



A Study on Success Factors and Success Criteria in Fit-out Projects in the UAE

دراسة عن معايير و عوامل النجاح لمشاريع التصميم الداخلي في الإمارات العربية المتحدة

By

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Abstract

In a highly dynamic and competitive environment, the concept of project success has become broader that needs the inclusion of success factors (SFs) and success criteria (SC) related to organisation's long term strategic objectives. Aiming to address this particular issue for the fit-out industry in the UAE, this dissertation has been undertaken to identify the significant SFs and SC from the perspectives of client, contractor and consultant project managers within this industry.

To achieve the aim of this research, 32 SFs and 25 SC were identified and segmented into project management success group and project success group. A total of 120 self-administered questionnaire surveys were distributed, out of which 101 were received from project managers from the 3 targeted practice areas.

Based on the analysis of the data collected from the respondents, the perception about the importance of SFs and criteria among the project managers in the 3 practice areas were examined. In addition, ranking on these factors and criteria according to their relative importance was carried out within each practice area.

The findings of this research entail that there were no differences in perception between project managers in the 3 practice areas with respect to the perceived importance of all variables except for monitoring from the project management SFs group, and for clear project objectives, projectised organisation structure and both client and contractor experience from the project SFs group.

In addition, there were no differences in perception between these practice groups about the perceived importance of all SC except for satisfaction of stakeholders with the project management process from the project management SC group, and for consultant, contractor and other stakeholders satisfaction with the project deliverables from the project SC group.

Moreover, ranking of variables according to their relevant importance varied across the 3 practice groups, however it was noted that the SFs and SC relevant to the strategic long term objectives were middle ranked across the 3 practice

areas which indicates that there seems to be a lack of emphasis on the implementation of strategic project management practice for the fit-out industry in the UAE, an area that organisations in these practice areas should emphasis on.

Key words: Project Success, Project Success Criteria, Project Success Factors

الخلاصة

في بيئة ذات ديناميكية و تنافسية عالية توسع مفهوم نجاح المشروع ليشمل عوامل و معايير نجاح متعلقة بأهداف الشركات الإستراتيجية طويلة الأمد. تم اعداد هذه الأطروحة بهدف التحقق من هذا الجانب المتعلق بنجاح مشاريع التصميم الداخلي في الامارات العربية المتحدة من خلال تحديد عوامل و معايير النجاح المؤثرة و ذات الأهمية لهذه المشاريع من وجهة نظر مدراء المشاريع العاملين في المؤسسات التي تمثل كلاً من العميل و الإستشاري و المقاول. بهدف تحقيق الغاية من هذه الدراسة تم تحديد إثنان و ثلاثون عامل نجاح و خمسة و عشرون معيار نجاح من خلال الإطلاع على الدراسات السابقة و المتعلقة بهذا الموضوع، و من ثم تم توزيع كل من العوامل و المعايير الى مجموعتين هما مجموعة نجاح إدارة المشروع و مجموعة نجاح المشروع. بعد ذلك تم توزيع مئة و عشرون إستبيان لمدراء مشاريع يعملون في نوعيات المؤسسات المستهدفة، حيث تم التحصل على مئة و واحد إستبيان والتي إحتوت كامل المعلومات المطلوبه.

إستخدمت المعلومات التي تم التحصل عليها من الإستبيان لتحديد مدى توافق آراء مدراء المشاريع من المؤسسات الثلاث حول أهمية كل عامل وكل معيار من معايير و عوامل النجاح، كما تم إستخدام هذه المعلومات لترتيب هذه العوامل و المعايير بحسب أهميتها لكل من المؤسسات الثلاث.

أظهرت نتائج الدراسة بعدم وجود إختلاف في تصور مدراء المشاريع من المؤسسات الثلاث بخصوص أهمية جميع عوامل نجاح المشروع التي تم تحديدها بخلاف الرصد و الذي يقع ضمن مجموعة عوامل نجاح إدارة المشروع، و بخصوص كل من وضوح أهداف المشروع و هيكل المؤسسه التنظيمي المتوافق مع الهيكل التنظيمي للمشروع، و خبرة كل من العميل و المقاول و التي تتدرج جميعها ضمن عوامل نجاح المشروع.

كما أظهرت النتائج أيضاً بأنه لم يكن هناك إختلاف في تصور هؤلاء المدراء من نفس المؤسسات بخصوص جميع معايير نجاح المشروع التي تم تحديدها بخلاف رضى من لهم مصلحة أو علاقة بالمشروع (بخلاف العميل، المستخدم، الإستشاري، المقاول) عن العملية التي يدار بها المشروع و التي تقع ضمن معايير نجاح إدارة المشروع، و كذلك رضا كل من الإستشاري و المقاول و من لهم مصلحة أو علاقة بالمشروع (بخلاف العميل، المستخدم، الاستشاري، المقاول) عن ناتج المشروع و التي تتدرج ضمن معايير نجاح المشروع.

إضافة الى ما سبق أظهرت النتائج بأن ترتيب كل من عوامل و معايير النجاح من حيث الأهمية يختلف بإختلاف المؤسسة حيث يعمل مدراء المشاريع، بالرغم من هذا فإن نتائج ترتيب هذه العوامل و المعايير في هذه المؤسسات الثلاثة يشير بشكل عام الى ان مدراء المشاريع يقللون من أهمية عوامل و معايير النجاح المرتبطة بأهداف

المؤسسات الإستراتيجية طويلة الأمد مما يقود الى الإستتباط بأن مدراء المشاريع غير حريصين على تطبيق ممارسات إدارة المشاريع الإستراتيجية في مشاريع التصميم الداخلي ، و لذلك تمت التوصيه بتطوير هذا النوع من الممارسات.

الكلمات الرئيسية: نجاح المشروع، معايير تقييم المشاريع، عوامل نجاح المشاريع.

Dedication

I lovingly dedicate this work

To the memory of Sana Abu Sheikah; the sister whom worse pain never prevented her from encouraging me from finishing this work, the sister that departed this world but will always live in my heart.

To the memory of my father who always gave me moral support; I hope I grew up to become the person you wanted me to be.

To My Mother, the source of love that never ends, seeing you proud of me is the invaluable reward.

My brothers, Nazih, Ali and Akram, without you I wouldn't have achieved anything.

To my Sisters, Asma, Safa, Hana and Esra, and sisters in-law, Basima, Safa and Elham for their care and for being my acting-mothers.

To my nieces and nephews who always were my best cheerleaders.

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List of Abbreviations

Abbreviation	Description
UAE	United Arab Emirates
SC	Success Criteria
SF	Success Factors
PM	Project manager
GDP	Gross Domestic Product
PPP	Project Portfolio Practice
HR	Human Resources

1. Introduction

1.1. Research Background

The GCC has experienced an unprecedented growth in the construction sector in the period between 2003 and 2008. With the investment in this sector has exceeded \$1 trillion during this period, two-thirds of which were investment in construction projects that were undertaken in the United Arab Emirates (UAE).

With such major contribution the UAE gross domestic product, an emphasis on the success of construction project is essential. According to Turner (1999) project success is a construct that involves two components, success criteria (SC) and success factors (SFs), two topics that were always interrelated and have been extensively researched, yet have hardly been agreed upon (Parfitt & Snvido 1993).

One of the reasons that has resulted in such diversify of perspectives on project success is that the modern construction stakeholders network has expanded so that for any given project, each of the stakeholders targets to achieve certain objectives, therefore, holds his own perception about the project success by setting specific SFs and SC that are consistent to fulfill these pre-set objectives (Lim and Mohamed 1999), Jha (2011) explicitly opine that in some projects it is even a win-lose situation when project success for one party implies failure for another.

Freeman and Beale (1992, p.11) explained the diversity of views with respect to project success when they stated:

An architect may consider success in terms of aesthetic appearance, an engineer in terms of technical competence, an accountant in terms of dollars spent under budget, a human resources manager in terms of employee satisfaction and chief executive officers rate their success in stock market.

Liu and Walker (1998, p.215) also echoed the similar view by stating:

Project success is a topic that is frequently discussed and yet rarely agreed upon. The concept of project success has remained ambiguously defined. It is a concept which can mean so much to so many different people because of varying perceptions, and leads to disagreements about whether a project is successful or not.

1.2. Research Problem

Stakeholders understanding with respect to project success vary and it is subject to individual judgment, this may be referred to various importance weights allocated to each of the project SC and success factor.

The Client, consultant and contractor are major players in the fit-out industry and they may hold various perspectives with respect to project success, this entails that these parties may hold various perceptions about the importance of various SFs and SC associated to this type of projects. It is therefore, seems important to explore such diversity of importance perceptions about SC and SFs associated with the fit-out project from client, consultant's and contractor's perspectives.

1.3. Research Aim and Objectives

The aim of this research is to identify the significant SC that are used to assess the fit-out projects in the UAE and the significant SFs that are regarded as levers to meeting those criteria.

The objectives of this research are:

1. To review various literature perspectives on project SC and SFs.
2. Identify a list of SC and SFs for the fit-out projects and rank these criteria and factors according to their relative importance.
3. Identify whether the perceived importance of the SC and the perceived importance of SFs differs from the client's, consultant's and contractor's project managers perspectives.

1.4. Rationale of The Research

The research is expected to contribute to the knowledge relevant to project success within the construction sector in general and the fit-out industry in particular.

From a practical perspective the findings of this research are expected to assist clients organizations in the UAE, their consultants and contractors not only in assessing their fit-out projects success but will also in identifying the crucial SC and SFs that are essential for the success of the fit-out projects.

1.5. Research Scope

The research scope boundaries are usually set by the identification of the geographical location, Industry, and existing knowledge related to the research topic.

The geographical boundaries of this research was limited to a single country which is the UAE, while the industry boundaries were limited to the fit-out industry and the 3 types of organisations within (Clients, Interior Design Consultants, and Fit-out Contractors), the knowledge boundaries, on the other hand, were set to knowledge associated to the project SFs and project SC within the existing project management knowledge.

2. Literature Review

2.1. Overview

Successful projects are building blocks that deliver organisation's strategic objectives (Gardiner 2005), however assessment of a project success is a complex assignment, such uncharacteristic role which the project success concept plays in the project management field was observed by Pinto (1988, p. 68):

Project success is a complex and often illusory construct, but nonetheless it is of crucial importance to effective project implementation.

According to Wateridge (1998), project success concept consists of two components:

- 1) Project success factors, this is a set of independent variables for any given project that, when influenced, enhances the possibility of success; and
- 2) Project success criteria, this is a set of dependent variables that are the utilized to assess the success or failure of the project.

Whilst Most of the researches findings in this arena have acknowledged the importance of the "Golden Triangle" criteria (Time, Budget and Quality) they have mostly agreed that these measures are insufficient to judge project success. In addition, and despite the long lists of project SC and factors that have been identified through the researches findings during the past six decades, there is no evidence that that there are universal criteria that constitute projects success nor there are universal SFs that can lever it (Bryde & Robinson 2005).

2.2. Project Success Criteria

It is logical to state that without a measurement tool, enhancing the performance cannot be achieved on both business and project levels. Lim and Mohamed (1999) considered the set of criteria against which the performance of any given project can be measured as the rule of the game.

The general characteristics of the project performance measures can be referred to their opposite nature of being either objective or subjective, where the former relates to the project criteria that are both tangible and measurable such as safety, cost, and time, while the latter refers to criteria that are intangible measure that are when assessed different feedback is obtained due to various perspectives example on such criteria is client satisfaction (Parfitt & Sanvido 1993). An example of sets of subjective and objective project SC is depicted in Figure 2.1.

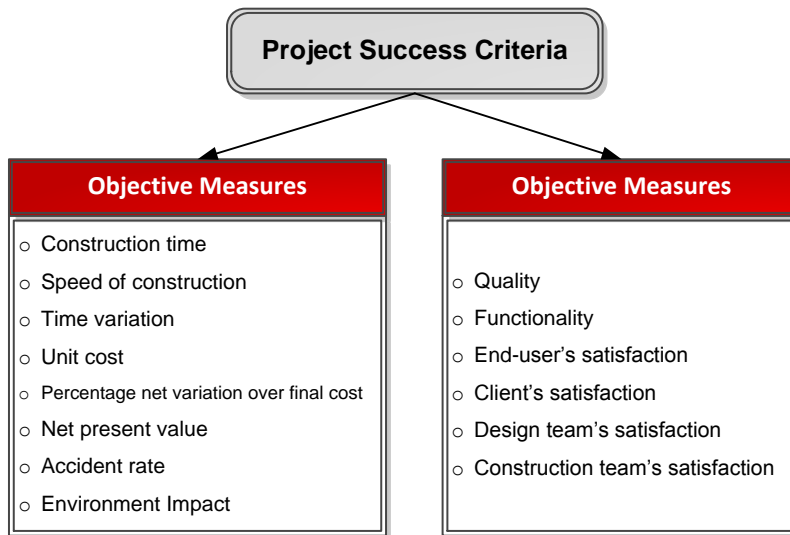


Figure (2.1): Objective and subjective success criteria for construction projects (Parfitt and Sasnvido, 1993, p.245)

The perspectives on projects criteria that are used to measure its performance have developed from the narrow views that were limited to project performance measures concerned with time, cost and quality during 1960s and 1980s to wider perspectives that resulted in the identification of multi-dimensional set of criteria during the 1990s (Atkinson 1999) up until present. Evolution of thinking on the project SC will be highlighted in the following sub-sections.

2.2.1. The Domination of The Iron Triangle Measures During 1960s- to 1980s

During this period, simplified measures such as time, cost, and quality were utilized to evaluate project success (Oisen 1971) as they are easy to use and they fall within the boundaries of the project organization. The emphasis of project managers during this period was on getting a project done within the limits of those three given constraints. Both researches and practice areas dominantly related project success with meeting the iron triangle measures (Atkinson 1999; Cooke-Davies 2002).

According to Belassi and Tukel (1996) researches during this period were theoretical and were lacking an extensive empirical evidence. Some researches focused on identifying why do projects failed or succeeded by emphasizing on the project schedule performance only; while others studies associated success to meeting the time, budget, and performance targets (Pinto and Slevin, 1988b).

According to the Project Management Institute (2008) the project execution phase is the longest phase that consumes the majority of the resources if contrasted to other project phases. Unsurprisingly that measuring the project performance relied on the iron triangle criteria as principal success measures since they are specifically associated to this phase (Lim & Mohamed 1999).

Atkinson (1999) noted that perspectives on evaluating project success during this period lacked the bigger picture view as it was not concerned with the perception of stakeholders about the obtained benefit and effectiveness of the project in the post delivery phase.

2.2.2. Success Criteria Beyond The Iron Triangle Constraints in The 1990s:

The perspectives on projects success with respect to the importance of the three classic measures during the 1990s were inherited from the previous decades. Authors such as Maloney (1990) considered these three measures as dominant determinant on project success, however there is an evidence that the views on

this topic has become wider due to the contribution of other studies toward the identification of other project evaluation measures beyond the iron triangle classic constraints.

Pinto and Slevin (1988b) Pinto and Prescott (1990) advocate that the satisfaction of project team members with the project is the 'soft' measure that provides an important input to measuring project success. Regardless of the facts that the list of the project participants that these authors referred to was limited to the internal group that is directly related to the project (i.e. owner, consultant and contractor) and did not consider the satisfaction of other groups that are indirectly related to the project (other stakeholders). It seem evident that there are two trends for researches during this period seem evident.

