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ماجستير إدارة المشروعات الهندسية

Factors Affecting on the Success of Qatari Grant Construction Projects in Gaza Strip

العوامل التي تؤثر على نجاح المشاريع الانشائية للمنحة القطرية
في قطاع غزة

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إقرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

Factors Affecting on the Success of Qatari Grant Construction Projects in Gaza Strip

العوامل التي تؤثر على نجاح المشاريع الانشائية

للمنحة القطرية في قطاع غزة

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نتيجة الحكم على أطروحة ماجستير

بناءً على موافقة عمادة البحث العلمي والدراسات العليا بالجامعة الإسلامية بغزة على تشكيل لجنة الحكم على أطروحة الباحث/ احمد رياض علي كحيل لنيل درجة الماجستير في كلية الهندسة / قسم الهندسة المدنية - إدارة المشروعات الهندسية وموضوعها:

العوامل التي تؤثر على نجاح المشاريع الإنشائية للمنحة القطرية في قطاع غزة

Factors Affecting on the Success of Qatari Grant Construction Projects in Gaza Strip

وبعد المناقشة التي تمت اليوم الأحد 16 صفر 1439هـ، الموافق 2017/11/05م الساعة الحادية عشرة صباحاً، اجتمعت لجنة الحكم على الأطروحة والمكونة من:

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واللجنة إذ تمنحه هذه الدرجة فإنها توصيه بتقوى الله ولزوم طاعته وأن يسخر علمه في خدمة دينه ووطنه.

والله ولي التوفيق،،،

عمادة البحث العلمي والدراسات العليا

أ.د. مازن اسماعيل هنية



Abstract

The construction sector is considered as one of the main pillars in the construction sector and the Qatari grant projects are considered as one of the largest projects spent in the Gaza Strip.

The aim of this research is to improve the performance of all parties involved in the Qatari project by focusing on the factors of success and correcting the factors of failure, by exploring the present situation of the construction projects in Gaza strip, and identifying the most significant ones.

This study was carried out through the distribution of ninety three questionnaires to the contracting companies working in Qatari projects, the consulting offices supervising Qatari projects. In addition, the Ministry of Public Works and Housing, and Qatari committee also throughout holding an interviews with some of construction companies that implemented the project of (city of his Highness Sheikh Hamad in the second phase in KhanYounis).

This research revealed the most important factors that affecting the success of Qatari construction project in Gaza Strip which are : clear scope of the project, experience of the designer and his team, experience of contractor, closure of crossing points, presence of highly qualified technical staff, availability of funding of contractor to carryout business, regular mechanism of payments, reputation of the contractor, delay in obtaining fund and sufficient time given to design and . The results of this study have led to several recommendations aimed to the success of construction projects in general and Qatari projects in the Gaza Strip in particular:

The need to give sufficient time to design, study all proposals in advance, inclusion of all parties in the design phase and set goals in advance in addition to studying all the surrounding circumstances, in addition to work on identifying alternatives to materials that may be used instead of materials, that are difficult to enter by the occupation, also need to pay attention to the technical staff of the project through employing a highly experienced technical team and conducting training courses. In addition to the contractor's interest in the quality of work to obtain the satisfaction of all related parties.

The study also recommended the need to pay attention to the work of technical evaluation of contractors on the basis of experience and financial ability and performance and provide all the necessary facilities for work and find a quick mechanism in the disbursement of contractors' receivables in addition to the work of the contractor to include all the basic materials at the beginning of the project to ensure the work in the fastest time and avoid the delay caused by closing crossings .

الملخص

يعتبر قطاع الانشاءات العمود الرئيسي للاقتصاد الفلسطيني، وتعتبر مشاريع المنحة القطرية من أكبر المشاريع التي يتم تنفيذها في قطاع غزة.

يهدف هذا البحث إلى دراسة العوامل المؤثرة على نجاح المشاريع القطرية في قطاع غزة من خلال دراسة الوضع القائم للمشاريع الحالية واختيار تلك العوامل الأكثر أهمية، تمت هذه الدراسة من خلال توزيع الاستبانات على شركات المقاولات العاملة في المشاريع القطرية والمكاتب الاستشارية المشرفة على المشاريع القطرية بالإضافة إلى وزارة الأشغال العامة والإسكان واللجنة القطرية، أيضاً تم عمل مقابلات مع عدد من شركات مقاولات التي قامت بتنفيذ المرحلة الثانية في مدينة سمو الشيخ حمد بخانيونس بالإضافة إلى عمل مقابلات مع كل من ممثلي اللجنة القطرية ووزارة الأشغال والمكاتب الاستشارية التي أشرفت على هذه المشاريع.

أظهرت نتائج هذا البحث أهم العوامل المؤثرة على نجاح المشاريع القطرية في قطاع غزة وهي: وجود هدف واضح للمشروع، خبرة المصمم وطاقمه، خبرة المقاول، إستمرار فتح المعابر، وجود طواقم فنية عاملة ذات كفاءة وخبرات عالية، توافر رأس مال كافٍ لدى المقاول لتنفيذ الأعمال، وجود آلية منتظمة في صرف مستحقات المقاولين، سمعة المقاول وأداءه المسبق، وتوفر الدعم من قبل الممول، وإعطاء وقت كافي لفترة التصميم وتجهيز العطاء.

وقد خلصت نتيجة هذا البحث إلى عدة توصيات تهدف إلى ضمان نجاح المشاريع الإنشائية بشكل عام والمشاريع القطرية في قطاع غزة بشكل خاص وهي :

ضرورة إعطاء وقت كافٍ للتصميم ودراسة جميع المقترحات وإدراج جميع الأطراف في مرحلة التصميم، وتحديد الأهداف مسبقاً، بالإضافة إلى دراسة كافة الظروف المحيطة والعمل على تحديد بدائل للمواد التي من الممكن أن يتم استخدامها بدل المواد التي يصعب دخولها من قبل الاحتلال، مع ضرورة الاهتمام بالطاقم الفني للمشروع من خلال توظيف طاقم فني ذو خبرة عالية وعمل دورات تدريبية واهتمام المقاول بجودة العمل للحصول على رضا الأطراف ذات العلاقة.

كما أوصت الدراسة بضرورة الاهتمام بعمل تقييم فني للمقاولين على أساس الخبرة والقدرة المالية والأداء المسبق، وتوفير جميع التسهيلات اللازمة للعمل، وإيجاد آلية سريعة في صرف مستحقات المقاولين، بالإضافة إلى عمل المقاول على تشوين جميع المواد الأساسية في بداية المشروع لضمان سير العمل في أسرع وقت وتجنب التأخير الناتج عن إغلاق المعابر.

Dedication

I would like to dedicate this work to ...

- ❖ *To my mother for her unlimited encouragement*
- ❖ *To my father for his endless support*
- ❖ *To my lovely wife*
- ❖ *To my lovely daughters Zaina and Salma*

Ahmed R. Kuhail

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List of Abbreviations

ANOVA	Analysis of Variance
CSFs	Critical Success Factors
G.S	Gaza Strip
IUG	Islamic University of Gaza
KPI	Key Performance Indicators
PCU	Palestinian Contractors Union
P.M	Project Manager
PSC	Project Success Criteria
PSFs	Project Success factors
RII	Relative Importance Index
SPSS	Static Package for Social Science
WBS	Work Break Down Structure

Chapter 1

Introduction

Chapter 1

Introduction

This chapter presents a general introduction to the research, which provides a brief discussion of the construction projects, and its success and failure; it also provides problem statement, aim, objectives, hypotheses, limitations and an overview of chapters.

1.1 Background

El-namrouty (2012) stated that construction industry is one of the main sectors of the Palestinian economy. It plays significant role in the economic development and the tool through which a society achieves its goal of economic growth and development. Construction industry implies a complexity as it involves raw materials, machinery, finance, technology, human resources and so on. Moreover, it has a direct influence on other industries. It interacts with almost all spheres of human endeavour. Unfortunately, the fundamental complexity, uncertainty and dynamism of most construction projects create difficulties even for the best project managers. It is used to make decisions to anticipate results parameters, of risk management for disaster prevention and is used to sequence redundancy to ensure the availability of the required facilities, but the projects are still end up with schedule delays, budget overruns and specifications (Nguyen et al., 2004).

The goal of every business is to be success (Chan et al., 2002). Organizations must work on success to be able to still competitive in business environments such as construction. The construction industry is constantly changing with developments in new technologies and business methods (Koota, 2003). Therefore, construction companies must develop new applications and design new strategies to be more competitive in the industry and get successful in their business. In recent years, there has been an increase in the studies of critical success/failure factors especially in project management subject (Hyvari, 2006). The traditional approach to success in the construction industry is to focus on the ability to plan and execute projects (Abraham, 2004). Traditionally, the success parameters for projects in this industry are cost, time and quality(Hughes et al., 2004). However, due to the changing

business environments, it is crucial to focus on corporate success in order to be competitive in this environment.

The successful execution of construction projects and keeping them within estimated cost and prescribed schedules depend on a methodology that requires sound engineering judgment. To the dislike of owners, contractors and consultants, however, many projects experience extensive delays and thereby exceed initial time and cost estimates. This problem is more evident in the traditional or adversarial type of contracts in which the contract is awarded to the lowest bidder- the awarding strategy of the majority of public projects in developing countries including Gaza Strip.

Project success is an important project management issue, it is one of the most frequently discussed topics. Pheng (2006) defined project success as the completion of a project within acceptable time, cost and quality and achieving client's satisfaction. Project success can be achieved through the good performance of indicators of the project.

Chan et al. (2002) stated that a construction project is considered successful when it is completed on time, within budget, and of acceptable quality regardless of the complexity, size, and the environment within which it is constructed. However, construction performance is subject to many variables and unpredictable factors. The performance of parties, resource availability, environmental conditions, and contractual relations contribute to construction performance.

Gudienne et al. (2013) Defines success as the degree to which project goals and expectations are met, while Jari and Bhangale (2013) defines it as meeting the required expectation of the stakeholders and achieving its intended purpose. On the other The successful execution of construction projects and keeping them within estimated cost and prescribed schedules depend on a methodology that requires sound engineering judgment. To the dislike of owners, contractors and consultants, however, many projects experience extensive delays and thereby exceed initial time and cost estimates. This problem is more evident in the traditional or adversarial type of contracts in which the contract is awarded to the lowest bidder- the awarding strategy of the majority of public projects in developing countries including Gaza

Strip hand, Kong and Loh (2012) defines it as the performance with respect to budget, schedule, and quality. Shaban (2008) Stated that project success is the completion of a project within the acceptable time, cost and quality and achieving client's satisfaction.

The project is defined as successful when it is completed on time, within budget, and when it met specifications and earn stakeholders satisfactions. The functions and profitability of contractors, no claims, the court proceedings and the "appropriateness of purpose" of the occupiers were used as success criteria of the project (Takim and Akintoye, 2002).

Hutchings and Christoferson (2001) concluded that for small construction companies in the United States, quality of workmanship, honesty, involving of good subcontractors, customer communication, reputation, good staff, and finishing project on its planned duration are the most significance factors for the company to be success. In a survey conducted among the largest construction companies in Germany, It has been identified that the development of the capabilities and development of employees, customer participation, creativity, good organization and risk management are among the most important factors for success of the project (Consultants, 2004).

The success of the project can be defined as meeting the stakeholder's expectation and achieving the desired purpose. This can be achieved by understanding how the outcome will be, and then showing the results of the project. However, the concept of project success remains ambiguous in the minds of construction professionals. There is no acceptable or acceptable definition in the industry for the success of the project because the fact is that individual project teams find themselves in unique situations that means the definition of project will be different from any project. Project success is a topic that has often been discussed and rarely agreed upon (Gudiene et al., 2013).

The successful execution of construction projects and keeping them within estimated cost and prescribed schedules depend on a methodology that requires sound engineering judgment. To the dislike of owners, contractors and consultants, however, many projects experience extensive delays and thereby exceed initial time

and cost estimates. This problem is more evident in the traditional or adversarial type of contracts in which the contract is awarded to the lowest bidder- the awarding strategy of the majority of public projects in developing countries including Gaza Strip.

Qatar's role in alleviating the imposed blockade on the Gaza Strip was not marginal. The Qatari projects have become a reality for citizens in the Gaza Strip. Large cities and roads have been established linking the northern Gaza Strip to the south, , As well as reconstruction projects what was destroyed by the occupation during the aggression on Gaza in the summer of 2014. And implemented projects in addition to it has achieved a qualitative leap to Gaza, contributed to easing the siege, through the introduction of thousands of tons of building materials, and contributed to the high unemployment rates in Gaza to more than current figures, through the operation of thousands of workers, engineers and construction companies.

1.2 Statement of the Problem

Any project is an effort and work required to be performed at a certain time with specifications and within a certain budget; it is unique and non-recurring aims to meet the requirements of stakeholders. There was a problem to find out the success and failure of the project through academics over the years, where the demands of the project is increasing due to variables and changing of environment and society (Jari and Bhangale, 2013).

The factors affecting the success of construction projects varied widely based on the project's nature, scope and budget. Alongside with cultural and the local practice factors that influence of outcome of the projects. Critical success factors have a very wide spectrum, ranging from project-related, procurement-related, management-related, and participant-related to other external factors. The importance of each success factor in local practice is by far subjective and depends on many non-scientific background and opinions. Based on Pandremmenou et al.(2013) research, success factors are subjective to concepts and depend on who is the stakeholder of the project who evaluates them and the unit of time in which the projects are judged.

Therefore, no definite answer regarding the factors affecting the project success can be drawn.

Qatari construction projects have been considered as the largest projects that had been implemented in the Gaza Strip. These projects faced many problems such that : shortage of materials, delay of projects , contradiction in tender documents , delays in disbursement ...etc. Thus, this research will focus on the critical success factors (CSFs) affecting the Qatari construction projects in the Gaza Strip and their effect on the performance in construction projects.

1.3 Research Aim

The research will explore the present situation of Qatari construction projects performance and identify the critical success factors which affect these projects then improve the performance of all parties involved in the project by focusing on the factors of success and correcting the factors of failure.

1.4 Research Objectives

The objectives of the research are:

1. To investigate and classify the factors affecting the construction project's success based on their significant and contribution,
2. To focus on the factors that lead to failure and find appropriate ways and solutions to ensure the success of the Qatari projects through the implementation of recommendations that will be taken into account to ensure the success of these projects.

1.5 Research Hypothesis

The following hypothesis are tested:

1. Hypothesis #1:

- *Null Hypothesis H0*: there is no relationship between factors relating to design and preparation of tender documents and success of construction projects at significant level $\alpha \leq 0.05$.

- *Alternative Hypothesis H1*: there is relationship between factors relating to design and preparation of tender documents and the success of construction projects at significant level $\alpha \leq 0.05$.

2. Hypothesis #2:

- *Null Hypothesis H0*: there is no relationship between factors related to the owner and the success of construction projects at significant level $\alpha \leq 0.05$.
- *Alternative Hypothesis H1*: there is relationship between factors related to the owner and the success of construction projects at significant level $\alpha \leq 0.05$.

3. Hypothesis #3:

- *Null Hypothesis H0*: there is no relationship between factors related to the contractor and the success of construction projects at significant level $\alpha \leq 0.05$
- *Alternative Hypothesis H1*: there is relationship between factors related to the contractor and the success of construction projects at significant level $\alpha \leq 0.05$.

4. Hypothesis #4:

- *Null Hypothesis H0*: there is no relationship between factors related to the project and success of construction projects at significant level $\alpha \leq 0.05$.
- *Alternative Hypothesis H1*: there is relationship between factors related to the project and the success of construction projects at significant level $\alpha \leq 0.05$.

5. Hypothesis #5 :

- *Null Hypothesis H0*: there is no relationship between external factors and the success of construction projects at significant level $\alpha \leq 0.05$.
- *Alternative Hypothesis H1*: there is relationship between external factors and the success of construction projects at significant level $\alpha \leq 0.05$.

1.6 Research Limitation

1. The research is limited to the Qatari-Grant construction projects as a case study,
2. Only a questionnaire, case study and interviews are used to conduct the research which is based on a quantitative analysis.
3. The research sample is the project-related personnel, i.e., contractors, consultants and owners (Ministry of Public Works and Housing).

1.7 Research Importance

The importance of this research comes from the fact that there is a misleading idea when it comes to identifying the factors affecting the construction projects. Where some find the financial aspects are among the top factors, others find managerial and administrative factors are more important. This confusion and fogginess would distract the engineering in site and office from focusing on the real factors affective the construction project success. Therefore, we are doing this study together to explore and prioritize those factors.

