communication, multi disciplinary involvement. Hasan Zadeh et al., (2014) mentioned; clear understanding or roles, cooperative attitudes, win-win approach to negotiation, parties should understand nature of partnership. Spang and Riemann (2014) listed; commitment to shared goals, clear understanding of roles, flexible and cooperative attitudes, considerable efforts from all parties, communication, multi disciplinary involvement. Eriksson (2015) mention; flexibility to change, company wide acceptance, financial security, availability to resources, equal power empowerment, parties should participate in decision making. Lingegard and Lindahl (2015) mentioned; commitment from senior management to continuous improvement, commitment to shared goals, clear understanding of roles, open sharing of information, communication, multi disciplinary involvement. Venselaar et al., (2015) mentioned ;parties should understand nature of partnership, equal empowerment, parties should participate in decision making.

	Source	Black et al., 2000	Li et al., 2001	Naoum, 2003	Bayliss et al., 2004	Wong & Cheung, 2004	Chan et al., 2006	Alderman & Ivory, 2007	Lu & Yan, 2007	Lu & Yan, 2007	Yeung et al., 2009	Bygballe et al., 2010	Gadde & Dubois, 2010	Mazet & Portier, 2010	Adnan et al., 2012	Hasanzadeh et al., 2014	Spang & Riemann, 2014	Eriksson, 2015	Linggegard & Lindahl, 2015	Venselaar et al., 2015
1.	Parties acting consistently with their joint objectives	√	√			√	√			√		√	√	√	√		√		√	√
2.	Trust	√					√		√	√		√			√					
3.	Commitment to continuous improvement	√	√	√			√			√	√								√	
4.	Commitment to quality	√				√			√	√			√							
5.	Commitment from senior management	√			√			√		√	√	√							√	
6.	Commitment to shared goals	√	√				√	√		√		√	√				√		√	
7.	Clear understanding of roles	√	√				√							√	√	√	√		√	
8.	Consistency	√					√							√						
9.	Flexible attitudes	√	√				√				√						√			
10.	Considerable efforts from all parties	√						√	√			√					√			
11.	Co-operative attitudes	√				√	√			√				√	√		√		√	
12.	Win-win approach to negotiation	√	√				√			√							√			
13.	Open sharing of information	√	√									√	√		√				√	
14.	Communication	√					√	√		√	√	√			√		√		√	

Table 2.2 List of selected requirements to be met if partnering is to succeed

No.	Criterion																	
15.	Multi-disciplinary involvement	√			√							√			√		√	
16.	Continuous improvement by senior management	√						√		√	√							
17.	Applying TQM	√			√					√					√		√	
18.	Parties should understand nature of partnership	√						√				√			√		√	√
19.	Formally expressed terms, openness, and co-operation	√			√	√	√				√				√		√	
20.	Clear understanding	√		√									√	√	√		√	
21.	Acting consistent with objectives	√		√											√		√	
22.	Dedicated team	√		√							√		√	√	√		√	
23.	Flexibility to change	√			√											√	√	
24.	Long-Term perspective	√	√		√				√	√	√	√			√			
25.	Total cost perspective	√							√									
26.	Formation at design stage	√								√							√	
27.	Cultural fit	√	√			√			√						√			
28.	Company wide acceptance	√			√	√	√								√	√		
29.	Technical expertise	√																
30.	Financial security	√			√		√									√		
31.	Questioning attitudes	√													√			
32.	Availability of resources	√						√								√		
33.	Equal power empowerment	√	√		√										√		√	√
34.	Parties should participate in decision making	√	√		√			√							√			√
35.	Relationships fits in with the strategic plans of both organizations	√	√			√		√							√	√	√	√

2.10 Benefits of adopting partnering

One of the most important promises of adopting partnering is long term commitment, trust, shared vision, problem solving ability, equity, creativity, cost effectiveness, customer satisfaction, continuous improvement (Huemer, 2014). According to Black et al., (2000) partnering has the ability to reduce adversarial relationships by encouraging the parties to work together to achieve shared objectives and goals, as a result this would; increase customer satisfaction, reduce risk exposure, improve administration , improve quality and design, increase market share, and maintain safety.

Cheng et al., (2004) had illustrated that the construction industry, by adopting partnering, would experience project level benefit: reduced risk, improved quality, reduced cost, completion on time, reduced rework (Adnan et al,. 2014) (Wong and Cheung, 2004). Spang and Riemann (2015) illustrated that partnering would positively affect business level by: increasing profit, increasing market share, competitive bidding. Labor level benefit: increasing productivity, improving efficiency, increasing opportunity for innovation, increasing cultural responsiveness.

Campbell et al.,(2007) and Venselaar et al., (2015) stated that partnering has; improved communication; led to mutual learning; improved understanding of mutual problems; improved predictability of service; improved project programs; reduced costs for subcontract trades; reduced number and cost of design errors/defects; reduced the incidence of disputes ; reduced internal costs; motivated employees; increased visibility of costs and margins; reduced the incidence of site accidents. Through partnering payment terms can be improved, and the turnover and profits can be increased (lingegard and lindahl, 2015) . Egan (1998) had published a research stated that partnering could; increase the Capital cost of the project by 10%, decreased construction time decreased by 10%, increased Predictability by 20%, decreased defects by 20%, decreased accidents by 20%, increased productivity by 10% and increased turnover and profits by 10%. Table (2.3) list the benefits expected when applying partnering.

	Table 2.3 List of benefits expected by applying partnering in construction																			
	Source	Black et al., 2000	Li et al, 2001	Naoum, 2003	Bayliss et al., 2004	Wong & Cheung, 2004	Chan et al., 2006	Alderman & Ivory, 2007	Lu & Yan, 2007	Lu & Yan, 2007	Yeung et al., 2009	Bygballe et al., 2010	Gadde & Dubois, 2010	Mazet & Portier, 2010	Adnan et al., 2012	Hasanzadeh et al., 2014	Spang & Riemann, 2014	Eriksson, 2015	Lingegard & Lindahl, 2015	Venselaar et al., 2015
1.	Fewer adversial relationships		√		√	√	√			√			√	√	√	√	√			
2.	Increased customer satisfaction		√	√							√					√		√		√
3.	Closer relationships between parties				√	√		√		√		√			√				√	
4.	Increased understanding of parties		√						√			√				√				
5.	Improved time scale	√	√	√	√	√	√			√			√	√		√			√	
6.	Reduced risk exposure					√		√		√					√					
7.	Reduced cost		√	√	√	√	√		√	√	√		√	√	√	√	√		√	
8.	Improved administration			√				√							√		√			
9.	Improved quality		√		√	√	√		√	√	√	√	√		√	√				
10.	Improved design							√	√		√	√							√	
11.	Risk-shared							√	√	√						√	√			
12.	Improved return on resources		√					√		√		√			√	√			√	√
13.	Design cycle reduction					√									√	√				
14.	Increased market share						√			√					√	√				
15.	Focus on medium to long-term relationships					√			√	√	√					√				√
16.	Reduced litigation and disputes	√			√	√	√								√		√			

2.11 Obstacles/Barriers to a dopt partnering in construction industry

(Cheung, 2003; Cheng et al., 2001; Black et al., 2000) had discussed the barriers and challenges that would face the construction industry while adopting "partnering" some of these barriers are the Lack of; cooperation, trust, communication, commitment to shared goals, a clear understanding of roles, consistency and a flexible attitude. It is recognized that nothing will change without considerable effort from all parties. Cheng et al., (2004) has clarified that partnering will not succeed without TQM with its focus on continuous improvement and teamwork. And according to Lu and Yan (2007) partnering needs an investment in time and effort, clear goals, passion and enthusiasm for strategic alliance, strong focus on staff, decentralized authority, participative management, adequate resources, and social rewards.

Companies should concentrate their actions on four areas: ensuring agreement with goals; ensuring adequate resources; setting up adequate control sand creating structures to manage the changes (Eriksson, 2015). Chan et al. (2006) add other issues like developing a common understanding of the terms and language to be used, the shared benefits and ensuring integrity in the relationship. In addition, contracting strategies that focus on short-term cost minimization objectives rather than garnering the benefits of long-term collaborative relationships between subcontractors and suppliers are likely to be a serious impediment to the process. Therefore, frame agreements or long-term contractual relations that cover a range of goods or services to be provided over a number of projects are proposed instead of fixed price contracts.

(Li et al., 2001; Naoum 2003; Wong and Cheung 2004; Yeung et al., 2009, Mazet and Portier 2010; Adnan et al., 2012; Eriksson, 2015) agreed that partnership would fail to achieve its goals if the following points were not applied in the construction project as the lack of their presence would form obstacles that would affect the project negatively:

- To establishing a specific mechanism for adjusting price.
- Parties of the project solve cost problems together instead of taking legal actions.
- Maintaining cost control.
- Maintaining cost discipline.
- Required careful ground rules and great communication skills.
- Required technological knowledge and ground rules.
- Required education and training programs.
- Maturity of the industry.

- Local economy development.
- Government regulations and restrictions should be reduced to facilitate partnership.

	Source	Black et al., 2000	Li et al., 2001	Naoum, 2003	Bayliss et al., 2004	Wong & Cheung, 2004	Chan et al., 2006	Alderman & Ivory, 2007	Lu & Yan, 2007	Lu & Yan, 2007	Yeung et al., 2009	Bygballe et al., 2010	Gadde & Dubois, 2010	Mazet & Portier, 2010	Adnan et al., 2012	Hasanzadeh et al., 2014	Spang & Riemann, 2014	Eriksson, 2015	Linggard & Lindahl, 2015	Venselaar et al., 2015
1.	To establish mechanism for adjusting price	√			√	√	√													
2.	Parties take legal actions instead solving cost problems together		√					√		√							√			
3.	Maintaining cost control			√	√	√		√		√	√									
4.	Avoidance of cost discipline	√				√													√	
5.	Required careful ground rules & great skills.	√	√		√		√						√							
6.	Inadequate technological knowledge			√					√					√	√			√		
7.	Lack of education & training programs				√		√		√				√			√	√			
8.	Maturity of the industry		√						√				√			√	√			
9.	Local economy development	√			√				√				√							
10.	Government regulations & restrictions			√			√		√								√			√

Table 2.4 List of obstacles faced when applying partnering in construction

2.12 Appropriate conditions to use partnering in construction

Li et al., (2001) and Black et al., (2000) listed some appropriate conditions for using partnering in construction such as; strategic significance of business, cost of changing partner, availability of alternative parties, impact of lost business, disputes and litigations. While Naoum (2003) added; number of direct competitors, price advantage in relation to competitors.

Level of spending, cost of changing partner, availability of alternative parties, risk of partner failing, percentage of turnover, and impact of lost business were mentioned as good conditions that require partnering to be applied in (Adnan et al, 2012, Mazet and Portier, 2010; Alderman and Ivory, 2007; Lu and Yan, 2007a; Lu and Yan, 2007b).

Hasanzadeh et al., (2014) and Spang & Riemann, (2014) mentioned that; number of direct competitors, degree of product/service differentiation, price advantage in relation to competitors are all considered to be a suitable conditions to use partnering in construction. Table (2.5) summarized the appropriate conditions to use partnering in construction according to the next references and researches.

Table 2.5 List of appropriate conditions to use partnering in construction																			
Source	Black et al., 2000	Li et al., 2001	Naoum, 2003	Bayliss et al., 2004	Wong & Cheung, 2004	Chan et al., 2006	Alderman & Ivory, 2007	Lu & Yan, 2007	Lu & Yan, 2007	Yeung et al., 2009	Bygballe et al., 2010	Gadde & Dubois, 2010	Mazet & Portier, 2010	Adnan et al., 2012	Hasanzadeh et al., 2014	Spang & Riemann, 2014	Eriksson, 2015	Lingegard & Lindahl, 2015	Venselaar et al., 2015
1. Strategic significance of business	√							√	√				√						
2. Level of spending							√	√	√		√			√				√	
3. Cost of changing partner	√		√									√							
4. Availability of alternative parties	√						√										√		
5. Risk of partner failing								√					√						
6. Impact of lost business	√						√						√			√			
7. Percentage turnover																			
8. Number of direct competitors		√	√					√				√				√	√		√
9. Degree of product/service differentiation					√				√			√				√			
10. Price advantage in relation to competitors		√	√													√			
11. Conflicts, disputes and litigations	√		√		√	√									√	√		√	

Partnering is not a new concept. Indeed, it has been pioneered in the manufacturing industry for years. Only now, however, we are beginning to understand what it really means in terms of the demands that it makes of all parties involved in any given relationship and how that relationship fits within the context of the diverse of relationships which are combined together in a construction project.

Partnering is not about creating a "feel good factor" for the industry. So much is generally understood and agreed. But determining what it is, as so often is the case, is rather more difficult. Perhaps it is easier to determine what partnering is in the context of the objectives that it sets out to achieve, for, if it is to have any meaning, it must produce tangible benefits.

Partnering operates at many levels and means different things to different people. A sit is most simple and most generally understood level, it is a commitment by the parties to a relationship based on an intent to work together over a reasonably long period.

But it must be more than creating a cozy relationship based on mutual statements of intent and goodwill. If that is all what meant by partnering then it will not work. The relationship will simply not be able to withstand the pressures to which it will inevitably become subject.

At a working level, partnering is about building teams, supporting the relationships between the individuals involved, providing adequate processes for them to operate, and creat**g** an environment in which they can best work so as to deliver projects the benefit of all who are involved.

Chapter 3
Methodology

This chapter describes the methodology that was used in this research. The adopted methodology to accomplish this study uses the following techniques: the information about the research design, research population, questionnaire design, statistical data analysis, content validity and pilot study.

The methodology chapter in an academic research should describe the mechanism of answering the research questions; justifying the experimental design, and clarifying the analyses process of the results. This chapter should also clarify the materials which were used and prepared in the research, describe the research strategy, explain what calculations were performed to analyze the results and to mention which statistical tests were used.

3.1 Research procedures

This research is aimed to investigate partnering concept in construction industry in Gaza Strip. The research can be divided into the following phases:

-The first phase of the research thesis proposal included identifying and defining the problems and establishment objective of the study and development research plan.