Firstly the researches during this period are providing new dimensions for assessing project success. Secondly the focus on assessing projects has been directed to other project phases apart from the execution phase, for instance the client satisfaction can be affected by the functionality of the project outcome, and thus it is something that can be assessed during the operation phase.

Such two trends in the research are represented in the work of many authors Table 2.1 provides a summary of construction projects SC listed by each of those authors during the 1990s.

Author	Success criteria
Maloney (1990)	<ul style="list-style-type: none"> ○ Time cost & quality
Norris (1990)	<ul style="list-style-type: none"> ○ Budget & financial performance, profitability
Freeman and Beale (1992)	<ul style="list-style-type: none"> ○ Technical performance ○ Efficiency of project execution (time, cost and quality) ○ Personal growth ○ Business performance
Parfitt and Sanvido (1993)	<ul style="list-style-type: none"> ○ Time ○ Cost,/budget ○ Profitability ○ Health and safety ○ Quality ○ Meeting technical performance requirements ○ Meeting functionality requirements

Author	Success criteria
	<ul style="list-style-type: none"> ○ Satisfaction of client ○ Satisfaction of consultant ○ Satisfaction of contractor
Songer and Molenaar (1997)	<ul style="list-style-type: none"> ○ Budget ○ Schedule ○ Quality ○ High quality of workmanship ○ Meeting technical performance requirements
Lipovetsky <i>et al.</i> (1997)	<ul style="list-style-type: none"> ○ Time ○ Budget ○ Quality ○ Benefits to the customer ○ Benefits to the developing organization

Table (2.1): Summary of project success criteria during the 1990s

As illustrated in Table 2.1, although the authors regarded the classic constraints as vital to the project success, most of them suggested that meeting those criteria only does not guarantee project success as their respective criteria lists included other criteria.

In addition, authors are considering various project phases during which those SC are assessed; profitability, technical performance, business performance, functionality, user, client, consultant and contractor satisfaction, and benefit to the customer and developer are project SC that are associated to the project's post delivery phase.

2.2.3. The Era of Project Success Criteria Frameworks in The 21st Century:

By the end of the 1990s and during the 21st century, the focus of the researchers has been shifted to developing SC frameworks that generally developed under the effect of previous trend associated to linking the SC to various project phases.

One of the early project SC frameworks was developed by Shenhar *et al.* (1997) who suggested that project success should be assessed from four various time dependent SC clusters as illustrated in Figure 2.2. Shenhar *et al.* (1997)

concluded that the relative significant of the SC vary with respect to time and is subject to the judgment of various stakeholders.

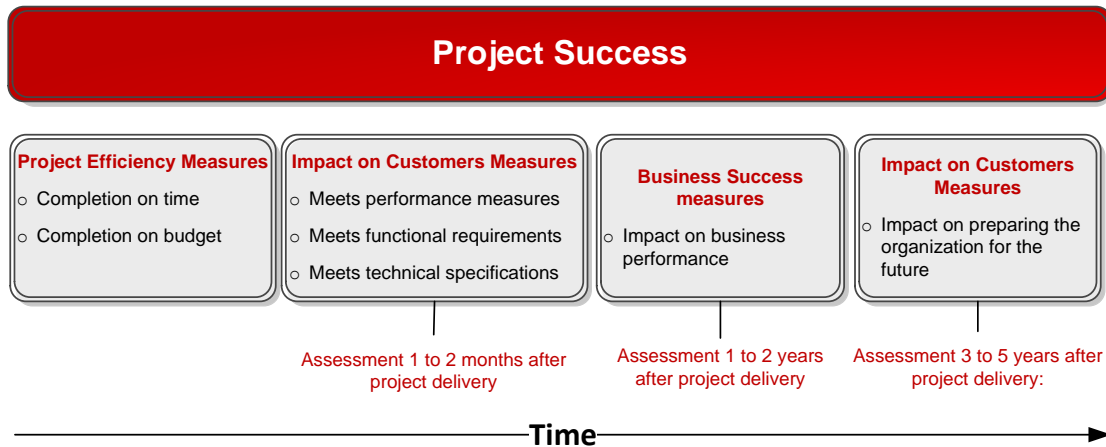


Figure (2.2): The four dimensions of project success (Shenhar *et al.*, 1997, p.9)

The first cluster comprises criteria that should be assessed immediately up on project completion, criteria in the second cluster are those that should be assessed one or two months after the project delivery to the customer, one to two years after delivery and once there is a significant impact on the business by the project, another set of criteria that are presented in the third cluster should be measured , and finally the impact of the project on the organization preparation for the future is assessed using the criteria in the last cluster three to five years after project delivery.

The findings of Atkinson (1999) argued the sufficiency of the iron triangle measures that are used to assess project success during the delivery stage; he suggested that these criteria should be complemented by other measures that should be assessed during the post delivery stage of the project. The author developed ‘the square root’ framework depicted in Figure 2.3 and acknowledged that the criteria listed under each category within the framework are not intended to be universal in as much as overcoming the gap of assessing project success by identifying some measures that were overlooked while evaluating projects.

The authors framework mainly included four categories for criteria; the iron triangle measures comprising of cost, time and quality that are assessed during

the delivery stage, while the system measures, benefits to organisation measures and benefits to stakeholder community measures that represented the other three clusters of the criteria which are measured during the post delivery phase of the project.

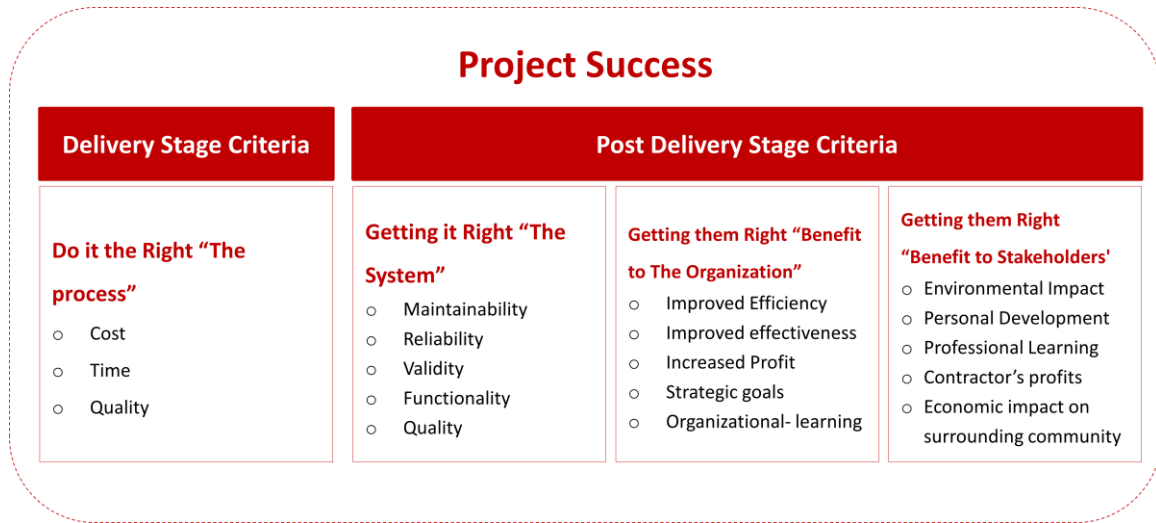


Figure (2.3): The square root project success framework (Atkinson, 1999, p.341)

While studying engineering and construction projects success, Lim and Mohamed (1999) suggested that the project success should be viewed from various individual perspectives of the owner, developer, contractor, user and the general public, with the difference in these perspectives explains the diversity of the outcome of the project success assessment.

Lim and Mohamed (1999) presented a project phase-based SC conceptualization that involves two set of SC, the Macro and Micro criteria as shown in Figure 2.4.

According to the authors the macro viewpoint relates to the satisfaction of owner, users, stakeholders and the general public and completion on time, on the other hand, the micro viewpoint is usually a concern to the contractor and the developer and includes the safety measure in addition to the classic iron triangle criteria comprising of time, cost and quality.

A valid critic for this frameworks is not associated to the criteria proposed, but is more related to the allocation of their importance to the project parties or

stakeholders, for instance the civil defense is part of the stakeholder network for any given construction project, this entity usually emphasis on aspect related safety therefore meeting safety measures is not significant to contractors only as the framework suggests.

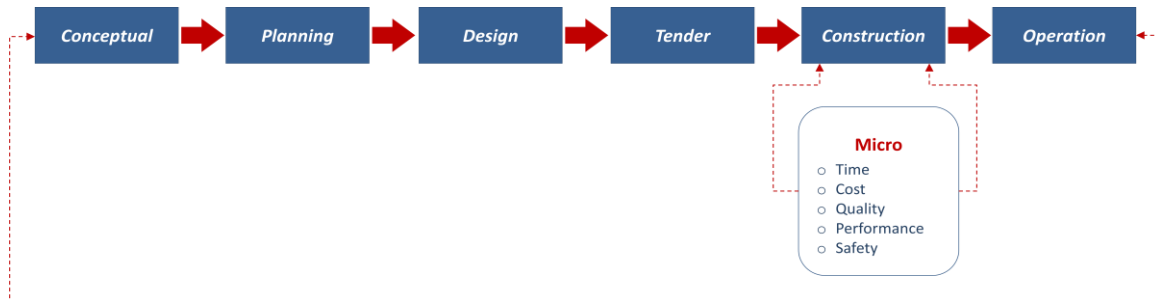


Figure (2.4): Macro and Micro success criteria framework (Lim and Mohamed, 1999, p.245)

Building on the work of De Wit (1988), Cooke-Davies (2002) advocates that success should be measured against the overall long term objectives of the project in addition to assessing the widespread and classical criteria: cost, time and quality which he referred to as the short term project success measures.

Cooke-Davies (2002) distinguished between project management success which is concerned with meeting the short term project success measures and the project success which refers to the long term success measures.

Baccarini (1999) added two other measures to the project management success, the quality of the project management process, and the satisfaction of project stakeholders with the project management process. This seems to be a differentiation between the previously listed criteria that is associated to the satisfaction of stakeholders (project participant plus other stakeholders) which was more related to the satisfaction with various aspects of the project deliverables.

Al-Tmeemy *et al.* (2011) provided three categories for SC for projects in the construction sector, those are: project management success, product success and market success.

According to Al-Tmeemy *et al.* (2011), project management success is related to meeting management targets in terms of completing within the contracted period and allocated budget and conformance to the requirements. Product success is the dimension that is associated with the product's (building's) targets in terms of functionality and compliance to technical requirements, and customer satisfaction. While the third dimension is market success, which relates to the project's potential in contributing to company's success on the long run in terms of gaining competitive advantages, enhancing company's reputation, increasing the market share, and reaching specified revenues and profits.

Whilst the author's recommendations on the categorization is comprehensive as it considered long term criteria, the findings were relying on the contractor in providing inputs to customer satisfaction on behalf of their clients which is unrealistic as this is an essential component in the assessment process. The second gap is that the findings identified SC from a contractor point of view only and did not consider the client or consultant points of view. Finally, although the research findings relied on contractor's inputs only, these findings did not provide any indication about the level of the importance of various SC across various stages of the construction project.

2.3. Project Success Factors

Similar to project success criteria, over the past decades extensive researches that covered a wide geographical locations have been conducted on projects SFs and contributed to the project management body of knowledge.

Whilst parts of these research findings were consistent, yet the overall findings did not agree on a universal set of SFs that significantly enhances the project performance and contributes to its success (Chan & Kumaraswamy 2002).

Historical review of the development of perspectives on this topic over the past five decades will assist in indentifying a comprehensive list of SFs that contribute to the achievement of the research objectives.

2.3.1. Factors Related to The Iron Triangle Measures During The 1960s

Belassi and Tukel (1996) highlighted that researches in the 1960s focused on SFs associated to the project manager techniques utilized in terms of project planning, monitor and control.

Authors like Rubin and Seeling (1967) were pioneers in this field and their study regarded the project manager experience as one of the project critical SFs.

Avots (1969) conclusions have not only agreed with the finding of Rubin and Seeling (1967) with respect to the project manager experience, but also advocated other essential factors namely; well planed project, top management support, change management as being crucial levers to project success.

Having previously highlighted the domination of the iron triangle project success measure during this period, it is unsurprising that the factors identified during this period have evolved around this domination.

2.3.2. The Trend of Human Factors During The 1970s

In the 1970s there was a considerable deviation from the 1960s on project SFs perspectives, even though Sayles and Chandler (1971) regarded the competency of the project manager, project monitoring, planning and control as dominant contributors to project success, the agreement of Marin (1976) with these findings has also introduced a new trend associated to human factors when he pointed out the proper project team selection as being an important SFs.

Overall this decade presented a potential trend of shifting the focus from planning, monitoring and control factors to other set of factors that are relevant to the human behavior such as project manager and project team competency factors.

2.3.3. Wider Perspectives on Project Success Factors During the 1980s:

In the 1980s the trend of shifting the focus on project SFs continued to certain extent. The majority of the studies during this period resolved to conclude that focusing on factors relevant to project planning, monitoring and control alone does not guarantee project success.

Cleland and King (1983) allocated factors associated to successful projects into categories, these are; project area, general management area and human area, the authors concluded that factors associated to project information and communication are important among planning, control and monitoring SFs.

Baker *et al.* (1983) findings favored factors associated to project financials (accurate estimates, adequate budgeting and funding) and factors associated to human behavior (competency of the project manager, and qualification of the project team).

Locke (1984) and Hughes (1986) agreed with the findings of these two previous researches and voiced out communications, project information, and competency of the project manager as dominant SFs.

After studying the failure of a number of major construction projects Morris and Hough (1987) concluded that these projects failed due to poor project management. The authors then presented a comprehensive categorization that allocated project SFs into 11 clusters: Attitude, project definition, external factors, finance, organization, contract strategy, schedule, communication, control, human qualities and resources management.

The collaboration of Pinto with other authors resulted in the identification of the widely spread “10 Critical Success Factors” list that included: project mission, top management support, project plan, client consultation, project personnel, technology to support the project, client acceptance, communication, monitoring and feedback, troubleshooting expertise. (Pinto & Slevin 1987; Pinto & Slevin 1988a; Pinto & Slevin 1989; Pinto & Prescott 1988; Pinto & Mentel 1990).

These studies were conducted on development projects and have introduced two new dimensions, the first was represented by the relevancy of SFs with respect to the projects phase, while the other was related to introducing factors related to the customers. The only shortcoming of these research is that they suggested that the identified factors are fit for any project type.

2.3.4. The Seed for Success Factors Frameworks During the 1990s

During the 1990s some researches were concerned with the significance of projects SFs with respect to project characteristics. Walker (1995) regarded the project scope as the sole element affecting project duration; he therefore concluded that SFs associated to scope are significant to project success. This view was narrow as it dictated evaluating any given project's success against its performance with respect to time only.

Wider studies were conducted by Akinsola *et al.* (1997), Songer and Molenaar (1997), Belout (1998) and Chua *et al.* (1999) and presented project type, complexity, size as characteristics that are related to the identification of significant SFs.

Other researches during this decade focused their main attention on the procurement, tendering and the right selection of project team (contractors, subcontractors, construction managers, consultants, etc...) and regarded them as project significant SFs. (Pocock *et al.* 1997; Kumaraswamy & Chan 1999; Walker & Vines 2000).