1.8 Research Methodology

The quantitative methodology was considered throughout this research. The quantitative methodology goal is to categorize factors into categories before the study undertaken as precisely as possible, while a research questionnaire form will be used to collect the quantitative data. A questionnaire will be designed based on the literature review. Once the initial format of the questionnaire is being prepared, a relevance test by the advisor will take place, and the questionnaire was adjusted in accordance with the advisor's instruction. For further refinement of the questionnaire, interviews was conducted with the Qatari committee technical/administrative staff and consultancy firms in addition to the construction firms, who were involved in the Qatari grant. The questionnaire and the interview will aid the purpose of the study. Once the questionnaire is refined, a pilot study will be initiated to check the questionnaire soundness and consistency, and modification will be implemented based on the pilot study findings. The questionnaire will be distributed among local construction contractors' in Gaza Strip, whose who implemented projects of the Qatari grant. After collecting the data from the questionnaire, which will be distributed to local contractors in Gaza Strip, the data will be analysed using the Statistical Package for Social Science (SPSS) and the results will be documented. The analysis will concentrate classifying factors leading to contractors' success/failure. Followed by a framework to enhance local contractors' practices leading to success by highlighting success factors against failure factors. Furthermore, the data from the analysis of the questionnaire was discussed. Some descriptive statistics such as frequency and percentage was computed for each item in the questionnaire. A pilot study was conducted for the

questionnaire that will be distributed before collecting the sample results , interviews was held with experts who are involved in the Qatari projects . This study will provide a trial attempt for the questionnaire, which will include examining the questionnaire questions and the ambiguity of these questions and the tools used in data collection and testing.. The content validity of the questionnaire as well as the statistical validity will be ensured using consultancy from expertise contractors and statistical tests, respectively.

1.9 Proposed Research Structure

The research will be divided into six chapters, the following are the proposed structure of the thesis:

Chapter 1: Introduction

This part of the research contains a general introduction to the subject of this research, the objectives of this research, the methodology of research, the used hypotheses, and limitations of this research.

Chapter 2: Background and Literature Survey

This chapter discusses general concepts of success criteria and mentioned the previous studies in this field.

Chapter 3: Methodology

This part of the research contains the methodology used in this research, which includes distribution of the questionnaire.

Chapter 4 : Case Study and interviews

This chapter discusses the used case study of the Qatari grant projects of His Highness Hamad Bin Khalifa Construction Projects and interviews.

Chapter 5: Results and Discussion

This chapter presents the results of the research and discusses them in details

Chapter 6: Conclusions and Recommendations

This chapter states the conclusions and recommendations for the research.

References

Appendices

Chapter 2

Literature Review

Chapter 2

Literature Review

This chapter reported previous studies in critical success factors for construction projects.

This chapter contains the basic definitions and concepts regarding the project's success factors, project performance measurements and a classification of the project success factors. A detailed literature review and background survey is included as well.

2.1 Definition and Concept

Project success is an important project management issue, it is one of the most frequently discussed topics. (Pheng, 2006) defined project success as the completion of a project within acceptable time, cost and quality and achieving client's satisfaction. Project success can be achieved through the good performance of indicators of the project.

Chan et al. (2002) stated that a construction project is considered successful when it is completed on time, within budget, and of acceptable quality regardless of the complexity, size, and the environment within which it is constructed. However, construction performance is subject to many variables and unpredictable factors. The performance of parties, resource availability, environmental conditions, and contractual relations contribute to construction performance

In terminology, and according to Oxford Dictionaries (2016), success is defined as the accomplishment of an aim or purpose. Cambridge Dictionary (2016) Gives two definitions for success, the first is the achieving of the results wanted or hoped for, while the second is something that achieves positive results.

Bakert (1988) found that the project is considered an overall success, if the project meets the project technical performance specifications or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people on the parent organization, key people in the client organization, key people on the project team, and key users of the project effort. Yoke (2012) stated that

success of a construction project is essentially depending on the ability of general contractor to select the appropriate subcontractor during bidding process, and the sufficient management of subcontractor during construction.

There are several definitions of the term “success” that vary according to stakeholders. It is not easy to identify because it differs from one science to another and the difference of people and their diversity in societies and the diversity of their ideas (Ghasabeh and Chabok, 2009).

Adriel and Sim (2016) defined success of the project as the completion of the project at a given time, specific sources, cost and defined parameters. Meanwhile, Goatham (2016) said that the reasons for failure are necessary, because knowing the reasons for the failure of the project is more important than defining success. It seems that the definition of success is relatively simple and easy, but different people know success in several ways. Where the definition of success of the project is achieved if the objectives of the project during the planned time and quality and budget based on them.

The construction industry is essential for any country. The economic development of any country can be measured in many ways through the development of basic physical structures such as bridges, roads and buildings. The development of construction projects includes several parties and different stages of work and many inputs from the private and public sectors with the primary objective of working on the success of the project. The administrative, financial, technical and organizational performance the parties concerned have a fundamental reason for the success and development of projects, taking into account risk management and economic and political stability (Takim and Akintoye, 2002).

To distinguish between the project and the project management, the terms must be defined well so that the project is considered the achievement of a specific goal for a set of materials and activities to be performed and which must be completed at a specific time and with certain specifications. In contrast, project management can be defined as the process by which project objectives are monitored by the organizational structures that manage the project with a set of tools and techniques

without compromising the company's routine process (Munns and Bjeirmi, 1996). There is no clear answer to the success factors of the construction projects because they vary according to the different environments, size, type of projects, their complexity, the use of materials and other factors. (Gudienė et al., 2013)

The project ends with the completing of the activities and the specific and unspecified events with the change of participants and processes constantly. Some factors are more important than others. These factors are called Critical Success Factors (CSFs). Success criteria vary depending on the different project participants, participants, size of the project and the satisfaction of the owner with the design of the facilities. The differences in the definition of success are known and clear and the success factors are linked to the perceptions of the owner, the contractor and the designer (Saqib et al., 2008).

Many researches from different parts of the world have identified success factors. Incorporating communities, policies, time variables, planned duration, implementation process, and determinants have been considered success factors for the project. All project requirements must be understood from the outset and good planning works on project success. A successful project is the project that is accomplished on time and through the budget allocated. Where time, cost and quality were identified as the three main constraints and the most important elements to ensure the success of the project. (Jaria and Bhangale, 2013).

Project success-related factors can be categorized into two groups: "Project Success Criteria" (PSCs) and "Project Success Factors" (PSFs). It is important to know the difference between the two groups .Success criteria are tools used to measure success while success factors facilitate success (Jari and Bhangale, 2013).

It is good to realize that project success factors depend on a particular type of project and that it is far from universal. Project management varies from project to project and has specific characteristics. Project managers should determine the success factors of each project. (Dvir et al., 1998).

There is ambiguity in determining the success and failure of the project because there are two main reasons. The first reason is that it is difficult to measure the success of the project due to the differ of views of the parties involved in the project in determining whether the project is successful or unsuccessful. The second reason is that the success and failure factors vary greatly and there are several lists of factors, but they appear as individual factors that must be grouped according to some criteria, to help interaction between them. In addition, many of these lists do not affect the success or failure of projects. (Belassi and Tukel, 1996).

Definition of success vary from one person to another and from another project. It depends on the participants in the project ,size of the project ,technological tools and the sophistication of the owner with respect to design facilities . Therefore, the relevant topics of success standards change and evolve in all areas of the industry where it is linked to success perceptions of the owner, designer and the contractor. (Sanvido et al., 1992).

The different team members must define the criteria for measuring the success of the project from the beginning, so that they do not find themselves then different in determining the project if it is successful or unsuccessful (Baccarini, 1999).

2.1.1 Definition of Critical Success Factors (CSF)

According to Pandremmenou et al. (2013)The CSFs of the project are described as “inputs” with different characteristics and conditions that interact in the environment and have an important role in determining the success of the project. Each critical success factor has a different effect depending on the project cycle and life cycle.

Sanvido et al. (1992) stated that the CSFs are those factors that are used to predict and measure the success of project. Boynton and Zmud (1984) Define CSFs as the few things that should go as planned to ensure the success of the project or institution, so they include the administrative areas, which must be interested in a large and continuous attention to reach the highest performance. Mbugua et al.(1999) Defines CSFs as the few typically four or five issues, fundamental to the achievement of a particular strategic objective.

Baccarini (1999) classified project success-related factors into two groups: "Project Success Criteria" (PSCs) and "Project Success Factors" (PSFs). It has been necessary to differentiate between these two groups, as success criteria measure success while success factors facilitate success.

Diallo and Thuillier (2005) said that success can only be defined by determining success criteria, since for a project manager success criteria are met with normal constraints such as time, quality and budget. Success in the engineering and construction sector is assessed by quality assessment and project management evaluation and performance, whose criteria are accepted and measurable.

Similar to the definition of success, CSF the success factors of the projects cannot be considered as universal for all projects because of different projects and different opinions and principles of the people. There is a difference in CSFs from project to project and what is acceptable in one project without impact on perceived success is deemed an abject failure in another project (Ghasabeh and Chabok, 2009).

2.2 Significance of Project CSFs

A project is a costly, complex and high risk undertaking that needs to be completed within some expected levels of performance, and has limitations of time and money attached to it. Management of a project involves allocation of only those resources to the project that are felt essential at a particular time, and to ensure that the allocated resources are utilized to the optimum level (Cleland and King, 1983). A knowledge of CSFs pertinent to the project type provides the means to better deploy valuable resources on relevant areas so as to achieve much better objectives and hence a successful project.

The complexity associated with the implementation of a project is bound to increase because ever changing government regulations and increasing interdependence of national economies would always produce an environment of dynamic uncertainties. In particular, construction projects consist of those events and interactions with different processes and participants in a rapidly changing environment; the diversity of work-atmosphere, in turn, making the job of project manager more challenging with each day of the project. While performing, duties associated with planning,

scheduling, budgeting, accounting, and evaluating, the project manager integrates information obtained from the various functional departments, and reports it to top management in the form of progress reports and exception reports to aid project control decisions. This indeed is a difficult task and becomes more demanding when it comes to managing megaprojects or dealing with multiple companies over the same project. CSF studies highlight the need for a well-defined control and information system, tailor-stitched to the needs of the project and its manager. CSF researchers iterate that without such a control and information system in place, achieving success on large projects would be no more than dreaming (Sanvido et al., 1992)

2.3 Classification of Critical Success Factors

CSFs differ in terms of importance. Some of them are more important than others. Projects success factors can be categorized into groups based on their nature and domain. Based on (Chan et al., 2004) study, a group of variables that affect the success of the project implementation were identified. Those variables can be grouped into five main categories. These include project-related factors, human-related factors, Procedures of project, project management actions, and external environment.

2.3.1 Project-Related Factors

Duration of the Project

According to Ghasabeh and Chabok (2009), Time is considered as a basic measure of success or failure of the project as it is an important factor that can help in measuring the other factors since the end date of the project should be an important criterion in measuring the success or failure of the project.

Tabish and Jha (2011) Cited that performance of Indian projects has not been good because of delays, according to the Ministry of Statistics and Program Execution, so project delays are a major problem affecting public sector projects.

Experience shows that large and strategic projects need to be supervised by project managers or supervisors with high experience. It has been shown that the variables

related to the project, such as duration, affect the success of the project. (Ika et al., 2012).

According to Ahsan and Gunawan (2010), time overrun means that exceeding the project completion period from the prescribed period. The analysis revealed that long contracts and bringing experienced consultants, natural disasters, procurement and government procedures are the most important factors affecting the increase of the duration of the project. Procurement is one of the biggest challenges facing developing countries. The delay in obtaining offers leads to delays in purchasing. The government's constraints in delaying projects through the policies it imposes in procurement and land issues as well as ways of acquiring them all contribute to delaying projects.

Enshassi et al. (2009) Carried out a study to know the factors that affect on the performance of construction projects in G.S in Palestine. Under time factors group, and in accordance to owners, consultants, and contractors, the average delay is due to closures that leads to materials shortage was the most significance performance factor. Duration factor can be recognized as important for three parties and scores a similar rank from all of them. This factor directly affects the project behaviour such as time. If there is no resources as it was planned through project duration, the project will not be going good and it will suffer from the problem of time performance.

Atkinson (1999) Defined the time as one of the items consisting the iron triangle along with the cost and quality, for project management. Using the Iron Triangle of project management, cost, quality and time, as the criteria of success is not a Type I error, i.e., errors when there is something going wrong. They are an example of a Type II error, that is to say, they are not as good as they could be, or something is missing. Measuring the resultant system and the benefits as suggested in the Square Route, i.e., the iron triangle, the information system, benefits and benefits for stakeholders could reduce some existing Type II errors, a missing link in understanding project management success.

Atkinson et al. (1997) Indicated based on visits to high-performing companies that on-time delivery performance is a vital parameter for the design and implementation of project's objectives. While, Takim and Akintoye (2002) concluded that time is among a list of seven factors to be the most influential key performance indicators.

Cost of the Project

One of the main objectives and policies of any public or private sectors dealing with the execution of projects is to upgrade projects performance, through reduction of costs, completion of projects within their assigned budget and time constraints, and improve quality. Construction industry in Gaza Strip is suffering from many problems which affect time, cost and quality, these factors related to political situation and techniques used in Gaza Strip.

Enshassi et al. (2003) found that the financing group of delay factors was ranked the highest by all three parties and the environment group was ranked the lowest. In order to improve the situation, there is a need to pay more attention to the financial issues in the local construction industry, and there is a need for better communication and coordination with international funding agencies. There is also an urgent need to develop human resources in the construction industry in Palestine. The construction industry in Palestine should also adopt innovative management techniques, team building and value .

engineering in order to be more efficient and effective. A constructive team building approach between owners, consultants and contractors will reduce delays and improve the quality of the work.

Delaying projects on time will lead to an increase in cost (Ahsan and Gunawan, 2010). Which affects the success of the project as it was considered cost factor and a key criterion in measuring the success of projects (Jari and Bhangale, 2013), Ghasabeh and Chabok (2009), Bhatti (2005) stated that in project management, time is considered as one of the three triangular constrains to be considered significantly along with the project scope and cost. Tabish and Jha (2011) Cited that cost is considered among the challenging problem in the construction industry in India,

where cost overrun is a main problem in the public-sector construction projects, the trust between the parties involved in the project contributes to the completion of the project within the scope and in understanding the implications of the cost.

Mortaheb et al. (2013) Ranked the factors in respect to their impacts on total cost of the project. The results indicate change order, engineers experience, employees' dissatisfaction, clear work definition and WBS, and client regular interfering are most important factors, which change the project cost.

According to Mbugua et al. (1999) Cost–initial as well as life cycle, and value for money, is considered as one of the four most critical success factors along with the time, Quality and Performance. Based on Belassi and Tukel (1996) study, the cost of the project was most affected by the availability of the resources, followed by, in order of significance, the top management support, the project manager experience, client consultation, preliminary estimates and other factors.

Gudiene et al. (2013) stated that the value of the project of the most important factors that affect the success of the project and then the size of the project and clear goals were second and third factors in terms of importance. Accidents were the least important factors in terms of importance.

Delay of project and cost overruns in Gaza Strip is one of most important problems at construction management field, also research and studies in this field in Palestine are few compared to worthy expected results. Despite the importance and the significance of the construction sector in Palestine. It is noted that the parties of project (owner, consultant, and contractor) don't give the time and cost overruns the importance at the evaluation at the end of project.

Quality of the Project

Quality is now universally accepted as a major concern for every organization (Barad and Raz, 2000). Quality is defined as a set of features and attributes of a particular product, facility, process or industry that meets a specific need and is always a measure of performance (Sanvido et al., 1992). Regardless of whether quality is

related to a product or process, it is a key factor in measuring the success of projects by a group of researchers (Ghasabeh and Chabok, 2009).

Quality can be measured by measuring the quantity or size of the rework or the satisfaction of the financier and these long-term indicators cannot be measured. It is appropriate to judge success at this time as to whether project management standards have been met rather than project standards. Therefore, the success of project management becomes synonymous with the success of the project, which are inseparable (Munns and Bjeirmi, 1996).

Enshassi et al. (2009) listed the following factors that affect the project performance in terms of quality from owners point of view: conformance to specification, ranking as the most affecting factor, followed by, in a descending order, unavailability of competent staff, quality of equipment and raw materials, quality assessment system in organization and Quality training/meeting.

According to Faulkner et al. (2000) based on that study that was done to explore the nature of people's culture of the concept of quality in the construction industry by the people. Experience shows that quality is an important and necessary issue for both clients and consultants. Customers tend to issue their own quality judgments and are not interested in formal quality processes during their performance. The consultants have implemented them based on the desire of the market rather than being an effective management tool. These written systems were meant to be a reflection of the culture rather than an organization. All participants in the research agreed that quality culture was more important than formal systems

While customers have devoted considerable efforts to selecting consultants, their interest in their subsequent performance appears to be much less. It seems that the lack of effective feedback has been a major weakness in many projects. The assumption seems to be that once a typical consultant is selected, the client will push the process, which will result in a satisfactory outcome.