-**The second phase** of the research included a summary of the comprehensive literature review. Literatures on partnering definitions and related topics were reviewed.

-**The third phase** of the research included a field survey which was conducted with "Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip".

-The fourth phase of the research focused on the modification of the questionnaire design, through distributing the questionnaire to a pilot study.

-The fifth phase of the research focused on distributing the questionnaire. This questionnaire was used to collect the required data in order to achieve the research objective.

-The sixth phase of the research was data analysis and discussion. Statistical Package for the Social Sciences, (SPSS) was used to perform the required analysis. The final phase includes the conclusion and recommendations. Figure (3.1) shows the framework of the research methodology.
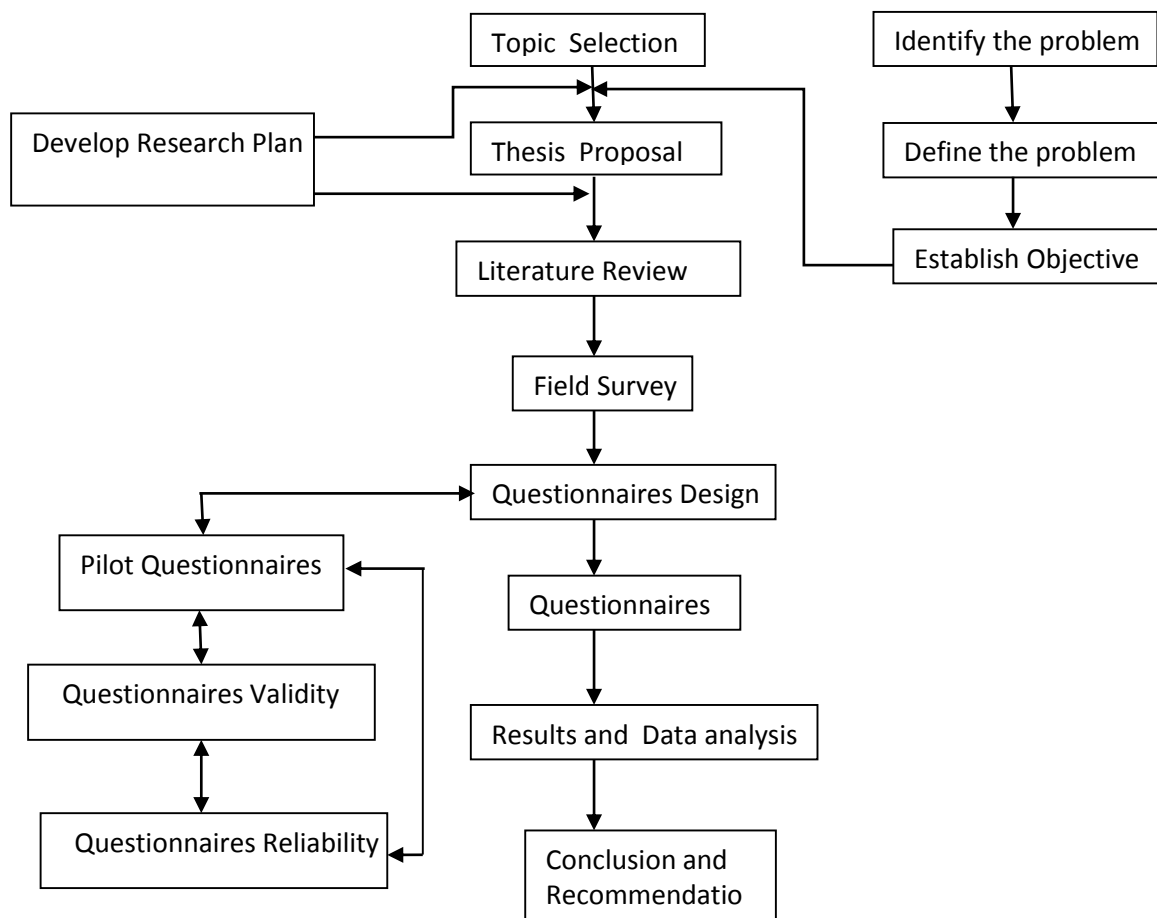
Figure 3.1 Frame work of the research methodology

3.2 Research period

The study started on March 2015 after the proposal was approved. The literature review was completed at the end of May 2015. The validity testing, piloting and questionnaire distribution and collection completed on the beginning of September 2015. The analysis, discussion, conclusion and recommendation were completed at the middle of November 2015.

3.3 Research location

The research was carried out in Gaza Strip, which consists of five governorates: The northern governorate, Gaza governorate, the middle governorate, Khan Younis governorate, and Rafah governorate.

3.4 Research population

The research population consisted of the contracting companies which are registered in the Palestinian Contractors Union (PCU) in Gaza Strip and classified by the national classification committee to have valid registration in the PCU up to the year 2015. According to the PCU in Gaza Strip the number of construction companies registered and graded according to the field of work up to the January 2015 was 216 companies. The classification of the companies which was done by the National Classification Committee consisted of many grades based on the company capital and the number of projects performed by it. Each company had many classifications with different disciplines (i.e. buildings, roads, maintenance… etc.).

The population that could be selected and investigated in this research were seventy three contractors that work in contracting companies which are classified under first grade

3.5 Questionnaire design

Questionnaires are set of questions used to elicit from individuals a broad array of objective information as well as subjective information about their thoughts and perceptions. Questionnaires are an effective data collection mechanism that provide the researcher with the information required. The questionnaire was initially designed based on the extensive literature review of previous studies. Investigations by Black et al., 2000, Li et al., 2001, Naoum, 2003, Bayliss et al., 2004, Wong & Cheung, 2004, Chan et al., 2006, Alderman & Ivory, 2007, Lu & Yan, 2007a, Lu & Yan, 2007b, Yeung et al., 2009, Bygballe et al., 2010, Gadde & Dubois, 2010, Adnan et al., 2012, Hasan zadeh et al.,2014, Spang & Riemann, 2014, Eriksson, 2015, Lingegard & Lindahl, 2015, Venselaar et al., 2015 made a significant contribution towards the development of the structured questionnaire survey adopted for this research study.

The questionnaire was provided with a covering letter explaining the purpose of the study, the way of responding, the aim of the research and the security of the information in order to encourage a high response. The questionnaire included multiple choice questions which are used widely in the questionnaire. The variety in these questions aims to meet the research objectives, and to collect all the necessary data that can support the discussion, results and recommendations in the research.   The questionnaire was divided into 2 sections:

Section One: The first part of the questionnaire consists of 13 items of the personal information of the respondents. This included demographics such as age and marital status. In addition, respondents were asked to indicate theirhighest level of education, working experience in the construction field and in this company, the type and background of the company in which they were working, the background and experience they have got about partnering in their projects.

Section Two: The second part of the questionnaire asked the respondents to identify the main partnering success factors, benefits, obstacles and applicability in construction industry. The second part was divided into the following fields:

1. The requirements to be met if partnering to be successful. This field contains32factors.

2. The benefits expected as a result of applying partnering in construction projects. This field contains16 factor.

3. The effect of obstacles faced when applying partnering in construction projects. This field contains10 items.

4. The appropriate conditions to use partnering in construction projects and this field contains11 items.

3.6 Pilot study

It is necessary to conduct the pilot study before the collection of the final data for the whole sample. A pilot study is considered to be a trial run for the questionnaire that includes a test for the wording of the questions, identifying ambiguous questions, testing for the technique that is used to collect the data, measurement of the effectiveness of standards invitations to respondents (Naoum, 2007). Before distributing the questionnaire, it is advisable to test the reliability and validity of the scales. The pilot study was undertaken by asking the supervisor and another 3 experts to review the questionnaire. These experts were selected with more than 10 years of experience in construction work. Some of them work in academic institutions and others in practical field. Pilot study was conducted to adapt the instrument before using it in the main survey in order to avoid mistakes in the questionnaire and to identify the potential problems. The experts agreed that the questionnaire was valid and suitable enough to measure the purpose that the it was designed for.

3.7 Content validity of the questionnaire

Content validity test was conducted by consulting two groups of experts. The first was requested to evaluate and identify whether the questions matched the scope of the items and the extent to which these items reflect the concept of the research problem. The other was requested to evaluate whether the instrument used is valid statistically and that the questionnaire was designed well enough to provide relations and tests between variables. The two groups of experts did agree that the questionnaire was valid and suitable enough to measure the concept of interest with some amendments.

3.8 Data measurement

In order to be able to select the appropriate method of analysis, the level of measurement must be understood. For each type of measurement, there is/are an appropriate method/s that can be applied and not others. In this research, ordinal scales were used. Ordinal scale is a ranking or a rating data that normally uses integers in ascending or descending order. In this research the scale (1,2,3,4,5,6,7,8,9,10) was used. The closer the answer to number 10 the higher the approval on what was mentioned in the statement, and vice versa. This scale was used due to its high accuracy in answering the statements mentioned in the questionnaire.

3.9 Statistical analyses tools

To achieve the research goal, researcher used the Statistical Package for the Social Science (SPSS) for Manipulating and analyzing the data. The following statistical methods were utilized in the research:

1. Frequencies and Percentile
2. Alpha- Cronbach Test for measuring reliability of the items of the questionnaires
3. Person Correlation Coefficients for measuring validity of the items of the questionnaires
4. Spearman –Brown Coefficient
5. Relative Importance Index
6. One sample t-test
7. Independent sample t-test.
8. One way ANOVA test

3.9.1 Relative Importance Index (RII)

Descriptive statistics mainly the Relative Importance Index method (RII) was used to determine the ranks of all performance factors and to highlight the relative importance of attributes as perceived by the respondents (Assaf et al., 1995; Faridi &El-Sayegh, 2006). The relative importance index was computed as (Sambasivan & Soon, 2007):

Formula Relative importance Index =

$$\frac{\sum w}{AN} = \frac{10n_{10} + 9n_9 + 8n_8 + 7n_7 + 6n_6 + 5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{10N}$$

Where W is the weighting given to each factor by the respondent, ranging from 1 to 10,(n10 = number of respondents that agreed about the factor ofthe highest effect, n1 = number of respondents that agreed about the factor ofthe lowest effect). A is the highest weight (i.e.10 in the study) and N is the total number of samples. The Relative Importance Index ranges from 0 to 1. Tables below show the relative importance index of each field.

3.9 One Sample t-test

This test was used to determine if the mean of a paragraph was significantly different from a hypothesized value 6 (Middle value of Likert scale). If the P-value (Sig.) is smaller than or equal to the level of significanceα = 0.05 then the mean of a paragraph was significantly different from a hypothesized value 6. The sign of the Test value indicates whether the mean is significantly greater or smaller than hypothesized value 6. On the other hand, if the P-value (Sig.) is greater than the level of significance α=0.05, then the mean a paragraph is insignificantly different from a hypothesized value 6.

3.10 Independent Samples Test

Provides a statistical test of whether the means of two groups are equal or not.

3.10.2 One Way ANOVA Test

Test was used to examine if there was a statistical significant difference between several means among the respondents toward Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip.

3.10 Statistical validity of the questionnaire

The validity of an instrument can be defined as a determination of the extent to which the instrument actually reflects the abstract construct being examined. As validity refers to the degree to which an instrument measures what it is supposed to be measuring. High validity is the absence of systematic errors in the measuring instrument. When an instrument is valid; it truly reflects the concept it is supposed to measure. Achieving good validity requires the care in the research design and sample selection. To insure the validity of the questionnaire, two statistical tests should be applied. The first test is Criterion-Related Validity test (Pearson test) which measures the correlation coefficient between each item in the field and the whole field. The second test is the Structure Validity test (Pearson test) that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one filed and all the fields of the questionnaire that have the same level of similar scale.

3.11 Criterion related validity test

Internal consistency of the questionnaire is measured by a scouting sample, which consisted of thirty questionnaires, through measuring the correlation coefficients between each paragraph in one field and the whole filed. Tables (1,2,3,4) below show the correlation coefficient and p-value for each field items. As shown in the Table the P-Values are less than 0.05 ,so the correlation coefficients of this field are significant at $\alpha=0.05$, so it can be said that the paragraphs of this field are consistent and valid to be a measure of what it was set for.

Table (3.1): The correlation coefficient between each paragraph in the field and the whole field.
First field: Requirements

No.	Items	Pearson coefficient	P-value
1.	Parties acting consistently with their joint objectives	0.595	0.000
2.	Trust	0.632	0.000
3.	Commitment to continuous improvement	0.740	0.000
4.	Commitment to quality	0.649	0.000
5.	Commitment from senior management	0.579	0.000
6.	Commitment to shared goals	0.795	0.000
7.	Clear understanding of roles	0.637	0.000
8.	Consistency	0.643	0.000
9.	Flexible attitudes	0.671	0.000
10.	Considerable efforts from all parties	0.768	0.000
11.	Co-operative attitudes	0.683	0.000
12.	Win-win approach to negotiation	0.610	0.000
13.	Open sharing of information	0.625	0.000
14.	Communication	0.666	0.000
15.	Multi-disciplinary involvement	0.556	0.000
16.	Continuous improvement by senior management	0.640	0.000
17.	Applying TQM	0.666	0.000
18.	Parties should understand nature of partnership	0.737	0.000
19.	Formally expressed terms, openness, and co-operation	0.681	0.000
20.	Clear understanding	0.582	0.000
21.	Acting consistent with objectives	0.696	0.000
22.	Dedicated team	0.672	0.000
23.	Flexibility to change	0.713	0.000
24.	Long-Term perspective	0.584	0.000
25.	Total cost perspective	0.551	0.000
26.	Formation at design stage	0.502	0.000
27.	Cultural fit	0.564	0.000
28.	Company wide acceptance	0.644	0.000
29.	Technical expertise	0.547	0.000
30.	Financial security	0.581	0.000
31.	Questioning attitudes	0.739	0.000
32.	Availability of resources	0.434	0.000

Table (3.1): The correlation coefficient between each paragraph in the field and the whole field.