The emphasis on project manager's competency, authority, experience and commitment has also been revisited during this decade. While Chua *et al.* (1999) have described those factors as essential levers to project success, Belout (1998) focused more on project management/manager tools rather than project manager's attributes by highlighting effective communication, timely feedback, and timely and accurate decision making as crucial factors. Other authors focused on other project management tools related to the classical factors (Jeselkis and Ashley, 1991)

Away from the project manager's competency and the project management tools Walker and Vines (2000) and Walker (1995) directed the focus to the major roles that other project participant play in its success, those are contractors, subcontractors, consultants and client. For instance these authors concluded that client type, experience and knowledge, his collaboration and relationship with the project team, and his project management capabilities are main influencers on the project outcomes. Dissanayaka and Kumarasswamy (1999) elaborated by considering the experience of the contractor and subcontractor, their site management abilities, and financial stability as factors that affect the project overall performance.

Cash and Fox (1992) and Jang and Lee (1998) assigned stakeholders management with high significance to project success. Considering that stakeholders are groups or individuals who have a stake in or an anticipation with respect to the project's performance, this group of various individuals does not only include people inside the project, but also people outside it. A wider view with respect to project participant was presented by Johnson and Schools (1993) who presented a dynamic framework for stakeholder mapping and concluded that such dynamic mapping, once utilized by the project manager, should ease the process of identification of significant SFs associated to the stakeholders with respect to each phase within the project life cycle.

Larson (1995) studied 280 construction projects focusing on the effect of the relationship between owners and contractors; he concluded that when these two project participants work together in a collaborative environment and with aligned early defined objectives then this will result in a positive impact on project success.

The project environmental factors that positively or negatively influence the project has received the attention of the researchers during the 1990s, a number of factors were listed under this category such as economical, political, technological and social factors (Belassi & Tukel 1996; Akinsola *et al.* 1997; Kaming *et al.* 1997).

Whilst this decade's findings seems to be as an expansion to the identified lists of SFs during the previous decades, It could be clearly noticed that researchers during this decade has plant the seed for categorizing the project SFs or for developing frameworks for these factors.

Each research targeted to focus on one aspect related to the project and listed the project SFs associated to this aspect, Jugdev & Muller (2005) stated that SFs integrated frameworks emerged in the project success literature during the 1990s, those frameworks where then developed further during the 2000s.

2.3.5. Development of Success Factors Frameworks:

A holistic framework of SFs was presented by Belassi and Tuckel (1996) who has allocated the SFs into four categories:

- 1) Project related factors.
- 2) Project manager and team related factors.
- 3) Organization related factors
- 4) External environment related factors

The framework is systematic and clearly identifies the relationship between various groups of factors and the implication when individual or a number of factors are not addressed. The authors concluded that the given set of SFs is dependent on the industry and therefore may vary. In addition, they highlighted the significance of top management support.

One of the most comprehensive frameworks for SFs was introduced by Chan *et al.* (2004) since it provided a consolidation of the categories of factors affecting project success that emerged from empirical researches during the 1990s. The framework presented five categories of SFs as independent variables affecting the project success, the main categories are: Project, Project Management, Procurement, Project participant and environment. Figure 2.5 depict these SFs categories.



Figure (2.5): Project success factors categorization (Chan *et al.*, 2004, p154)

The group of project related factors in Chan *et al.* (2004) framework focused mainly on project type, nature and complexity, whilst Yu *et al.* (2006) was concerned with the clear project objective and realistic budget, Chan and Kumaraswamy (2002) were more focused on the project scope, Yu *et al.* (2006) and Chan and Kumaraswamy (2002) concluded that the variables they have identified should fall under the project related category.

Among other factors listed under the Project management cluster in Chan *et al.* (2004) framework Chan and Kumaraswamy (2002) included communication and management of project human resources, while Yu *et al.* (2006) presented this cluster of factors as process-related factors and listed both communication and decision making under.

Apart from Chan *et al.* (2004) who identified a category for procurement success factors, it seems that other authors allocated the factors within this category to other clusters. Fortune and White (2006) allocated procurement and contractor

performance to a resources cluster, while Chan and Kumaraswamy (2002) allocated project team selection to the management cluster.

The project participant cluster in Chan *et al.* (2004) frameworks seems to be the larger cluster; this can be related to the focus on the human related SFs that attracted the researchers attention during the 1990s.

Chan *et al.* (2004) mainly focused on factors associated to the project manager and client, this can be examined further from 2 perspectives; Firstly the factors related to the project leader can be denoted by the project manager leadership competency (except competency, experience and authority) this is consistent with the Muller and Turner (2010) who have considered the project manager leadership competency profile as a major driver to project success and concluded that such leadership profile should vary according the to the contract type.

The other perspective is that Chan *et al.* (2004) have not considered factors that are related to other project stakeholders, authors like Yu *et al.* (2006) acknowledged the stakeholders by clustering factors associated to stakeholder management under an individual group.

Fortune and White (2006) on the other hand listed involvement of client and user, competency of the project manager, qualified team, performing contractors and subcontractors and project sponsor/ champion role as SFs but allocated them to various clusters. Other authors like Achvara and Lee (2005) considered factors related to the contractors and consultants such as their experience and qualifications as being crucial to the extent that project success is unachievable without them.

Chan and Kumaraswamy (2002) listed the same environmental factors within Chan *et al.* (2004) framework, whereas Fortune and White (2006) concluded that learning from previous experience and organizational culture are environmental success factors, those seems to be relevant more to the organization internal

environment rather than the external one which was the focus of the other authors.

Most of the previously identified SFs within this decade once contrasted to Cooke-Davies (2002) framework seem to be associated to project success; however they seem to lack the identification of factors that related to the achievement of long term strategic objectives.

Cooke-Davies (2002) identified two factors and deemed them necessary to ensure meeting long term objectives of projects: Portfolio and programme management practices that result in an effective resource allocation to the projects in hand, and project, programme and portfolio prioritization process that results in the right selection of projects and ultimately aligning of the portfolio of projects with the organization strategic goals.

According to Artto *et al.* (2011) achieving long term objectives for the projects is associated to these factors: Implementing systematic and periodic reviews for projects alignment with the business strategy, effective process for projects screening, prioritization and selection.

The allocation of resources within the portfolio of projects seems to have two components; Hill (2008) emphasized on the component related to the proper allocation of human resources while Barclay and Bryson (2010) were more concerned with the proper allocation of financial resources.

2.4. Summary of Findings on SC and SFs From The Literature

One of the two components that project success holds is success criteria. As illustrated in the previous sections the evolution of thinking on this component has developed from the a narrow view that was limited to the classical project performance measures, denoted by the iron triangle of cost time and quality during and before the 1980 to a wider view when a shift of the trend on project SC was evident during 1990s, and was represented not only by the identification

of new SC beyond the iron triangle, but also by associating these new criteria to various phases of the project cycle.

Then toward the end of the 1990s and during the 21st century it is evident that there was an emphasis on evaluating project success at organizational level. This has resulted in shifting the attention to effectiveness metrics and suggested a more holistic perspective on the value that successful projects contribute to the organization strategy. Unsurprisingly during this period a number of project success framework were developed holding in their content various long term measures that are related to the achievement of organization's strategy.

A consolidation of SC that has been identified through the previous sections of literature review is presented in Table 2.2

The other component of project success is the SFs. Similar to the development of thinking on success criteria, the perspectives on project SFs have developed from narrow view concerned with the planning control, and monitoring techniques during the 1960s, to consider the human factors which were represented by the emphasis on project participant factors during the 1970s.

A wider view on project SFs was introduced during the 1980s when new factors such as project information, communication, and environmental factors were presented and a trend of categorizing project SFs existed. During the 1990s a continuation of this trend was evident and the seed for developing SFs frameworks were planted.

During the 21st century the researchers were more concerned with developing comprehensive frameworks for project SFs. Overall the development of thinking on project SFs was consistent with the development of that related to project SC during this period.

Consolidation of the identified SFs that have been identified in the previous sections of literature review is presented in Table 2.3

In order to achieve the intended objectives of this research, the SC that have been presented in Table 2.2 and the SFs presented in Table 2.3 will be further consolidated and allocated to the two dimensions of project success that have been presented by Cooke-Davies (2002), namely project management success group and project success group, the categorization of SC and SFs are depicted in Figure 2.6 and Figure 2.7 respectively.

Success Criteria	Author
Cost	Oisen (1971), Maloney (1990), Norris (1990), Freeman and Bale (1992), Parfitt and Sandvido (1993), Songer and Molendar (1997), Shenhar <i>et al.</i> (1997), Atkinson (1999), Lim and Mohammed (1999), Cook-Davies (2002), Al Tmeemy <i>et al.</i> (2011)
Time	Oisen (1971), Maloney (1990) , Norris (1990), Freeman and Bale (1992), Parfitt and Sandvido (1993) , Songer and Molendar (1997), Shenhar <i>et al.</i> (1997), Atkinson (1999), Lim and Mohammed (1999), Cook-Davies (2002), Al Tmeemy <i>et al.</i> (2011)
Quality	Oisen (1971), Maloney (1990) , Norris (1990), Freeman and Bale (1992) ,Parfitt and Sandvido (1993), Songer and Molendar (1997), Atkinson (1999), Lim and Mohammed (1999), Cook-Davies (2002), Al Tmeemy <i>et al.</i> (2011)
Quality of project management process	Baccarini (1999)
Health and safety	Parfitt and Sandvido (1993), Lim and Mohammed (1999)
Client /owner satisfaction	Pinto and Slevin (1988b), Pinto and Prescott (1990), Wuellner (1990), Parfitt and Sandvido (1993), Lim and Mohammed (1999), Al Tmeemy <i>et al.</i> (2011)
Consultant satisfaction	Pinto and Slevin (1988b) Pinto and Prescott (1990), Wuellner (1990), Parfitt and Sandvido (1993)
Contractor satisfaction	Pinto and Slevin (1988b) Pinto and Prescott (1990), Wuellner (1990), Parfitt and Sandvido (1993)
User satisfaction	Pinto and Slevin (1988b) Pinto and Prescott (1990), Parfitt and Sandvido (1993), Songer and Molendar (1997), Atkinson (1999), Lim and Mohammed (1999)
Other Stakeholders satisfaction	Lim and Mohammed (1999)

Success Criteria	Author
Satisfaction of stakeholders with the project management process	Baccarini (1999)
Meets Technical performance requirements	Freeman and Bale (1992), Parfitt and Sandvido (1993), Songer and Molendar (1997), Lipovetsky <i>et al.</i> (1997), Shenhar <i>et al.</i> (1997), Al Tmeemy <i>et al.</i> (2011)
Meets functionality requirements	Parfitt and Sandvido (1993), Lipovetsky <i>et al.</i> (1997), Shenhar <i>et al.</i> (1997), Atkinson (1999), Al Tmeemy <i>et al.</i> (2011)
Maintainability of project deliverables	Atkinson (1999)
Reliability of project deliverables	Atkinson (1999)
Validity of project deliverables	Atkinson (1999)
Profitability	Norris (1990), Parfitt and Sandvido (1993), Atkinson (1999), Al Tmeemy <i>et al.</i> (2011)
Personal growth/development	Freeman and Bale (1992), Atkinson (1999)
Business performance	Freeman and Bale (1992), Shenhar <i>et al.</i> (1997)
Benefit to the customer/client	Lipovetsky <i>et al.</i> (1997)
Benefit to the developer organization	Lipovetsky <i>et al.</i> (1997)
Impact on organization preparation for the future	Shenhar <i>et al.</i> (1997)
Improved organization's efficiency	Atkinson (1999)
Improved effectiveness	Atkinson (1999)

Success Criteria	Author
Contribution to achievement of strategic goals	Atkinson (1999)
Organizational learning	Atkinson (1999)
Impact on the environment	Atkinson (1999)
Professional learning	Atkinson (1999)
Economic impact on the surrounding community	Atkinson (1999)
Gaining competitive advantage	Al Tmeemy <i>et al.</i> (2011)
Enhance company reputation	Al Tmeemy <i>et al.</i> (2011)
Increase market share	Al Tmeemy <i>et al.</i> (2011)

Table (2.2): Summary of project success criteria between 1960 to present

Success Criteria

Project Management Success Criteria	Project Success Criteria
<ul style="list-style-type: none"> ○ Schedule ○ Quality ○ Health & Safety ○ Quality of Project Management Process ○ Stakeholders Satisfaction with Project Management Success 	<ul style="list-style-type: none"> ○ Client Satisfaction with the project deliverables ○ Consultant Satisfaction with the project deliverables ○ Contractor satisfaction with the project deliverables ○ User satisfaction with the project deliverables ○ Other stakeholders satisfaction with the project deliverables ○ Deliverables meet technical performance requirements ○ Deliverables meet functionality requirements ○ Maintainability of project deliverables ○ Reliability of project deliverables ○ Validity of projects deliverables ○ Profitability resulted from the project ○ Personal growth and professional learning resulted from the project ○ Organizational learning resulted from the project ○ Impact on Business performance ○ Project contribution to achieving organization strategic goals ○ Project impact on the environment ○ Project impact on the surrounding community economy ○ Project resulted in enhancing organization reputation ○ Project resulted in increasing organization market share

Figure (2.6): Categorization of project success criteria

Category	Success factor	Author
Project Related Factors	Clear Scope	Walker (1995), Chan <i>et al.</i> (2004), Cooke-Davis (2002)
	Type	Akinsola <i>et al.</i> (1997), Songer and Molenaar (1997), Belout (1998), Chan <i>et al.</i> (2004)
	Complexity	Akinsola <i>et al.</i> (1997), Songer and Molenaar (1997), Belout (1998)
	Size	Akinsola <i>et al.</i> (1997), Songer and Molenaar (1997), Belout (1998), Chua <i>et al.</i> (1999), Belassi and Tukel (1996)
	Clear Objectives	Chan <i>et al.</i> (2004), Yu <i>et al.</i> (2006)
Project Management Related	Planning	Avots (1969), Sayles and Chandler (1971), Martin (1976), Cleland and King (1983), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990),Jeselkis and Ashley (1991), Belassi and Tukel (1996), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)

Category	Success factor	Author
	Monitoring	Sayles and Chandler (1971), Martin (1976), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Jeselkis and Ashley (1991),
	Control	Sayles and Chandler (1971), Martin (1976), Jeselkis and Ashley (1991), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004), Yu <i>et al.</i> (2006)
	Communication	Cleland and King (1983), Hughes (1986), Locke (1984), Morris and Hough (1987), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990),, Belout (1998), Walker and Vines (2000), Kumaraswamy (2002), Yu <i>et al.</i> (2006)
	Accurate estimates and adequate budgeting	Baker <i>et al.</i> (1983), Yu <i>et al.</i> (2006)
	Stakeholders Management	Johnson and schools (1993), Yu <i>et al.</i> (2006)
Organization Related	Top management support	Avots (1969), Sayles and Chandler (1971), Martin (1976) Cleland and King (1983), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Belassi and Tukul (1996), Chua <i>et al.</i> (1999)
	Change Management	Avots (1969), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Yu <i>et al.</i> (2006)
	Organisation structure	Belassi and Tukul (1996), Walker and Vines (2000), Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Portfolio practice that ensure effective human resources allocation	Cooke- Davies (2002), Hill (2008)
	Portfolio practice that will ensure effective financial resources allocation	Cooke- Davies (2002), Barclay and Bryson (2010), Artto <i>et al.</i> (2011),
	Projects prioritization and selection process that will ensure alignment with the organization strategic objectives	Hill (2008), Artto <i>et al.</i> (2011),
	Periodic reviews of the status of projects alignment with organization strategy	Hill (2008), Artto <i>et al.</i> (2011),
	Change Management	Avots (1969)