Procurement-Related Factors:

Arditi and Chotibhongs (2005) defined bid shopping as a way of life in the construction industry and stated that the practice of bid shopping by general contractors is considered to be a serious breach of trust from the subcontractor's perspective. Ng et al. (2008) stated that bid shopping is a common phenomenon in construction , some contractors may be under pressure to submit unrealistically low contract bids and finish their work in a sloppily manner.

The procurement system is a key tool through which the project objectives can be successfully achieved (Rameezdeen and De Silva, 2002). The role for choice of suitable procurement method in the success of construction projects is becoming an increasingly important issue (Shafik and Martin, 2006).

Each project has its own requirements that are different from any other project. To succeed, this project must address the technical features of the project along with the needs of customers and contractors. (Alhazmi and McCaffer, 2000).

Based on Mohammad et al. (2014) study, a set of factors were shared among the interviewees regarding the critical success factors for a successful collaborative procurement. These factors were the presence of an appropriate partner, support from senior management, the existence of a horizon and a long-term perspective, systematic monitoring of the performance of companies through the work of periodic meetings and the use of information technology and the presence of an integrated team

Moses and Ojo (2012) Categorized the factors affecting the procurement system into four groups: Project Technicality, Project Business Case and Financing, Project Risk Management and Public Policy Requirement. The most influential factors were found to be in the following order: Type/Complexity of the project, Design and Product specifications, Completion Time, Specific Government Directive, Expected Performance Quality and controllable variation.

Saqib et al. (2008), In the course of conducting a study to assess the success factors of projects in the construction industry in Pakistan , to provide a tool through which

the parties can quickly assess the likelihood of success of the project from their point of view, it is found that the following factors are the most important (e.g. design-bid-build, design-build), project bidding method (e.g. price based competitive bidding, negotiated bidding, best value bidding) and project contract mechanism (e.g. lump sum, unit price, cost plus, etc.).

2.3.2 Management-Related Factors

Project management action is a key for project success (Hubbard, 1999). In order to prepare the success of the projects, it is necessary to work on the project management and planning well, finding goals, leadership, skills, developing strategies, solving issues and exploiting the dynamic nature of the work of the project

In the same context; Rubin and Sealing (1967) showed the impact of a project manager's experience on the project's success and failure. They concluded that a project manager's previous experience has minimal impact on the project's performance, whereas the size of the previously managed project does affect the manager's performance. Avots (1969) identified the main reasons for the project failure such as the wrong choice of project managers, unplanned project termination and unsupportive top management .

Seven essential factors are vital and imperative for a project success, those factors are: a compelling business care for project management, a practical and relevant project management plan, a robust communication system among the management team, friendly management system, a beneficial management system for employees and managers, a management system that enhances experience for all participants and a flexible management system (Longman and Mullins, 2004).

Mustapha and Naoum (1998) mentioned that managerial effectiveness is related to many subjective factors related directly to the site managers such as ability to liaise with the building team, controlling the quality standards, managing the resources, motivating the operatives etc. And stated that the effectiveness of the site managers depend upon personal factors, project characteristics, job conditions and organizational variables.

According to Nguyen et al. (2004), several factors are contributing to a successful management and hence a successful project. Those factors were found to be: Competent project manager, Multidisciplinary/competent project team, Top management support, Clear objectives and scope, Absence of bureaucracy, systematic control mechanisms, continuing involvement of stakeholders in the project, effective strategic planning, frequent progress meeting and clear information and communications channels. Other factors of success were found, in addition to senior management support, which showed that coordination and efficiency were the factors that led to the success of the project (Belassi and Tukel, 1996). The same results regarding top management support was obtained by (Ghasabeh and Chabok, 2009), where top management support ranked the first by the respondents.

In another hand, Ng et al. (2003) postulated that efficient resource planning could improve the project delivery time by as much as 45% and save up on project costs by up to 7%. Poor managerial skills can defeat the most successful activities and in many cases can lead to the demise of the organization. Hence, subcontractors must possess adequate leadership and managerial and technical skills to manage and plan for projects in the most efficient and economical way. Many sub-contractors have poor educational backgrounds therefore it is important to increase the training programs for the subcontractors about these technical and managerial skills to improve or enhance performance of their operations on site and to achieve the required goals of the project.

Phua and Rowlinson (2004) carried out a study to quantify and predict the importance of cooperation to project success. Results indicated that several factors contribute to a good management system leading to a successful implementation of the project scope and objectives. These factors are: the existence of good communication channels between customers, corporate and team collaboration and fair contractual terms for all companies operating in projects.

Saqib et al. (2008), results regarding the management related factors highlighted the following factors to be most influential: exploring errors and working on a solution, good planning, effective coordination, project control, proper organizational structure, communication system followed, control mechanism, effective program

work to ensure quality control, previous experience in project management, ability to identify risk and ability to resolve conflicts, In the skills required by the project

Diallo and Thuillier (2005) Stated that for a project to be successful, certain factors must be attained, such as trust, which is a construct made up of elements such as trust strict sense, delegated autonomy, and reliable behaviour, constitutes the overriding factor in the coordinators relationships with the task manager and the national supervisor. Team cohesion (which presumes a climate of trust) characterizes relationships between team members .Along with the trust, comes the communication. There is a close link between the coordinator and his / her task manager between the trust in the coordinator and the visits of the task manager to the project members

Adriel and Sim (2016) Observed that five critical success factors were rated high on the frequency distribution on the Likert scale. Coordination CSF was rated the highest by the local project team members, followed by monitoring CSF, then design CSF, then institutional environment CSF, and training CSF.

According to Munns and Bjeirmi (1996), the outcomes of the success of project are many , such as satisfying of a budget index , the adequacy of the project schedule and the achievement of the objectives and requirements of the project. However, the factors of management failure are many, such as the appointment of an inappropriate person as a project manager and the lack of support from senior management and the lack of the use of techniques in the management of the project and Duration and non-project

According to Sanvido et al. (1992) four factors have been concluded the first: the existence of a coherent working group for management, planning and operation. The Second: the existence of contracts that make all contractors and specialists working as a team without conflict of interest. The third: adequate experience in the management, planning and design of similar facilities and the fourth: timely, valuable optimization information from the owner, user, designer, contractor, and operator in the planning and design phases of the facility.

2.3.3 Participants-Related Factors

Project Participants are the individuals or groups who have direct stakes involved in the project. These direct stakes are inputs to the project in the form of money, men, materials, equipment, and time. Participants of a project include the developer, financier, consultant, constructor, and end-user. The project participants are PM, client, contractor, consultant, subcontractors, and suppliers. (Inayat, 2012).

According to Jari and Bhangale (2013), the performance of the project manager is the most important factor, where he must understand his role as leader of the project so that his authority and control over the staff is determined. In addition, the manager must have leadership skills and ability to involve others in their views and abilities. Monitors the progress made, identifies the problems encountered, informs the status of the interfaces of the shareholders, and initiates coordination and coordination of corrective actions.

The project manager is key stakeholder in a construction project and his competence is a critical factor affecting project planning, scheduling, and communication. The experience of the project manager was the most important factor according to (Gudiene et al., 2013). The survey showed that the experience of managers, customers and contractors leads to the implementation, control and planning of the project successfully also affects the flexibility of management on the success of small projects only, while the characteristics of the team and the qualifications of the project manager have a significant impact on achieving the design objectives of all types of projects. Management qualifications of key staff have proved more important to achieve customer satisfaction than to meet the design objectives. (Dvir, et al. 1998).

Arslan et al. (2008) explained that bidding process is one of the most important phases in the construction industry. During this stage, selecting the most appropriate subcontractors for the relevant sub-works is highly critical for the overall project performance. In order to select the most appropriate subcontractors for the project and prepare the most realistic and accurate bid proposal, general contractors have to know all financial, technical and general information about these subcontractors.

Within this context, general contractors should consider several factors in the selection process. These factors may include the quality of production, efficiency, employment of qualified members, reputation of the company, accessibility to the company, completion of the work on time etc.

McCord and Gunderson (2013) studied the most important factors affecting on the overall success of the project is the general contractor - subcontractor relationship and he stated that the top three relationship factors are: bid shopping, project manager relationship and superintendent capability, respectively

According to Tabish and Jha (2011), the project manager and contractor must have a broad understanding so that they can avoid conflicts. Which is possible if the range is clearly defined by the owner. It can also help senior management and the owner to resolve the dispute.

To meet project technical requirements, project manager should care about engineer's experience, change order, client experience, clear work definition and WBS. In this case, client regular participation, project manager leadership style and competence, client operational work experience, and engineer technical knowledge are the factors that for client satisfaction should be considered. Results of this study demonstrate the importance of engineer and clients' experiences. (Mortaheb et al., 2013)

Factors related to the skills and characteristics of the project manager and team are suggested factors for successful completion of the project as well. The competence of the team is an important factor that lead to the success of the project as these factors not only affect the performance of the project but also leave an impact on customer satisfaction towards the project. Similarly, the established communication channels between the project manager and the organization and client are necessary to accept the project results by the client. In addition, factors related to project team members, such as technical background and commitment, are among the most important factors in construction projects and MIS projects (Belassi and Tukel, 1996).

The designer has a vital role to play in the project's success. Several factors have been identified to measure the success of the project from the designer's point of view were : satisfied client ; quality of architectural product; met design fee and profit goal; professional staff fulfilment; met project budget and schedule; marketable product/ process; minimal construction problems ; no "ghosts," liability, claims ; socially accepted ; client pays ; and well defined scope of work (Jari and Bhangale, 2013).

Chua et al. (1999), listed the participant related factors: efficiency, experience and authority of the project manager, customer satisfaction rate, turnover of the work team, the ability of the main contractors and their efficiency, support of the senior management of the contractors, contractor track record , the ability and efficiency of the subcontractors, support of the senior management of the subcontractors, track record of subcontractors, support of senior management of suppliers, Suppliers, efficient consultant, consultant experience, senior management support consultant and consultant track record .

2.3.4 External Factors

The environment at which the project is implemented plays an important role in the project success. Several political, environmental and social factors much took into account to ensure a successful implementation of the project. Including the natural environment e.g. weather, and political environment, e.g. the legal requirements of the regulatory authorities (Jari and Bhangale, 2013).

Different strategies that interact with the external environment should be studied to ensure that the project is implemented more effectively. The construction industry is closely linked to the communities in which it operates, through planning, employment, resources, production processes and final finished products. As communities become more complex, they acquire the means to disrupt, delay or eventually stop construction projects, or, on the contrary, to expedite them. It would therefore make sense for the community and industry to share the potential benefits of a closer relationship and to ensure satisfactory completion of projects (Takim and Akintoye, 2002).

According to Akinsol et al.(1997), the organization is rooted in social, political, legislative, economic and technical systems that will affect the strategy, structural systems and technology adopted. The construction project, as a temporary organization, is also subject to such environmental impacts as economic, social, political and technological. He found that economic factors and political factors are of great importance. However, these two factors can have a significant impact and influence on other factors such as customer characteristics and project regulatory factors.

Enshassi et al. (2009) investigated the environmental factors and their rank among the owners, consultants and contractors. Those factors are: Air quality, Noise level, Wastes around the site and Climate conditions. Climate condition was ranked as the highest loaded factor by consultants', and contractors' respondents'. This is due to its importance, since, it affects on productivity and time performance of project. The respondents, the owners', ranked noise level consultants', and contractors' in the fourth number, all parties agreed that a noise level is less important than other environmental factors. By general, noise level affects on productivity performance of construction projects.

According to Gudienè et al. (2013), in the external factors group, the economic environment was found as the most important factor. The cultural and nature ecological environments were found as the least important factors.

2.4 Comments on the Literature Review

Based on the previous literature review, it can be concluded that the project success varies wildly. It depends on the research perspective, parameters and the environment in which the research was conducted. The vast majority of CSF can be classified under one of the following: project, procurement, management, participant-related or external factors.

2.5 Local Studies

Elbohisi (2016) conducted a research to investigate the success factors that affecting public construction projects and their relation to key performance indicators in Palestine. The research was limited to the public construction projects of Palestine.

The Results of this study indicated that most construction projects in Palestine and other countries especially developing ones suffer from poor projects performance such as delay, cost overrun. The results also showed that the most important KPIs were quality; time and cost which means that in Palestine construction industry the highest important KPIs are the traditional basic ones. Generally public construction projects are funded from donors in Palestine who give high importance to quality more than any other consideration. Also, the limited budget of projects from donors gives the KPI cost large importance. In addition, project duration KPIs is very important due to the uncertainty of political conditions in Palestine like wars. Results also indicated that Palestinian construction projects suffer from cost and time overrun and the quantity and costs of variation orders are high. On other hand, other indicators like projects quality, satisfaction and ability to cover project expenditures ranked a good evaluation.

Hamdia (2008) carried out a research to identify, categorize, and prioritize a general set of CSFs for construction sector in Gaza Strip from contractors perspective, alongside with highlighting the nature and characteristics of construction sector, as well as its role in economic development in Gaza Strip. He concluded that about 71% of contracting companies in Gaza strip have a clear description of goals and mission. Nearly, 74% of contractors in Gaza strip are competent and qualified to handle managerial activities. As well as, almost 73% of contractors apply cost control as a CSF. Furthermore, 78% see that pricing method is a critical success factor; finally, 77% think that Owner satisfaction is the most critical success factor.

Financial resources was the first critical success factors, the next one of the critical success factors was owner satisfaction. In addition, Pricing polices CSF was the third. Also, managerial skills for contractors was ranked as the fourth factor.

Furthermore, cost control CSF was the fifth. Finally, Mission and Goal has the sixth one.

2.6 Conclusions

By reviewing the available researches, i.e., local and world-wide, we concluded that there is no world-wide agreed-on definition of project success, indicating a divergence in the results when it comes to define the *most* critical success factors.

The construction industry in Gaza strip faces too many challenges due to the current political and social circumstances. Certain factors that are not on the list of CSF for construction project in other countries might be very crucial and important to guarantee a project success in Gaza strip. The local studies on the other hand cover public construction projects; hence, the results cannot be implemented for the Qatari-Grant construction projects due to its nature from the technical and financial point of view.

Table 2.1 summarized CSFs according to their reference from the previous studies

Chapter 3

Research Methodology

Chapter 3

Research Methodology

This chapter explained the procedures that is used in this research. The methodology includes information for research design, population, sample size, data collection, questionnaire design, questionnaire content, instrument validity, pilot study, and the procedures of data processing and analysis. The questionnaire was the main approach to collect the data and perspectives of the respondents.

3.1 Research Design

Kallet (2004) demonstrated the methods section should describe what was done to answer the research question, describe how it was done, justify the experimental design, and demonstrate how the results were analysed. Also, this section should describe the methods used in the study, explain how the materials were prepared for the study, describe the research agenda, and explain how measurements were made and the used calculations, and which statistical tests were done to analyse the data.

"Research design" refers to the plan or organization of scientific investigation. Designing a research study involves the development of a plan or strategy that will guide the collection and analyses of data (Polit et al.,1994). This research consists of eight (8) phases;

- The first one is the proposal for identifying and defining the problems and establishment of the objectives of the study and development of research plan.
- The second phase of the research includes literature review. Literatures of the Critical Success Factors and their classifications were reviewed.
- The third phase of the research includes a field survey, which included Qatari committee technical/administrative staff and consultancy firms in addition to the construction firms, who were involved in the Qatari grant projects.
- The fourth phase of study includes the questionnaire design, through circulating pilot questionnaire to a sample of Qatari committee, Ministry of public works and

housing, contractors, consultants and design engineer. This is to be sure that the questionnaire questions are obvious to be answered in a way that help to achieve the objectives of the study. The questionnaire was modified based on the results of the pilot study.

- The fifth phase of the research was distributing the questionnaires. Questionnaires were used to collect the required data in order to achieve the research objective.
- The sixth phase of the research concentrate on data analysis and discussion. The Statistical Package for the Social Sciences (SPSS) was used to make the required analysis.
- The seventh phase of the study was interviews and case studies, which gathered both quantitative and qualitative methods. Occasionally personal observation or contribution by the researcher was fulfilled. Other cases were deduced on information from interviews with project individuals.
- The last that is the eight of the study included the conclusion, and recommendations.
- Figure (3.1) describes the flow chart of the methodology of this research, which includes the objectives of the thesis. In this research, the questionnaire approach was used to collect the factual, perceptive and attitudes of the respondents. In this research, the questionnaire approach was used as a quantitative approach to identify the critical factors affecting on the success of the Qatari-Grant construction project success, and identifying the most significant ones.