Table (3.2): The correlation coefficient between each paragraph in the field and the whole field. Second field: Benefits

No.	Items	Pearson coefficient	P-value
1.	Fewer adversial relationships	0.557	0.000
2.	Increased customer satisfaction	0.741	0.000
3.	Closer relationships between parties	0.509	0.000
4.	Increased understanding of parties	0.539	0.000
5.	Improved time scale	0.760	0.000
6.	Reduced risk exposure	0.769	0.000
7.	Reduced cost	0.811	0.000
8.	Improved administration	0.694	0.000
9.	Improved quality	0.723	0.000
10.	Improved design	0.494	0.000
11.	Risk-shared	0.752	0.000
12.	Improved return on resources	0.628	0.000
13.	Design cycle reduction	0.682	0.000
14.	Increased market share	0.756	0.000
15.	Focus on medium to long-term relationships	0.819	0.000
16.	Reduced litigation and disputes	0.779	0.000

Table (3.3) The correlation coefficient between each paragraph in the field and the whole field. Third field: Obstacles

No.	Items	Pearson coefficient	P-value
1.	To establish mechanism for adjusting price	0.533	0.000
2.	Parties take legal actions instead solving cost issues together	0.623	0.000
3.	Maintaining cost control	0.577	0.000
4.	Avoidance of cost discipline	0.660	0.000
5.	Required careful ground rules & great skills.	0.582	0.000
6.	Inadequate technological knowledge	0.715	0.000
7.	Lack of education & training programs	0.746	0.000
8.	Maturity of the industry	0.767	0.000
9.	Local economy development	0.712	0.000
10.	Government regulations & restrictions	0.706	0.000

Table (3.4)The correlation coefficient between each paragraph in the field and the whole field.
Fourth field: Appropriate conditions

No.	Items	Pearson coefficient	P-value
1.	Strategic significance of business	0.693	0.000
2.	Level of spending	0.790	0.000
3.	Cost of changing partner	0.834	0.000
4.	Availability of alternative parties	0.796	0.000
5.	Risk of partner failing	0.688	0.000
6.	Impact of lost business	0.695	0.000
7.	Percentage turnover	0.632	0.000
8.	Number of direct competitors	0.745	0.000
9.	Degree of product/service differentiation	0.674	0.000
10.	Price advantage in relation to competitors	0.692	0.000
11.	Conflicts, disputes and litigation	0.497	0.000

3.12 The structure Validity Test

Structure Validity is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one filed and all the fields of the questionnaire that have the same level of liker scale.

As shown in Table (3.5), the significance values are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that the fields are valid to be measured what it was set for to achieve the main aim of the study.

Table (3.5) Structure Validity of the Questionnaire: Correlation coefficient of each field and the whole of questionnaire

Fields	Pearson correlation	p-value
Requirements	0.959	0.000
Benefits	0.909	0.000
Obstacles	0.807	0.000
Conditions	0.792	0.000

3.13 Reliability of the research

Reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability

coefficient. For the most purposes reliability coefficients above 0.7 are considered to be satisfactory. Period of two weeks to a month is recommended between the two tests. Due to the complicated conditions that the contractors were facing at the time the questionnaire was being distributed, it was too difficult to ask them to responds to the questionnaire twice within short period. The statistician's overcame this difficulty by using Cronbach's coefficient alpha and Half Split Method through the SPSS software.

3.14 Cronbach's Coefficient Alpha

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. As shown in Table (3.6) the Cronbach's coefficient alpha was calculated and the results were in the range from 0.854 and 0.952, and the general reliability for all items equal 0.973, this range is considered high; the result ensures the reliability of the questionnaire.

Table (3.6) ReliabilityCronbach's Alpha: the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire

Fields	Cronbach's Alpha
Requirements	0.952
Benefits	0.926
Obstacles	0.854
Conditions	0.898
All items	0.973

3.15 Half Split Method

This method depends on finding Pearson correlation coefficient between the means of odd rank questions and even rank questions of each field of the questionnaire. Then, correcting the Pearson correlation coefficients can be done by using Spearman Brown correlation coefficient of correction. The corrected correlation coefficient (consistency coefficient) is computed according to the following equation:

Consistency coefficient $= 2r/(r+1)$, where r is the Pearson correlation coefficient. The normal range of corrected correlation coefficient $2r/(r+1)$ is between 0.0 and + 1.0 As shown in Table (3.7), all the corrected correlation coefficients values are between 0.893 and 0.983 and the general reliability for all items equal 0.989, and the significant (α) is

less than 0.05 so all the corrected correlation coefficients are significance at α = 0.05. It can be said that according to the Half Split method.

Table (3.7:) Split-Half Coefficient method

Fields	person correlation	Spearman-Brown Coefficient	Sig. (2 Tailed)
Requirements	0.967	0.983	0.000
Benefits	0.916	0.956	0.000
Obstacles	0.845	0.916	0.000
Conditions	0.807	0.893	0.000
All items	0.979	0.989	0.000

Summary

This chapter described the detailed adopted methodology of the research. It included the primary research framework for the study, details of research period, location, population, and sample size. The questionnaire design was detailed including the initial draft that was modified and refined through pilot study. Quantitative data analysis techniques, which include factor analysis, reliability test, and Pearson correlation analysis, were designed to be applied by the instruments of SPSS. For the purposes of testing the research validity, reliability, and adequacy of methods used in analysis, different statistical tests were used and explained in details. All the statistical tests confirmed the reliability and the validity of the questionnaire.

Chapter 4

Data analysis and discussion

This chapter included analysis and discussion of the results that have been collected from field surveys. Data was analyzed using SPSS including descriptive and inferential statistical tools. In this study factor analysis was performed after accepted reliability tests. Seventy three questionnaires respondents from contractor firms were considered. This chapter included the personal information and profile of the respondents, quantitative analysis of questionnaire field survey, and finally the summary framework of the results.

4.1 Demographic survey of respondents

4.1.1 Age

Most of the questioned engineers were relatively young. Out of 73 respondents, 57 (78.1%) were less than 32 years old; 9 (12.3%) were of 32 to less than 39 years old; 6 (18.9%) were of 39 to less than 46 years old; and only 1 respondent was older than 53 years old. That is because the nature of work in construction is rough and requires working under pressure and for long hours, which require contractors of young age to handle it. Most of projects require a site engineer to have an average of 5 years of supervision experience; which if added to the age of a fresh graduate; 23 years old, explains why the majority of the respondents age were less than 32 years old. Table (4.1) summarizes the background information of contractors.

Table(4.1): Background information about contractors

General	Categories	Frequency	Percentage
Age	Less than 32 years	57	78.1%
	32- Less than 39	9	12.3%
	39- Less than 46	6	8.2%
	46- Less than 53	-	-
	more than 53 years	1	1.4%
Marital status	Single	25	34.2%
	Married	46	63.0%
	Divorced	2	2.7%
Experience in the construction field	Less than 3	16	21.9%
	3-less than 10	42	57.5%
	10-less than 17	7	9.6%
	17 or 24	7	9.6%
	24 or more	1	1.4%
Experience in the current company	Less than 1	19	26.0%
	1-less than 5	32	43.8%
	5-less than 10	14	19.2%
	10-less than 15	7	9.6%
	More than 15	1	1.4%
Direct employer	Contractor	45	61.6%
	Subcontractor	8	11.0%
	Others	20	27.4%
Company field of work	Building	58	44.3%
	Roads	30	22.9%
	Water and sewage	26	19.8%
	Others	17	13.0%
	Building	58	44.3%
Educational level	Bachelor's	49	67.1%
	Master's	23	31.5%
	Ph.D.	1	1.4%
Background about partnering concepts	Yes	67	91.8%
	No	6	8.2%
Worked on at least one partnered project?	Yes	64	87.7%
	No	9	12.3%
partnering represents a significant proportion (at least 25%) of work undertaken?	Yes	56	76.7%
	No	17	23.3%
Encouragement to practice partnering	Yes	56	76.7%
	No	17	23.3%

4.1.2 Marital Status

46 (63.0%) of the questioned contractors are married, 25 (34.2%) were single and 2 of them (2.7%) were divorced, which is consistent with the age distribution of the sample as the average age for marriage is less than 32 years for contractors in Gaza Strip.

4.1.3 Experience in the construction field

Out of 73 contractors, 16 (21.9%) had less than 3 years of experience in the construction field; 42 (57.5%) had between 3 to less than 10 years of experience; 7 (9.6%) had between 10 to less than 17 years of experience; and only 1 (1.4%) respondent has 24 or more years of experience in the construction field. which is compatible with the fact that most of the workers are relatively young in age. Most of the sample (more than 80%) as working in large construction projects usually requires more than 3 years of experience while that can be overlooked in smaller projects.

4.1.4 Experience in the current company

Out of the 73 contractors, 19 (26.0%) have worked for less than one year with their current employer; 32 (43.8%) have worked for a year to less than 5 years with their current employer; 14 (19.2%) have worked for 5 to less than 10 years with their current employer; 7 (9.6%) have worked for 10 to less than 15 years with their current employer; and only one of the respondents has worked more than 15 years old with his current employer. A large number of the engineers have less than 5 years of experience with their current companies, as most of the work with construction companies is ―per project and the nature of construction in Gaza Strip is unstable due to the political complications.

4.1.5 Company field of work

Out of the 73 contractors, 58 (44.3%) work in building projects which are the main construction projects in Gaza Strip, while 30 (22.9%) work in roads and 26 (19.8%) work in water and sewage projects.

4.1.6 Educational Level

More than 67.1% of the surveyed contractors hold a Bachelor's degree, 23 (31.5%) holders of Master degrees and only one contractor holds a PhD degree.

4.1.7 Background about partnering concepts

Most of the contractors that responded to the questionnaire which are 67 (91.8%) contractors out of 7 have background and previous knowledge about partnering concepts, and only 6 (8.2%) declined having any background about the concept of partnering.

4.1.8 Worked on at least one partnering project

64 (87.7%) out of 73 contractors have worked on at least one partnering project and only 9 (12.3%) haven't worked on any partnering project.

4.1.9 Partnering representation of a significant proportion (at least 25%) of work undertaken

56 (76.7%) of the contractors responded to the questionnaire have confirmed that partnering had occupied a significant proportion of their work (at least 25%), while 17 (23.3%) of the contractors haven't worked in any project that partnering had a significant proportion of its stages.

4.1.10 Encouragement to practice partnering

56 (76.7%) of the contractors responded to the questionnaire have confirmed that they were supported and encouraged to practice partnering in their construction projects; which is the same percentage of respondents that partnering had occupied at least 25% of their undertaken projects, while 17 (23.3%) of the contractors haven't supported and encouraged to practice partnering.

4.1.11Types of encouragement received for practicing partnering in the work field

Table (4.2) indicates that (25.%8) of the contractors that confirmed being encouraged for practicing partnering have attended workshops to enhance partnering concepts and practices, 19.4% have received incentives, 19.4% have received education courses about partnering, 16.1% have got promotions for being involved in partnering practices in their

projects, 9.7% have been asked to write about their partnering experience in construction projects to inspire their co-workers.

Table (4.2): Types of encouragement received for practicing partnering in the work field

Company field of work	Indicate	Frequency	Percentage%
Yes	Incentives	12	19.4
	Promotions	10	16.1
	Workshops	16	25.8
	Courses	12	19.4
	Newsletters	6	9.7
	Others	6	9.7
Total		**62**	**100**

4.1.12 Reasons for the lack of practicing partnering in the work field

Table (4.3) indicates that contractors who haven't received any kind of encouragement for practicing partnering in the construction projects was due to the lack of support by the upper management who did not appreciate their partnering practices or didn't ask them to involve partnering concepts in their work field.

Table (4.3): Reasons for the lack of practicing partnering in the work field

Company field of work	Indicate	Frequency	Percentage%
No	Waste of time	1	9.1
	Waste of effort	-	-
	Lack of support by upper management	6	54.55
	No positive effects on the project	1	9.1
	Expensive	1	9.1
	Others	2	18.18
Total		**11**	**100**

4.3 Requirements to be met if partnering to be succeed

The Relative Importance Index for each factor was determined to test the opinion of the respondent about the requirements needed for the success of partnering, and the results is shown in Table (4.4) ranking from the most important requirement to lowest important one as follows:

- The Relative Importance Index for the factor (Availability of resources) equals "82.74%", and P-value equal "0.000", with first rank.

- The Relative Importance Index for the factor (Financial security) equal "82.05%", and P-value equals "0.000", with second rank.

- The Relative Importance Index for the factor (Win-win approach to negotiation) equal "66.58%", and P-value equals "0.007", with thirty one rank.

- The Relative importance Index for the factor (Acting consistent with objectives) equal "66.44%", and P-value equal "0.010", with thirty two rank.

For general the results for all items of the field (Requirements) show that the average mean equal "7.54" and the Relative importance Index equal "75.40%" which is greater than "60.0%" and the value of t-test equals "11.455" which is greater than the critical value that equals 1.99, and the p- value equals 0.000 which is less than 0.05, which indicates that "Requirements has a higheffect".

Availability of resources was identified commonly in previous studies and was of paramount importance for the success of partnering in construction projects (black et al., 2000; Lu & Yan, 2007a; Eriksson, 2015).

Financial security is also very important for the success of partnering (Wong & Cheung, 2004; Alderman & Ivory, 2007).

Win-win approach to negotiation and acting consistent with objectives was found to be the least important requirements for the success of partnering in construction project (Li et al., 2001; Chan et al., 2007; Lu & Yan, 2007b, Hasan Zadeh, 2014, Lingegard & Lindahl, 2015).