Category	Success factor	Author
Procurement	Project team selection	Marin (1976), Pocock <i>et al.</i> (1997), Kumaraswamy & Chan (1999), Walker & Vines (2000), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004), Furtune & White (2006).
	Tendering process	Pocock <i>et al.</i> (1997), Kumaraswamy & Chan (1999), Walker & Vines (2000), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004), Furtune & White (2006).
	Procurement strategy	Pocock <i>et al.</i> (1997), Kumaraswamy & Chan (1999), Walker & Vines (2000), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004), Furtune & White (2006).
Environmental factors	Economical	Belassi and Tukul (1996), Akinsola <i>et al.</i> (1997), Kaming <i>et al.</i> (1997), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Political	Belassi and Tukul (1996), Akinsola <i>et al.</i> (1997), Kaming <i>et al.</i> (1997), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Social	Belassi and Tukul (1996), Akinsola <i>et al.</i> (1997), Kaming <i>et al.</i> (1997), Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Physical	Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Technical	Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Industry relation	Chan and Kumaraswamy (2002), Chan <i>et al.</i> (2004)
	Learning from previous experience	Fortune and White (2006)
	Organisation culture	Fortune and White (2006)
Human related factors	Project manager experience	Avots (1969), Rubin and Seeling (1967), Morris (1986) Hughes (1986), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Belassi and Tukul (1996), Chu <i>et al.</i> (1997), Belassi and Tukul (1996), Chan and Kumaraswamy (2002), Muller and Turner (2008)
	Project manager authority	Locke (1984), Morris (1986) and Hughes (1986), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Chu <i>et al.</i> (1997), Muller and Turner (2008)
	Project manager competence	Saylas and Chandler (1971), Marin (1976), Baker <i>et al.</i> (1983), Locke (1984), Morris (1986) and Hughes (1986), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Chu <i>et al.</i> (1997), Chan and Kumaraswamy (2002), Fortune and White (2006), Muller and Turner (2008)

Category	Success factor	Author
	Client type	Cleland and King (1983), Baker <i>et al.</i> (1983), Morris and Hough (1989), Pinto & Slevin 1987, Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990),Walker (1995), Wateridge (1995), Belassi and Tukel (1996), Songer and Molenaar (1997), Turner (1999), Chua <i>et al.</i> (1999), Chan <i>et al.</i> (2004), Chan and Kumarasawamy (2002), Furtune & White (2006)
	Client Competence	Cleland and King (1983), Baker <i>et al.</i> (1983), Morris and Hough (1989), Pinto & Slevin 1987, Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990),Walker (1995), Wateridge (1995), Songer and Molenaar (1997), Turner (1999), Furtune & White (2006)
	Contractor Competence	Baker <i>et al.</i> (1983) Morris and Hough (1989), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990), Chua <i>et al.</i> (1999), Dissanayaka and Kumarasawamy (1999), Achrava and Lee (2005), Fortune & White (2006)
	Consultant Competence	Baker <i>et al.</i> (1983) Morris and Hough (1989), Pinto & Slevin (1987), Pinto and Slevin (1988a), Pinto & Slevin (1989), Pinto and Prescott (1988), Pinto & Mentel (1990),,Chua <i>et al.</i> (1999), Achrava and Lee (2005), Furtune & White (2006),

Table (2.3): Summary of project success factors between 1960 to present



Figure (2.7): Categorization of project success factors

3. Conceptual Framework and Research Methodology

3.1. Conceptual Framework

Referring back to this research aim and objectives that have been previously mentioned in section 1.3 and based on the literature review that has been conducted and presented in the previous chapter, the conceptual framework for this research was developed and is depicted in Figure 3.1 along with the following hypotheses:

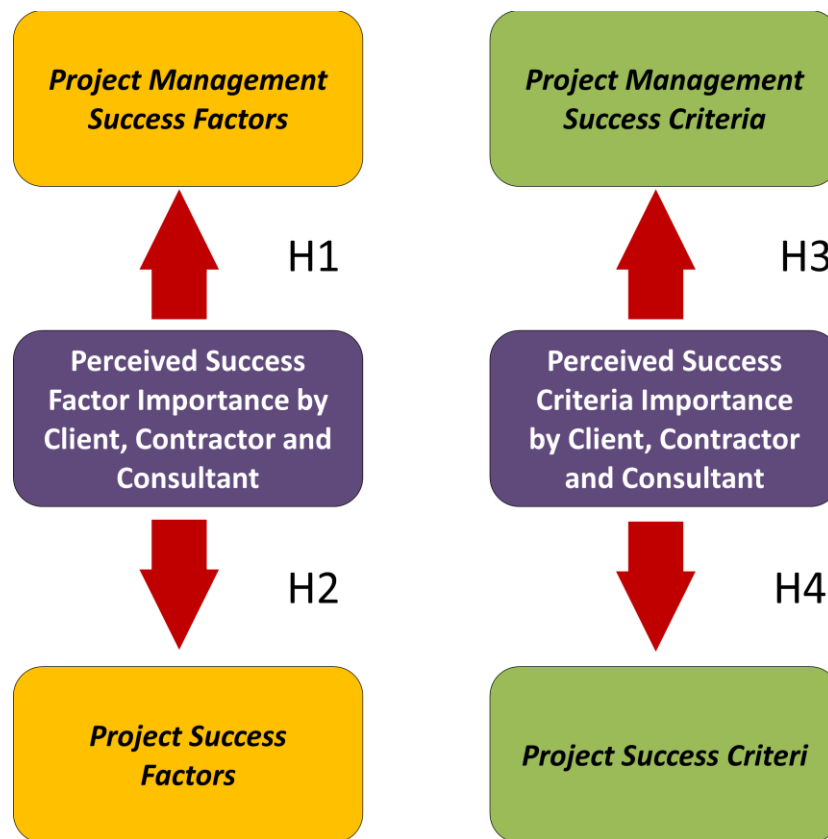


Figure (3.1): Conceptual framework

H1: Client, consultant and contractor project managers do not share the different perceived importance of project management SFs (presented in Appendix 1)

H2: Client, consultant and contractor project managers do not share the different perceived importance of project SFs (presented in Appendix 1)

H3: Client, consultant and contractor project managers do not share the different perceived importance of project management SC (presented in Appendix 1)

H4: Client, consultant and contractor project managers do not share the different perceived importance of project SC (presented in Appendix 1)

3.2. Research Methodology

Whilst there is an extensive amount of literature that was concerned with project SC and SFs in the construction sector, there seems to be a lack of research that has been specifically concerned with the fit-out industry.

The aim of this research is to identify the significant SFs and SC for the fit-out projects in the UAE from various perspectives (clients, contractors and consultants) and to provide a valid ranking for these factors and criteria according to their relative importance from these three perspectives.

Bryan and Bell (2003) defined research methodology as a systematic process that identifies how a research should be undertaken in order to describe, explain and predict phenomena and to identify solutions to a problem, Saunders *et al.* (2007) Suggested that the research methodology comprises of the following layers:

- Research Philosophy
- Research Approach
- Research Strategy
- Research Design
- Time Horizon
- Data Collection
- Data Analysis

According to Saunders *et al.* (2007), within each of those layers there are a number of alternative paradigms from which the researcher selects the suitable approach that is consistent with the nature of the research in hand. Those layers

and their respective paradigms will be discussed further in the next sub-sections to highlight the suitable ones that were selected in this research.

3.2.1. Research Philosophy

Understanding facts or ideas in the world that we are living in require various ways of viewing and interpreting. A research philosophy is related to knowledge development about a phenomenon in the research chosen area which involves a belief about the way data should be gathered and analysed (Walliman 2005).

Saunders *et al.* (2007) suggested that the research within the behavior and social science area should follow one of the two types of research philosophies: positivism and interpretivism, Ticehurst and Veal (1999) claim that there is an overlap between these two philosophies while Bryman and Bell (2003) consider them as two different paradigms.

Saunders *et al.* (2007) stated that natural scientists have developed the positivism and claimed that it is applicable to the social science research area. According to May (1997) within this paradigm an independent researcher utilizes methods to gather information, conducts experiments, implements survey techniques, and uses complex statistical tools to empirically test hypotheses in order to generalise findings and results to the larger population.

The interpretivist, on the other hand, is a philosophy that considers the methods utilized within the natural science area as inapplicable to the social and behavior science researches justifying that by considering solutions to any given business problems are complex and are only applicable to that unique case. In other words, the generalisation is questioned within this paradigm which is mainly distinguished by its subjectivity and descriptive approaches. (Saunders *et al.* 2007)

Despite the fact that this research is focusing on complex aspects for a social case the interpretivism approach seems inappropriate, the reason being is that it is simply impossible to target a single fit-out project within the UAE in order to

draw and generalise conclusions relevant to the importance of project SFs and CS for all projects within this sector.

The Positivism, on the other hand, seems to be more suitable approach to implement since it entails the utilization of statistical tools and techniques to test the hypotheses that have been developed in this research to deliver this sort of generalisation relevant to these complex aspects within the fit-out industry.

3.2.2. Research Approach:

According to Saunders *et al.* (2007) a research can be approached by either of two perspectives; an Inductive approach through which a researcher is involved in collecting and analysing data that will result in developing a theory, and the deductive approach using which a theory is developed by the researcher and is subject to further hypotheses testing that can be achieved through testing the collected data by the researcher.

The selection of the research approach is dependent on the selected research philosophy; a positivism strategy entails the implementation of a deductive approach (Saunders *et al.* 2007).

Considering the present research, an extensive literature review has been conducted and resulted in adopting an existing theory that categorized both project SFs and project SC into two categories, namely: project management SFs/SC and project SFs/SC. This theory was further developed by allocating the SFs and SC that have been identified into the respective categories as a mean to test the significance of those factors and criteria from various perspectives. A number of hypotheses related to the developed theory have been developed, presented and tested within the research context; accordingly this study exhibits a deductive orientation.

3.2.3. Research Strategy:

Saunders *et al.* (2007) concluded that sources of data collection for a research should be derived from the selected research strategy which is ultimately subject

to various constraints such as time, budget and/or location. Bryman and Bell (2003) stated that the research strategy is an overall plan of answering the research questions which can be done using a quantitative or qualitative approach.

Both qualitative and quantitative research approaches are suitable for researches within the business area (Jankowicz 1991; Bryman & Bell 2003). Ghauri and Gronhaug (2002) believes that qualitative research are most appropriate to address business problems as it addresses the research question in more depth, while Reichardt and Cook (1979) strongly recommended quantitative approach as it results in drawing conclusions by analysing valid data that has been collected from people within the scope of the research.

Considering that this research is targeting to collect responses from project manager within the fit-out industry where these responses are provided through the cumulative experience of those projects managers and are related to all the projects that they have previously executed, the quantitative approach seems to be more appropriate, therefore, a questionnaire was developed and distributed to the fit-out project managers in the UAE and the data that have been collected was used to test and analyse the research hypotheses.

Sanders *et al.* (2007) suggested that each of the following research strategies is suitable to utilize with the respective forms of questions:

- Archival: how many, how much, what, where and who?
- Field experiments: how, and why?
- History: how and why?
- Case studies: how and why?
- Surveys: how many, how much, what, where who who?

Initially all listed strategies seem appropriate to this study as the research questions can be expressed as:

What is the difference in perception of the perceived importance of SFs / SC between clients, consultants and contractors project managers?

What is the ranking of the fit-out project success factors/SC from the client, consultant and contractor project managers perspectives? However;

- Archival, experiments and historical, were deemed inconsistent with the research due to its nature as it does not require experimental evidences nor historical or event approaches.
- The use of single case study will not result in obtaining different opinions and various perspectives related to the various perception about the importance of project SFs and SC. Accordingly no generalisation with respect to the projects SFs and SC perceived importance within the fit-out can be achieved.
- The surveys was considered to be the most appropriate research strategy as it will provide a variety of opinions and perspectives with respect to the research questions. Accordingly a generalisation of the research findings can be obtained. Moreover, and due to time and budget limitations the survey approach is more consistent with those constraints relevant to this study.

3.2.4. Research Design:

According to Saunders *et al.* (2007) the selection of the most appropriate design for a research is dependent on its aim. The authors suggested that there are three common designs that the researchers often utilize in their research, those are:

- Exploratory design that is utilized with none well established research areas and when clarity on understanding the problem is required.
- Descriptive design that requires a clear understanding of the research interest area so that hypotheses can be developed and tested.
- Explanatory design that emphasis causal relationship between variables.

Souder Saunders *et al.* (2007) argues that utilizing a single design approach leads to developing a theory, therefore this study relied on combining these three paradigms according to the following:

- Exploratory approach was utilized to develop the knowledge related to the project SFs and SC through the literature review and was then used to analyze the significance of the identified SFs and SC from the client, consultant and contractor project managers perspectives.
- Descriptive approach was used to develop and test the hypotheses of this research.
- Explanatory approach was also implemented as the nature of this research is to identify how various criteria and factors are related to project success.

3.2.5. Time Horizon:

A research time horizon falls under two main types; Cross-sectional study that provides a snapshot for a description of parameters at a given point of time. Opposite to the cross sectional study is the Longitudinal that emphasis on change and development of the given parameters over a time interval (Bryman & Bell 2003).

Derived from the selection of the survey as a strategy for this research, and due to time frame limitations, the cross-sectional time approach seems to be appropriate to this study as it will provide the required information related to the perceived importance of SFs and SC from various perspectives at a given point of time.

3.2.6. Data Collection

Bryman and Bell (2003) suggested that the questionnaire and the structured interviews are similar instruments for collecting data, however they highlighted that questionnaires are more effective considering the interviewer bias and the effect that may result during structured interviews; Ticehurst and Veal (1999)

elaborates by highlighting that the questionnaire allows more anonymity and provides an opportunity to collect more data from various locations in less time.

Considering this research context, specifically that the project managers are operating in various geographical location within the UAE, and taking into account that the time frames for the research are tight, obtaining data through structured interviews seemed unachievable. Therefore, as a mean to collect data relevant to the SFs and SC for fit-out projects in the UAE a self-administered questionnaire was developed and sent to project managers within this sector. The questionnaire method was selected as there are many authors regarded it of being comprehensive in situations when the research question requires structured data that are obtained from a sample representing wider population (Bryman & Bell 2003; Saunders *et al.* 2007).

Questionnaire Development Process

The questionnaire that has been employed in this research was developed according to the framework that has been presented by Churchill and Iacobucci (2002) comprising of the steps shown in Figure 3.2 which composes of 8 steps. The following figure illustrates a step-by-step procedure which was used as a guideline for generating the questionnaire deployed in this study.