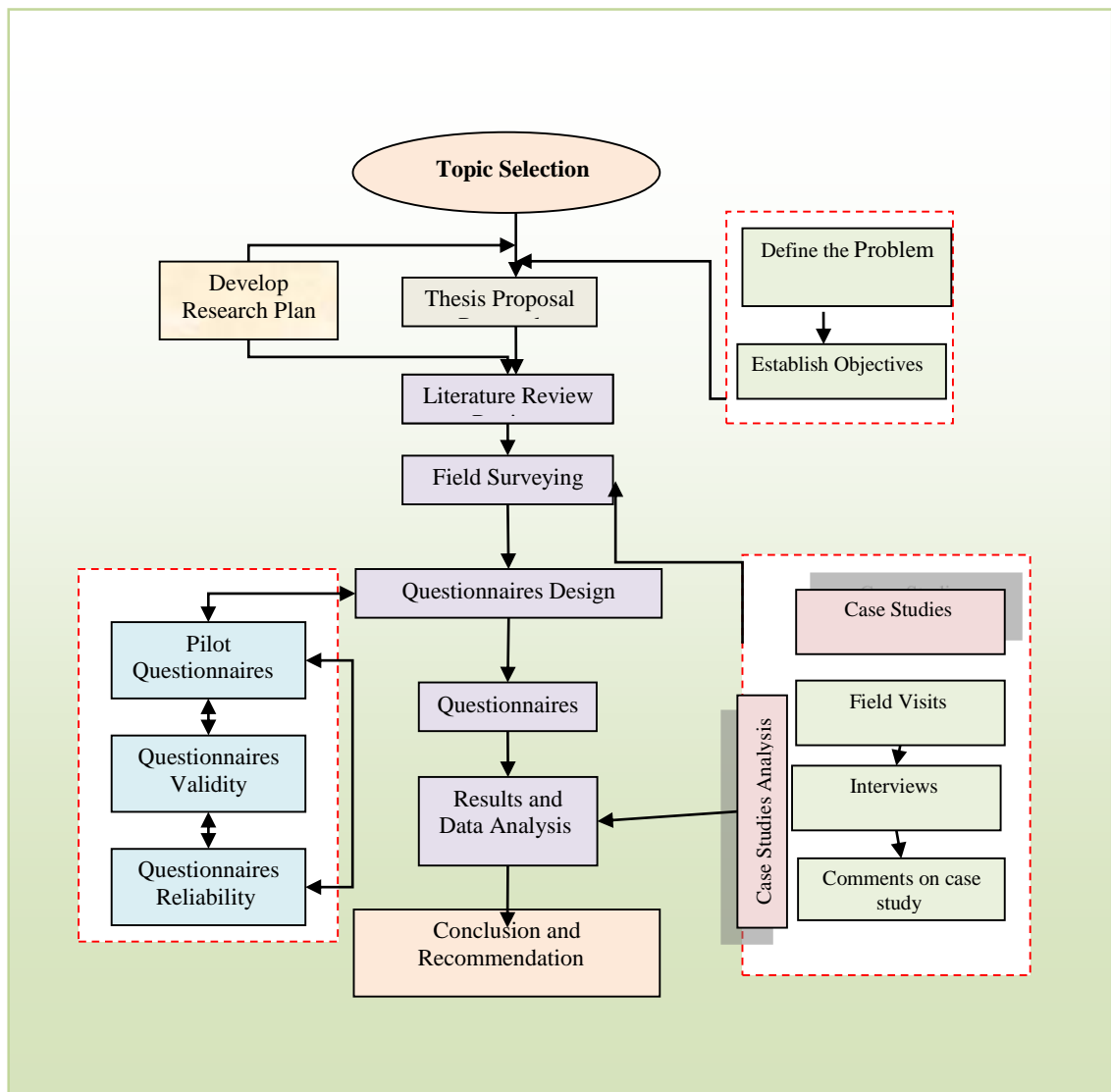


Figure (3.1): Flow Chart of Research Methodology.

- From the questionnaire approach, the researcher can obtain both, qualitative data which is related to the viewpoints and attitudes of the respondents in addition to the quantitative data which present the important points and genuine cases in the works. Both the quantitative and qualitative approaches are necessary to the development and ongoing improvement of the structure industry.
- The majority of the construction management research is currently dominated by the following three principal strategies; quantitative methods, qualitative methods and mixed approach a blend of quantitative and qualitative methods. Many researchers like Fellows and liu (1997) explained the critical significance of the approach in the development and collection of all necessary data for the practical

and researching benefits. Using the questionnaire approach is considered an easy, rapid and efficient approach to collect the data, facts and attitudes of the maintenance contractors, maintenance staff and designer.

- The questionnaire approach is the widely used approach for descriptive and analytical surveys in order to find out the facts, opinions and views. This discussion is supported by many researchers like (Fellows and liu, 1997), and (Naoum, 2007) .

(Haseaman, 2006) Decided that, quantitative research embraces a set of scientific, deductive approaches and establishes research questions and hypotheses from theoretical models and then tests them against empirical evidence, while the qualitative research operates quite differently. It prefers inductive approaches and necessarily encompasses a wide range of research strategies and methods, and has a primary aim of understanding the meaning of human action.

3.2 Research Period

The study started on November 2016, when the initial proposal took approval. The literature review was finished on the start of January 2017. The validity testing, piloting and questionnaire distribution and collection took two months and completed on the start of March 2017. Interviews and case studies, analysis and discussion, of results, conclusion and recommendation were completed on the beginning of September 2017.

3.3 Research Population

Four populations were targeted in this research. The first population is Qatari committee, which include eight engineers who supervise and follow up all the projects in the Gaza Strip. The second population is Consultant offices, which include 40 of site engineers, were distributed on four joint venture consultant offices. The zone of works was south area. The third targeted population were ministry of public works and housing which include nine engineers for south area. The last population were contracting companies engineers that include 56 site's and offices engineers were distributed on seven contractors company, most of them from south

area. These categories of staff was considered in this study to assist in identifying the critical factors affecting the Qatari-Grant construction project success, and identifying the most significant ones.

3.4 Sample size

The objective of sampling is to provide a practical means of enabling the data collection and processing components of research to be carried out whilst ensuring that the sample provides a good representation of the population.

Statistical equations were used in order to calculate the sample size for each population of contractors and subcontractors, Equation 3.1 equation was used to determine the sample size of the unlimited population (Fellows and Liu, 2008).c

sample size of the unlimited population (Fellows and Liu, 2008). (Equation 3.1)

$$nf = \frac{ns}{1 + \frac{ns}{p}} \quad (\text{Equation 3.1})$$

Where: n is the final sample size

P is the size of the population

Total population (8 Qatari committee engineers, 40 consultant offices engineers, 10 ministry of public engineers and 56 contracting company's engineers).

$$ns = \frac{t^2 * (p)(q)}{e^2} \quad (\text{Equation 3.2})$$

The definitions of all variable can be defined as the following:

(p) (q) is the estimate of the variance, suggest $p = q = 0.5$ for dichotomous variables where the population, reasonably, is expected to be divided equally).

$t = t$ Value (e.g. 1.96 for 95% confidence interval). $e =$ Maximum error of estimation (0.074).

The sample size for the population can be calculated from the previous equations as follows:

$$n_s = \frac{1.96^2 * (0.5)(0.5)}{0.074^2} = 175$$

$$n : \text{Qatari committee engineering staff} = \frac{175}{1 + \frac{175}{8}} = 8$$

$$n : \text{consultant offices engineers} = \frac{175}{1 + \frac{175}{40}} = 33$$

$$n : \text{ministry of public works and housing} = \frac{175}{1 + \frac{175}{100}} = 9$$

$$n : \text{contracting company's engineers} = \frac{175}{1 + \frac{175}{56}} = 42$$

The targeted sample, which were selected according to equation 3.1 are 8 for Qatari committee, 33 for consultant offices, 9 for ministry of public works and housing and 42 for contracting companies. **Table (3.1)** shows total population, calculated sample size, distributed questionnaire, number of respondents and response rate.

Table (3.1): Sample size and response rate of the study populations

Population Category	Total Population	Calculated Sample Size	Distributed questionnaire	No. of respondents	Response Rate
Qatari committee Eng. Staff	8	8	8	7	88 %
consultant offices Eng.	40	33	35	30	86 %
ministry of public works and housing Eng.	10	9	10	10	100 %
contracting company's Eng.	56	42	52	46	89%

According to Moser and Kalton (1971), the obtained response rates of 75% and 77% are reasonable and will reflect good results and outputs.

For the first population of Qatari committee engineering staff, the selected sample represented all engineering units. For the second population of consultant offices

engineers, the selected sample represented all classification categories of consultant offices at Gaza strip. For the third population of ministry of public engineers , the selected sample represented all engineering units for four zone at Gaza strip , while the last population of contracting company, the selected sample represented all classification categories under grade one and specialist in construction building in G.S.

3.5 Research Location

Research was done in G.S and aimed the Qatari committee engineering staff, consultant offices engineers, ministry of public housing, and contracting company's engineers distributed all over Gaza Strip

3.6 Data collection

The method that was used in collecting data in this research was questionnaire, questionnaire is easy to distribute, collect, analyse and it is working accurately.

3.7 Questionnaire Design

Based on the literature review and after interviewing experts who are interacting with the topic at different levels, everything that may help in attaining the analysis objectives were accumulated, examined and formalized to be suited to the study survey and after many phases of brain storming, talking to, amending, and researching, a questionnaire originated with finished questions

The questionnaire included one kind of questions. Multiple-choice question. The variety in these questions is designed first to meet up with the research objectives, also to gather all the required data that can support the conversation, results and advice in the study. The questionnaire directed to recognize the critical factors influencing the Qatari-Grant construction project success, and identifying the most important ones.

The questionnaire made up of two sections to perform the purpose of the research. For every section, all related factors within the books and earlier studies were gathered and reviewed. From then on, the factors were erased, improved, merged or

picked. Also, some new factors were added {in line with the} results and advice of the pilot research.

The following is a detailed description of the questionnaire content.

A) Section 1: included basic information about the population of the Qatari committee engineering staff, consultant offices engineers, ministry of public housing engineers and contracting company's engineers.

B) Section 2: was about factors affecting the success of the Qatari residential building in the Gaza Strip, which divide in five groups .the 1st group contains factors relating to design and preparation of tender documents. Factors related to the owner was the 2ⁿ group. Factors related to the contractor was the third group. Factors related to the project was the fourth group, while the external factors on the last. This section aimed to achieve the first, second and third objectives that intend to Isolate and classify the factors affecting the construction project's success based on their significant and contribution. To compile a list of factors affecting the project success concerning their significant and relevance, and to Clarify the misjudgement regarding some factors leading to construction project's failure at GS. Many of literatures and past studies were used to select the factors in this study.

Some of these researches mentioned **seven** groups of factor, but five groups of factors were finally selected after the pilot study as shown in **Table (3.3)** below:

Table (3.2): Factors affecting the success of the Qatari residential building in the Gaza Strip

Factors from literature		Selected factors after pilot study
1. Factors related to the design and preparation of tender documents		
Vision ,goal	Modified	The project has a clear vision and goal
experience	Modified	Sufficient experience of the designer
Communication	Modified	Communication between the designer and the producer during the design period
Time	Modified	Sufficient time given for the designer to design and prepare project drawings
Teamwork	Merged	Teamwork and the involvement of all parties in the design phase
Change order	Modified	The avoidance of changes made during design period and attention to detail.
Coordination	Modified	Coordination of all official parties (Qatari Committee, Ministry of public housing and Consultant...)

Table (3.2): **Factors affecting the success of the Qatari residential building in the Gaza Strip**

Factors from literature		Selected factors after pilot study
Safety	Merged	The designer's awareness of security and safety precautions during the implementation and design phases to minimize risk
Project record	Modified	The use of previous reports on similar projects
Quality	Modified	An emphasis on quality during design
The use of latest software and design codes	Selected	The use of latest software and design codes
Training	Merged	Training courses provided for design staff to brief them on technical modernization and encourage increased awareness of building technologies
Not relating exterior material selection to climatic conditions	Modified	Selecting of exterior finishing material not relating to climatic condition
Not considering the local climatic condition	Modified	Ignore the effect of local weather conditions at the building site for the design of the external shapes
Time	Added	The ability to accurately estimate the required time to complete the project
Cost	Modified	The ability to determine project cost with high accuracy
Client satisfaction	Added	Assurance that all parties are satisfied with the design
Communication	Modified	Communication with local and international markets to understand the use of modern products and industries
	Added	Focus on the use of national and local products for rapid implementation
2. Factors related to the owner		
Experience	Modified	Sufficient experience with the owner and his team
Project bidding method	Modified	Reliance low price bidding
Reputation ,performance	Merged	Consider the criteria of reputation and pre-performance in addition to the degree of classification of the contractor among the criteria of submission
Training	Modified	Training and the continuous technical progress of the owner's team
Coordination	Modified	Ability to coordinate and enjoy the spirit of teamwork
	Added	Follow the designs up-to-date
	Added	The cost of the project is provided to the taxpayer and a regular payment mechanism is established
Project contract mechanism	Added	The adoption of contracts suited to the nature of work
3. Factors related to the contractor		
experience	Modified	Sufficient experience with the contractor
Staff experience	Modified	The presence of highly qualified technical staff
Financial issues	Modified	The availability of sufficient funding for the contractor to carry out business
The contractor is aware of technical specifications	Merged	The contractor is aware of technical specifications required for business and their high-quality implementation
Resolve conflict troubleshooting	Modified	The ability to resolve conflicts
Client satisfaction	Added	The contractor cares about the satisfaction with all parties
Training	Modified	Workshops and periodic training sessions are held for staff working in the company

Table (3.2): **Factors affecting the success of the Qatari residential building in the Gaza Strip**

Factors from literature		Selected factors after pilot study
Time ,time overrun	Modified	Commitment to implementing actions within the time required
Clear vision	Modified	A clear vision and future plans to implement the business
Coordination	Merged	Ability to control and coordinate on site The good reputation and honesty of the contractor
Capability ,control of subcontractor	Modified	The incorporation of subcontractors of reputable and excellent quality
Safety	Modified	The attention of the contractor's plans to security and safety during implementation
Collection of tools and techniques	Modified	The contractor's availability of modern equipment
	Added	The presence of contractor stores
4. Factors related to the project		
Project size	Merged	Project size and business required
	Added	Project Location (packed or serviced)
Project type	Modified	Project Nature (Traditionnel -Récursives-Unique)
Cost	Modified	The cost of the project
5. External factors		
legal environment	Modified	The existence of binding laws in the town where the work is to be carried out
Project scope	Added	Awareness of the importance and purpose of the project
Collection of tools and techniques	Modified	The abundance of modern technological equipment
environmental factors	Modified	The consideration of various environmental, social and cultural factors
	Added	Decreasing the project's susceptibility to instances of instability
Fluctuations	Merged	Awareness of the economic fluctuations and declines of the country
	Added	Availability of water networks, electricity and sewage near the site
Material shortage	Modified	The owner's ability to coordinate the entry of external materials for the contractor
Closure of crossings	Modified	Continued opening of crossing points
	Added	Non-monopolization of materials.
	Added	Bank policies adopted within the country
	Added	Ease of importing and coordination of materials
	Added	Ease of obtaining financial dues from donors
Fluctuation	Modified	Clear expectations of currencies and materials
	Added	Procedures and factors of decision-making within the Qatari committee
	Added	The unification of the bidding price for all contractors
	Added	Requirement of significant administrative expenses
	Added	Communication with governmental institutions and knowledge of the conditions and requirements

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 information in order to encourage a high response.

The questionnaire was distributed to Qatari committee engineering staff, consultant offices engineers, ministry of public works and housing and contracting company 's engineers in Arabic language since the Arabic language is much effective and easier to be understood to get more realistic results. Unnecessary personal data, complex and duplicate questions were avoided. Respondents were given the choice to address their names or not. They were asked to give their opinions frankly and honestly. The final version of the questionnaire was designed in English language (attached in Annex 1), while the distributed version was in Arabic language (attached in Annex 2), as most members of the target population were unfamiliar with the English language..

3.8 Pilot Study

It is customary practice that the survey instrument should be piloted to measure its validity and reliability and test the collected data. The pilot study provides a trial run for the questionnaire, which involves testing the wordings of questions, clarifying ambiguous questions, and testing the techniques that were used to collect data (Naoum, 2007).

A pilot study for the questionnaire was conducted by distributing the prepared questionnaire to a number of experts having experience in the same field of the research to have their opinions as shown in **Table (3.3)** shows the organizations and positions of the piloting respondents.

Table (3.3): Profile of respondents interviewed for pilot study and content validity

No	Organization	Position	Experience
1	Islamic University Of Gaza	Associate professor	20
2	Islamic University Of Gaza	Assistant professor	27
3	Ministry of public works	Director of technical affairs	25
4	Ministry of public works	Head of tender department	25
5	Contracting company	Projects manager	20
6	Contractor company	Office Engineer	20
7	Consultant office	Design engineer	10
8	Consultant office	Project Manager	25

Experts were asked to examine the questionnaire and confirm the validity of the questionnaire issues and its own relevance to the study objective and present their advice. Generally, they decided that the questionnaire would work to attain the goals of the analysis. Important remark and ideas were accumulated and examined carefully. All of the suggested remarks and improvements were discussed with the study's supervisor before considering them.