Table (4.4): Mean, Standard Deviation, RII, t-value for the requirements to be met if partnering to be succeed

No.	Statement	Mean	SD	RII (%)	t-value	P-value	Rank
32	Availability of resources	8.27	1.377	82.74	14.110	0.000	1
30	Financial security	8.21	1.554	82.05	12.124	0.000	2
2	Trust	8.19	1.737	81.92	10.779	0.000	3
29	Technical expertise	8.11	1.410	81.10	12.784	0.000	4
31	Questioning attitudes	8.01	1.603	80.14	10.734	0.000	5
1	Parties acting consistently with	7.99	2.189	79.86	7.753	0.000	6
5	Commitment from senior	7.99	1.867	79.86	9.090	0.000	7
11	Co-operative attitudes	7.85	1.647	78.49	9.593	0.000	8
3	Commitment to continuous	7.79	1.764	77.95	8.694	0.000	9
19	Formally expressed terms,	7.78	1.694	77.81	8.985	0.000	10
28	Company wide acceptance	7.74	1.564	77.40	9.506	0.000	11
14	Communication	7.74	1.573	77.40	9.452	0.000	12
7	Clear understanding of roles	7.73	1.931	77.26	7.636	0.000	13
16	Continuous improvement by	7.63	1.696	76.30	8.214	0.000	14
20	Clear understanding	7.62	1.604	76.16	8.610	0.000	15
25	Total cost perspective	7.55	1.979	75.48	6.682	0.000	16
18	Parties should understand	7.51	1.617	75.07	7.962	0.000	17

No.	Statement	Mean	SD	RII (%)	t-value	P-value	Rank
10	Considerable efforts from all	7.49	1.741	74.93	7.328	0.000	18
23	Flexibility to change	7.48	1.923	74.79	6.574	0.000	19
4	Commitment to quality	7.47	2.021	74.66	6.196	0.000	20
6	Commitment to shared goals	7.42	1.914	74.25	6.359	0.000	21
22	Dedicated team	7.38	2.079	73.84	5.685	0.000	22
9	Flexible attitudes	7.32	1.802	73.15	6.236	0.000	23
17	Applying TQM	7.29	1.611	72.88	6.827	0.000	24
8	Consistency	7.27	1.718	72.74	6.336	0.000	25
26	Formation at design stage	7.27	1.902	72.74	5.722	0.000	26
13	Open sharing of information	7.21	1.929	72.05	5.339	0.000	27
27	Cultural fit	7.00	2.108	70.00	4.053	0.000	28
24	Long-Term perspective	6.89	2.343	68.90	3.248	0.002	29
15	Multi-disciplinary involvement	6.85	1.745	68.49	4.158	0.000	30
12	Win-win approach to	6.66	2.029	66.58	2.769	0.007	31
21	Acting consistent with	6.64	2.084	66.44	2.639	0.010	32
	All items	7.54	1.150	75.40	11.455	0.000	

Critical value of t at df "72" and significance level 0.05 equals 1.99
SD: Std. Deviation
RII: Relative Importance Index

4.4 Benefits of adopting partnering

The Relative Importance Index for each factor was determined to test the opinion of the respondent about the benefits of adopting partnering in construction projects, and the results shown in Table (4.5) ranking from the most important benefit to the lowest important one as follows:

- The Relative Importance Indexfor the benefit (Increased understanding of parties) equals "83.97%", and P-value equals "0.000", with first rank.

- The Relative Importance Index for the factor (Closer relationships between parties) equals " 83.84% " , and P-value equals "0.000" , with second rank.

- The Relative Importance Index for the benefit (Increased market share) equals "66.85%" , and P-value equals " 0.026" , with third rank.

- The Relative importance Index for the factor (Reduced litigation and disputes) equal "65.75%", and P-value equal "0.039", with fourth rank.

For general the results for all items of the field (Benefits of adopting partnering) show that the average mean equals "7.55" and the Relative importance Index equals "75.50%" which is greater than "60.0%" and the value of t test equals "10.175" which is greater than the critical value which is equals 1.99 and the p- value equals 0.000 which is less than 0.05 which means "Benefitshas a higheffect".

Increased understanding of partnering was the most important benefit of adopting partnering in construction projects as mentioned in related studies (Li et al., 2001; Lu & Yan, 2007; Bygballe et al., 2010; Spang & Riemann, 2014)while (Bayliss et al., 2004;

Adnan et al., 2012) confirmed that partnering tighten the relationships between parties that considered to be a great benefit of partnering.

(Chan et al., 2006; Spang & Riemann, 2014) mentioned another important benefits of adopting partnering such as increasing market share and reducing litigation.

Table (4.5) Mean, Standard Deviation, RII, t-value for the benefits of adopting partnering

No.	Statement	Mean	SD	RII (%)	t-value	P-value	Rank
4	Increased understanding of	8.40	1.351	83.97	15.157	0.000	1
3	Closer relationships between	8.38	1.371	83.84	14.858	0.000	2
1	Fewer adversial relationships	8.07	1.719	80.68	10.284	0.000	3
5	Improved time scale	7.99	1.514	79.86	11.211	0.000	4
12	Improved return on resources	7.86	1.584	78.63	10.050	0.000	5
10	Improved design	7.82	1.378	78.22	11.298	0.000	6
9	Improved quality	7.81	1.861	78.08	8.302	0.000	7
8	Improved administration	7.77	1.612	77.67	9.368	0.000	8
2	Increased customer	7.63	1.654	76.30	8.420	0.000	9
11	Risk-shared	7.49	1.857	74.93	6.871	0.000	10
6	Reduced risk exposure	7.30	2.265	73.01	4.909	0.000	11
15	Focus on medium to long-	7.19	1.890	71.92	5.386	0.000	12
13	Design cycle reduction	7.03	2.279	70.27	3.852	0.000	13
7	Reduced cost	6.85	2.413	68.49	3.007	0.004	14
14	Increased market share	6.68	2.576	66.85	2.272	0.026	15
16	Reduced litigation and	6.58	2.339	65.75	2.102	0.039	16
	All items	7.55	1.304	75.50	10.175	0.000	

Critical value of t at df "72" and significance level 0.05 equal 1.99
SD: Std. Deviation
RII: Relative Importance Index

4.5 Obstacles/barriers faced when adopting partnering

The Relative Importance Index for each factor was computed to test the opinion of the respondent about obstacles and barriers faced when adopting partnering, and the results are shown in Table (4.6) ranking from the most important obstacle to the lowest important one as follows:

- The Relative Importance Index for the obstacle (Avoidance of cost discipline) equals "72.60%", and P-value equals "0.000", with first rank.

- The Relative Importance Index for the obstacle (Lack of education & training programs) equals "71.64%", and P-value equals "0.000", with second rank.

- The Relative Importance Index for the obstacle (Maturity of the industry) equals "69.04%", and P-value equals "0.000", with third rank.

- The Relative importance Index for the obstacle (Required careful ground rules & great skills) equals "67.40%", and P-value equals "0.000", with fourth rank.

For general the results for all items of the field (Obstacles) show that the average mean equal "7.05" and the Relative Importance Index equal "70.50%" which is greater than "60.0%" and the value of t-test equals "6.830" which is greater than the critical value which is equals 1.99 and the p- value equals 0.000 which is less than 0.05, which means that "Obstacleshas a higheffect".

(Black et al., 2000; Wong & Cheung, 2004; Lingegard & Lindahl, 2015) have launched researches about the barriers that are faced when adopting partnering, and found that the avoidance of cost discipline was ranked as the first barrier that prevented top management from adopting partnering as these managers didn't want any extra expenses in their projects' budget. These wrong concepts about partnering were due to the lack of education and training programs, which was ranked as a second barrier in these researches.

Table (4.6): Mean, Standard Deviation, RII, t-value for the obstacles/barriers faced when adopting partnering

No.	Statement	Mean	SD	RII (%)	t-value	P-value	Rank
4	Avoidance of cost discipline	7.26	1.732	72.60	6.216	0.000	1
7	Lack of education & training	7.16	1.795	71.64	5.542	0.000	2
3	Maintaining cost control	7.16	1.748	71.64	5.691	0.000	3
9	Local economy development	7.15	2.209	71.51	4.451	0.000	4
6	Inadequate technological	7.08	1.862	70.82	4.967	0.000	5
10	Government regulations &	7.03	1.764	70.27	4.977	0.000	6
2	Parties take legal actions instead solving cost issues together	7.00	2.121	70.00	4.028	0.000	7
1	To establish mechanism for	6.97	1.993	69.73	4.170	0.000	8
8	Maturity of the industry	6.90	2.249	69.04	3.434	0.001	9
5	Required careful ground rules &	6.74	2.310	67.40	2.737	0.008	10
	All items	7.05	1.309	70.50	6.830	0.000	

Critical value of t at df "72" and significance level 0.05 equal 1.99
SD: Std. Deviation
RII: Relative importance Index

4.6 Appropriate conditions to use partnering

The Relative Importance Index was computed for each factor to test the opinion of the respondent about the appropriate conditions to use partnering and the results are shown in Table (4.7) ranking from the most important condition to the lowest important one as follows:

- The Relative importance Index for the factor (Number of direct competitors) equal "80.55%", and P-value equal "0.000", with first rank.

- The Relative importance Index for the factor (Strategic significance of business) equal "80.00%", and P-value equal"0.000", with second rank.

- The Relative importance Index for the factor (Cost of changing partner) equal "72.05%", and P-value equal"0.000", with third rank.

- The Relative importance Index for the factor (Risk of partner failing) equal "70.96%" , and P-value equal "0.000" , with fourth rank.

For general the results for all items of the field (Appropriate conditions) show that the average mean equal "7.64" and the Relative importance Index equal "76.40%" which is greater than "60.0%" and the value of t-test equal "11.004" which is greater than the critical value which is equal 1.99 and the p- value equal 0.000 which is less than 0.05 that means "Conditions is high effect".

In related studies, the same results were found; the number of direct competitors was ranked first and the strategic significance of business was ranked second (Lu & Yan, 2007; Spang & Riemann, 2014; Eriksson, 2015; Venselaar et al., 2015). When the number of direct competitors increase, partnering would be needed to qualify the projects to compete the other projects. And the same with the significance of business; the more significant the project is, the more involvement of partnering is needed.

Table (4.7): Mean, Standard Deviation, RII, t-value for the appropriate conditions of adopting partnering

No.	Statement	Mean	SD	RII (%)	t-value	P-value	Rank
8	Number of direct competitors	8.05	1.957	80.55	8.970	0.000	1
1	Strategic significance of	8.00	1.700	80.00	10.054	0.000	2
10	Price advantage in relation to competitors	7.99	1.720	79.86	9.867	0.000	3
2	Level of spending	7.95	1.825	79.45	9.107	0.000	4
4	Availability of alternative	7.66	1.931	76.58	7.334	0.000	5
9	Degree of product/service	7.66	1.677	76.58	8.446	0.000	6
11	Conflicts, disputes and	7.55	1.930	175.48	6.854	0.000	7
6	Impact of lost business	7.48	1.773	74.79	7.131	0.000	8
7	Percentage turnover	7.36	1.645	73.56	7.046	0.000	9
3	Cost of changing partner	7.21	1.936	72.05	5.320	0.000	10
5	Risk of partner failing	7.10	1.725	70.96	5.427	0.000	11
	All items	7.64	1.270	76.40	11.004	0.000	

Critical value of t at df "72" and significance level 0.05 equal 1.99
SD: Std. Deviation
RII: Relative Importance Index

4.7 Tests of research hypotheses

Some hypotheses have been put to study relations between a number of variables in order to enhance partnering adoption in construction projects in Gaza Strip. According to Figure (4.1) five hypotheses were tested through applying the Pearson product-moment correlation coefficient (Pearson correlation coefficient). The Pearson correlation coefficient was used to measure the strength and direction of the relationship (linear association/correlation) between two quantitative variables, where the value r=1 means a perfect positive correlation and the value r= -1 means a perfect negative correlation. Each hypothesis was tested separately. The four variables in Figure (4.1) represent parts of the questionnaire, where the questionnaire was built from the following five parts:

- **Part one:** was related to the contractors' personal information and the way of work performance.
- **Part two:** to highlight the requirements that are needed for the success of partnering.
- **Part three:** to mention the benefits expected from applying partnering concepts and practices.
- **Part four:** to investigate the obstacles/barriers that could prevent applying partnering.
- **Part five:** to investigate the appropriate conditions for applying partnering in construction industry.
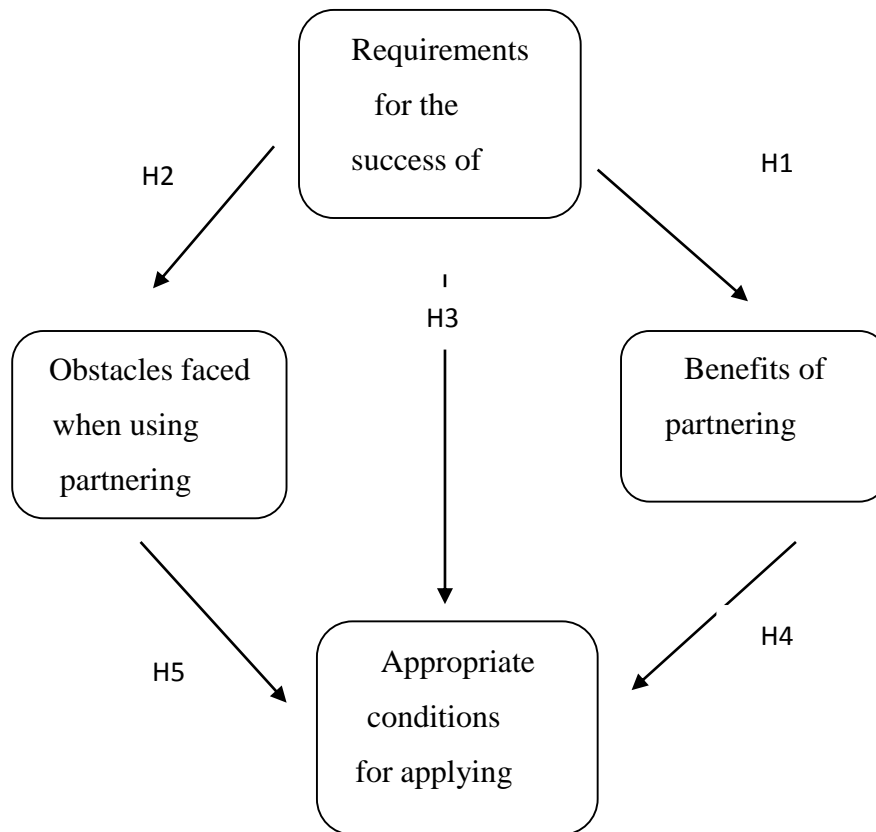
Figure (4.1): Hypotheses Model

4.7.1 Correlation between requirements for the success of partnering and benefits of partnering

H1: There is a relationship, statistically significant at $\alpha \leq 0.05$, between requirements for the success of partnering and benefits of partnering.