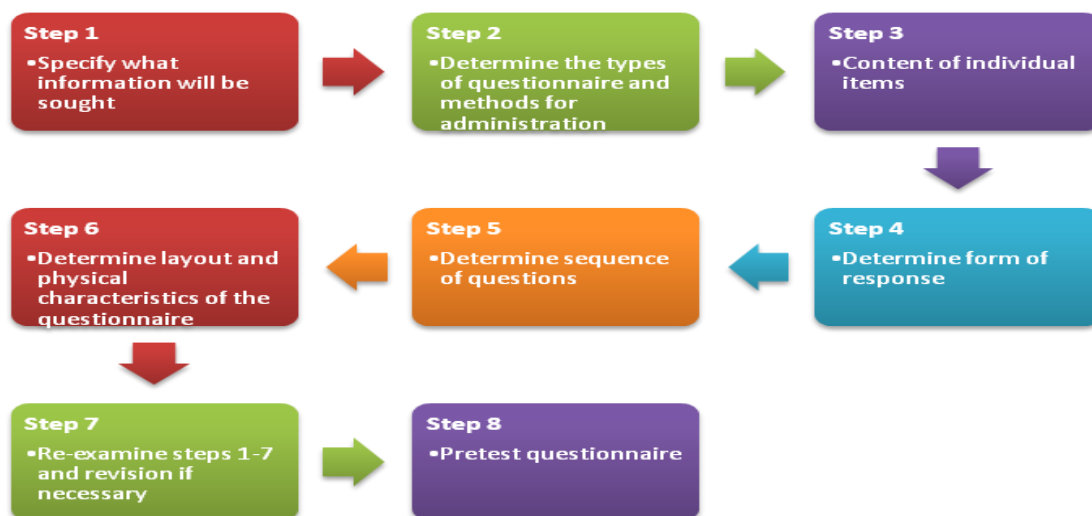


Figure (3.2): Questionnaire development process (Churchill and Iacobucci, 2002, p.315)

Questionnaire Design

Collis and Hussey (2003) emphasized on the necessity for developing questionnaires with well structured questions and on the importance of testing the questionnaire before it is distributed to the entire targeted sample.

This has been taken into consideration throughout the questionnaire development process by addressing Bryman & Bell (2003) and Saunders *et al.* (2007) recommendations with respect to the questionnaire design in terms of its length, questions type and the utilized scale.

In addition, a pilot questionnaire has been sent to 2 project managers from each of the 3 type of targeted companies (client, consultant and contractor) to enhance the quality of the questionnaire content. A final revision of the questionnaire is shown in Appendix 2.

The content of questionnaire that has been employed in this study relied mainly on the analysis conducted in the literature review chapter, the questionnaire itself comprises mainly of six sections:

Section one - Questionnaire covering letter:

A covering letter was presented at the beginning of the questionnaire. The purpose of this letter was mainly to communicate the main aim of the research and to encourage the targeted sample members to participate in completing the questionnaire

Moreover, the letter included a confidentiality statement to assure the respondent that they will have no obligations should they choose to/not to complete the survey as the information about them and their organisations will remain anonymous.

Section two - Demographic Data:

Warm up questions related to sample members age, gender, years of experience and their domain or practice area where presented in this section.

The data obtained from this section aimed to support the relevance of the targeted sample to the population in general, however, the question related to the practice area was specifically important as it was used to segregate the client, consultant and contractor project managers responses with respect to the perceived importance of SC and SFs.

Sections three to six -Project SFs and criteria:

These sections targeted to collect data from respondents with regard to the importance of SFs in contribution to project success and SC in terms of their importance in evaluating project success according to the following:

- Section three targeted to collect data relevant to the importance of project management SFs.
- Section four targeted to the collect data relevant to the importance of project SFs.
- Section five targeted to collect data relevant to the importance of project management SC.
- Section six targeted to the collect data relevant to the importance of project SC.

Each question within these four sections was seeking to receive the respondent's agreement to a certain statement that communicated the importance for a given SF or a given SC of the fit-out projects. The level of agreement to each statement was represent on a 5-likert-ranking scale (1- Strongly agree, 2- Agree, 3- Neither Agree Nor Disagree, 4- Disagree, and 5- Strongly Disagree).

According to Sekaran, (2003) this is an effective type of questions that can be implemented when the priority or degree of importance for a certain parameter is assessed.

Sampling: Sample Accuracy, Precision and Size

Many authors suggested that samples can provide an efficient representation of the wider population should there be an emphasis on criteria related to the

accuracy and precision of the sample selected (Bryman & Bell 2003; Sekaran 2003; Collis and Hussey 2003). According to Cooper and Schindler (2003) the accurate sample should be bias-free and would never lead to systematic variance within the research. Moreover, high sample precision provides better representation of the population characteristics.

A self selected sample has been developed with an emphasis on the sample accuracy issue as it included fit-out project managers in various geographical locations and from various companies that differed in term of practice (client, consultant and contractor), size of the organisation, market reputation, in-house capabilities and the number of completed projects.

Ticehurst and Veal (1999) highlighted that the researcher is only able to deal with the data that has been obtained from those respondents who completed the questionnaire, whereas uncompleted ones would result in a response bias that would negatively impact the accuracy of the research, the author concludes that this can only be overcome by achieving high level of response rate.

The low response rate has been considered as a risk for the achieving high level of accuracy of this research findings, therefore a plan for mitigating this risk was developed and was represented by including a cover letter for the research that communicated the main purpose of conducting the study and highlighting the importance role of the questionnaire for this research in order to encourage the project managers to complete it, an e-mail reminder has also been sent every three days to mainly seek the support of those project managers to this study by completing the questionnaire.

Since this research exhibits a focus on the fit-out industry in the UAE, the representativeness of the sample to the wider population has been significantly considered. The precision levels of the sample selected for this research has been taken into consideration as the selected project managers were those who are engaged in fit-out projects daily works who are able to provide precise feedback about the perceived importance of each of the project SF and SC.

Another aspect that has also contributed to high sample precision levels is that selecting the respondent was bias-free and it did not targeted project managers with certain age, gender, location, or a company with certain characteristics.

The sample size, according to Cooper and Schindler (2003) is argued to be of an implication on the sample precision specifically in studies that are conducted to extract absolute characteristics relevant to the population such as age or the percentage of people above poverty level. In such studies the standard error will significantly impact the study precision as it mainly relays on the sample size and the standard deviation.

As the focus of this study relies on relative data (the main questionnaire questions are based on a 5-Likert-scale) rather than targeting absolute data, the sample distribution is regarded as most important since general conclusions about the difference in the perceived importance of SFs and SC can be only drawn and generalized for the fit-out industry when the sample distribution is normal. Berenson *et al.* (2002) states that according to the central limit theorem a sample is approximately normally distributed when its size is 30, with a targeted response rate of 75% the questionnaire was sent to 40 client project Managers, 40 consultant projects managers, and 40 contracting project managers within the UAE.

3.2.7. Data Analysis

The data was analysed using IBM SPSS 20. Initially descriptive statistical analysis was conducted on the research sample demographic data to provide information about respondents characteristic, pie charts and tables were used to present and analyse the obtained data.

As a mean to draw conclusions from this research, Inferential statistics were deployed, the main two objectives of the inferential statistics are: estimating the parameter of a population and; test hypotheses (Triola, 2008). According to Saunders *et al.* (2009) the researcher should appropriately select the statistical tool in order to achieve correct interpretations, failing to do so will not result in

solving the research problem and the research will be regarded as incomplete since its objectives were not met.

In this study, the research hypotheses H1, H2, H3 and H4 were tested through the comparison between the mean of the three sets of samples i.e. comparison between the means of clients and consultant, client and contractor, consultants and contractors with regard to the perceived importance of each of the project management SFs, project SFs, project management SC and project SC. According to Lind *et al.*, (2008) the one-way ANOVA statistical tool can be utilized for this purpose.

In order to provide a ranking for perceived importance of each of the factors and criteria within each category (project management success group and project success group) and from various perspectives, the one sample t-test was conducted to supplement the one-way ANOVA test on each of the 3 individual project managers samples (client, consultant and contractor) to ensure that each of the three samples represent the population and a valid importance rankings of the variables based on their mean values can be obtained.

The final representation of the research methodology inclusive of the selected paradigms, approaches, methods, instruments and tools is depicted in Figure 3.3.



Figure (3.3): Summary of the selected options within the research methodology

3.2.8. Limitation of The Research methodology

Limitations of research methodology are related to the selected paradigms approaches or tools to undertaken in this research.

Having selected the survey strategy entails a possibility of misinterpretation to the content of the questionnaire, this constitute a limitation to this research methodology as some respondents data that has been collected may hold misinterpretation to certain questions which will ultimately have an implication on the extracted conclusions (Bryman & Bell 2003).

Although the author of this research have allowed to avoid such possibilities by asking the respondent to request any clarification, it is difficult to guarantee that all respondent who realized that they might have misinterpretation with regard to any question would contract the author to obtain the clarification required.

Another limitation that might be evident is relevant to the data collection. With the questionnaire being the selected instrument to collect data both validity and accuracy of the questionnaire obtained data might be low, this can be referred mainly to low response rates and the inaccuracy aspects related in the questionnaire design itself.

Whilst Saunders *et al.* (2007) concluded that that a rate response of 25-30% is an acceptable rate, other authors have questioned the validity of the data with such response rates since the opinion of 70-75% of the sample has not been considered (Serkanan 2003). The response rate will be discussed further in the data analysis chapter however it is worth mentioning that the researcher for this study has allowed for 25% no response rate.

The limitations associated to the questionnaire design may be presented by the fact that the questionnaire provides a single opportunity to the researcher for gathering data. Accordingly it is impossible to conduct any in-depth analysis for any area that has not been addressed in the questionnaire (Ticehurst and Veal, 1999).

Finally, having selected a quantitative approach it is to be highlighted that such approach is unable to provide in-depth analysis as that provided by the qualitative ones (Saunders *et al.* 2007), Therefore, limitations with respect to data analysis is likely to exist, for instance the researcher may not be able to justify why there were various ranking of the same success factor across the 3 practice areas.

3.2.9. Research Ethics

The researcher is likely to encounter ethical issues during his entire involvement with the research process. Areas that may introduce high possibility of encountering such issues is the process of collecting and analysing data, and findings reporting (Bryman and Bell, 2003). The main purpose of this section is to highlight the author awareness with respect to ethical issues that might be encountered during the process of undertaking this research.

As the questionnaire was the main research instrument for data collection, it may introduce ethical issues related to respondent authorization to utilize the data for the research purpose and the standardization of the research questionnaire.

The cover letter that has been sent to the respondent has covered any ethical gaps related to the respondent authorization as it has:

- Clearly highlighted that the questionnaire is conducted for the academic purposes only
- Highlighted that responding to the questionnaire is completely voluntary and there should be no obligations attached to respondent should they choose to participate in the questionnaire or not.
- Provided an assurance that all information about respondent and their organizations will remain anonymous and will be treated as confidential information.

Standardization of the questionnaire, on the other hand, has been emphasized through ensuring that all respondents have received the same final version of the

questionnaire and no revisions were made during the period that was allocated to receiving responses from the selected sample.

Another important ethical issue that the researcher is fully aware of is related to presenting the research data and reporting the findings, according to Bryman & Bell (2003) the researcher must not be selective in presenting the data or reporting the findings of the research as there are no right or wrong answers, therefore the researcher who is involved in this study undertake to present the entire data related to this research and to report all the finding in an honest, accurate and precise manner.

3.2.10. Research Steps

In order to fulfill the research goals, test the research hypotheses, and draw conclusion the following steps were undertaken:

#		Step	Clarifications
1	Literature reviews	Identification of success factors and success criteria	Focusing on researches associated to SFs and SC in the construction industry, historical overview was presented in the literature review in chapter 1.
		Consolidation of success factors and criteria	All identified SFs and SC were consolidated and segmented into two groups each, project management success factors/criteria and project success factors/criteria, these are shown in Appendix 1.
		Developing the conceptual framework and research hypotheses	Based on the categorization of the SFs and SC, the conceptual framework was developed and the research hypotheses were presented, the conceptual frame work is presented in chapter 3.
2	Data collection	Questionnaire development	A self-administered questionnaire was developed with the content questions seeking information about the relevant importance of each of the identified success factor and success criterion, steps for developing the questionnaire is illustrated in figure 3.2, the questionnaire is presented in Appendix 2.
		Pilot questionnaire	6 pilot questionnaires were distributed to 6 project managers to identify whether refinement is required to be made to any of the questions, the decision was to maintain the original questionnaire with no

#		Step	Clarifications
			changes.
		Distributing the questionnaire	The questionnaire was distributed to project managers from the 3 targeted practice areas via e-mail.
3	Data Analysis	One-way ANOVA test	The one-way test was used to test the research hypotheses and examine whether there is significant differences in the perceived importance of all SFs and SC between the targeted 3 project managers groups, chapter 4 provide all information associated to this analysis.
		On-sample t-test	This test was used to identify whether the data obtained from each of the three project manager's samples was representing the population in order to provide a valid ranking for the SFs and SC according to their relative importance, the analysis relevant to this test is shown in chapter 4.
		Conclusion and recommendations	Conclusions were drawn and recommendations were suggested based on the finding obtained from the analysis and results obtained from testing the research hypotheses, the conclusion and recommendations are presented in chapter 5.

Table (3.1): Research steps

4. Data Analysis, Findings and Discussion

The main purpose of this chapter is to present and analyse the data that has been obtained from the respondent and use this analysis to further discuss and present the findings associated to the research aim and objectives.

The chapter is mainly divided into two parts. The first part comprises of representation, analysis, discussion and highlighting of findings related to the demographic data of the respondents by providing descriptive statistic information that aims to highlight the characteristics of the questionnaire respondents. This will ultimately provide an indication about the quality of the sample in terms of capturing various respondents characteristics and its representation to the population.

The research objectives will be then addressed in the second part of this chapter, where all the data related to the perception of importance of SFs and SC and their ranking inclusive of those categorized under project management success and project success will be discussed and analysed. Overall the second part will aim to test the research hypotheses using inferential statistics information that has been obtained by conducting the appropriate statistical test.

4.1. Description of Sample Characteristics

Analysis of the findings obtained from the data that has been collected from the respondents for the set of questions in section 2 of the questionnaire (demographic information) will be presented in this section. Moreover, the questionnaire response rate will be presented and discussed. Overall, the discussion will cover two levels; the entire sample data and specific discussion for the data obtained from each category within the sample (Client, Consultant and Contractor samples).

4.1.1. Response Rate

The questionnaire was distributed to 120 project managers whom were selected mainly from 3 practice areas: client, consultant and contractor, 40 questionnaires

were distributed to project managers within each of the aforementioned practice areas.

The total number of completed questionnaires was 101 and the overall response rate was 84.2%. The response rate for the 3 sample categories varied as the number of the completed questionnaires received from the 3 groups differed.

A total of 34 questionnaires were completed by client's project managers resulting in a response rate of 85%, respondents from the consultancy practice were 36 that yielded 90% response rate and 31 contractor project managers responded to the questionnaire that resulted in a response rate of 77.5%.

The overall response rate and the response rates for the clients, consultant and contractor project managers are presented in Figure 4.1, Figure 4.2, Figure 4.3 and Figure 4.4 respectively.