3.9 Validity of the Questionnaire

Heffner (2004) explained that, validity refers to the degree in which our test or other measuring device is truly measuring what we intended it to measure. Burns and Grove (1993) defined the validity of an instrument as a determination of the extent to which the instrument actually reflects the abstract construct being examined.

Polit et al. (1994) give another definition; "Validity refers to the degree to which an instrument measures what it is supposed to be measuring". Validity has a number of different aspects and assessment approaches. There are two ways to evaluate instrument validity: (1) content validity and (2) statistical validity, which include criterion-related validity and construct validity.

3.9.1 Content Validity of the Questionnaire

The amended questionnaire was reviewed by the supervisor and ten experts in the field of maintenance building, especially in school buildings maintenance to evaluate the procedure of questions and the method of analysing the results. The experts agreed that the questionnaire was valid and suitable enough to measure the purpose that the questionnaire designed for.

3.9.2 Statistical Validity of the Questionnaire

Statistically, to ensure the validity of the questionnaire; Two statistical tests were 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 structure validity test that was 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 field and all the fields of the questionnaire that have the same level of similar scale.

A) Criterion Related Validity

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 field. Table (3.4) below shows the correlation coefficient and p-value for each field items. **Table (3.4)** below shows the relationship coefficient and p-value for every field items. As shown in table below the p-Values are significantly less than 0.05 or 0.01, therefore the correlation coefficients of the field are significant at $\alpha = 0.01$ or $\alpha = 0.05$, so that it can be said that the paragraphs of the field are steady and valid to be strategy what it was established and placed for.

Table (3.4): correlation coefficient between each paragraph in the field and the whole field

No.	Pearson coefficient	p-value	No.	Pearson coefficient	p-value	No.	Pearson coefficient	p-value	No.	Pearson coefficient	p-value	No.	Pearson coefficient	p-value
Factors related to design and preparation of tender documents			Factors related to the owner			Factors related to the contractor			Factors related to the project			External factors		
1	0.825	0.000	1	0.483	0.007	1	0.385	0.000	1	0.735	0.000	1	0.719	0.000
2	0.834	0.000	2	0.609	0.000	2	0.584	0.000	2	0.558	0.001	2	0.838	0.000
3	0.826	0.000	3	0.843	0.000	3	0.769	0.036	3	0.624	0.000	3	0.658	0.000
4	0.851	0.000	4	0.649	0.000	4	0.572	0.001	4	0.770	0.000	4	0.907	0.000
5	0.897	0.000	5	0.775	0.000	5	0.572	0.000	5	0.793	0.000	5	0.831	0.000
6	0.760	0.000	6	0.825	0.000	6	0.693	0.001				6	0.885	0.000
7	0.671	0.000	7	0.765	0.000	7	0.640	0.001				7	0.815	0.000
8	0.680	0.000	8	0.800	0.000	8	0.634	0.000				8	0.847	0.000
9	0.813	0.000				9	0.471	0.009				9	0.699	0.000
10	0.679	0.000				10	0.667	0.000				10	0.851	0.000
11	0.765	0.000				11	0.473	0.008				11	0.829	0.000
12	0.568	0.001				12	0.618	0.000				12	0.821	0.000
13	0.788	0.000				13	0.618	0.000				13	0.852	0.000
14	0.565	0.001				14	0.424	0.020				14	0.871	0.000
15	0.554	0.002				15	0.654	0.000				15	0.721	0.000
16	0.673	0.000										16	0.758	0.000
17	0.756	0.000										17	0.798	0.000
												18	0.803	0.000

3.9.3 Structure Validity of the Questionnaire

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 field and all the fields of the questionnaire that have the same level of Likert scale.

As shown in **Table (3.5)**, the importance values are significantly less than 0.05 or 0.01, therefore the correlation coefficients of all areas are significant at $\alpha = 0.01$ (p-value < 0.01) or $\alpha = 0.05$ (0.01 < p-value < 0.05), {so that it} can be said that the area are valid to evaluate what it was established for to attain the primary goal of the research

Table (3.5): Correlation coefficient between one field and all t fields

No.	Section	Pearson correlation coefficient	p-value
1	Factors relating to design and preparation of tender documents	0.828	0.000
2	Factors related to the owner	0.905	0.000
3	Factors related to the contractor	0.896	0.000
4	Factors related to the project	0.650	0.000
5	External factors	0.554	0.001

3.10 Reliability of the Research

The reliability of an instrument is the degree of consistency which measures the attribute; it is supposed to be measuring (Polit and Hunger,1985). The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient (Polit et al., 1994)

It is difficult to return the scouting sample of the questionnaire-that is used to measure the questionnaire validity to the same respondents due to the different work conditions to this sample. Therefore two tests can be applied to the scouting sample in order to measure the consistency of the questionnaire. The first test is the Half Split Method and the second is Cronbach's Coefficient Alpha (Polit et al., 1994)

A) 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 ($2r/ r+1$) ranges through 0.0 and + 1.0 As it is illustrated in **Table (3.6)**, the corrected correlation coefficients values ranges from 0.818 and 0.882 and reliability for all items equal 0.874 and the significant (α) is below 0.05 so all the corrected correlation coefficients are significance at $\alpha < 0.05$. According to the Half Split method, it can be concluded that the dispute causes group are reliable.

Table (3.6): Split-Half Coefficient method

Number	Section	person-correlation	Spearman-Brown Coefficient
1	Factors relating to design and preparation of tender documents	0.753	0.859
2	Factors related to the owner	0.692	0.818
3	Factors related to the contractor	0.790	0.882
4	Factors related to the project	0.773	0.872
5	External factors	0.735	0.847
	All sections	0.776	0.874

B) 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. Cronbach's Alpha can be written as a function of the number of test items and the average inter-correlation among the items. Below, for conceptual purposes, we show the formula for the standardized Cronbach's alpha:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}} \quad (\text{equation 3.3})$$

Here N equal to the number of items \bar{c} is the average inter-item covariance through the items and \bar{v} equals the average variance.

One can see from this formula that if you increase the number of items, you increase Cronbach's alpha. Additionally, if the average inter-item correlation is low, alpha will be low. As the average inter-item correlation increases, Cronbach's Alpha increases.

This makes sense intuitively - if the inter-item correlations are high, and then there is evidence that the items are measuring the same underlying construct. This is really what is meant when someone says they have "high" or "good" reliability.

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 3.7, the Cronbach's coefficient alpha was calculated for for the first field of the causes of claims, the second field of common procedures and the third field of the Particular claims. The results were in the range from 0.839 and 0.916, and the general reliability for all items equal 0.896. This range is considered high; the result ensures the reliability of the questionnaire.

Table (3.7): Cronbach's Coefficient Alpha for Reliability

Number	Section	Cronbach's Alpha
1	Factors relating to design and preparation of tender documents	0.890
2	Factors related to the owner	0.839
3	Factors related to the contractor	0.916
4	Factors related to the project	0.892
5	External factors	0.864
	All sections	0.896

Thereby, it can be said that the researcher proved that the questionnaire was valid, reliable, and ready for distribution for the sample.

3.11 Data processing and analysis

The collected raw data was first sorted, edited, coded and then entered into computer software. Two programs were used, the Excel sheet and SPSS software. Appropriate graphical representations and tables were obtained to understand and analyse the questions. The ordinal scale was used in the analysis process. The ordinal scale is a ranking or rating data which normally uses integers in ascending or descending order. The relative importance index (RII) was used in the analysis in addition to other approaches such as the one way ANOVA and frequencies and percentiles.

$$RII = \frac{\sum w}{AN} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5n} \quad (\text{equation 3.4})$$

Where W is loading given for every factor by the respondent, between 1 to 5, (n_1 = number of respondents for who agreed strangely, n_2 = number of respondents who don't agree, n_3 = number of respondents for neutral, n_4 = number of respondents for agree, n_5 = number of respondents who agreed strangely). "A" is the first load (i.e. 5 in the study) and N is the total number of samples. RII is between 0 and 1. SPSS program was used to analyse all sections, while the Microsoft Excel was supportive in the presentation and layout. The analysed data was finally presented using descriptive methods for easy interpretation and to enable and to make comparison easy.

Chapter 4

Results and Discussion

Chapter 4

Results and Discussion

This chapter introduces the survey results obtained from interviews and questionnaire and the discussion of the questionnaire's sections for the respondents.

Questionnaire results were obtained from **93 questioners**, section one of the questionnaire discusses general information about the respondents of questionnaire, section two discusses groups of the questionnaire, factors relating to design and preparation of tender documents, factors related to the owner, factors related to the contractor ,factors related to the project and external factors affecting on the success of the Qatari Construction projects, the two sections were designed to achieve the defined objectives of this research and to propose recommendations to improve the criteria of the work to guarantee the success of these projects.

4.1 Questionnaire Results

4.1 Section 1: General Information

4.1.1 Nature of the Work

Table (4.1) shows that 7.5% of population sample works in "Qatari committee", 32.2% works in "Consultant offices", 10.8% works in "Ministry of public works and housing", and 49.5% works in "Contracting companies".

Table (4.1): Nature of Work of Respondents

Nature of Work of Respondents	Frequency	Percentages
Qatari committee	7	7.5
Consultant offices	30	32.2
Ministry of public works and housing	10	10.8
Contracting companies	46	49.5
Total	93	100.0

4.1.2 Occupation of Respondents

Table (4.2) shows that 3.2% of population sample occupation's are "Company owner", 12.9% are "Consultant", 16.1% are "Project Manager", 21.5% are "Office engineer", 35.5% are "Site engineer", and 10.8% are "Others".

These results indicated that 69.7 of respondents are project manager ,office engineer and site engineer. From this finding we can deduce that participants in the questionnaire will give better results because they are more familiar with what is going on in the project.

Table (4.2): Occupation of Respondents

Occupation of Respondents	Frequency	Percentages
Company owner	3	3.2
Consultant	12	12.9
Project Manager	15	16.1
Office engineer	20	21.5
Site engineer	33	35.5
Other	10	10.8
Total	93	100.0

4.1.3 Years of Respondent's Experience

Table (4.3) shows that 18.3% of population sample experience are "less than 5 years", 39.8% are (5- less than 10) years, 21.5% are (10-less than 15) year, and 20.4% are (15 years or more).

This result emphasizes the accuracy of the obtained data which can lead to accurate results.

Table (4.3): Years of Experience of Respondents

Years of Experience of Respondents	Frequency	Percentages
Less than 5 years	17	18.3%
(5- less than 10) years	37	39.8%
(10-less than 15)year	20	21.5%
15 years or more	19	20.4%
Total	93	100.0

4.1.4 Years of Institution's Experience

Table (4.4) shows that 24.7% of institution or company experience are (less than 10 years), 22.6% are (10-less than 15) years, 19.4% are (15-less than 20) years, and 33.3% are (20 years or more).

These results indicate that institution of respondents have long experience. This range of experience gives them the ability to provide accurate and reliable information to the questionnaire.

Table (4.4): Years of Experience of Institution

Years of Experience of Institution	Frequency	Percentages
Less than 10 years	23	24.7
(10-less than 15) years	21	22.6
(15-less than 20) years	18	19.4
20 years or more	31	33.3
Total	93	100.0

4.1.5 Number of Implemented Projects by Institution in the Last Five Years

Table (4.5) shows that 18.3% of implemented or supervised projects over the last five years (Less than 10 projects), 24.7% are (From (10-20) projects), 21.5 % are (From (21-30) projects), and 35.5 % are (More than 30 projects).

It can be concluded that the majority of institutions have implemented a large number of projects in recent years, also these institutions are still working in the market and familiar with the market and not far away, which will lead to better results projects.

Table (4.5): Number of implemented or supervised projects

Number of Implemented or Supervised Projects	Frequency	Percentages
Less than 10 projects	17	18.3
From (10-20) projects	23	24.7
From (21-30) projects	20	21.5
More than 30 projects	33	35.5
Total	93	100.0

4.1.6 Size of Projects (Per million dollars)

Table (4.6) shows that 2.1% of projects size are (less than 5 million dollars), 19.4% are from (5- less than 10) million dollars, 15.1% are from (10-less than 15) million dollars, and 66.4% are more than 15 million dollars.

It's concluded that most of contracting companies that filled questionnaire are considered as large companies in regard to the project sizes in Gaza Strip.

Table (4.6): Size of Projects (Per million dollars)

Size of Projects (Per million dollars)	Frequency	Percentages
Less than 5 million dollars	2	2.1
From (5- less than 10) million dollars	18	19.4
From (10-less than 15) million dollars	14	15.1
More than 15 million dollars	59	63.4
Total	93	100.0

4.2 Section 2: Construction Projects Success Factor

This part shows the results of the respondents of questionnaire ;(contractors, consultants, ministry of housing, Qatar committee), questionnaire was divided for five groups as follow:

- 1- Factors related to design and preparation of tender documents.
- 2- Factors related to the owner.
- 3- Factors related to the contractor.
- 4- Factors related to the project.
- 5- External factors.

4.2.1 Factors Related to the Design and Preparation of Tender Documents:

Table (4.7): Means and Test Values for "Factors Related to Design and Preparation of Tender Documents"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
1	The project has a clear vision and goal.	4.67	0.560	93.48	28.227	0.000	1
2	Sufficient experience of the designer.	4.60	0.616	91.91	24.418	0.000	2
4	Sufficient time given for the	4.29	0.678	85.84	17.990	0.000	3

Table (4.7): Means and Test Values for "Factors Related to Design and Preparation of Tender Documents"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
5	designer to design and prepare project drawings. Teamwork and the involvement of all parties in the design phase.	4.19	0.737	83.82	15.253	0.000	4
10	An emphasis on quality during design.	4.10	0.640	82.02	16.221	0.000	5
13	The ability to accurately estimate the required time to complete the project.	4.09	0.778	81.80	13.214	0.000	6
7	Coordination of all official parties; (Qatari Committee, Ministry of Public Housing and Consultant...).	4.01	0.859	80.22	11.101	0.000	7
14	The ability to determine project cost with high accuracy.	4.00	0.769	80.00	12.273	0.000	8
8	The designer's awareness of security and safety precautions during the implementation and design phases to minimize risk.	3.97	0.982	79.33	9.281	0.000	9
6	The avoidance of changes made during design period and attention to detail.	3.93	0.876	78.65	10.038	0.000	10
3	Communication between the designer and the producer during the design period.	3.91	1.018	78.20	8.430	0.000	11
16	Communication with local and international markets to understand the use of modern products and industries.	3.90	0.892	77.98	9.502	0.000	12
15	Assurance that all parties are satisfied with the design.	3.78	0.889	75.51	8.230	0.000	13
12	Training courses provided for design staff to brief them on technical modernization and encourage increased awareness of building technologies.	3.69	0.806	73.71	8.021	0.000	14
17	Focus on the use of national and local products for rapid implementation.	3.64	0.869	72.81	6.951	0.000	15
11	The use of latest software and design codes.	3.62	0.873	72.36	6.681	0.000	16
9	The use of previous reports on similar projects.	3.37	0.981	67.42	3.564	0.001	17
	Total	3.99	0.384	79.71	24.190	0.000	

Results from Table 4.7 indicated that CSF (**The project has a clear vision and goal**) was the highest loading factor with a mean equal "4.76" and relative importance index " 93.48%" and P-value equal 0.000. Which is smaller than the level of significance $\alpha= 0.05$. It can be concluded that the respondents agreed to this factor as a very important factor. This is due to the difficulty to build a project without knowing its goal and what it will be used for and view of perspectives. That is related to a variety of elements including technical, financial, educational and social issues and it must be a thorough understanding of the scope of the project to avoid disputes and conflicts, which is possible to occur if the scope is not clearly defined. This result is supported by (Gudienė, et al. 2013), in which, they stated that success as the degree to which project goals and expectations are met, also it's not far from the result of (Adriel et al., 2016), they ranked, that project scope and objectives as the second loaded factor. In addition, it is matched to (Tabish and Jha, 2011) in which, they ranked scope of a project as the third factor affecting on the project success.

The second high factor loaded CSF in this component was (**Sufficient experience of the designer**) with a mean equal "4.6", with relative importance index "91.91%", and P-value 0 .000, which is smaller than the level of significance $\alpha= 0.05$. This is clear since an experienced designer is working on high level of responsibility to gain valuable design to meet design goals and to gain satisfactions from all parties; and this is matched to (Sanvido et al., 1992). Also, it's close to (Mortaheb et al., 2013), who concluded the importance of the experience effect on quality and the output of the project .In addition, (Saqib et. al., 2008), ranked the designer experience as the fourth loaded factor. Besides, (Gudiene et. al., 2013), concluded that experience is the most important factor.