According to results of the test that shown in Table (4.8), "Requirements for the success of partnering" is positively related to "Benefits of partnering", with a Pearson correlation coefficient of r = 0.823 and the significance value is less than 0.05 (P-value < 0.05), and thus the relationship is statistically significant at $\alpha \leq 0.05$ (as indicated by the double asterisk after the coefficient). Consequently, the hypothesis H1 is accepted.

The relationship between "Requirements for the success of partnering" and "Benefits of partnering" is a strong positive relationship because (r = 0.823) is close to +1. This means when one variable increases in value, the second variable increases in value. In other words, increasing Requirements for the success of partnering will increase expected benefits.

As it turns out previously in this chapter, results indicated that there are significant requirements for the success of partnering. Also, indicated that increasing understanding of partners is a significant benefit of partnering. The availability of the success requirements would definitely increases the benefits expected from the application of partnering in construction industry (Lingegard & Lindahl, 2015; Venselaar et al., 2015)

Table (4.8): Correlation coefficient between requirements for the success of partnering and benefits of partnering

Field	Statistic	Benefits of partnering
Requirements for the success of partnering	Pearson correlation (r)	0.823**
	P-value Sig. (2-tailed)	0.000
	Sample size (N)	73
**. Correlation is significant at the 0.01 level (2-tailed).		

4.7.2 Correlation between requirements for the success of partnering and Obstacles faced when applying partnering

H2: There is a relationship, statistically significant at α ≤ 0.05, between requirements for the success of partnering and Obstacles faced when applying partnering.

According to results of the test that shown in Table (4.9), "Requirements for the success of partnering" is positively related to "Obstacles faced when applying partnering", with a Pearson correlation coefficient of r = 0.685 and the significance value is less than 0.05 (P-value < 0.05), and thus the relationship is statistically significant at α ≤ 0.05 (as indicated by the double asterisk after the coefficient). Consequently, the hypothesis H2 is accepted.

The relationship between "Requirements for the success of partnering" and "Obstacles faced when applying partnering" is a strong positive relationship because (r = 0.685) is close to +1. This means, when one variable increases in value, the second

variable increases in value. In other words, increasing requirements for the success of partnering will increase obstacles faced when applying partnering.

As it turns out previously in this chapter, results indicated that there are significant requirements for the success of partnering. Also, indicated that there are obstacles faced when applying partnering. The availability of resources and securing the financial demands are both considered to be significant requirements for the success of partnering. On other hand, these requirements may lead to strong obstacles such as; an over-run in costs and the budget would not be under control as planned (Spang & Riemann, 2014; Eriksson, 2015).

Table (4.9): Correlation coefficient between requirements for the success of partnering and obstacles faced when applying partnering

Field	Statistic	Obstacles faced when applying partnering
Requirements for the success of partnering	Pearson correlation (*r*)	0.685**
	P-value Sig. (2-tailed)	0.000
	Sample size (N)	73
**. Correlation is significant at the 0.01 level (2-tailed).		

4.7.3 Correlation between requirements for the success of partnering and the appropriate conditions for applying partnering

H3: There is a relationship, statistically significant at $\alpha \leq 0.05$, between requirements for the success of partnering and appropriate conditions for applying partnering.

According to results of the test that shown in Table (4.10), "Requirements for the success of partnering" is positively related to "Appropriate conditions for applying partnering", with a Pearson correlation coefficient of r = 0.685 and the significance value is less than 0.05 (P-value < 0.05), and thus the relationship is statistically

significant at α ≤ 0.05 (as indicated by the double asterisk after the coefficient). Consequently, the hypothesis H3 is accepted.

The relationship between "Requirements for the success of partnering" and " Appropriate conditions for applying partnering" is a strong positive relationship because (r = 0.700) which is close to +1. This means, when one variable increases in value, the second variable increases in value. In other words, increasing requirements for the success of partnering will increase the appropriate conditions for applying partnering.

As it turns out previously in this chapter, results indicated that there are significant requirements for the success of partnering. Also, indicated that there are appropriate conditions for applying partnering.

The significant requirements for the success of partnering would enhance the conditions and the environment of partnering by preparing the company to be a strong competitor in the market running qualified and significant projects (Mazet & Portier, 2010; Adnan et al., 2012).

Table (4.10): Correlation coefficient between requirements for the success of partnering and the appropriate conditions for applying partnering

Field	Statistic	Appropriate conditions for applying partnering
Requirements for the success of partnering	Pearson correlation (*r*)	0.700**
	P-value Sig. (2-tailed)	0.000
	Sample size (N)	73
**. Correlation is significant at the 0.01 level (2-tailed).		

4.7.4 Correlation between benefits of partnering and appropriate conditions for applying partnering

H4: There is a relationship, statistically significant at α ≤ 0.05, between benefits of partnering and appropriate conditions for applying partnering.

According to results of the test that shown in Table (4.11), "Benefits of partnering" is positively related to "Appropriate conditions for applying partnering", with a Pearson

correlation coefficient of r = 0.610 and the significance value is less than 0.05 (P-value < 0.05), and thus the relationship is statistically significant at α ≤ 0.05 (as indicated by the double asterisk after the coefficient). Consequently, the hypothesis H4 is accepted.

The relationship between "Benefits of partnering" and " Appropriate conditions when applying partnering" is a positive relationship because (r = 0.610) which is close to +1. This means, when one variable increases in value, the second variable increases in value. In other words, increasing benefits of partnering will increase the appropriate conditions for applying partnering.

As it turns out previously in this chapter, results indicated that there are remarkable benefits of partnering. Also, indicated that there are appropriate conditions for applying partnering. The more benefits gained from applying partnering principles in construction projects, the better conditions would be available for practicing partnering in the construction industry(Lu & Yan, 2007;Bygballe et al., 2010).

Table (4.11): Correlation coefficient between benefits of partnering and the appropriate conditions for applying partnering

Field	Statistic	ppropriate conditions for applying partnering
Benefits of partnering	Pearson correlation (*r*)	0.610^{**}
	P-value Sig. (2-tailed)	0.000
	N	73
**. Correlation is significant at the 0.01 level (2-tailed).		

4.7.5 Correlation between obstacles faced when implementing partnering and the appropriate conditions for applying partnering

H5: There is relationship, statistically significant at α ≤ 0.05, between Obstacles faced when implementing partnering and the appropriate conditions for applying partnering.

According to results of the test that are shown in Table (4.12), "Obstacles of partnering" is positively related to "the appropriate conditions for applying partnering", with a Pearson correlation coefficient of r = 0.582 and the significance value is less

than 0.05 (P-value < 0.05), and thus the relationship is statistically significant at α ≤ 0.05 (as indicated by the double asterisk after the coefficient). Consequently, the hypothesis H5 is accepted.

The relationship between "obstacles and conditions" is a positive relationship because (r = 0.582). This means, when one variable increases in value, the second variable increases in value. In other words, increasing obstacles will demand an increase in the appropriate conditions for applying partnering (Bower, 2002; Gadde and Dubios, 2010).

Table (4.12): Correlation coefficient between obstacles of partnering and appropriate conditions for applying partnering

Field	Statistic	Conditions
Obstacles	Pearson correlation (*r*)	0.582**
	P-value Sig. (2-tailed)	0.000
	N	73
***. Correlation is significant at the 0.01 level (2-tailed).**		

4.7.6   Hypothesis related to background information (respondents analysis)

H6: There is a statistically significant differences attributed to the background information of the respondents at the level of α ≤ 0.05 between the means of their views on the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip.

This hypothesis was to analyze the differences among opinions of respondents toward the subject of partnering Success factors, benefits, obstacles and applicability in construction industry in Gaza Strip due to age, marital status, duration of working in the construction field, duration of working in the company, direct employer, educational level, background about partnering concepts and practices, number of partnered projects launched, percentage of partnering practiced in the projects, encouragement to practice partnering.

The Sample Independent t-test and One way Analysis of variance (ANOVA) test were used to find whether there were statistically significant differences between opinions of respondents or not. Also, Scheffé's method (multiple-comparison procedure) was used. All used tests are parametric tests based on the normal distribution.

4.7.6.1 Analyses considering age

There is a statistically significant differences at the level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the age of the respondents.

To test the hypothesis the one way ANOVA test was used and the results are illustrated in Table (4.13) which shows that the p-value equals 0.763 which is greater than 0.05 , and the value of F-stat = 0.386 which is smaller than Fcritical = 2.74, that means there is no statistically significant differenceat level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the age of respondents.

Table (4.13): One way ANOVA test for differences about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the age of respondents

Field	F- test	P-value	Mean			
			Less than 32	32- Less than 39	39- Less than 46	more than 46 years
Requirements	0.948	0.423	7.46	7.73	7.72	9.25
Benefits	0.488	0.691	7.49	7.56	7.94	8.75
Obstacles	0.680	0.567	7.11	7.16	6.48	5.90
Conditions	0.846	0.474	7.59	7.39	8.35	8.27
All fields	0.386	0.763	7.44	7.55	7.69	8.49

Critical value of F at df "3,69" and significance level 0.05 equals 2.74

4.7.6.2 Analyses considering marital status

There is a statistically significant differences at the level of α ≤ 0.05 about Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip refer to marital status

The hypothesis was tested using the one way ANOVA test and the results are illustrated in Table (4.14) which indicated that the p-value equals0.230 that is greater than 0.05, and the value of F-stat= 1.499 which is smaller than F-critical = 3.13, that means there is no

statistically significant differenceat level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to themarital status.

Table (4.14): One way ANOVA test for differences about Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip referred to marital status.

Field	F- test	P-value	Mean		
			Single	Married	Divorced
Requirements	1.525	0.225	7.87	7.37	7.44
Benefits	0.330	0.720	7.72	7.46	7.63
Obstacles	1.629	0.204	7.41	6.84	7.30
Conditions	2.150	0.124	7.99	7.41	8.36
All fields	1.499	0.230	7.79	7.32	7.61

Critical value of F at df "2,70" and significance level 0.05 equals3.13

4.7.6.3 Analyses considering duration of work in construction field

> There is a statistically significant differences at the level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the duration of working in the construction field.

The hypothesis was tested using the one way ANOVA Test and the results are illustrated in Table (4.15) which indicates that the p-value equals0.326 which is greater than 0.05, and the value of F-stat= 1.183 which is smaller than F-critical = 2.51, which means there is no statistically significant differenceat level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to theduration of working in the construction field.

Table (4.15): One way ANOVA test for differences about Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip referred to duration of working in the construction field.

Field	F- test	P-value	Mean				
			Less than 3	3-less than 10	10-less than 17	17-less than 24	24 or more
Requirements	1.414	0.239	7.19	7.58	8.08	7.31	9.25
Benefits	0.900	0.469	7.26	7.57	8.21	7.33	8.75

Obstacles	2.086	0.092	6.88	7.23	7.57	5.96	5.90
Conditions	1.239	0.303	7.05	7.73	8.03	7.92	8.27
All fields	1.183	0.326	7.14	7.55	8.02	7.22	8.49

Critical value of F at df "4,68" and significance level 0.05 equals2.51

4.7.6.4 Analyses considering the duration of working in the company

There is a statistically significant differences at the level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the duration of working in the company.

The hypothesis was tested using the one way ANOVA test and the results are illustrated

in Table (4.16) which indicates that the p-value equals0.738 which is greater than 0.05, and the value of F-stat= 0.497 which is smaller than F-critical= 2.51, that means there is no statistically significant differenceat level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the duration of working in the company.

Table (4.16): One way ANOVA test for differences about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the duration of working in the company

Field	F- test	P-value	Mean				
			Less than 1	1-less than 5	5-less than 10	10-less than 15	15 or more
Requirements	0.788	0.537	7.36	7.50	7.73	7.64	9.25
Benefits	0.530	0.714	7.50	7.39	7.70	7.96	8.75
Obstacles	0.530	0.714	7.13	6.93	7.39	6.87	5.90
Conditions	0.695	0.598	7.33	7.59	8.01	7.83	8.27
All fields	0.497	0.738	7.35	7.40	7.72	7.63	8.49

Critical value of F at df "4,68" and significance level 0.05 equals2.51

4.7.6.5 Analyses considering direct employer

There is a statistically significant differences at the level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the direct employer.

The hypothesis was tested using One Way ANOVA Test and the results are illustrated in Table (4.17) which shows that the p-value equals 0.806 which is greater than 0.05, and the value of F-stat= 0.216 which is smaller than F-critical = 3.13, that means there is no statistically significant difference at level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the direct employer.

Table (4.17): One way ANOVA test for differences about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the direct employer

Field	F- test	P-value	Mean		
			Contractor	Subcontractor	Others
Requirements	0.465	0.630	7.56	7.18	7.64
Benefits	0.994	0.375	7.38	7.81	7.83
Obstacles	0.064	0.938	7.00	7.08	7.13
Conditions	0.316	0.730	7.55	7.89	7.73
All fields	0.216	0.806	7.44	7.43	7.63

Critical value of F at df "2,70" and significance level 0.05 equal 3.13

4.7.6.6 Analyses considering educational level

There is a statistically significant differences at the level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the educational level.

The hypothesis was tested using the one way ANOVA test and the results are illustrated in Table (4.18) which indicates that the p-value equal 0.397 which is greater than 0.05, and the value of F-stat= 0.937 which is smaller than F-critical = 3.13, that means there is no statistically significant differenceat level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the educational level.

Table (4.18): One way ANOVA test for differences about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the educational level

Field	F- test	P-value	Mean Bachelor's	Master's	Ph.D.
Requirements	0.822	0.444	7.63	7.41	6.34
Benefits	0.458	0.635	7.58	7.55	6.31
Obstacles	0.524	0.594	7.15	6.85	6.40
Conditions	2.430	0.095	7.67	7.67	4.91
All fields	0.937	0.397	7.56	7.40	6.12

Critical value of F at df "2,70" and significance level 0.05 equals3.13

4.7.6.7 Analyses considering background about partnering concepts and practices

> There is a statistically significant differences at the level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to the background about partnering concepts and practices.

Independent Samples test provides a statistical test of whether the means of two groups are equal or not. Critical value of t = 1.99, where the degree of freedom (df) = [N-2] = [73-2] = 71 (N is the sample size) at significance (probability) level (α) = 0.05 (Field, 2009; Weiers, 2011).