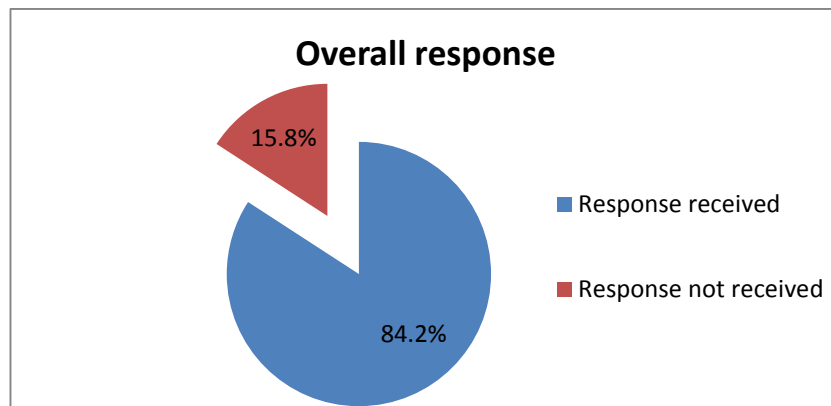


Figure (4.1): Overall questionnaire response rate

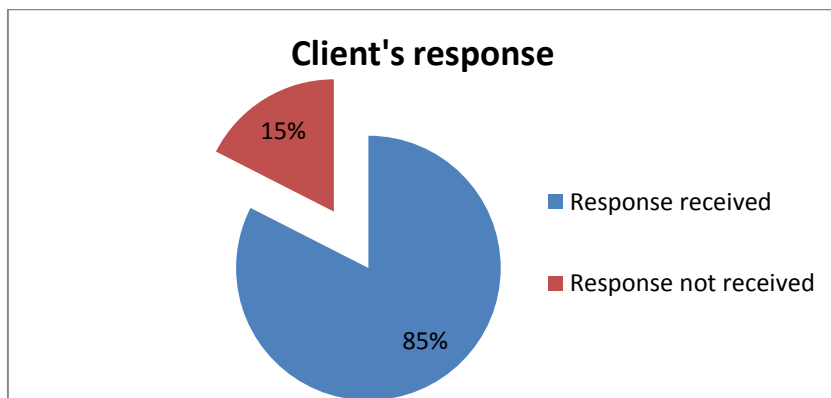


Figure (4.2): Client's project managers response rate

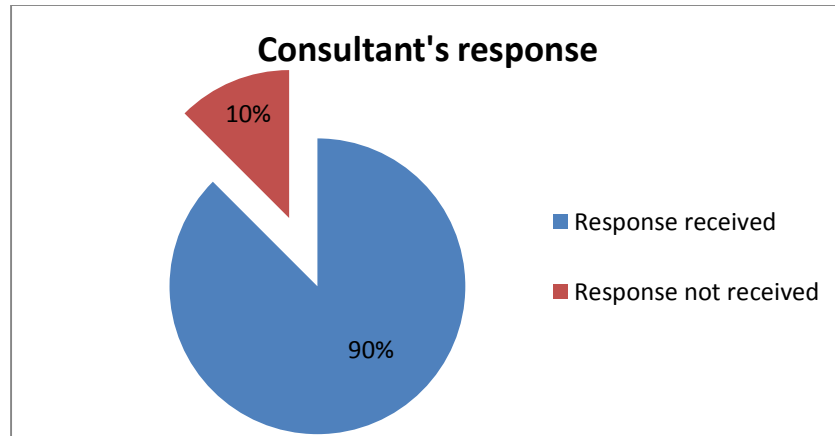


Figure (4.3): Consultant project managers response rate

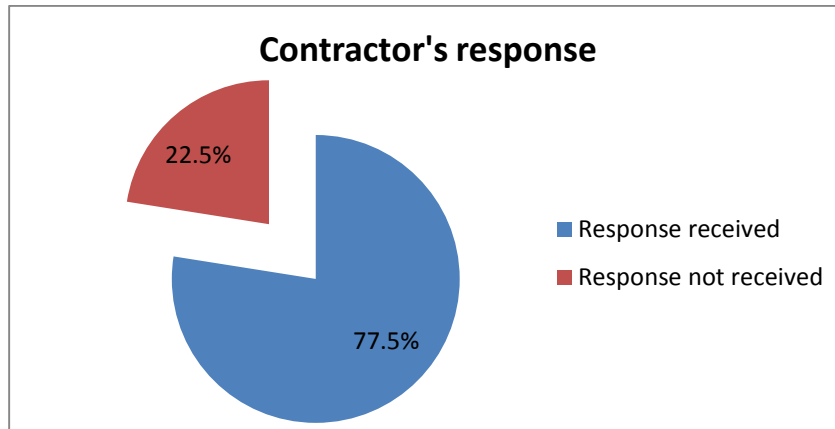


Figure (4.4): Contractor project managers response rate

Considering the response rate that has been highlighted for the entire sample and for each of the sample categories, positive indications about both the sample accuracy and sample precision can be confirmed once contrasted Ticehurst and Veal (1999) findings stating that accuracy and precision of a sample would increase when high levels of response rates are achieved.

In addition, the sample distribution can be assumed to be normally distributed based on the fact that the size of each category within the overall sample was more than 30 (Berenson *et al.*, 2002), the normal distribution is essential for conducting the ANOVA test, further discussion on this tests will be presented in the second part of this chapter.

Further positive indication about the quality of the sample representation to the population since the responses were obtained from practicing project managers from the 3 type of the targeted practice areas related to the fit-out project.

The quality of sample representation to the population will be further assessed when various project manager characteristics in terms of their age, gender, experience and practice areas are analysed and discussed in the next subsections.

4.1.2. Respondents Age

The data relevant to respondents age was divided over 4 scales: 25 to 30 years, 31 to 40 years, 41 to 50 years and above 50 years. Table 4.1 and Figure 4.5 provide information about the contribution of each age category to the entire sample.

Age (Years)	Frequency	Percent	Valid Percent	Cumulative Percent
25-30	21	20.8	20.8	20.8
31-40	57	56.4	56.4	77.2
41-50	14	13.9	13.9	91.1
Above 50	9	8.9	8.9	100.0
Total	101	100.0	100.0	

Table (4.1): Project managers age ranges for the entire sample

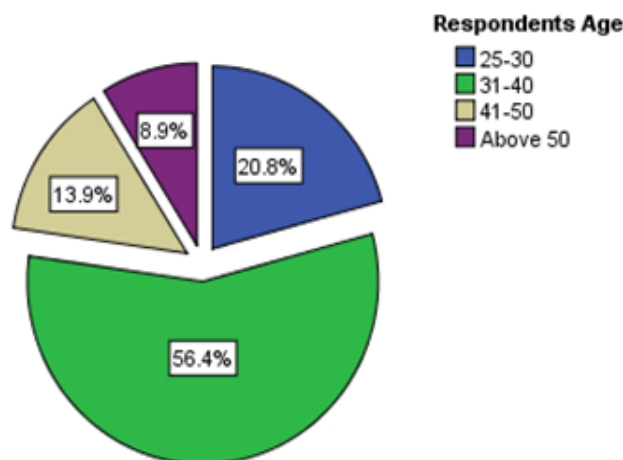


Figure (4.5): Percentages of the respondents age

The project managers with an age range of 31 to 41 years seem to be dominating the sample with a total contribution of 57 responses from this age range that formulated 56.4% of the entire sample. While the number of responses received from project managers with an age of above 50 year represented the lowest percentage (8.9%) of the sample with a total of 9 project managers of this age range. The project managers with an age of 25 to 30 years were the second ranked contributor to the data with a total of 21 responses that yielded 20.8% of the entire sample. Finally the third ranked category in terms of project managers age was those responses from project managers with an age range of 41 to 50 years totaling 14 responses that represented 13.9% of the overall sample.

Specific information about respondents age within each of the 3 categories of the sample will also be presented and discussed.

To start off with, 34 responses were received from client's project managers out of which 9 responses (26.5%) were from project managers with an age range of 25 to 30 years, 15 (44.1%) responses from project managers of an age range of 31 to 40 years, and 5 responses (14.7%) from project managers from each of the age ranges of 41 to 50 years and above 50 years. Details about the age characteristics of the client fit-out project managers are presented in Table 4.2 and Figure 4.6.

Client PM Age				
Age (Years)	Frequency	Percent	Valid Percent	Cumulative Percent
25-30	9	26.5	26.5	26.5
31-40	15	44.1	44.1	70.6
41-50	5	14.7	14.7	85.3
Above 50	5	14.7	14.7	100.0
Total	34	100.0	100.0	

Table (4.2): Client project managers age ranges

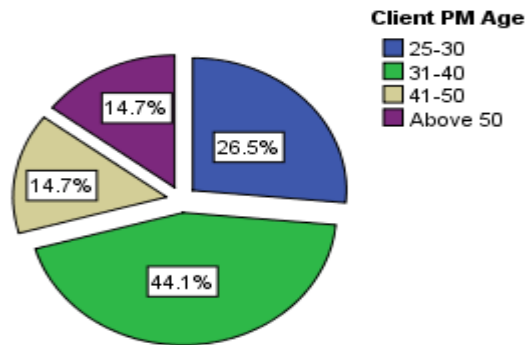


Figure (4.6): Percentages of age ranges of the client project managers

Table 4.3 and Figure 4.7 depict the age characteristics of the consultant project managers category, the highest percentage within this category was 58.3% that represented project managers with an age range of 31 to 40 years comprising of 21 respondents out of a total 36 consultant project managers, 3 responses were received from project managers with an age above 50 years that formed the lowest percentage of 8.3%, consultant project managers with an age range of 25 to 30 years represented 13.9% (5 respondents) of this category and project managers within the age range of 41 to 50 years represented 19.4% (7 respondents) of the consultant category.

Age (Years)	Frequency	Percent	Valid Percent	Cumulative Percent
25-30	5	13.9	13.9	13.9
31-40	21	58.3	58.3	72.2
41-50	7	19.4	19.4	91.7
Above 50	3	8.3	8.3	100.0
Total	36	100.0	100.0	

Table (4.3): Consultant project managers age ranges

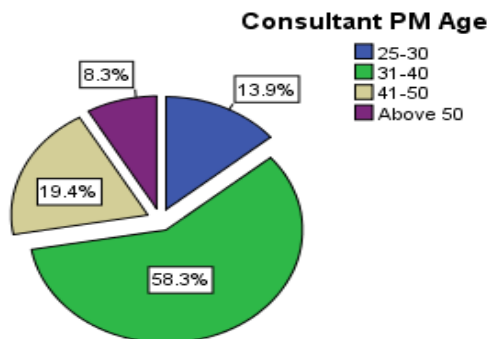


Figure (4.7): Percentages of age ranges of the consultant project managers

Finally the contractor category has also involved project managers with various age ranges, out of the 31 responses received from this category, 7 contractor project managers were within the age range of 25 to 30 years, 21 contractor project managers within the age range of 31 to 40 years, 2 contractor project managers with an age range of 41 to 50 year and 1 contractor project manager above 50 years forming respective percentages of 22.6%, 67.7%, 6.2% and 3.2% of the entire sample category. Table 4.4 and Figure 4.8 provide all the data and percentages related to the age of the contractor project managers.

Contractor PM Age				
Age (Years)	Frequency	Percent	Valid Percent	Cumulative Percent
25-30	7	22.6	22.6	22.6
31-40	21	67.7	67.7	90.3
41-50	2	6.5	6.5	96.8
Above 50	1	3.2	3.2	100.0
Total	31	100.0	100.0	

Table (4.4): Contractor project managers age ranges

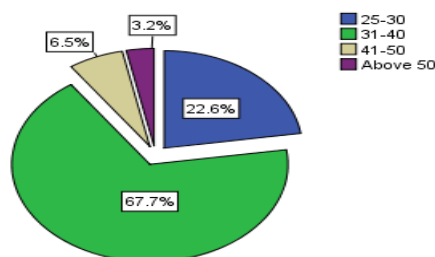


Figure (4.8): Percentages of age ranges of the contractor project managers

Although the number of responses received from project managers with an age range of 31 to 40 years seems to be dominating both the entire sample and the 3 categories within, responses from diversity of age ranges for the project managers have existed. Such diversity in project managers age ranges enhances the quality of the sample in terms of its representation to the entire population.

4.1.3. Respondents Gender

The data relevant to respondents gender has been split into 2 categories; male and female. Table 4.5 and Figure 4.9 provide information about the number of

male and female project managers and their respective percentages in the entire sample.

Respondents Gender				
Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	25	24.8	24.8	24.8
Male	76	75.2	75.2	100.0
Total	101	100.0	100.0	

Table (4.5): Project managers gender for the entire sample

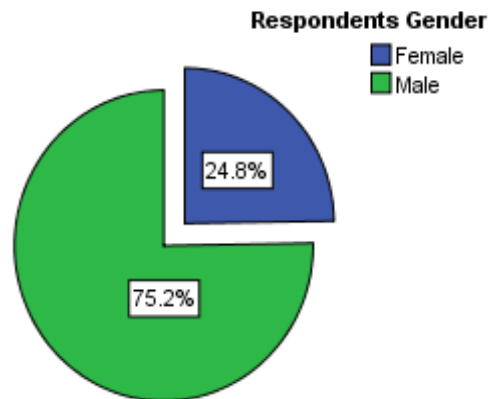


Figure (4.9): Percentages of respondents gender

Out of the 101 received responses, 25 responses were from female project managers (24.8%) and the remaining 76 responses were from male project managers, this indicates that the majority of the respondents were males with 75.2% of the total response.

The female client project managers who responded to the questionnaire were 12 (35.3%) while 22 (64.7%) responses were received from male client project managers. The client project manager gender information is provided in Table 4.6 and Figure 4.10

Client PM Gender				
Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	12	35.3	35.3	35.3
Male	22	64.7	64.7	100.0
Total	34	100.0	100.0	

Table (4.6): Client project managers gender

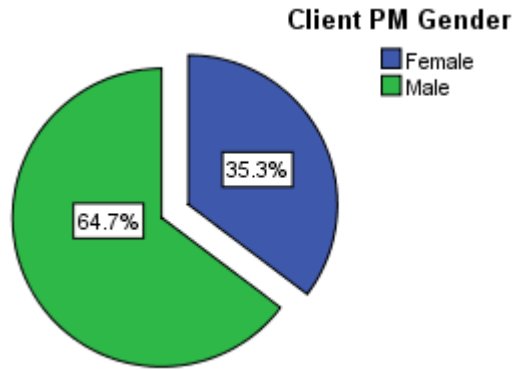


Figure (4.10): Percentages of gender of the client project managers

Table 4.7 and Figure 4.11 provide information about the gender of the consultant project managers whom responded to the questionnaire. The total number of responses that has been received from this category was 35 responses 8 out of which were from female project managers (22.9%) and 27 responses were from male project managers (77.1%).

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	8	22.2	22.2	22.2
Male	28	77.8	77.8	100.0
Total	36	100.0	100.0	

Table (4.7): Consultant's project managers gender

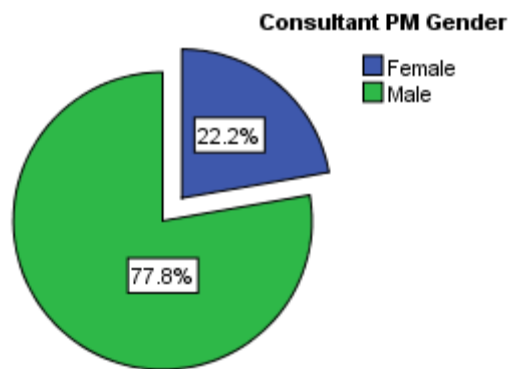


Figure (4.11): Percentages of gender of the consultant project managers

The lowest female percentage between the 3 practice groups was evident in the contractor category which was 16.1% with 5 female project managers have responded to the questionnaire, the remaining 26 respondents were male project managers forming a percentage of 83.9% of the total number of responses

received from this group. Table 4.8 and Figure 4.12 illustrate the gender information within the contractor project managers group.