The third high factor loaded CSF in this component was (**Sufficient time given for the designer to design and prepare project drawings**) with a mean 4.29 and relative importance index "85.84%", and P-value 0.000, which is smaller than the level of significance $\alpha= 0.05$. This is because no one can deny the great importance of time in implementing projects. Giving the designer enough time to design gives the opportunity to get a more precise design, avoids change orders, facilitates the best design and cost estimation of the project with high accuracy.

Finally, it is included that the lowest important factor in this survey for this group is **(The use of previous reports on similar projects) with a mean 3.37**, with relative importance index "67.42%", and P-value equal $0.000 < 0.05$. This is due to the conditions experienced by the sector of contracting in Gaza strip, such that the closure of the crossings and fluctuation in prices at large differences, which makes it difficult to rely on the price of the previous project or the time and productivity in which the previous project was implemented in the presence of significant differences, also because of the reasons that may arise and lead to the suspension of the project.

For general the results for all factors of the first section (Factors relating to design and preparation of tender documents) show that the average mean equal 3.99, relative importance index equal 79.71% > "60.0%" the value of t test equal $24.190 >$ critical value = 1.99 and the p-value equal $0.000 < 0.05$. The null hypothesis H_0 is rejected, as a result the null hypothesis is rejected and the alternative hypothesis is accepted. That means there is relationship between factors related to design and preparation of tender documents and the success of construction projects at significant level $\alpha \leq 0.05$

4.2.2 Factors Related to the Owner

Table (4.8): Means and Test Values for "Factors Related to the Owner"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
7	The cost of the project is provided to the donor and a regular payment mechanism is established.	4.33	0.750	86.52	16.669	0.000	1
1	Sufficient experience with the owner and his crew.	4.21	0.910	84.27	12.574	0.000	2
3	Consider the criteria of reputation and pre-performance in addition to the degree of classification of the contractor among the criteria of submission.	4.20	0.756	84.04	14.993	0.000	3
6	Follow the designs up-to-date.	4.03	0.761	80.67	12.823	0.000	4
5	Ability to coordinate and enjoy the spirit of teamwork.	4.02	0.797	80.45	12.097	0.000	5
2	Reliance low price bidding.	3.97	0.665	79.33	13.711	0.000	6
8	The adoption of contracts suited to the nature of work.	3.84	0.987	76.85	8.051	0.000	7
4	Training and the continuous	2.94	1.317	58.88	-0.402	0.688	8

Table (4.8): Means and Test Values for "Factors Related to the Owner"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
	technical progress of the owner's team.						
	Total	3.94	0.434	78.88	20.524	0.000	

Results from Table 4.8 indicated that **CSF (The cost of the project is provided to the donor and a regular payment mechanism is established)** was the highest loading factor with a mean 4.33 and relative importance index "86.52%", and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$. The availability of funding and the regularity of payment affects greatly on project success since delay in payment leads to delay in work and sometimes leads to interruption of work. In addition, when the institution pays for the contractor regularly, the Contractor pay for sub-contractors and workers on a regular basis and work is proceeding as planned without delay and vice versa in the case of late payments.

The second high factor loaded CSF in this component was **(Sufficient experience with the owner and his crew)** with a mean 4.21 and relative importance index "88.76%", and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$. It can be concluded that the respondents agreed to this factor as a very important factor. This is due to the impact of owners' experience on the quality and performance of work. This result is complied with (Mortaheb et al., 2013), in which they concluded that the impact of owner experience on the performance of the project is very strong especially on project cost, client satisfaction and on project duration. In addition, this is matched to the result of (Gudiene et al., 2013), who ranked experience of the owner team as the first loaded factor.

The third high factor loaded in this component was **(Consider the criteria of reputation and pre- performance in addition to the degree of classification of the contractor among the criteria of submission)** with a mean 4.2 and relative importance index "84.04%", and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$. This is due to the importance of reputation, performance and

degree of classification on the quality and the implementation of the work. This result is complied with the result of (Hutchings and Christofferson, 2001), they concluded that reputation is one of the most important factors that leads to company success. Besides, Mbugua et al. (1999), concluded that performance is one of the four most important critical success factors.

The lowest factor according to relative importance index was (**Training and the continuous technical progress of the owner's team**) with a mean 2.94 and relative importance index "58.88%", and P-value equal 0.000 which is smaller than the level of significance $\alpha = 0.05$. This is due to the fact that the Qatari projects that were implemented in Gaza Strip are traditional projects. In addition, the closure of the crossings and the siege imposed on Gaza Strip reduces the opportunity to travel and training abroad to train and gain experience. This result disagreement with (Enshassi et al. 2009), in which they listed that training is an important factor for the effect of it on project success in terms of quality.

For general the results for all factors of the second section (Factors related to the owner) show that the average mean equal 3.94, relative importance Index equal 78.88% > "60.0%" the value of t test equal 20.524 > critical value = 1.99 and the p-value equal 0.000 < 0.05. The null hypothesis H0 is rejected, as a result the null hypothesis is rejected and the alternative hypothesis is accepted. That means there is relationship between factors related to the owner and the success of construction projects at significant level $\alpha \leq 0.05$

4.2.3 Factors Related to the Contractor

Table (4.9): Means and Test Values for "Factors Related to the Contractor"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
1	Sufficient experience with the contractor.	4.58	0.496	91.69	30.155	0.000	1
2	The presence of highly qualified technical staff.	4.44	0.722	88.76	18.785	0.000	2
3	The availability of sufficient funding for the contractor to carry out business.	4.37	0.774	87.42	16.701	0.000	3
11	The good reputation and honesty of the contractor.	4.31	0.684	86.29	18.127	0.000	4
4	The contractor is aware of	4.29	0.815	85.84	14.963	0.000	5

Table (4.9): Means and Test Values for "Factors Related to the Contractor"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
13	technical specifications required for business and their high-quality implementation. The attention of the contractor's plans to security and safety during implementation.	4.21	0.959	84.27	11.937	0.000	6
12	The incorporation of subcontractors of reputable and excellent quality.	4.16	0.705	83.15	15.476	0.000	7
9	A clear vision and future plans to implement the business.	4.15	0.806	82.92	13.422	0.000	8
8	Commitment to implementing actions within the time required.	4.11	0.859	82.25	12.222	0.000	9
10	Ability to control and coordinate on site.	4.01	0.746	80.22	12.786	0.000	10
5	The ability to resolve conflicts.	3.91	0.748	78.20	11.473	0.000	11
14	The contractor's availability of modern equipment.	3.89	0.790	77.75	10.604	0.000	12
6	The contractor cares about the satisfaction with all parties.	3.69	0.847	73.71	7.630	0.000	13
15	The presence of contractor stores.	3.64	0.932	72.81	6.480	0.000	14
7	Workshops and periodic training sessions are held for staff working in the company.	3.52	0.893	70.34	5.458	0.000	15
	Total	4.09	0.435	81.71	23.535	0.000	

Results from Table 4.9 indicated that (**sufficient experience with the contractor**) was the highest factor with a mean 4.58 and relative importance index "91.69%", and P-value equal 0.000 which is smaller than the significance level $\alpha < 0.05$. The contractor's experience in carrying out the work and his prior performance in the execution of the works in similar projects affects greatly on the success of the projects and this is matched to (Sanvido et al., 1992), and it's close to (Mortaheb et al., 2013), who concluded the importance of the experience affecting on quality and the output of the project. Also, (Saqib et al., 2008), listed in their research that designer experience has the fourth loaded factor.

The second high factor loaded in this component was (**The presence of highly qualified technical staff**) with a mean 4.4 and relative importance index "88.76%", and P-value equal 0.000, which is smaller than the level of significance $\alpha = 0.05$. It is known that the reason for the success of any project that the existence of strong and efficient management; and presence of a technical staff with sufficient experience

and knowledge of the site facilitates make the work go easier , with high quality and as soon as possible. This result is matched to (Mortaheb et al., 2013), they ranked engineers experience as one of the most important factor that has strong impact on project's cost. Also, Sanvido et al. (1992) gave the existence of qualified staff high rank.

The third high factor loaded in this component was (**The availability of sufficient funding for the contractor to carry out business**) with relative importance index " 87.42%" , and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$.The presence of sufficient funding for contractor affects significantly on the success of projects , where the availability of fund is very necessary for the payment of labors , subcontractors , administrative expenses and all requirements of site; and any delay in payment will affect negatively on work progress and may lead to stop the work.

The lowest factor according to the relative importance index is (Workshops and Periodic Training Sessions are held for staff working in the company)with a mean equal "3.52" and relative importance Index " 70.34%", and P-value equal 0.000, which is smaller than the level of significance $\alpha= 0.05$. This is due to the fact that the Qatari projects in which implemented in Gaza Strip are traditional projects. In addition, the closure of the crossings and the siege imposed on Gaza Strip reduces the opportunity to travel and training abroad to gain experience .This result disagreement with (Enshassi et al. 2009) in which they listed that training affect on project success in terms of quality.

For general the results for all factors of the third section (Factors related to the contractor) show that the average mean equal 4.09 , relative importance index equal 81.71% > "60.0%" the value of t test equal 23.535> critical value = 1.99 and the p- value equal 0.000 < 0.05.The null hypothesis H0 was rejected , as a result the null hypothesis is rejected and the alternative hypothesis is accepted. That means there is relationship between factors related to the contractor and the success of construction projects at significant level $\alpha \leq 0.05$

4.2.4 Factors Related to the Project

Table (4.10): Means and test values for "Factors related to the project"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
1	Project size and business required.	4.17	0.711	83.37	15.507	0.000	1
3	Project Nature (Traditionnel-Récurrent-Unique).	3.99	0.715	79.78	13.046	0.000	2
4	The cost of the project.	3.74	0.846	74.83	8.265	0.000	3
5	Type of project (new construction, restoration and maintenance).	3.69	0.684	73.71	9.451	0.000	4
2	Project Location (packed or serviced).	3.56	0.976	71.24	5.428	0.000	5
	Total	3.83	0.498	76.58	15.716	0.000	

Results from Table 4.10 indicated that **(Project size and business required)** was the highest factor with a mean equal "4.17" and relative importance index "83.37%", and P-value equal 0.000 which is smaller than the level of significance $\alpha=0.05$. The higher size of the project the greater experience of the contractor, gaining good reputation, better rating, more crews and relations with subcontractors and finally more interest. This is matched to (Shafik and Martin, 2006) in which they said, that the most important factor depends on procurement criteria, is project size. In addition, Gudiene et al. (2013), concluded that success factors are varying and depending on project size, scope and complexity and they ranked project size factor in the top ten factor in their study.

The second high factor loaded in this component was **(Project Nature (Traditional-Recursive-Unique))** with a mean equal "3.99" and relative importance index "79.78%", and P-value equal 0.000 which is smaller than the level of significance $\alpha=0.05$. If the contractor does not have experience in implementing similar projects, he will gain experience from this project and improve his classification and add new staff with expertise in these areas, traditional projects are easy to implement where it is easy for subcontractors to perform their tasks in duplicate. On the contrary, if the projects are non-recurrent and unique, they need more time to implement. It is difficult, but the nature of the Qatari projects was almost traditional projects, so it

was easy in the implementation, this result is matched to (Akinsola et al., 1997), they ranked project complexity as the highest factor.

The third high factor loaded in this component was **(The cost of the project)** with a mean equal "3.74" and Relative importance Index " 74.83%", and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$.The higher value of the project the greater profit margin, the greater volume of work and better contractor's classification.

The lowest factor according to relative importance index is **(Project Location (packed or serviced))** with relative importance index "73.71%", and P-value equal 0.000, which is smaller than the level of significance $\alpha= 0.05$.The presence of the Qatari projects in suitable places with services has had an impact on their success, but if they are in hot zones, the work will be delayed.

For general the results for all factors of the fourth section (Factors related to the project) show that the average mean equal 3.83. Relative importance Index equal 76.58% > "60.0%" the value of t test equal 15.716 > critical value = 1.99 and the p-value equal 0.000 < 0.05. The null hypothesis H0 is rejected , As a result the null hypothesis is rejected and the alternative hypothesis is accepted. That means there is relationship between factors related to the project and the success of construction projects at significant level $\alpha \leq 0.05$.

External Factors

Table (4.11): Means and Test Values for "External Factors"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
9	Continued opening of the crossing points.	4.57	0.638	91.46	23.275	0.000	1
13	Ease in obtaining financial dues from donors.	4.30	0.714	86.07	17.231	0.000	2
8	The owner's ability to coordinate the entry of external materials for the contractor.	4.28	0.783	85.62	15.429	0.000	3
10	Non-monopolization of materials .	4.25	0.802	84.94	14.676	0.000	4
12	Ease of importing and of	4.25	0.758	84.94	15.522	0.000	4

Table (4.11): Means and Test Values for "External Factors"

No.	Factor	Mean	Std. Deviation	%of Relative importance Index	t-value	P-value	Rank
	materials						
14	clear expectations of currencies and materials.	3.92	0.842	78.43	10.318	0.000	5
5	Decreasing the project's susceptibility to instances of instability.	3.83	0.856	76.63	9.164	0.000	6
3	The abundance of modern technological equipment	3.82	0.847	76.40	9.136	0.000	7
1	The existence of binding laws in the town where the work is to be carried out.	3.81	0.890	76.18	8.572	0.000	8
7	Availability of water networks, electricity and sewage near the site.	3.80	0.855	75.96	8.800	0.000	9
15	Procedures and factors of decision-making within the Qatari committee.	3.78	0.926	75.51	7.896	0.000	10
18	Communication with governmental institutions and knowledge of the conditions and requirements.	3.75	0.957	75.06	7.423	0.000	11
6	Awareness of the economic fluctuations and declines of the country.	3.74	0.747	74.83	9.370	0.000	12
11	Ease of bank policies adopted within the country.	3.60	0.888	71.91	6.324	0.000	13
17	Requirement of significant administrative expenses.	3.54	1.023	70.79	4.973	0.000	14
16	The unification of the bidding price for all contractors.	3.52	0.931	70.34	5.239	0.000	15
2	Awareness of the importance and purpose of the project.	3.51	0.990	70.11	4.818	0.000	16
4	The consideration of various environmental, social and cultural factors.	3.36	1.090	67.19	3.113	0.003	17
	Total	3.87	0.474	77.35	17.268	0.000	

Results from Table 4.11 indicated that (**continued opening of the crossing points**) was the highest factor with relative importance index " 91.46%", and P-value equal 0.000, which is smaller than the level of significance $\alpha= 0.05$. It can be concluded that the respondents agreed to this factor as a very important factor because Gaza Strip is suffering from a severe siege imposed from twelve years ago ; and this caused heavy losses for all sectors in Gaza Strip. It affected on the Qatari projects, this blockade of crossing points has great influence because of the frequent closure of the crossings that lasted entry construction materials , which led to the

high prices, because of monopoly .It led to large losses to contractors and delayed projects. This result is matched to the result of (Enshassi et al.,2009) they concluded that the closures that lead to material shortage are the most important factor since this factor directly affects the project performance and if resources are not available as planned through project duration the project will suffer from the problem of time performance.

The second high factor loaded in this component was (**Ease in obtaining financial dues from donors**) with relative importance index "86.07%", and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$. It is concluded that respondents agreed to this factor as a very important factor for the great importance in influencing the success of the projects where delayed payments for the contractor has significant impact on the conduct of business because the delay of payments lead to delay payments of sub-contractors and this lead to stop their work sometimes and thus delay projects. In addition, delay payments sometimes lead to the recourse of the contractor for loans from banks, which cost excess cost of interest.

The third high factor loaded in this component was (**The owner's ability to coordinate the entry of external materials for the contractor**) with relative importance index "85.62%", and P-value equal 0.000 which is smaller than the level of significance $\alpha= 0.05$. One of the most important reasons that affected the progress of Qatari projects is the coordination of the materials, as the ability to coordinate the Qatar Committee for Materials through Rafah crossing led to the rapid completion of projects.

The lowest factor according to relative importance index is (**The consideration of various environmental, social and cultural factors**) with relative importance index "70.34%", and P-value equal 0.000, which is smaller than the level of significance $\alpha= 0.05$. This result due to Gaza Strip does not have floods, earthquakes or volcanoes that hampering work.

For general the results for all factors of the fifth section (External factors) show that the average mean equal 3.87 ,relative importance index equal 77.35% > "60.0%" ,the value of t test equal 17.268 > critical value = 1.99 and the p- value equal 0.000 < 0.05. The *null hypothesis H0* was rejected , As a result the null hypothesis is rejected and the alternative hypothesis is accepted. That means there is relationship between external factors and the success of construction projects at significant level $\alpha \leq 0.05$.

Chapter 5

Case Study and Interviews

Chapter 5

Case Study and Interviews

This chapter presents case study, which collected from actual project implemented in Gaza Strip. The data was collected via interviews with project's contractors, consultants and owners. Site visits and reviewing project documents are the core of data for the case study, summarized data of the collected information was presented by concentrating on the factors that affects on project success. Nine contractors who worked on the Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis were selected for validating the results of this research. These projects were selected, because they are representing the common success factor for Qatari-Grant projects. The projects were easily accessible to collect data to get in-depth information about critical success factors affecting the Qatari-Grant construction project.