Thus, Independent Samples t-test was used to test the differences among opinions of contractors with respect to their background about partnering concepts and practices (Yes, and No). According to the results of the test as shown in Table (4.19), the significance value equals 0.613, which is greater than 0.05 (P-value > 0.05). Also, the absolute value of t- test equals 0.508, which is less than the critical value of t (1.99). Thus, there are no statistically significant differences attributed to thebackground about partnering concepts and practices at the level of $\alpha \leq 0.05$ between the means of their views on the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip.

Table (4.19): Results of Sample Independent t-test regarding background about partnering concepts and practices

Field	t- test	P-value	Mean	
			Yes	No
Requirements	0.600	0.550	7.57	7.27
Benefits	0.245	0.807	7.56	7.43
Obstacles	0.252	0.802	7.06	6.92
Conditions	0.575	0.567	7.66	7.35
All fields	0.508	0.613	7.51	7.27
Critical value of t:at *degree of freedom (df)* =71 and at *significance (Probability) level* 0.05 equals "1.99"				

4.7.6.8 Analyses considering working on at least one partnered project

There is a statistically significant differences at the level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to working on at least one partnered project.

Independent Samples t-test was used to test the differences among opinions of contractors with respect to their work on at least one partnered project (Yes, and No). According to the results of the test as shown in Table (4.20), the significance value

equals 0.596, which is greater than 0.05 (P-value > 0.05). Also, the absolute value of

t- test equals -0.533, which is less than the critical value of t (1.99). Thus, there are no statistically significant differences attributed to working on at least one partnered project at the level of α ≤ 0.05 between the means of their views on the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip.

Table (4.20): Results of Sample Independent t-test referred toworking on at least one partnered project

Field	*t*- test	*P*-value	Mean	
			Yes	No
Requirements	-0.095	0.924	7.54	7.58
Benefits	-1.898	0.078	7.48	8.10
Obstacles	-0.563	0.575	7.01	7.28
Conditions	-0.104	0.917	7.63	7.68
All fields	-0.533	0.596	7.46	7.67

Critical value of t:at degree of freedom (df) =71 and at significance (Probability) level 0.05 equals "1.99".

4.7.6.9 Analyses considering working on project that partnering represents a significant proportion (at least 25%) of work undertaken

There is a statistically significant differences at the level of α ≤ 0.05 about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to working on project that partnering represents a significant proportion (at least 25%) of work undertaken.

Independent Samples t-test was used to test the differences among opinions of respondents with respect to working on project that partnering represents a significant proportion (at least 25%) of work undertaken(Yes, and No). According to the results of the test shown in Table (4.21), the significance value equals 0.091, which is greater than 0.05 (P-value > 0.05). Also, the absolute value of t- test equals 1.716, which is less than the critical value of t (1.99). Thus, there are no statistically significant

differences attributed to working on project that partnering represents a significant proportion (at least 25%) of work under taken at the level of α ≤ 0.05 between the means of their views on the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip.

Table (4.21): Results of Sample Independent t-test referred to working on project that partnering represents a significant proportion (at least 25%) of work undertaken

Field	*t*- test	*P*-value	Mean	
			Yes	No
Requirements	1.874	0.065	7.68	7.09
Benefits	1.686	0.096	7.69	7.09
Obstacles	0.524	0.602	7.09	6.90
Conditions	1.372	0.174	7.75	7.27
All fields	1.716	0.091	7.61	7.09
Critical value of t:at *degree of freedom (df)* =71 and at *significance (Probability) level* 0.05 equals "1.99".				

4.7.6.10 Analyses considering encouragement to practice partnering in construction projects

> There is a statistically significant differences at the level of $\alpha \leq 0.05$ about partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip referred to encouragement to practice partnering.

Independent Samples t-test was used to test the differences among opinions of contractors with respect to encouragement to practice partnering (Yes, and No). According to the results of the test as shown in Table (4.22), the significance value equals 0.789, which is greater than 0.05 (P-value > 0.05). Also, the absolute value of t- test equals 0.268, which is less than the critical value of t (1.99). Thus, there are no statistically significant differences attributed to encouragement to practice partnering at the level of $\alpha \leq 0.05$ between the means of their views on the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip.

Table (4.22): Results of Sample Independent t-test regarding encouragement to practice partnering

Field	*t*- test	*P*-value	Mean	
			Yes	No
Requirements	0.440	0.661	7.57	7.43
Benefits	0.032	0.974	7.56	7.54
Obstacles	-0.359	0.721	7.02	7.15
Conditions	0.588	0.559	7.68	7.48
All fields	0.268	0.789	7.51	7.42
Critical value of t:at *degree of freedom (df) =*71 and at *significance (Probability) level* 0.05 equals "1.99"				

Chapter 5
Conclusion and recommendations

This chapter summarizes the research and aims to provide recommendations and conclusion for the adoption of partnering concept and practices in the construction industry in Gaza Strip and suggests areas of future research as a result of the findings. By revisiting the research objectives and key findings, an overview will be reviewed to assess the extent to which the research objectives will be met.

5.1 Summary

An investigation in the prospects, success factors, benefits, obstacles and appropriate conditions to successful adoption of partnering in the construction industry was adopted. An extensive review of literature was conducted to develop a clear understanding about Partnering in general and identify different factors (success factors, benefits, barriers, and appropriate conditions) those provide useful information to consider adopting Partnering concept and practices in the construction industry in Gaza Strip. The results of a 73 collected questionnaires were analyzed quantitatively using different statistical techniques. Finally, recommendations for the adoption of Partnering practices and techniques in the construction industry in Gaza Strip are outlined.

5.2 Achievement of objectives and answering the research questions

In achieving the aim of the research, five main objectives have been outlined and achieved through the findings of the analyzed collected questionnaires. These objectives are related with the research questions that were developed to increase one's knowledge and familiarity with the subject. The outcomes were found as the following:

- Study the partnering concept in Construction Industry.
- Compare the views of parties in the construction project team.
- Investigate the critical factors (Key enablers) supporting the adoptability of partnering concept in construction projects.
- Evaluate the practical benefits of adopting partnering in construction projects.
- Evaluate the obstacles, challenges that would face the adoption of partnering.

- Evaluate the appropriate conditions for using partnering in construction industry.

5.2.1 Outcomes related to research question one

- *The objective was:* To study the partnering concept in construction industry in Gaza Strip. The objective is related to the following research question:
- o *The first research question: Do u have a background about partnering concepts?* The study findings indicate that 91.8% of the respondents were aware of the partnering concepts as a result of their high education and long experience in the construction projects. As 67.1 % of the total respondents have a Bachelor degree and 57.5% of them have at least 10 years of experience in the construction field.

5.2.2 Outcomes related to research question two

- *The objective was:* To compare the views of parties in the construction project team about partnering practices. The objective is related to the following research question:
- o *The second research question: Have you encouraged to work in at least one partnered project that partnering occupied a significant proportion of work undertaken (at least 25%)?*
  The study findings indicate that 76.7% of the total respondents were encouraged to practice partnering and 87.7% of the total respondents worked in at least one partnered project that partnering has partnering has occupied at least 25% of work undertaken.
  (25.%8) of the total respondents that confirmed being encouraged for practicing partnering have attended workshops to enhance partnering concepts and practices, 19.4% have received incentives, 19.4% have received education courses about partnering, 16.1% have got promotions for being involved in partnering practices in their projects, 9.7% have been asked to write about their partnering experience in construction projects to inspire their co-workers. Contractors who haven't received any kind of encouragement for practicing partnering in the construction projects was due to the lack of support by the upper management who did not appreciate their partnering practices or didn't ask them to involve partnering concepts in their work field.

  5.2.3 Outcomes related to research question three:

- *The objective was:* To investigate the success factors supporting the adoptability of partnering concept in construction projects. The objective is related to the following research question:

o *The third research question: What are the most significant success factors that support the adoptability of partnering concept in construction industry?* The questionnaire that was distributed listed 32 factors for the contractors to rank the most valuable factors. Partnering success factors that got the top ranking according to overall respondents are as follow: (1) Availability of resources; (2) Financial security; (3) Win-Win approach to negotiation.

5.2.4 Outcomes related to research question four:

- *The objective was:* To indicate the benefits expected as a result of adopting partnering concept in construction projects. The objective is related to the following research question:

o *The fourth research question: What are the most significant benefits expected as a result of adopting partnering concept in construction industry?*
The questionnaire that was distributed listed 16 elements that represent the benefits expected as a result of adopting partnering for the respondents to rank the most valuable benefits. Partnering benefits that got the top ranking according to overall respondents are as follow: (1) Increased understanding of parties; (2) Closer relationships between parties; (3) Reduced litigation and disputes.

5.2.5 Outcomes related to research question five:

- *The objective was:* To indicate the barriers affecting the adoption of partnering concept in construction projects. The objective is related to the following research question:

o *The fifth research question: What are the most significant barriers affecting the adoption of partnering concept in construction projects?*
The questionnaire that was distributed listed 10 barriers affecting the adoption of partnering for the respondents to rank the most significant barriers. The top barriers that got the top ranking according to overall respondents are as follow: (1) Avoidance of cost discipline; (2) Lack of education and training program; (3) Maturity of the industry.

5.2.6 Outcomes related to research question six:

- *The objective was:* To indicate the appropriate conditions to use partnering concept in construction projects. The objective is related to the following research question:

o *The sixth research question: What are the most appropriate conditions to use partnering concept in construction projects?*

The questionnaire that was distributed listed 10 appropriate conditions to use partnering for the respondents to rank the most significant conditions. The top conditions that got the top ranking according to overall respondents are as follow: (1) Number of direct competitors; (2) Strategic significance of business; (3) Cost of changing partner.

5.2.7 Outcomes related to research hypothesis:

- *The objective was:* To study a number of hypothesis that might help to find solutions to adopt partnering concept and practices in the construction industry in Gaza Strip. This objective is related to the following research questions:

o *The seventh research question:* What is the effect of the success factors of partnering on the benefits expected as a result of adopting partnering?

o *The eighth research question:* What is the effect of the success factors of partnering on the obstacles faced when adopting partnering?

o *The ninth research question:* What is the effect of the success factors of partnering on the appropriate conditions for implementing partnering?

o *The tenth research question:* What is the effect of partnering benefits on the appropriate conditions for implementing partnering?

o *The Eleventh research question:* What is the effect of obstacles faced when using partnering on the appropriate conditions for implementing partnering?

o *The twelfth research question:* Are there differences in the answers of respondents depending on their personal information?

Six hypotheses have been put to study relations between a number of variables in order to enhance partnering adoption in construction projects in Gaza Strip. These hypotheses were tested through applying the Pearson product-moment correlation coefficient (Pearson correlation coefficient). which was used to measure the strength and direction of the relationship (linear association/correlation) between two

quantitative variables. All the hypotheses have been accepted. The findings of the hypotheses are as follow:

❖ At first (for H1, H2 and H3) Pearson correlation analysis indicated that there is a strong positive relationship between both *"benefits of partnering"* *"obstacles faced when applying partnering"* and *" success factors of partnering"*. Thus, increasing success factors of partnering will increase the benefits expected from the implementation of partnering and will also increase the barriers and obstacles that would be faced while implementing partnering concept and practices.

❖ Also (for H4) Pearson correlation analysis indicated that there is a strong positive relationship between *"benefits of partnering"* and *"Appropriate conditions for implementing partnering"*. Accordingly, increasing benefits of partnering will increase the appropriate conditions for implementing partnering in construction industry.

❖ Finally (for H5) Pearson correlation analysis indicated that there is a strong positive relationship between *"obstacles of partnering"* and *"Appropriate conditions for implementing partnering"*. As increasing the obstacles of partnering will increase the need and the existence of appropriate conditions for implementing partnering in construction industry.

On the other hand, H6 was about the differences among opinions of respondents toward the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip due to *age, marital status, duration of working in the construction field, duration of working in the company, direct employer, educational level and years of experience.* The outcomes revealed; by using t-test and the ANOVA test; that there are no significant differences attributed to the *age, marital status, duration of working in the construction field, duration of working in the company, direct employer, educational level and years of experience* of the respondents at the level of $\alpha \leq 0.05$ between the means of their views on the subject of partnering success factors, benefits, obstacles and applicability in construction industry in Gaza Strip. According to that, the hypothesis has been rejected regarding these parts.

5.3 Recommendations

Based on the achieved objectives of this research as stated earlier, the recommendations below were drawn as a result of the research findings. The recommendations are as follow:

5.3.1 Education and training to increase partnering awareness and interest:

All of the project's parties should be aware of the partnering concept and practices. They also should be aware of partnering importance and its positive effects on the construction project. This awareness can be increased by online courses, workshops, engineers and contractors associations and academic institutions and universities.

5.3.2 Adaption of the construction organizations towards recent concepts and practices:

Construction organizations face a lot of challenges in the market. Thus, they should always adopt the recent concepts and practices that would facilitate their projects and to learn new methods of doing their work in order to enhance these organizations' projects; make them competitive and qualified.

5.3.3 Upper management support:

The upper management of any construction organization should support the following elements for a successful partnering implementation:

- The spirit of honesty, openness and cooperation.
- Positive attitudes.
- Mutual trust and respect.
- Listening to parties' worries and concerns.
- Listening to parties' suggestions and solutions.
- Seeking new concepts and practices.
- Sticking with the main goal and objectives with all project team.

5.4 Limitations of the research

- The development of the research is based only on the quantitative method of through questionnaire survey.

- The findings are limited to the contractors that work in the construction industry.
- The study has been conducted in Gaza Strip only as access is not permitted to the other Palestinian regions.
- The researcher needed to spend more time to study statistical analysis and especially how to conduct factor analysis test correctly.

5.5 Suggestions for future studies

Quantitative and qualitative methods should be conducted to support and strengthen the research and to gather comprehensive information about the topic of the study. Also, further studies should encounter all the project's parties (owners, project engineers, subcontractors, workers) and not to be limited on contractors category only. Moreover, future studies can be conducted in other Palestinian governorates as to attain a comprehensive perspective of the partnering concept and implementation in Palestine. And these studies to be compared with other studies accomplished in Arab and foreign countries.