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	5	16.1	16.1	16.1
Male	26	83.9	83.9	100.0
Total	31	100.0	100.0	

Table (4.8): Contractor project managers gender

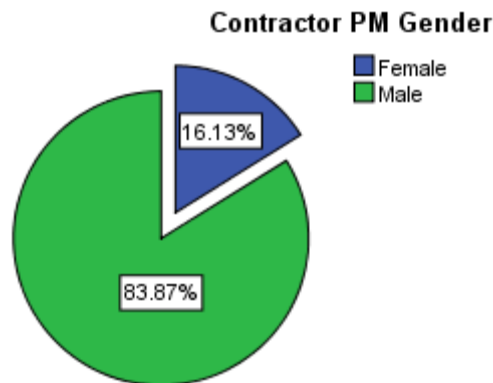


Figure (4.12): Percentage of genders of the contractor project managers

The presentation of the collected data associated to the project manager gender suggests that the gender characteristics for the selected sample varied as female and male project managers have responded to the questionnaire, therefore the gender bias issue does not seem to be evident in the sample. Moreover, the gender characteristics have also diverged within each of the three targeted practice groups which will overall provide a positive impact on the sample representation to the population regardless of the fact that the majority of responses were from male project managers.

4.1.4. Respondents Experience

The data associated to the respondents experience was divided over 2 scales namely; 10 years or less and more than 10 years. Table 4.9 and Figure 4.13 provide information about the frequencies and percentage of the project managers according to their experience within the entire sample.

Overall 73 project managers with more than 10 years experience responded to the questionnaires and represented 72.3% of the entire sample, while project managers with and experience of 10 years or less were 28 and represented 27.7% of the sample.

PM Experience	Frequency	Percent	Valid Percent	Cumulative Percent
10 Years or less	28	27.7	27.7	27.7
More than 10 Years	73	72.3	72.3	100.0
Total	101	100.0	100.0	

Table (4.9): Project managers experience for the entire sample

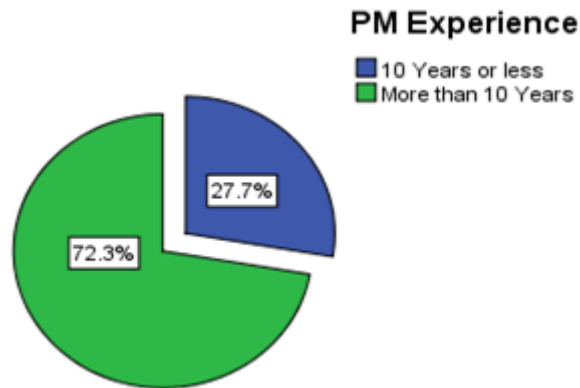


Figure (4.13): Percentages of the project managers experience

Within the client category 10 responses were received from project managers with an experience of 10 years or less (29.4%) and 24 responses were received from project managers with more than 10 years of experience (70.6%), the information relevant to the client project manager experience is shown in Table 4.10 and Figure 4.14.

PM Experience	Frequency	Percent	Valid Percent	Cumulative Percent
10 Years or less	10	29.4	29.4	29.4
More than 10 Years	24	70.6	70.6	100.0
Total	34	100.0	100.0	

Table (4.10): Client project managers experience

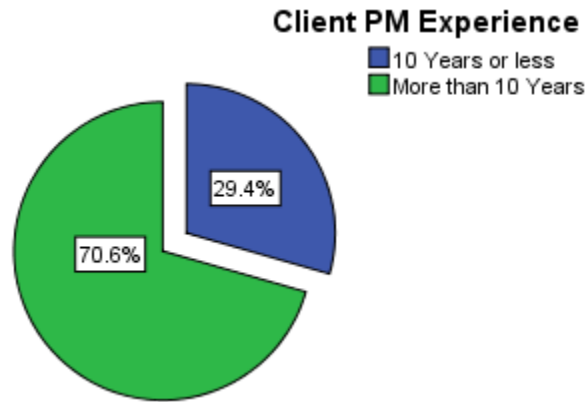


Figure (4.14): Percentages of the client project managers experience

The consultant category included 8 responses from project managers with an experience of 10 years or less (22.2%) and 28 responses from project managers with more than 10 years of experience (78.8%), the information relevant to the consultant project manager experience is shown in Table 4.11 and Figure 4.15.

Consultant PM Experience

PM Experience	Frequency	Percent	Valid Percent	Cumulative Percent
10 Years or less	8	22.2	22.2	22.2
More than 10 Years	28	77.8	77.8	100.0
Total	36	100.0	100.0	

Table (4.11): Consultant project managers experience

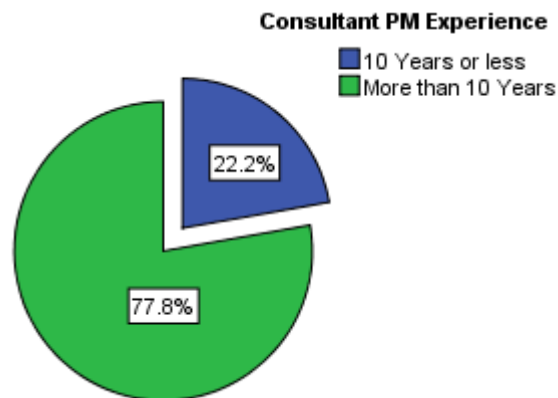


Figure (4.15): Percentages of the consultant project managers experience

Responses from the Contractor's project managers group involved 10 project managers with an experience of 10 years or less (32.3%) and 21 project managers with more than 10 years of experience (67.7%), the information

relevant to the contractor project manager experience is shown in Table 4.12 and Figure 4.16.

PM Experience	Frequency	Percent	Valid Percent	Cumulative Percent
10 Years or less	10	32.3	32.3	32.3
More than 10 Years	21	67.7	67.7	100.0
Total	31	100.0	100.0	

Table (4.12): Contractor project managers experience

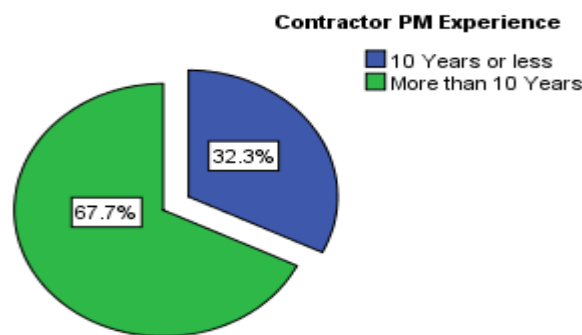


Figure (4.16): Percentages of the consultant project managers experience

The presentation of the data related to the project manager experience indicates that the sample captured data from project managers with various experience characteristics which contributes to the quality of the sample representation of the entire population, it could also be noticed that the majority of the respondents were project managers with an experience that exceeded 10 years which will significantly enhance the quality of the collected data that is related to the importance of the project SFs and SC, this can be referred to the fact that input from the project managers with regard to the importance of any factor or criteria will be based on their experience the longer the experience of the project manager is, the more number of projects that he/she has executed which will ultimately enhance the quality of the obtained data.

4.1.5. Respondents Practice Area

As one of this research objectives is to provide a comparison between the client's, consultant's and contractor's project managers perception with respect to

the importance of each of the project SFs and SCs, it was essential to collect information from respondents with regard to their practice area. Respondents were categorized into three groups within the entire sample namely; client, consultant and contractor project managers.

The characteristics of the respondents in terms of their practice area are shown in Table 4.13 and Figure 4.17. Within the entire sample, 34 respondents were client project managers forming a percentage of 33.7%, 36 consultant project managers that represented 35.6%, and 31 contractor project manager that yielded 30.7% of the entire sample.

Profession area				
PM Practice area	Frequency	Percent	Valid Percent	Cumulative Percent
Client	34	33.7	33.7	33.7
Consultant	36	35.6	35.6	69.3
Contractor	31	30.7	30.7	100.0
Total	101	100.0	100.0	

Table (4.13): Project managers practice area

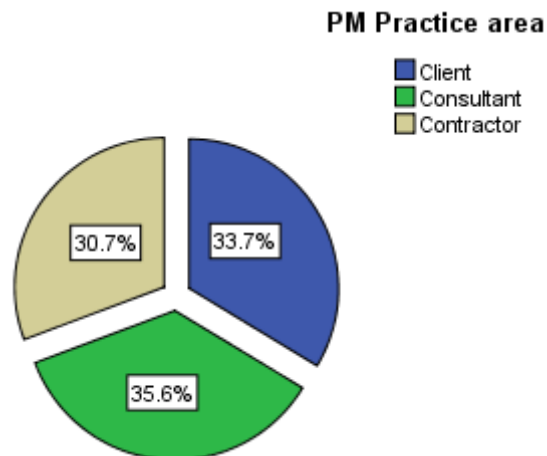


Figure (4.17): Percentages of project managers practice area

4.2. Perceptions of SF and SC Importance and their Ranking:

This section aims to answer the research questions related to the perception of importance of SFs and SC and to identify whether there are any differences in this perception from the client, consultant and contractor project managers

perspectives. In addition, importance rankings for the SFs and SC from these three perspectives will be carried out.

To test the hypotheses H1, H2, H3 and H4 the one-way analysis of variance (ANOVA) test was conducted. This test is used for the case of quantitative outcomes with a categorical explanatory variable that has two or more levels of treatment.

Contrasting this to the research in hand, the quantitative outcomes are the importance of project management SFs, the project SFs, the project management SC and the project SC, while the categorical explanatory variable is the practice area with its three levels: client, consultant and contractor project managers.

The term one-way, is referred to the single explanatory variable with its two or more levels, and only one level of treatment is applied at any time for a given subject. The term analysis of variance is a bit of a misnomer as within the ANOVA test the variance is used to investigate whether the population means are equal or not, and therefore the emphasis within the test relies on analysing the means and not the variances.

The one-way ANOVA was used to determine whether there are any significant differences between the perception of the client, consultant and contractor project managers about the importance of SFs and SC by comparing the mean of each factor or criterion of these three independent groups within the sample. The test null hypothesis for this test states that there is no significant difference between the means of the groups;

$$H_0: \mu_1 = \mu_2 = \mu_3$$

Where;

μ_1 = the mean of the client project managers group for the importance of any given factor or criterion

μ_2 = the mean of the consultant project managers group for the importance of any given factor or criterion

μ_3 = the mean of the contractor project managers group for the importance of any given factor or criterion

The alternative hypothesis must include everything else, which can be expressed as at least one of the 3 population means differs from the means of the other two populations. Therefore the alternative hypothesis can't be expressed as:

$H_1: \mu_1 \neq \mu_2 \neq \mu_3$

But can be represented as:

$H_0: \text{Not } \mu_1 = \mu_2 = \mu_3$

Where;

μ_1 = the mean of the client project managers group for the importance of any given factor or criterion

μ_2 = the mean of the consultant project managers group for the importance of any given factor or criterion

μ_3 = the mean of the contractor project managers group for the importance of any given factor or criterion

The one-way ANOVA test was conducted at a confidence interval of 95% four times to test below research hypothesis:

H1: Client, consultant and contractor project managers do not share the different perceived importance of project management SFs.

H2: Client, consultant and contractor project managers do not share the different perceived importance of project SFs.

H3: Client, consultant and contractor project managers do not share the different perceived importance of project management SC.

H4: Client, consultant and contractor project managers do not share the different perceived importance of project SC.

The null hypothesis H_0 was rejected if the significance value was less than 0.05 ($p < 0.05$) and was not rejected if the significance value was equal or greater than 0.05 ($p \geq 0.05$).

It is important to emphasize on the fact that the one-way ANOVA cannot provide information about the specific groups that their means were significantly different from each other. Therefore, in situations when the null hypothesis was rejected for any given success factor or criterion, the Tukey post-hoc test was utilized to specifically identify which groups differ in their perception of that given factor or criterion importance.

The one-sample t-test was then used as a supplementary test to the one-way ANOVA test in order to identify the ranking of SFs and the ranking of SC for each of the three practice groups within the sample according to their relative importance.

The one-sample t-test is used to test whether the mean of the sample is different from the hypothesized mean of the population. In other words and for the purpose of this research it was used to identify whether the mean value for the importance of any given factor or criterion is equal to the population mean for that given factor or criteria so that a statistically significant ranking for the set of factors and the set of criteria can be obtained from the perspectives of the project managers in the three practice areas.

The null hypothesis for the one-sample t-test states that the mean of the sample equals to the hypothesized mean of the population;

$$H_0: X = \mu$$

Where;

X = sample mean

μ = Hypothesized population mean

The alternative hypothesis for the one-sample t-test must include everything else and can be expressed as the mean of the sample is not equal to the hypothesized mean of the population;

$H_1: X \neq \mu$

Where;

\bar{X} = sample mean

μ = Hypothesized population mean

The mean corresponding to each factor and each criterion was estimated and used as the test value for the corresponding factor or criterion when the one-sample t-test was conducted.

The decision whether to accept the null hypothesis was then based on the significance value obtained by the test, The null hypothesis H_0 was rejected if the significance value was less than 0.05 ($p < 0.05$) and was not rejected if the significance was equal or greater than 0.05 ($p \geq 0.05$). All factors and criteria for which the null hypothesis was not rejected were then ranked within their respective groups based on their mean values that have been obtained.

It is to be highlighted that the highest importance scale within the questionnaire was set at 1 (Strongly Agree), therefore the mean with the closer value to 1 was assigned with the highest ranking

4.2.1. Perceived Importance of Project Management Success Factors

The research hypothesis H1: Client, consultant and contractor project managers do not share the different perceived importance of project management SFs (presented in Appendix 1) was tested using the one-way ANOVA test.

Table (4.14) depicts the results obtained from the one-way ANOVA test that has been conducted with 95% confidence level interval. The results indicate that all

the project management SFs have significance values that were greater than 0.05 ($p \geq 0.05$) except for monitoring for which the significance value was (0.045). Therefore, the null hypothesis for this test was not rejected for planning, control, communication and stakeholder management and was rejected for monitoring.

Contrasting these results to the research hypothesis H1, Client, consultant and contractor project managers do not share the different perceived importance of planning , control, communication and stakeholder management while they do don't share the same perceived importance for monitoring.

The test also revealed that not sharing different perceived importance of stakeholders management was highly significant ($p= 0.888$), moderate significance levels was evident for the perceived importance of control ($p= 0.693$) low for both planning ($p= 0.342$) and communication ($p= 0.178$).