5.1 Case Study Background

This case study illustrates one of the largest projects in Gaza Strip. The project consists of 63 residential buildings containing 1264 apartments serving 7000 inhabitants, where each residential tower contains 20 to 22 apartments distributed on 5 floors in each floor four apartments with 3 types area. These types are 130 m², 115 m² and 100 m² per apartment, distributed in three types of residential towers. This project contains a complete infrastructure. These buildings were implemented by nine Palestinian contractors classified as grade A from Palestinian Contractors Union (PCU).

Detailed design and supervision were prepared by joint venture of four consultant offices, ministry of public works and housing and high supervision by the Qatari committee. Project activities were started on 30/10/2015 in Khan Younis city and finished on 01/04/2017. Detailed information of these projects is summarized in **Table (5.1)**.

Table (5.1): Characteristics of Construction Projects of His Highness Sheikh Hamad Bin Khalifa Residential City Phase II.

Project Name	Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis
Description of the Project	The project consist of 63 residential towers, each tower contains 5 floors. Each floor contains 4 apartment .the project contains 3 types of towers. The first type contains 5 floors on each floor 4 apartments with an area of 130 m ² for the apartment while the second type with an area of 115 m ² and the last with an area of 100m ²
Project Location	Khan Younis city
Target Population	7000 people.
District	Gaza Strip.
Starting Date	30/10/2015
Finishing Date	01/4/2017
Allocated Budget (\$)	58793333.36 \$
Planned Project Duration	12 months.
Actual Project Duration	17 months.
Contractor	Nine contractors grade A
Designer	Consultants venture
Consultant	Consultants venture
Owner	Ministry of public housing
Donor	Government of Qatar

5.1.1 Data collection for critical success factors

This case illustrates one of the largest project spent in Gaza Strip. The project faced a lot of obstacles and problems that face every party of the project with variant degree of responsibility for each party. At the end of the project, there was a number of meeting that were held with nine contractors who worked in construction of His Highness Sheikh Hamad Bin Khalifa Phase II to detect the real cause of the factors that affects on project success . The table below summarizes the factors affecting the success of the projects obtained through interviews with nine contractors who implemented the city of Sheikh Hamad PhaseII-KhanYounis .

Table (5.2) : Critical Success Factors

No.	Contractor Name	Project Budget	Project Description	Critical Success Factor	Factor Group
1	CONTRACTOR A	5,520000 \$	8 residential tower contains 160 apartments, where 80 of them with total area = 115m ² and the other with total area = 130 m ² .	Regulate of payment, and the ability of owner to coordinate for material	Factors related to the owner
				Sufficient time given to design, and sufficient experience of the designer staff	Factors related to design and preparation of tender documents
				Sufficient experience of contractor staff, sufficient fund of contractor , good reputation , commitment of contractor with quality and safety	Factors related to the contractor
				Location of the project, and size of the project	Factors related to the project
				Opening of crossings and clear expectations fluctuation of currencies	External factors

Table (5.2) : Critical Success Factors

No.	Contractor Name	Project Budget	Project Description	Critical Success Factor	Factor Group
2	CONTRACTOR B	5,520000 \$	8 residential tower contains 160 apartments, where 80 of them with total area = 115 for each and the other 80 with total area = 130.	Coordination between project parties and sufficient experience of the designer staff	Factors related to design and preparation of tender documents
				payment methods, sufficient experience for owner team and training	Factors related to Owner
				Experience of contractor team , work under pressure, financial capability of contractor, reputation, and commitment to complete the project on schedule time	Factors related to Contractor
				Ease of coordination for external material	External factors
3	CONTRACTOR C	5,640000 \$	8 residential tower contains 160 apartments, where 120 of them with total area = 115 for each and the other 40 with total area = 130.	Clear goal of project, experience of the designer, and team work	Factors related to design and preparation of tender documents
				Regular payment by owner, availability of project fund and experience of owner staff	Factors related to the owner
				Experience of contractor and his staff, good reputation, honesty of contractor, and availability of fund	Factors related to Contractor
				Opening of crossing point, existence of fund and clear expectations of currency fluctuation	External factors
				Project nature	Factors related to the Project

Table (5.2) : Critical Success Factors

No.	Contractor Name	Project Budget	Project Description	Critical Success Factor	Factor Group
4	CONTRACTOR D	4,940000 \$	7 residential tower contains 140 apartments, where 100 of them with total area = 115 for each and the other 40 with total area = 130	Project feasibility and priority for society, and coordinating with related formal parties such as (municipalities, electricity companies, ministries	Factors related to design and preparation of tender documents
				Contractor commitment to meet cost, quality, contractor classification, capability to carry out the work	Factors related to Contractor
				The owner follows project implementation regularly, regular of payment, and sufficient experience for the owner team	Factors related to Owner
				Opening of crossing points, and coordination of external material	External factors
				Project cost	Factors related to the Project
5	CONTRACTOR E	4, 4,200000 \$	6 residential tower contains 120 apartments, with total area = 115 for each of them.	Clear goal of project, experience of designer and team work.	Factors related to design and preparation of tender documents
				Financial resources of contractor, managerial skills of contractors, cost control, and pricing policies	Factors related to Contractor
				Consider the criteria of reputation, and pre - performance in addition to the degree of classification	Factors related to the Owner

Table (5.2) : Critical Success Factors

No.	Contractor Name	Project Budget	Project Description	Critical Success Factor	Factor Group
				Project complexity	Factors related to the Project
				Coordination for material, fluctuation of currency, and decision making from the Qatari Committee	External factors
6	CONTRACTOR F	4,200000 \$	6 residential tower contains 120 apartments, with total area = 115 for each of them.	Manager personality and experience, financial, and practical and capability	Factors related to contractor
				Government policy and political issues	External factors
				Clarity and ease of the design drawing	Factors related to design and preparation of tender documents
				Clarity of the contract between the contractor and the owner, existence of the fund for project	Factors related to the Owner
				Project size	Factors related to project
7	CONTRACTOR G	3,400000 \$	5 residential tower contains 100 apartments, with total area = 100 for each of them.	Clear goal of project, experience of designer and teamwork	Factors related to design and preparation of tender documents
				Regular payment by the owner, availability of project fund, and experience of the owner staff	Factors related the owner
				Experience of contractor, good reputation, honesty, and financial capability	Factors related to the Contractor
				Opening of crossing point, ease in obtaining fund from donor, and coordination for external material	External factors
				Project nature, & project services	Factors related to project

Table (5.2) : Critical Success Factors

No.	Contractor Name	Project Budget	Project Description	Critical Success Factor	Factor Group
8	CONTRACTOR H	3,400000 \$	5 residential tower contains 100 apartments, with total area = 100 for each of them.	Trained staff, availability of fund, and the ability to coordinate between all parties	Factors related to the owner
				Awareness of specification and quality, good reputation, and sufficient managerial and Financial Capability.	Factors related to contractor
				Project location, project services, and the project size	Factors related to project
				Opening of crossings, ease of coordination of material, ease to coordinate between national institutions, and clear expectations of currency fluctuation	External factors
9	CONTRACTOR I	3,400000 \$	5 residential tower contains 100 apartments, with total area = 100 for each of them.	Clear goal of project, experience of designer, teamwork, clarity of design, and ease of design	Factors related to design and preparation of tender documents
				Regular payment by owner, Availability of project fund, experience of owner staff, and top management support .	Factors related to the owner
				Experience of contractor and his staff, good reputation and honesty of contractor, and availability of fund	Factors related to the contractor

Table (5.2) : Critical Success Factors

No.	Contractor Name	Project Budget	Project Description	Critical Success Factor	Factor Group
				Opening of crossing point, ease in obtaining fund by the donor, ability to coordinate for external material, and political environment	External factors
				Project cost and size	Factors related to the project

Table (5.3) shows group's rank of critical success factors by contractors, who worked on Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II – Khan Younis.

Table (5.3): Group's rank by contractor

No.	Factors	Rank of factors									
		Rank based on survey	Rank based on case study (contractors)								
			A	B	C	D	E	F	G	H	I
1	Factors relating to design and preparation of tender documents	2	2	2	1	1	2	1	2	2	2
2	Factors related to the owner	3	3	4	3	2	3	3	3	4	3
3	Factors related to the contractor	1	1	1	2	3	1	2	1	1	1
4	Factors related to the project	5	5	3	5	5	4	5	5	3	4
5	External factors	4	4	5	4	4	5	4	4	5	5

5.2 Structured Interview

5.2.1 Introduction

A structured interview was conducted to explore and identify the critical success factors which affecting the Qatari-Grant construction project.

This research based on the case study approach, where a one mega project -(58) million dollar contract sum- has been chosen as a sample, it is the 2nd project implemented by Qatar Government in Gaza strip in Khan Younis.

The archival research, which adopted in this study, involved collecting primary data from Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II – Khan Younis records, contract documents, and completion reports. Other data were obtained from interviews. Open-ended questions were adopted for the interview. The open-ended questions allowed interviewees to be free to share their experience and knowledge.

The interviews involved repeated face-to-face encounters between the researcher and informants directed toward understanding the informants of the perspectives, experiences, and situations as expressed in their own words (Frechtling and Sharp, 1997). This interview included three engineers who worked on project design and implementation.

While the respondents' answers and comments were verbally recorded with no need for filling up any question papers or questionnaires, the interviewees tended to give a higher participation rate. From each projects category, in-depth interviews were carried out with participants, the selection of the interviewees based on the nature of the project and the interviewees' characteristics (as per Table 5.5). The approximate length of each interview was half an hour. The interviews were held -two were face-to-face and one by phone-.

The followings open end questions were listed to give the interviewees an indication of information that requested.

Question 1: What are critical factors that lead to the success of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

Question 2: Can you rank the group of success factors for of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

Table (5.4): Characteristics of Interviewees

No	Job title	Workplace	Experience (Years)
1	Office Director	Qatari Committee	10
2	Director of technical Department	Ministry of Public Works And Housing	20
3	Consultant Engineer	Consultant office	28

Qatar Committee Opinion:

Question 1: What are critical factors that lead to the success of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

The engineer of Qatar Committee showed that project success factors according to the following reasons:

- Capability of contractor to carry out the work
- Involvement of high qualified subcontractors with good reputation
- Awarding of good contractor by using the criteria of technical evaluation in bidding stage
- Ease of materials coordination
- Existence of qualified staff for the contractor

Question 2: Can you rank the group of success factors for of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

Table (5.5): Group rank by Qatar Committee interviewee

	Group	Rank
1	Factors relating to design and preparation of tender documents	5
2	Factors related to the owner	2
3	Factors related to the contractor	1
4	Factors related to the project	4
5	External factors	3

Ministry of Public Housing Opinion:

Question 1: What are critical factors that lead to the success of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

The engineer of Ministry of public housing showed that project success factors according to the following reasons:

- Clear design drawings and details.
- Involvement of high-qualified subcontractors with good reputation.
- Ease of payment.
- Involvement of qualified staff.
- Ease of materials coordination.
- Teamwork and cooperation between all parties.

Question 2: Can you rank the group of success factors for of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

Table (5.6): Group Rank by Ministry of Public Housing Interviewee

Item no.	Group	Rank
1	Factors relating to design and preparation of tender documents	4
2	Factors related to the owner	3
3	Factors related to the contractor	1
4	Factors related to the project	5
5	External factors	2

Consultant opinion :

Question 1: What are critical factors that lead to the success of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

The engineer of the consultant office showed that project success factors according to the following reasons:

- Involvement of high qualified subcontractors with good reputation
- Quality and performance
- Ease of payment.
- Involvement of qualified staff.
- Clarity of the drawings and the terms of the contract
- Clear scope of the project.
- Ease of materials coordination
- The influence of local government
- Teamwork and cooperation between all parties.

Question 2: Can you rank the group of success factors for of Construction of His Highness sheikh Hamad Bin Khalifa Residential City Phase II, Khan Younis project?

Table (5.7): Group Rank by Consultant Interviewee

	Group	Rank
1	Factors relating to design and preparation of tender documents	3
2	Factors related to the owner	2
3	Factors related to the contractor	1
4	Factors related to the project	5
5	External factors	4

Comments:

After evaluation of CSFs for construction projects of His Highness Hammad Bin Khalifa the Qatari committee , contractors , consultant and owner decided that the CSFs that lead to project success are : Clear vision of project, sufficient experience of designer , contractor and consultant ,policy of payment , bidding criteria , involvement of good subcontractors , financial capability of contractor , reputation and previous performance and ability to coordinate for materials .

For the 2nd question that talking about ranking group of critical success factors of the interviewee , interviewees decided that factor related to the contractor gained the highest load, factors related to the owner gained the second highest load , external factor gained the third highest load , then factors related to the design and preparation period gained the forth load and factors related to the project gained the lowest load

Chapter 6

Conclusion and Recommendations

Chapter 6

Conclusions and Recommendations

This chapter is talking about the conclusion and recommendations of the research , this research aims to formulate the factors affecting on the performance of the contractors in Qatari Projects. The first objective of the research is to identify and classify the factors affecting the construction project's success based on their significant and contribution. The second objective of the research is to focus on the factors that lead to failure and find appropriate ways and solutions to ensure the success of the Qatari projects, through the implementation of recommendations that will be taken into account to ensure the success of these projects.

6.1 Conclusion

This chapter concludes the main finding of the research per objectives based on the opinion of the respondents as follows:

- The study found that the most important groups that affect the success of Qatari Project as follows: Factors related to the contractor, factors relating to design and preparation of tender documents, factors related to the owner, external factors and factors related to the project.
- The current study found that the most important factors that affect the success of Qatari Project according to the respondents as follows: clear goal of the project , sufficient experience of the designer, sufficient experience of the contractor, closure of the crossing points, the presence of highly qualified technical staff, the availability of sufficient funding for the contractor to carry out business, the cost of the project is provided to the taxpayer and regular payment mechanism is established , the good reputation and honesty of the contractor, and delay in obtaining financial from donors, sufficient time given for the designer to design and prepare project drawings.
- The study founded that the most important factors that prevent to access a success project, short time that is given through design period, no clear vision of the project ,unavailability of competent staff, rely on low price and negligence

the criteria of reputation and previous performance of contractor in bidding stage ,complicated payment method , contractor financial problems and inability to coordinate for materials .

6.2 Recommendations

6.2.1 Recommendations for Contractors

- Contractors should have a cost engineer in their projects to control costs successfully .
- Contractors must work on execution works with high quality .
- Contractors are recommended to be aware about construction materials, so they are advised to purchase materials that need coordination from crossing points at the beginning of work and to design time schedule for material delivery process to the site to avoid shortage or lack of materials.
- Meeting and periodic sessions should be held to discuss the progress of work and develop appropriate plans to guarantee the success of projects .
- It is recommended to hire professional staff with high experience and high efficiency to ensure and guarantee the success of the projects .
- Contracting companies must concentrate their efforts on satisfaction of all parties .
- Contractors must have different financial resources other banks to reduce risks caused by bank policies .
- Contracting sector should be supported from the government by providing all of the necessary facilities for them and reduce the imposed taxes on them for the large importance of this sector on the Palestinian economy.

6.2.2 Recommendation for Owner and Qatari Committee

- Owners are recommended to follow transparent policy for awarding bids rather than lowest bidder of contractor to execute the project , to change the practice of the "lowest bid" to an approach which enhance project performance.

- Owners are recommended to facilitate for all licenses needed for work and to coordinate between local construction agencies and the international funding agencies .
- Clear goals must be identified by formulating all parties in the preparing stage.
- Project proposals should be prepared for donors with high accuracy to get the needed fund .
- It is very necessary to ensure the availability of funding and to find uncomplicated mechanism in the disbursement of contractors entitlements to ensure the success and timely completion of the projects .
- Owner is recommended to communicate with all local and international institutions to establish appropriate mechanism for the entry of materials through the Israeli crossings.
- Contractor selection should be modified to known criteria that don't rely on personal passions but on assessments that depends on contractors reputation , previous works , financial situations , capabilities , equipment , stores , crews and honesty .