References

Abu dayyeh O., (1994), Partnering: A team building approach to quality construction management. Journal of Management in Engineering, Vol. 10 : No. 6.

Adnan H., Shamsuddin S., Supardi A., Ahmad N., (2012). Conflict prevention in partnering projects. Social and Behavioral Science, Vol. 35, pp. 772-781.

Alderman N., Ivory C., (2007). Partnering in major contracts: Paradox and metaphor. International Journal of Project Management, Vol. 25: No. 4, pp. 386-393.

Balkiz Y., Theresea L., (2014). Small but Complex: The Construction Industry in North Cyprus. Social and Behavioral Sciences, Vol. 119, pp. 466 – 474.

Bayliss R., Cheung S., Suen H., Wony S., (2004). Effective partnering tools in construction: a case study on MTRC TKE contract 604 in Hong Kong. International Journal of Project Management, Vol. 22 : No. 3, pp. 253-263.

Beach R., Webster M., Cambell K., 2005. An evaluation of partnership development in the construction industry. International Journal of Project Management, Vol. 23, pp. 611-623.

Bidault F., Cummings T., (1994). Innovation through alliances: Expectations and limitations. R&D Management, Vol. 24 : No.1, pp. 33-45.

Black C., Akintoyeb A., Fitzgeraldb E., 2000. An analysis of success factors and benefits of partnering in construction. International Journal of Project Management, Vol. 18, pp. 423-43.

Black C., Chan C., (2003). An empirical study of the benefits of construction partnering in Hong Kong. Construction Management and Economics, Vol. 21 : No. 5, pp. 523-533.

Bower D., (2002). Profitable partnering in construction procurement. International Journal of Project Management, Vol. 20 : No. 1, pp. 91-92.

Bresnen M., (2007). Deconstructing partnering in project-based organization: Seven Pillars, seven paradoxes and seven deadly sins. International Journal of Project Management, Vol. 25 : No. 4, pp 365-374.

Bresnen M., (2009). Living the dream? Understanding partnering as emergent practice. Construction Management and Economics, Vol. 27 : No. 10, pp. 923-933.

Brinkerhoff J., (2002). Assessing and improving partnership relationships and outcomes: A proposed framework. Journal of Construction Engineering and Management, Vol. 25 : No. 3, pp. 215-231.

Briscoe G., Davity A., Millett S., (2011). Construction supply chain partnership: Skills, knowledge and attitudinal requirements. European Journal of Purchasing and Supply Management, Vol.7 : No.4, pp. 243-255.

Buckley P., Glaister K., Husan R., (2002). International Joint Ventures: Partnering skills and cross cultural issues. Long Range Planning, Vol, 35 : No. 2, pp.113-134.

Burati J., Oswald T., (1993). Implementing TQM in engineering construction. Journal of Management in Engineering, Vol. 9 : No. 4, pp. 456-470.

Bygballe L., Jahre M., Sward A., (2010). Partnering relationships in construction: a literature review. Journal of Purchasing and Supply Management, Vol.16 : No.4, pp. 239-253.

Camanho A., Horta I., (2014). Competitive positioning and performance assessment in the construction industry. Expert Systems with Applications, Vol. 41 : No. 4, pp. 974-983.

Chan A., Chan D., Chiang Y., Tang B., Ho K., (2004). Exploring critical success factors for partnering in construction projects. Journal of Construction Engineering and Management, Vol. 130 : No. 2.

Chan A., Chan D., Fan F., Lan P., Yeung J., (2006). Partnering for construction excellence- a reality or myth? Building and Environment, Vol. 41 : No.12, pp. 1924-1933.

Chan A., Chan D., Fan L., Lan P., Yeung J., (2008). Achieving partnering success through an incentive agreement: Lessons learned from underground Railway Extension project in Hong Kong. Journal of Management Construction in Engineering, Vol. 24 : No. 3.

Chan P., Jonsen E., Moor R., (2012). Partnering paradoxes: A case study of construction inter-organizational collaborative in infra structure projects. Project Perspective, Vol. 34 : No. 1, pp. 28-33.

Chen W., Chen T., (2007). Critical success factors for construction partnering in Taiwan. International Journal of Project Management, Vol. 25 : No. 5, pp. 274-484.

Cheng E., Li H., (2002). Construction partnering process and Associated critical success factors: Quantitative investigation. Journal of Management in Engineering, Vol. 18 : No. 4, pp. 194-202.

Cheng E., Li H., (2007). Application of ANP in process models: An example of strategic partnering. Building and Environment, Vol. 42 : No. 1, pp. 278-287.

Cheng E., Lia H., Love P., Irani Z., (2001). Co-operative benchmarking: a tool for partnering excellence in construction. International Journal of Project Management ,Vol. 19, pp. 171-179.

Cheng E., Lia H., Love P., Irani Z., (2004). Strategic alliances: a model for establishing long-term commitment to inter-organizational relations in construction. Building and Environment, Vol. 39, pp. 459-468.

Cheung S., Ngb T., Wonga S., Suena H., (2003). Behavioral aspects in construction partnering. International Journal of Project Management, Vol. 21, pp. 333-343.

Dayton N., (2003). The demise of TQM. TQM Magazine. Vol. 15 : No. 6.

Drexler J., Larson E., (2000). Partnering: Why project owner-contractor relationships change. Journal of Construction Engineering and Management, Vol. 126 : No. 4, pp. 293-297.

El-adawy I., (2010). Integrated project delivery case study: Guidelines for drafting partnering contract. Journal of Legal Affairs and Dispute. Resolution in Engineering and Construction, Vol. 10, pp. 248-254.

Eriksson P., (2015). Partnering in engineering projects: 4 dimensions of supply chain integration. Journal of Purchasing and Supply Management, Vol.21, pp. 38-50.

Errasti A., Beach R., Oyarbide A., Santos J., (2007), A process for developing partnerships with subcontractors in the construction industry: An empirical study. International Journal of Project Management. Vol. 25, pp. 250–256.

Gadde L., Dubois A., (2010). Partnering in Construction Industry-Problems and opportunities. Journal of Purchasing and Supply Management, Vol. 16 : No.4, pp.254-263.

Glagola C., Sheedy W., (2002). Partnering on Defense Contracts. Journal of construction Engineering and Management, Vol. 128 : No. 2, pp. 127-138.

Hartback H., Basham D., Buhts R., (1994). Partnering paradigm. Journal of Management in Engineering, Vol. 10 : No.1.

Hartman F., Jergeas G., (2003). Contractor's Construction- claims avoidance. Journal of Construction Engineering and Management, Vol. 120 : No. 3, pp. 553-560

Hartmann A., Bresnen M., (2011). The emergence of partnering in construction practice: An activity theory perspective. Engineering Project Organization Journal, Vol. 1 : No.1.

Hasan zadeh S., Hosseinalipour M., Hafezi M., (2014). Collaborative procurement in construction projects performance measures, case study: Partnering in Iranian Construction Industry. Social and Behavioral Sciences, Vol. 119, pp.811-818.

Haussler C., (2005). When does partnering create market value? European Management Journal, Vol. 24 : No. 1, pp. 1-15.

Heng L., Cheng L., Love P., (2000). Partnering research in construction. Engineering Construction and Architectural Management, Vol. 7 : No. 1, pp. 76-92.

Horta H., Patricio M., (2014). Setting-up an international science partnership program: A case study between Portuguese and US research universities. Technological forecasting and Social Chane, Vol. 26. pp. 145-153.

Huemer L., (2014). Creating cooperative advantage: The roles of identification, trust, and time. Industrial Marketing Management, Vol. 43, pp. 564–572.

Kadefors A., Bjorlingson E., Karslsson A., (2007). Procuring service innovation: Contractor selection for partnering projects. International Journal of Project Management, Vol. 25 : No. 4, pp. 375-385.

Laan A., Noorderheven N., Voordijk H., Dewulf G., (2011). Building trust in construction partnering projects, an exploratory case study. Journal of Purchasing and Supply Management, Vol. 17 : No. 4, pp. 386-393.

Lahdenpera P., (2012). Making sense of the multi-party contractual arrangements of project partnering: Project alliancing and integrated project delivery. Construction Management and Economics, Vol. 30 : No. 1, pp. 57-79.

Lazar F., (2000). Project partnering: Improving the likelihood of Win/Win outcomes. Journal of Management in Engineering, Vol. 16 : No. 2, pp. 71-83.

Ligegard S., Lindahl M., (2015). Partnering as stepping stone in the transition to PSS for Construction Industry. Procedia CIRP, Vol. 30, pp. 1-14.

Lin C., Chen H., (2004) A fuzzy strategic alliance framework for supply chain partnering under limited evaluation resources. Computers in Industry, Vol.55,: No. 2, pp. 159-179.

Lin J., Chiang J., Yang M., Klein G., (2011). Partnering effects on user-developer conflict and role ambiguity in information system projects. Information and Software Technology, Vol. 53 : No. 7, pp. 772-729

Liu A., Fellows R., (2008). AAn Eastern prospective on partnering. Engineering Construction and Architectural Management, Vol. 8 : No. 1, pp. 9-19.

Lu J., Beamish P., (2006). Partnering strategies and performance of SMEs' international joint venture. Journal of Business Venturing, Vol. 21 : No. 4, pp. 461-486.

Lu S., Yan H., (2007). A model for evaluating the applicability of partnering in construction. International Journal of Project Management, Vol. 25, pp. 164–170.

Manely R., Shaw W., (2007). Project partnering: A medium for private and public sector collaboration. Engineering Management Journal, Vol. 19 No. 2.

Marshall C., (2004). The dynamic nature of innovation partnering: a longitudinal study of collaborative inter-organizational relationship. European Journal of Innovation Management, Vol. 7 : No.2, pp. 128-140

Marshall N., Bresen M., (2002). The engineering or evolution of co-operation? A tale of two partnering projects. International Journal of Project Management, Vol. 20 : No. 7, pp. 497-505.

Matthews J., Pellow L., Dhua F., Rowlinson S., (2000). Quality relationships: Partnering in the construction supply chain. International Journal of Quality and Reliability Management, Vol. 17 : No. 4, pp. 493-510.

Matthews J., Steve R., (1999). Partnering: Incorporating safety management. Engineering construction and Architectural Management, Vol. 6 : No. 4, pp. 347-357.

Meng X., (2012). The effect of relationship management on project performance in construction. International Journal of Project Management, Vol. 30 : No. 2, pp. 188-198.

Mentzer J., Min S., Zacharia Z., (2000). The nature of inter firm partnering in supply chain management. Journal of Retailing, Vol. 76 : No. 4, pp. 549-568.

Mikus S., Mitkus T., (2014). Causes of conflicts in the construction industry: A communicational Approach. Social and Behavioral Sciences, Vol. 110, pp. 777-786.

Mishra A., Chandrasekoran A., MacCormack A., (2015). Collaborative in Multi-Partner R&D Projects: The impact of partnering scale and scope. Journal of operations Management, Vol. 38, ppl pp. 1-14.

Mitropoulos P., Howell G., (2001). Model for understanding preventing: Resolving project disputes. Journal of Construction and Management, Vol. 127 : No. 3, pp. 223-231.

Naoum S., (2003). An overview into the concept of partnering. International Journal of Project Management, Vol. 21, pp. 71-76.

Ngowi A., (2007). The role of trustworthiness in the formation and governance of construction alliances. Building and Environment, Vol. 42 : No. 4, pp. 1828-1835.

Packham G., Thomas B., Miller C., (2003). Partnering in the house building sector: a subcontractor's view. International Journal of Project Management, Vol. 21, pp. 327-332.

Pesama O., Eriksson P., Hair J., (2009). Validating a model of cooperative procurement in the construction industry. International Journal of Project Management ,Vol. 27, pp. 552-559.

Portier P., Mazet F., (2010). The reluctance of construction purchasers towards project partnering. Journal of Purchasing and Supply Management, Vol. 16 : No.4, pp. 230-238.

Porwal A., Hewage K., (2013). Building Information Modeling partnering framework for public construction projects. Vol. 31, pp. 204-214.

Powell M., (2004). Conceptualizing successful partnership. Health and Social care, Vol. 12 : No. 4, pp. 309-317.

Rgn M., (2008). Partnership success factors of inter-organizational relationships. Journal of Nursing Management, Vol. 16 : No.1, pp. 72-83.

Rose T., Ng S., Mak M., Chen S., (2002). Problematic issues associated with project partnering- the contractor prospective. International Journal of Project Management, Vol. 20 : No. 6, pp. 437-449.

Ross D., (2009). The use of partnering as a conflict prevention method in large-scale urban projects in Canada. International Journal of Management Projects in Business, Vol. 2 : No. 3, pp. 401-418.

Spange K., Rieman S., (2003). A guideline for partnership between client and contractor in infrastructure project in Germany. Management and Innovation for a Sustainable built environment, Vol. 110, pp. 112-128.

Spange K., Rieman S., (2014). Partnering in Infrastructure projects in Germany. Social and behavioral Sciences, Vol. 119, pp. 219-228.

Takim R., Esa M., Abdulhamid S., (2013). Delivering best value of Design and Build Projects through integrated process improvements solution. Social and Behavioral Sciences, Vol. 101, pp. 62-7.

Tang L., Shen Q., Cheng E., (2010). A review of studies on public-private partnership projects in the construction industry. International Journal of Project Management, Vol. 28 : No. 7, pp. 683-694.

Tang W., Duffield C., Young D., (2006). Partnering mechanism in construction: An empirical study on the Chinese construction industry. Journal of Construction Engineering and Management, Vol. 132 : No. 3, pp. 217-229.

Tazelaar F., Snijders C., (2010). Dispute resolution and litigation in the construction industry. Evidence on conflicts and conflict resolution in the Netherlands and Germany. Journal of Purchasing and Supply Management, Vol. 16 : No. 4, pp. 221-229.

Venselaar M., Gruis V., Verhoeven F., (2015). Implementing supply chain partnering in Construction Industry: work floor experiences with a Dutch Housing association. Journal of Purchasing and Supply Management, Vol. 21: No. 1, pp. 1-8.