6.2.3 Recommendation for Designer and Consultant

- Donors, owners, consultants, designers, and contractors should be involved in the preparing stage of design and tender to get satisfied design.
- It is recommended to work on annual estimation of projects cost and time to avoid cost overruns, disputes and variations.
- Meeting and periodic sessions should be held to discuss the progress of work and develop appropriate plans to guarantee the success of projects .
- All of surrounding circumstances should be considered in the design stage and alternative solutions must be developed to avoid stop of projects .
- All of barriers must be taken in consideration to study the accurate duration of the projects.
- Consultants should consider all surrounding circumstances in estimating projects cost and time. and also, they should coordinate with project clients

in planning and designing phase to understand the needed requirements in order to reduce variation orders

6.2.3 Recommendation for Government

- Government is recommended to construct new store houses to store the required construction materials such as; cement, base course, aggregates, steel and bitumen. This proposal is a partially solution of borders closures matters. Palestinian government is advised to find a new way to handle entrances problem, so it is preferred for Rafah border to be a freely opened entrance to permit materials flow to Gaza Strip. At this case we can avoid the Israeli manipulation in construction materials , and this will lead to reduce time and cost overruns.
- Government is advised to state an official law through Palestinian Legislative Council to prevent materials monopoly and prices manipulation, to avoid time and cost overruns of projects.

Further Research

Upon completion of the research with the given research objectives, questions and scope, it is observed that some critical and relevant issues have not been covered by this research. To facilitate the application of critical success factors approach in public construction projects, further researches might be conducted for infrastructure projects in Gaza Strip.

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Appendices

Appendix 1: Questionnaire in English

A questionnaire on a study

Factors Affecting on the Success of Qatari Grant Construction Projects in Gaza Strip

Sir, Madam,

Please complete the required information on the attached questionnaire which aims to evaluate the factors leading to the success of building projects funded by the Qatari grant in the Gaza Strip. This study is part of supplementary research for the achievement of a Master's Degree in Engineering Project Management at the Islamic University Of Gaza.

I appreciate the time taken to answer the questions in this questionnaire. All information provided will be used for the sole purpose of scientific study and will be treated with confidentiality.

Content of Questionnaire:

- **Section One:** General information about the respondents
- **Section Two:** Factors affecting the success of the Qatari residential building in the Gaza Strip

Thanks for your cooperation...

Researcher: Eng. Ahmed Kuhail

March_2017

For any inquiries please contact me on: "0599573555 ",

Ahmed_kuhail@hotmail.com

Part 1: General information

1.1 Which of the following best describes the nature of your work?

- | | |
|---|---|
| <input type="checkbox"/> Qatari committee | <input type="checkbox"/> Consultant offices |
| <input type="checkbox"/> Ministry of public housing companies | <input type="checkbox"/> Contracting |

1.2 What is your occupation?

- | | | |
|--|--|---|
| <input type="checkbox"/> Company owner | <input type="checkbox"/> Consultant | <input type="checkbox"/> Project Manager |
| <input type="checkbox"/> Office engineer | <input type="checkbox"/> Site engineer | <input type="checkbox"/> Other (please specify below) |

1.3 How many years of experience do you have?

- | | |
|---|--|
| <input type="checkbox"/> Less than 5 years | <input type="checkbox"/> (5- less than 10) years |
| <input type="checkbox"/> (10-less than 15)year | <input type="checkbox"/> 15 years or more |

1.4 How many years of experience does your institution or company have?

- | | |
|---|--|
| <input type="checkbox"/> Less than 10 years | <input type="checkbox"/> (10-less than 15) years |
| <input type="checkbox"/> (15-less than 20) years | <input type="checkbox"/> 20 years or more |

1.5 Number of projects implemented or supervised by your institution over the last five years

- | | |
|--|--|
| <input type="checkbox"/> Less than 10 | <input type="checkbox"/> From (10-20) |
| <input type="checkbox"/> From (21-30) | <input type="checkbox"/> More than 30 |

1.6 Size of projects that were implemented or supervised by your institution over the last five years (Per million dollars)

- | | |
|--|--|
| <input type="checkbox"/> Less than 5 | <input type="checkbox"/> From (5- less than 10) |
| <input type="checkbox"/> From (10-less than 15) | <input type="checkbox"/> More than 15 |

Part 2 : Factors affecting the success of the Qatari residential building in the Gaza Strip

Please tick (X) for what you deem to be the most appropriate grade for each of the following:

	Factors affecting project success	Degree of importance				
		Very important	Important	Medium	Low importance	Not important
1	Factors related to design and preparation of tender documents					
1.1	The project has a clear vision and goal					
1.2	Sufficient experience of the designer					
1.3	Communication between the designer and the producer during the design period					
1.4	Sufficient time given for the designer to design and prepare project drawings					
1.5	Teamwork and the involvement of all parties in the design phase					
1.6	The avoidance of changes made during design period and attention to detail.					
1.7	Coordination of all official parties (Qatari Committee, Ministry of Housing and Consultant)					
1.8	The designer's awareness of security and safety precautions during the implementation and design phases to minimize risk					
1.9	The use of previous reports on similar projects					
1.10	An emphasis on quality during design.					
1.11	The use of latest software and design codes					
1.12	Training courses provided for design staff to brief them on technical modernization and encourage increased awareness of building technologies					
1.13	The ability to accurately estimate the required time to complete the project					
1.14	The ability to determine project cost with high accuracy					
1.15	Assurance that all parties are satisfied with the design					
1.16	Communication with local and international markets to understand the use of modern products and industries					
1.17	Focus on the use of national and local products for rapid implementation					

	Factors affecting project success	Degree of importance				
		Very important	Important	Medium	Low importance	Not important
2	Factors related to the owner					
2.1	Sufficient experience with the owner and his crew.					
2.2	Reliance low price bidding.					
2.3	Consider the criteria of reputation and pre-performance in addition to the degree of classification of the contractor among the criteria of submission.					
2.4	Training and the continuous technical progress of the owner's team.					
2.5	Ability to coordinate and enjoy the spirit of teamwork.					
2.6	Follow the designs up-to-date.					
2.7	The cost of the project is provided to the taxpayer and a regular payment mechanism is established.					
2.8	The adoption of contracts suited to the nature of work.					
3	Factors related to the contractor					
3.1	Sufficient experience with the contractor.					
3.2	The presence of highly qualified technical staff.					
3.3	The availability of sufficient funding for the contractor to carry out business.					
3.4	The contractor is aware of technical specifications required for business and their high-quality implementation.					
3.5	The ability to resolve conflicts.					
3.6	The contractor cares about the satisfaction with all parties.					
3.7	Workshops and periodic training sessions are held for staff working in the company.					
3.8	Commitment to implementing actions within the time required.					
3.9	A clear vision and future plans to implement the business.					
3.10	Ability to control and coordinate on site.					
3.11	The good reputation and honesty of the contractor.					
3.12	The incorporation of subcontractors of reputable and excellent quality.					
3.13	The attention of the contractor's plans to security and safety during implementation.					

	Factors affecting project success	Degree of importance				
		Very important	Important	Medium	Low importance	Not important
3.14	The contractor's availability of modern equipment.					
3.15	The presence of contractor stores.					
4	Factors related to the project					
4.1	Project size and business require					
4.2	Project Location (packed or serviced)					
4.3	Project Nature (Traditionnel-Réursive-Unique)					
4.4	The cost of the project					
4.5	Type of project (new construction - restoration and maintenance)					
5	External factors					
5.1	The existence of binding laws in the town where the work is to be carried out.					
5.2	Awareness of the importance and purpose of the project.					
5.3	The abundance of modern technological equipment.					
5.4	The consideration of various environmental, social and cultural factors.					
5.5	Decreasing the project's susceptibility to instances of instability.					
5.6	Awareness of the economic fluctuations and declines of the country.					
5.7	Availability of water networks, electricity and sewage near the site.					
5.8	The owner's ability to coordinate the entry of external materials for the contractor.					
5.9	Continued opening of crossings.					
5.10	Non-monopolization of materials.					
5.11	Ease of bank policies within the country.					
5.12	Ease of importing of material.					
5.13	Ease of obtaining financial dues from donors.					
5.14	Clear expectations of currencies and materials.					
5.15	Procedures and factors of decision-making within the Qatari committee.					
5.16	The unification of the bidding price for all contractors.					
5.17	Requirement of significant administrative expenses.					
5.18	Communication with governmental institutions and knowledge of the conditions and requirements.					

Appendix 2: Questionnaire in Arabic

استبانة حول دراسة

العوامل المؤثرة على نجاح مشاريع المباني التابعة للمنحة القطرية في قطاع غزة

السيد / السيدة

يرجى تعبئة المعلومات المطلوبة في الاستبانة المرفقة والتي تهدف إلى دراسة العوامل التي تؤدي إلى نجاح مشاريع المباني التابعة للمنحة القطرية في قطاع غزة . علماً بأن هذه الدراسة هي جزء من البحث التكميلي لنيل درجة الماجستير في إدارة المشاريع الهندسية في الجامعة الإسلامية .

كما يرجى من سيادتكم الإجابة على جميع الأسئلة . وإنني أثنى جهدكم وإجاباتكم على الأسئلة المطروحة في الاستبيان علماً بأن جميع المعلومات التي يتم الحصول عليها من سيادتكم سوف تستخدم لغرض الدراسة العلمية البحتة بهدف التطوير وسوف تعامل بسرية .

محتويات الاستبانة:

القسم الأول: معلومات عامة عن من يقوم بتعبئة الاستبانة.

القسم الثاني: العوامل المؤثرة على نجاح مشاريع المباني التابعة للمنحة القطرية في قطاع غزة.

أشكر سيادتكم على التعاون وتقبلوا فائق الاحترام والتقدير

الباحث : م. أحمد كحيل

مارس _ 2017

للاستفسار يمكنكم الاتصال على الجوال " 0599573555 "

Ahmed_kuhail@hotmail.com

القسم الأول : معلومات عامة عن من يقوم بتعبئة الاستبانة

1.1 طبيعة العمل

- اللجنة القطرية وزارة الاشغال والاسكان العامة المكاتب الاستشارية شركات
المقاولات

1.2 الوظيفة الادارية لمالئ الاستبانة

- صاحب شركة استشاري مدير مشروع مهندس مكتب
 مهندس موقع غير ذلك

1.3 عدد سنوات الخبرة لمالئ الاستبانة

- (اقل من 5) سنوات (5-10) سنوات (10-15) سنوات (15 سنة فأكثر

1.4 عدد سنوات خبرة المؤسسة او الشركة

- اقل من 10 سنوات من (10 الى اقل من 15) سنة من (15 الى اقل من 20) سنة
 اكثر من 20 سنة

1.5 عدد المشاريع التي قامت مؤسستكم بتنفيذها او الاشراف عليها خلال السنوات الخمس الاخيرة

- اقل من 10 من (10-20) من (21-30) اكثر من 30

**1.6 حجم المشاريع التي قامت مؤسستكم بتنفيذها او الاشراف عليها خلال السنوات الخمس الاخيرة (مليون
دولار)**

- اقل من 5 من (5 - اقل من 10) من (10 - اقل من 15) 15 فأكثر

القسم الثاني : العوامل المؤثرة على نجاح مشاريع المباني التابعة للمنحة القطرية في قطاع غزة
الرجاء وضع اشارة X أمام الدرجة المناسبة لكل من العبارات التالية :

درجة الأهمية					العوامل المؤثرة على نجاح المشروع	
غير مهم	منخفض الأهمية	متوسط الأهمية	مهم	مهم جداً		
عوامل متعلقة بالتصميم وإعداد وثائق العطاء						1
					وجود رؤية واضحة وهدف واضح من المشروع	1.1
					وجود خبرة كافية لدى المصمم	1.2
					وجود تواصل بين المصمم والمنفذ في فترة التصميم	1.3
					إعطاء وقت كافي للمصمم لتصميم وتجهيز تنفيذ مخططات المشروع	1.4
					العمل الجماعي واشراك جميع الأطراف في مرحلة التصميم	1.5
					تجنب حدوث الأوامر التغييرية اثناء التصميم والاهتمام بأدق التفاصيل	1.6
					التسيق بين جميع الجهات الرسمية (اللجنة القطرية ووزارة الاشغال والاستشاري...)	1.7
					اخذ المصمم بعين الاعتبار متطلبات واحتياجات الامن والسلامة خلال العناصر التصميمية في مرحلة التخطيط والتصميم لتجنب المخاطر المحتمل حدوثها اثناء التنفيذ	1.8
					الاستعانة بتقارير سابقة متعلقة بمشاريع مشابهة لهذا المشروع	1.9
					التأكيد على نظام الجودة خلال التصميم	1.10
					استخدام احدث برامج وأكواد التصميم	1.11
					إعطاء دورات تدريبية لطاقم التصميم لاطلاعه على التحديث الفني وزيادة الوعي بتكنولوجيا البناء	1.12
					القدرة على التقدير الصحيح للوقت المطلوب لإنجاز المشروع والجدولة الزمنية له	1.13
					القدرة على تحديد تكلفة المشروع بدقة عالية	1.14
					الحرص على رضا الأطراف عن التصميم	1.15

درجة الأهمية				العوامل المؤثرة على نجاح المشروع	
مهم جداً	مهم	متوسط الأهمية	منخفض الأهمية		
				التواصل مع الأسواق المحلية والعالمية لمعرفة استخدام المنتجات والصناعات الحديثة	1.16
				التركيز على استخدام المنتجات الوطنية والمحلية لسرعة التنفيذ	1.17
عوامل متعلقة بالمالك					2
				وجود خبرة كافية لدى المالك وطاقمه	2.1
				الاعتماد في الترسية على العطاءات الأقل سعرا	2.2
				اعتبار معايير السمعة والأداء المسبق بالإضافة الى درجة تصنيف المقاول من ضمن معايير الترسية	2.3
				التدريب والتحديث الفني المتواصل لطاقم المالك	2.4
				القدرة على التنسيق والتمتع بروح العمل الجماعي	2.5
				متابعة التصاميم أولاً بأول	2.6
				توفر تكلفة المشروع المسبقة لدى الممول واعتماد الية دفع منتظمة	2.7
				اعتماد عقود تناسب طبيعة العمل	2.8
عوامل متعلقة بالمقاول					3
				وجود خبرة كافية لدى المقاول لتنفيذ الاعمال	3.1
				وجود طواقم فنية ذات كفاءات عالية لدى المقاول	3.2
				وجود رأس مال كافي لدى المقاول لتنفيذ الاعمال	3.3
				حرص المقاول على تنفيذ الاعمال بالمواصفات الفنية المطلوبة والجودة العالية	3.4
				القدرة على تدارك النزاعات وحلها	3.5
				حرص المقاول على رضا جميع فريق العمل	3.6
				عقد ورشات عمل دورية ودورات للطواقم العاملة بالشركة	3.7
				الالتزام بتنفيذ الاعمال في الوقت المحدد	3.8
				وجود رؤية واضحة وخطط مسبقة لتنفيذ الاعمال	3.9
				القدرة على التحكم والتنسيق في الموقع	3.10
				توفر سمعة طيبة وأمانة لدى المقاول	3.11

درجة الأهمية				العوامل المؤثرة على نجاح المشروع	
مهم جداً	مهم	متوسط الأهمية	منخفض الأهمية		
				ادراج مقاولي باطن من ذوي السمعة والكفاءة الممتازة	3.12
				اهتمام المقاول بخطط الامن والسلامة اثناء التنفيذ	3.13
				توفر معدات حديثة لدى المقاول	3.14
				وجود مخازن لدى المقاول	3.15
عوامل متعلقة بالمشروع					4
				حجم المشروع والأعمال المطلوبة	4.1
				موقع المشروع (مكتظ او به خدمات)	4.2
				طبيعة المشروع (تقليدي-متكرر-فريد)	4.3
				تكلفة المشروع	4.4
				نوع المشروع (إنشاء جديد -ترميم وصيانة..)	4.5
عوامل خارجية					5
				وجود قوانين ملزمة في البلدة التي يتم فيها تنفيذ الأعمال	5.1
				التوعية الدائمة للمجتمع بأهمية المشروع والهدف منه	5.2
				وفرة المعدات التكنولوجية الحديثة	5.3
				الأخذ بعين الاعتبار العوامل البيئية والاجتماعية والثقافية المحيطة	5.4
				العمل على الحد من تأثير المشروعات بحالات عدم الاستقرار	5.5
				معالجة التذبذبات والهبوط في الحالة الاقتصادية في البلد	5.6
				توفر شبكات مياه وكهرباء وصرف صحي بالقرب من موقع العمل	5.7
				قدرة المالك على تنسيق دخول المواد للمقاول من خارج البلاد	5.8
				استمرار فتح المعابر	5.9
				عدم احتكار المواد	5.10
				سهولة السياسات البنكية المعتمدة داخل البلد	5.11
				سهولة استيراد المواد	5.12

درجة الأهمية				العوامل المؤثرة على نجاح المشروع	
غير مهم	منخفض الأهمية	متوسط الأهمية	مهم جداً		
				سهولة الحصول على المستحقات المالية من المانحين	5.13
				وضوح التوقعات للعمليات والمواد	5.14
				إجراءات وعوامل إعطاء القرار في اللجنة القطرية	5.15
				توحيد سعر العطاءات لجميع المقاولين	5.16
				ارتفاع المصاريف الإدارية المطلوبة	5.17
				التواصل مع المؤسسات الحكومية ومعرفة شروطها ومتطلباتها	5.18