Wong A., Tjosvold D., (2010). Guanxi and conflict management for effective partnering with competitors in China. British Journal of Management, Vol. 21 : No. 3, pp. 772-788.

Wong P., Cheung S., (2004). Trust in construction partnering: views from parties of the partnering dance. International Journal of Project Management, Vol. 22, pp. 437-446.

Wood G., Ellis R., (2005). Main contractor experiences of partnering relationships in UK construction projects. Construction Management and Economics, Vol. 23 : No. 3.

Yeung J., Chan A., Chan D., (2009). A computerized model for measuring and benchmarking the partnering performance of construction projects. Automation in Construction, Vol. 18, pp. 1099-1113.

Appendix I:Questionnaire (English)

QUESTIONNAIRE

The Islamic University -Gaza
Higher Education Deanship
Faculty of Engineering
Engineering project management

Questionnaire for Partnering Success Factors, Benefits, Obstacles and Applicability in Construction Industry in Gaza Strip.

Dear Sir / Madam

Please fill in the required information in the attached questionnaire that aims toenhance partnering in construction industry in Gaza Strip.

This research is a part of the Master Study in the field of Construction Managementat Islamic University of Gaza for the researcher Hayam M. Abu-Shaaban under thesupervision of Dr. Khaled Al Hallaq.

I appreciate your efforts in answering the questions of the questionnaire, as the given information will be used for the purpose of this scientific study only and will be treated confidentially.

Thanks for your Time

.

Eng. Hayam M. Abu-Shaaban

August, 2015

Part1: Background Information

1. Please indicate your age in years?

	Less than 32		less than 39		less than 46		less than 53		53 or more

2. Please indicate your marital status?

	Single		Married		Divorced

3. How long have you been working in the construction field in years?

	Less than 3		3-less than 10		10-less than 17		17 or 24		24 or more

4. How long have you been working for this company in years?

	Less than 1		1-less than 5		5-less than 10		10-less than 15		More than 15

5. Company field of work:

	Building		Roads		Water and sewage		Others

6. Field of work for the current company/subcontractor you are working with?

	Buildings		Roads	Water and sewage		Others
	First		First	First		
	Second		Second	Second		
	Third		Third	Third		
	Fourth		Fourth	Fourth		
	Fifth		Fifth	Fifth		

7. Your direct employer:

	Contractor		Subcontractor		Others

8. Please indicate your educational level:

	Bachelor		Master		Doctoral

9. Do you have background about partnering concepts and practices?

	Yes		No

10. Have you worked on at least one partnered project?

	Yes		No

11. Have partnering represents a significant proportion (at least 25%) of work undertaken?

	Yes		No

12. Are you encouraged to practice partnering in your work field by your company?

	Yes		No

13. If yes, what kind of encouragement had you experienced and if no, indicate why?

If Yes				If No		
Please, indicate encouragement	Y	N		Please, indicate why		
Incentives			1.	Waste of time		
Promotions			2.	Waste of effort		
Workshops			3.	Lack of support by upper management		
Courses			4.	No positive effects on the project		
Newsletters			5.	Expensive		
Others			6.	Others		

Part2:

A) Please determine the effect of each of the following factors as forming requirements to be met if partnering is to be succeed, in a scale from 1 to 10 (as 1 has the lowest effect and 10 has the highest effect)

	Requirements	1	2	3	4	5	6	7	8	9	10
1.	Parties acting consistently with their joint										
2.	Trust										
3.	Commitment to continuous improvement										
4.	Commitment to quality										
5.	Commitment from senior management										
6.	Commitment to shared goals										
7.	Clear understanding of roles										
8.	Consistency										
9.	Flexible attitudes										
10.	Considerable efforts from all parties										
11.	Co-operative attitudes										
12.	Win-win approach to negotiation										
13.	Open sharing of information										
14.	Communication										
15.	Multi-disciplinary involvement										
16.	Continuous improvement by senior management										
17.	Applying TQM										
18.	Parties should understand nature of partnership										
19.	Formally expressed terms, openness, and co-										
20.	Clear understanding										
21.	Acting consistent with objectives										
22.	Dedicated team										
23.	Flexibility to change										
24.	Long-Term perspective										
25.	Total cost perspective										
26.	Formation at design stage										
27.	Cultural fit										
28.	Company wide acceptance										
29.	Technical expertise										
30.	Financial security										
31.	Questioning attitudes										
32.	Availability of resources										

B) Determine the benefits of applying partnering in construction industry , in a scale from 1 to 10 (as 1 is the least important and 10 is the most important)

	Benefits	1	2	3	4	5	6	7	8	9	10
1.	Fewer adversial relationships										
2.	Increased customer satisfaction										
3.	Closer relationships between parties										
4.	Increased understanding of parties										
5.	Improved time scale										
6.	Reduced risk exposure										
7.	Reduced cost										
8.	Improved administration										
9.	Improved quality										
10.	Improved design										
11.	Risk-shared										
12.	Improved return on resources										
13.	Design cycle reduction										
14.	Increased market share										
15.	Focus on medium to long-term										
16.	Reduced litigation and disputes										

C) Please determine the effect of each of the following factors as forming obstacles faced when applying partnering, in a scale from 1 to 10 (as 1 has the lowest effect and 10 has the highest effect)

	Obstacles	1	2	3	4	5	6	7	8	9	10
1	To establish mechanism for adjusting price										
2	Parties take legal actions instead solvingcost issues										
3	Maintaining cost control										
4	Avoidance of cost discipline										
5	Required careful ground rules & great skills.										
6	Inadequate technological knowledge										
7	Lack of education & training programs										
8	Maturity of the industry										
9	Local economy development										
1	Government regulations & restrictions										

D) Please determine the appropriate conditions to use partnering, in a scale from 1 to 10 (as 1 is the least appropriate and 10 is the most appropriate)

	Conditions	1	2	3	4	5	6	7	8	9	10
1.	Strategic significance of business										
2.	Level of spending										
3.	Cost of changing partner										
4.	Availability of alternative parties										
5.	Risk of partner failing										
6.	Impact of lost business										
7.	Percentage turnover										
8.	Number of direct competitors										
9.	Degree of product/service differentiation										
10.	Price advantage in relation tocompetitors										
11.	Conflicts, disputes and litigation										

Appendix II: Questionnaire (Arabic)

الجامعة الإسلامية-غزة

عمادة الدراسات العليا

كلية الهندسة

قسم الهندسة المدنية

إدارة مشروعات هندسية

استبانة حول عوامل نجاح مبدأ المشاركة، أهميته، العوائق، ومدى قابلية تطبيقه في مجال الإنشاءات في قطاع غزة

عزيزي السيد/ السيدة:

أرجو التفضل بتعبئة الاستبانة التي تهدف إلى تعزيز مبدأ المشاركة في مجال الإنشاءات في قطاع غزة، هذه الاستبانة هي جزء من متطلبات الحصول على درجة الماجستير في إدارة المشاريع – الجامعة الإسلامية- غزة .

الاستبانة تحتوي علي أربعة أجزاء:

الجزء الأول: معلومات أساسية (عامة)

الجزء الثاني : العوامل المؤثرة في نجاح مبدأ المشاركة وتعزيزه، الأهمية المرجوة من تحقيق مبدأ المشاركة، العوائق التي تواجه تطبيقه، وأهم الظروف التي تستدعي تنفيذه وتطبيقه

الباحثة : هيام محمد أبو شعبان

المشرف: د. خالد الحلاق

الجزء الأول: معلومات عامة:

1- تحديد العمر بالسنوات:

أقل من 32		32-اقل من 39	39-أقل من 46	46-أقل من 53	53 فأكثر

2- تحديد الحالة الاجتماعية:

عازب		متزوج		مطلق

3- كم عدد سنوات عملك في مجال الإنشاءات؟

أقل من 3		3-أقل من 10	10 -أقل من 17	17-أقل من 24	24 فأكثر

4- كم عدد سنوات عملك في هذه الشركة؟

أقل من 1		1-أقل من 5	5-أفل من 10	10-أقل من 15	15 فأكثر

5- مجال عمل الشركة:

مباني		طرق		مياه وصرف صحي		مجال اخر

6- مجال عمل الشركة-المقاول الذي تعمل معهم حاليا:

المباني		الطرق		مياه وصرف صحي	مجال آخر
الأول		الأول		الأول	
الثاني		الثاني		الثاني	
الثالث		الثالث		الثالث	
الرابع		الرابع		الرابع	
الخامس		الخامس		الخامس	

7- مديرك المباشر:

مقاول		Subcontracto		مجال آخر

8- المستوي التعليمي:

بكالوريوس		ماجستير		دكتوراة

9- هل لديك خلفية عن مبادئ المشاركة و ممارساتها؟

نعم		لا

10- هل سبق لك العمل في مشروع واحد علي الأقل تخلله مبدأ المشاركة؟

نعم		لا

11- هل احتل مبدأ المشاركة نسبة عالية من المشروع (علي الأقل 25 %)؟

نعم		لا

12- هل تتلقى التشجيع من الشركة التي تعمل لديها لممارسة مبدأ المشاركة؟

نعم		لا

13- ما نوع التشجيع الذي تلقيته؟ وإذا لم تتلق أي تشجيع، اذكر السبب؟

إذا لا				إذا نعم			
تحديد السبب:			لا	نعم	تحديد نوع الحافز	
مضيعة للوقت	1.				علاوات	1
مضيعة للمجهود	2.				ترقيات	2
عدم وجود الدعم من الإدارة العليا	3.				حضور ورش عمل	3
لا يوجد تأثير إيجابي على المشروع	4.				حضور دورات تدريبية	4
إرهاق للميزانية	5.				المشاركة في مجلات دورية	5
أسباب أخرى	6.				حوافز أخرى	6

92

الجزء الثاني:

أ) تحديد تأثير كل من العوامل الآتية الهامة في إنجاح مبدأ المشاركة، من مقياس 1الى 10 بحيث (1 يعتبر مقياس للعامل الأقل أهمية، 10مقياس العامل الأكثر أهمية):

10	9	8	7	6	5	4	3	2	1	العامل	
										تعامل الأفراد بجدية مع الأهداف	1.
										الثقة	2.
										الالتزام بالتطور المستمر	3.
										الالتزام بمعايير الجودة	4.
										الالتزام من جهة الإدارة العليا	5.
										الالتزام بتحقيق الأهداف المشتركة	6.
										فهم الأفراد التام لأدوارهم	7.
										الثبات	8.
										أفكار مرنة	9.
										جهود جادة من جميع أفراد الفريق	10.
										مبدأ التعاون	11.
										سياسة تحقيق رضى الجميع	12.
										تبادل مفتوح للمعلومات	13.
										الاتصال	14.
										Multi-disciplinary involvement	15.
										التطور المستمر من قبل الإدارة العليا	16.
										تطبيق معايير الجودة الشاملة	17.
										على الأفراد الفهم التام لمبادئ المشاركة	18.
										الالتزام بالتعاون وتقبل الآخر	19.
										الفهم التام لكافة جوانب المشروع	20.
										الثبات على المبادئ	21.
										تفاني فريق العمل	22.
										المرونة	23.
										مبدأ الالتزام على المدى الطويل	24.
										الالتزام بميزانية المشروع	25.
										المرونة في مرحلة التصميم	26.
										مراعاة الثقافة الدارجة	27.
										تقبل الشركة أفكار فريق العمل	28.
										الخبرة التقنية	29.
										الأمانة المالية	30.
										ثقافة الأسئلة وطرح الأفكار	31.
										توفر الموارد	32.

ب) تحديد أهمية تطبيق مبدأ المشاركة، من مقياس 1الى 10 بحيث (1 يعتبر مقياس للعامل الأقل أهمية، 10مقياس العامل الأكثر أهمية):

10	9	8	7	6	5	4	3	2	1	الأهمية	
										تقليل المشاحنات والمشاكل	1.
										زيادة في رضى الزبون	2.
										علاقات قوية بين أفراد الفريق	3.
										زيادة الوعي والفهم لدى أفراد الفريق	4.
										تحسن في وقت تنفيذ المشروع	5.
										تقليل التعرض للمخاطر	6.
										تقليل التكاليف	7.
										تطور الإدارة	8.
										تحسن الجودة	9.
										تحسن التصاميم	10.
										مشاركة المخاطر	11.
										تحسن استغلال الموارد	12.
										توفير في أوقات التصميم	13.
										زيادة في حصة السوق	14.
										التركيز على الالتزام متوسط وبعيد المدى	15.
										تقليل الشكاوي القانونية	16.

ج) مدى تأثير كل من العوامل الآتية كعوائق تواجه تطبيق مبدأ المشاركة، من مقياس 1الى 10 بحيث (1 يعتبر مقياس للعامل الأقل أهمية، 10مقياس العامل الأكثر أهمية):

10	9	8	7	6	5	4	3	2	1	العوائق	
										آلية تحديد الأسعار	1.
										لجوء الأفراد للقانون لتسوية الخلافات المالية	2.
										السيطرة على التكاليف	3.
										التعدي على الميزانية	4.
										الخلفيات المعلوماتية والمهارات الجيدة	5.
										قصور استخدام وسائل التكنولوجيا	6.
										قصور في التعليم والبرامج التدريبية	7.
										نضج بيئة العمل	8.
										الاستقرار والنمو الاقتصادي المحلي	9.
										العوائق والتحديات القانونية الحكومية	10.

د) تحديد أهم الظروف التي تدعي استخدام مبدأ المشاركة، ، من مقياس 1الى 10 بحيث (1 يعتبر مقياس للعامل الأقل أهمية، 10مقياس العامل الأكثر أهمية):

10	9	8	7	6	5	4	3	2	1	الظروف	
										الأهمية الاقتصادية لمجال العمل	1.
										مقدار التكاليف	2.
										تكلفة تغيير الشركاء	3.
										توفر شركاء مناسبين	4.
										خطر فشل الشريك	5.
										تأثير خسارة المشروع	6.
										نسبة تدوير أفراد الفريق	7.
										عدد المنافسين المباشرين	8.
										درجة اختلاف السلعة\الخدمة المقدمة	9.
										آلية التسعير مقارنة بالمنافسين	10.
										المشاكل والقضايا والشكاوى القانونية	11.