One- Way ANOVA

Project Management Success Factor		Sum of Squares	df	Mean Square	F	Sig.
Plan	Between Groups	.429	2	.214	1.086	.342
	Within Groups	19.353	98	.197		
	Total	19.782	100			
Monitoring	Between Groups	2.523	2	1.261	3.197	.045
	Within Groups	38.665	98	.395		
	Total	41.188	100			
Control	Between Groups	.175	2	.087	.368	.693
	Within Groups	23.310	98	.238		
	Total	23.485	100			
Communication	Between Groups	.791	2	.396	1.756	.178
	Within Groups	22.080	98	.225		
	Total	22.871	100			
Stakeholders Management	Between Groups	.064	2	.032	.119	.888
	Within Groups	26.293	98	.268		
	Total	26.356	100			

Table (4.14): One-way ANOVA test results for the project management success factors

As highlighted before the one-way ANOVA results indicates that the project managers from the three practice areas did not share the same perceived importance of monitoring, this entails that there is at least one practice group for which the project managers perception about the importance of monitoring differed from the perception of the project managers of the other two practice groups.

These results shown in Table 4.14 are unable to reveal the groups that do not share the same perception of monitoring importance. The Tukey post-hoc test was conducted to identify the practice groups between which the difference in this perception existed.

Table 4.15 represents the results obtained from this test that relies mainly on multi comparison between the three practice groups means for each of the project management SFs where two means of practice groups are compared at a time.

The Tukey post-hoc comparisons between the three practice groups indicate that the consultant project manager group perceived monitoring as being more important than the client group ($p = 0.007$). Comparisons of the perceived importance of monitoring between the contractor project managers group and the other two project managers groups were not statistically significant at $p < 0.05$.

Multiple Comparisons

Project Management Success Factor	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Plan	Client
Contractor	.159	.110	.322	-.10	.42		
Consultant	Client	-.103	.106	.598	-.36		.15
	Contractor	.056	.109	.863	-.20		.32
Contractor	Client	-.159	.110	.322	-.42		.10
	Consultant	-.056	.109	.863	-.32		.20

Multiple Comparisons

Project Management Success Factor	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Monitoring	Client
Contractor	.251	.156	.245	-.12	.62		
Consultant	Client	-.374*	.150	.038	-.73		-.02
	Contractor	-.123	.154	.705	-.49		.24
Contractor	Client	-.251	.156	.245	-.62		.12
	Consultant	.123	.154	.705	-.24		.49
Control	Client	Consultant	-.096	.117	.687	-.37	.18
		Contractor	-.026	.121	.976	-.31	.26
	Consultant	Client	.096	.117	.687	-.18	.37
		Contractor	.071	.119	.825	-.21	.36
	Contractor	Client	.026	.121	.976	-.26	.31
		Consultant	-.071	.119	.825	-.36	.21
Communication	Client	Consultant	.193	.114	.211	-.08	.46
		Contractor	.180	.118	.282	-.10	.46
	Consultant	Client	-.193	.114	.211	-.46	.08
		Contractor	-.013	.116	.994	-.29	.26
	Contractor	Client	-.180	.118	.282	-.46	.10
		Consultant	.013	.116	.994	-.26	.29
Stakeholders Management	Client	Consultant	.052	.124	.907	-.24	.35
		Contractor	.054	.129	.907	-.25	.36
	Consultant	Client	-.052	.124	.907	-.35	.24
		Contractor	.002	.127	1.000	-.30	.30
	Contractor	Client	-.054	.129	.907	-.36	.25
		Consultant	-.002	.127	1.000	-.30	.30

*. The mean difference is significant at the 0.05 level.

Table (4.15): Tukey post-hoc test results for the project management success factors

4.2.2. Importance Ranking of The Project Management Success Factors

The one sample t-test was used to identify whether the sample mean values of the perceived importance of the project management SFs for each of the 3

practice groups were equal to the population mean values, so that a valid ranking for the project management SFs relative importance for each of the aforementioned practice groups can be provided.

The one-sample t-test was conducted at 95% confidence interval one time for each set of data obtained from each of the three individual practice groups. The null hypothesis for the one-sample t-test states that the mean of the sample equals to the hypothesized mean of the population, the null hypothesis was rejected if the value of significance is less than 0.05 ($p < 0.05$), and was not rejected if the value of significance is equal or greater than 0.05 ($p \geq 0.05$).

4.2.2.1. Client PM's Ranking

The test value for the one-sample t-test for any given factor from the project management success group was set to the same mean value of that respective factor in the client sample. Table 4.16 represents the mean values of the project management SFs for the client PM sample.

The summary of the one-sample t-test results that has been obtained from the client sample were also presented in Table 4.16, the results can be interpreted by comparing the test significant to the level of significance which was set at (0.05). It can be noted that all project management SFs has a significant level that is greater than 0.05 ($p > 0.05$) within the client project managers sample, planning (0.972), monitoring (0.973), control (0.958), communication (0.995) and stakeholder management (0.989).

The decision was not to reject H_0 for the 5 project management SFs, which entails that the mean values of each of the project management SFs was equal to the population mean for that respective factor for the client project managers group, therefore, a valid ranking according to the relative importance of these factors from the client project managers perspective can be obtained based on their mean values, the summary of the ranking is presented Table 4.16.

Project Management SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Planning	34	1.35	.035	33	.972	2
Monitoring	34	1.74	-.035	33	.973	5
Control	34	1.26	.054	33	.958	1
Communication	34	1.47	.007	33	.995	4
Stakeholder Management	34	1.44	.014	33	.989	3

Table (4.16): One-sample t-test results of the client PM's for project management SFs and their ranking

4.2.2.2. Consultant PM's Ranking

The test value for the one-sample t-test for any given factor from the project management success group was set to the same mean value of that respective factor in the consultant sample. Table 4.17 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the consultant sample is depicted in Table 4.17. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05).

It can be noted that all project management SFs has a significant levels that are greater than 0.05 ($p > 0.05$) within the consultant project managers sample, planning (1.000), monitoring (0.989), control (0.989), communication (0.977) and stakeholder management (0.990).

The decision was not to reject H_0 for the 5 project management SFS; consequently the mean value of any of any give project management success factor is equal to the population mean value for that respective factor for the consultant project managers group, therefore, a valid ranking according to the relative importance of these factors from the consultant project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.17.

Project Management SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Planning	36	1.25	.000	35	1.000	1
Monitoring	36	1.36	.014	35	.989	3
Control	36	1.36	.014	35	.989	3
Communication	36	1.28	-.029	35	.977	2
Stakeholder Management	36	1.39	-.012	35	.990	5

Table (4.17): One-sample t-test results of the consultant PM's for project management SFs and their ranking

4.2.2.3. Contractor PM's Ranking

The test value for the one-sample t-test for any given factor from the project management success group was set to the same mean value of that respective factor in the contractor sample. Table 4.18 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the contractor project group sample is depicted in Table 4.18. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05). Therefore, it can be noted that each of the project management SFs has a significant level that is greater than 0.05 ($p > 0.05$) within this sample; planning (0.961), monitoring (0.970), control (0.997), communication (0.977) and stakeholder management (0.974).

The decision was not to reject H_0 for the 5 project management SFs; this entails that the mean values of all project management SF's are equal to the population mean values of these factors for the contractor project managers, therefore a valid ranking according to the relative importance of these factors from the contractor project managers perspective can be obtained based on their mean values, the ranking summary is presented Table 4.18.

Project Management SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Planning	31	1.19	.049	30	.961	1

Project Management SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Monitoring	31	1.48	.038	30	.970	5
Control	31	1.29	.004	30	.997	2
Communication	31	1.29	.004	30	.997	2
Stakeholder Management	31	1.39	-.033	30	.974	4

Table (4.18): One-sample t-test results of the contractor PM's for project management SFs and their ranking

4.2.2.4. Comparison of Various Project Management SFs Rankings

A comparison between the project management SFs rankings from the perspective of the three types of project managers is summarized in table 4.19.

Project Management Success Factors	Client		Consultant		Contractor	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Control	1.26	1	1.36	3	1.29	2
Planning	1.35	2	1.25	1	1.19	1
Stakeholders management	1.44	3	1.39	5	1.39	4
Communication	1.47	4	1.28	2	1.29	2
Monitoring	1.74	5	1.36	3	1.48	5

Table (4.19): Comparison of project management SFs various rankings

Despite the fact that the results obtained from the one-way ANOVA test suggests that the project managers from the three groups did not differ in their perception importance for most of the project management success factors, rankings obtained for these factors still differed among the project managers from the three practice area.

This can be simply referred to the fact that two independent comparisons have been conducted, the first one was a comparison for any given factor mean value across the three practice areas which resulted in identifying whether this factor's importance perception differ among these practice areas. While the other comparison was conducted between the factors mean values within the same practice group and the importance ranking of any given factor was dependent on its mean value once compared to the other factors mean values within this group.

Control illustrates such distinguish between the two results, although the project managers from the three practice groups shared the same perception of planning importance, planning relative importance was still ranked 1 for client , 3 for consultant and 2 for contractor project managers.

As it was highlighted from the Tukey post-hoc test results previously, the perception of monitoring was significantly different between the consultant project managers group and the client project managers group, the results presented in Table 4.19 support this difference in perception as monitoring was ranked 3rd in term of its relative importance in the consultant project managers group (mean= 1.36), while it was ranked 5th in the in the client project managers group (mean= 1.74) which was similar to its ranking in contractor project managers group (mean=1.48).

The top ranked project management SFs in terms of their relative importance were control, planning and stakeholder management for the client project managers with mean values of (1.26), (1.35) and (1.44) respectively, planning, communication, monitoring and control for the consultant project managers group with mean values of (1.25), (1.28), (1.36) and (1.36) respectively, and planning, control and communication for the contracting project managers group with mean values of (1.19), (1.29) and (1.29) respectively

The lowest ranked factors where, communication and monitoring for the client project managers with mean values of (1.47) and (1.74) respectively, stakeholders management for the consultant project managers with a mean value of (1.39), and stakeholder management and monitoring for the contracting project managers with mean values of (1.39) and (1.48) respectively.

4.2.3. Perceived Importance of Project Success Factors

The research hypothesis H2: Client, consultant and contractor project managers do not share the different perceived importance of project SFs was tested using the one-way ANOVA test, in order to identify whether there is a difference in the

perceived importance of the project SFs between the project managers within the three practice groups (client, consultant and contractor).

Table 14.20 depicts the results obtained from the one-way ANOVA test that has been conducted with 95% confidence level interval on the 28 variables within the project SFs group.

The results indicate that all the variables have significance values that were greater than 0.05 ($p \geq 0.05$) except for clear project objectives, projectized organisation structure, client experience and contractor experience for which the significance values were (0.039), (0.000), (0.038) and (0.011) respectively.

The null hypothesis for this test was not rejected for all variables within the project SFs group except for those factors corresponding to significance values that were less than 0.05. Contrasting these results to the research hypothesis H2, Client, consultant and contractor project managers do not share the different perceived importance of all project SFs except for clear project objectives, projectized organisation structure, client experience and contractor experience.

The one-way ANOVA test results have also revealed that not sharing the different perceived importance about consultant experience ($p= 0.993$) client competence ($p= 0.981$), change management ($p= 0.935$), regional social conditions ($p= 0.860$), contractor competence ($p= 0.861$), adequate project team selection ($p= 0.784$) periodic review of projects alignment with strategy ($p= 0.765$), regional technological advancement conditions ($p= 0.720$) and organisation culture ($p=0.717$) was highly significant among the project managers from the 3 practice groups, while moderate significance values were evident for clear scope ($p= 0.674$), region economy conditions ($p= 0.599$), consultant competence ($p=0.585$), project portfolio practice with effective project prioritization ($p=0.427$) and project manager experience ($p= 0.417$), and finally the significance was low for top management support ($p=0.352$), procurement strategy ($p= 0.344$), region political condition ($p= 0.300$), project type ($p= 0.269$), tendering process ($p= 0.267$), project portfolio practice with effective financial

resources allocation ($p= 0.151$), project portfolio practice with effective human resources allocation ($p=0.120$), project manager authority ($p= 0.115$) and project complexity ($p= 0.54$).

One-Way ANOVA

Project Success Factors		Sum of Squares	Df	Mean Square	F	Sig.
Clear Scope	Between Groups	.143	2	.071	.397	.674
	Within Groups	17.620	98	.180		
	Total	17.762	100			
Project Type	Between Groups	3.248	2	1.624	1.329	.269
	Within Groups	119.762	98	1.222		
	Total	123.010	100			
Project Complexity	Between Groups	10.367	2	5.184	3.010	.054
	Within Groups	168.761	98	1.722		
	Total	179.129	100			
Clear Project Objectives	Between Groups	2.511	2	1.255	3.350	.039
	Within Groups	36.717	98	.375		
	Total	39.228	100			
Top Management Support	Between Groups	2.165	2	1.083	1.055	.352
	Within Groups	100.607	98	1.027		
	Total	102.772	100			
Change Management	Between Groups	.193	2	.097	.067	.935
	Within Groups	141.945	98	1.448		
	Total	142.139	100			
Projectized Organisation Structure	Between Groups	33.301	2	16.651	19.039	.000
	Within Groups	85.708	98	.875		
	Total	119.010	100			
Organisation Culture	Between Groups	.884	2	.442	.333	.717
	Within Groups	129.908	98	1.326		
	Total	130.792	100			
PPP for HR Allocation	Between Groups	4.081	2	2.040	2.163	.120
	Within Groups	92.434	98	.943		
	Total	96.515	100			
PPP for Financial Resources Allocation	Between Groups	1.242	2	.621	1.926	.151
	Within Groups	31.590	98	.322		
	Total	32.832	100			
PPP with Effective Projects Prioritization	Between Groups	.920	2	.460	.858	.427
	Within Groups	52.526	98	.536		
	Total	53.446	100			

One-Way ANOVA

Project Success Factors		Sum of Squares	Df	Mean Square	F	Sig.
Periodic reviews of Projects Alignment with Strategy	Between Groups	.383	2	.192	.269	.765
	Within Groups	69.854	98	.713		
	Total	70.238	100			
Adequate Project Team Selection	Between Groups	.112	2	.056	.244	.784
	Within Groups	22.442	98	.229		
	Total	22.554	100			
Tendering Process	Between Groups	.624	2	.312	1.339	.267
	Within Groups	22.822	98	.233		
	Total	23.446	100			
Procurement Strategy	Between Groups	1.870	2	.935	1.079	.344
	Within Groups	84.942	98	.867		
	Total	86.812	100			
Region Economy Conditions	Between Groups	.540	2	.270	.514	.599
	Within Groups	51.460	98	.525		
	Total	52.000	100			
Region Political Conditions	Between Groups	.798	2	.399	1.220	.300
	Within Groups	32.073	98	.327		
	Total	32.871	100			
Region Social Conditions	Between Groups	.627	2	.313	.151	.860
	Within Groups	203.334	98	2.075		
	Total	203.960	100			
Region Technological Condition	Between Groups	.284	2	.142	.330	.720
	Within Groups	42.270	98	.431		
	Total	42.554	100			
Project Manager Experience	Between Groups	.306	2	.153	.882	.417
	Within Groups	16.854	97	.174		
	Total	17.160	99			
Project manager Authority	Between Groups	1.389	2	.694	2.212	.115
	Within Groups	30.769	98	.314		
	Total	32.158	100			
Project Manager Competence	Between Groups	.197	2	.099	.421	.658
	Within Groups	22.971	98	.234		
	Total	23.168	100			
Client Competence	Between Groups	.050	2	.025	.019	.981
	Within Groups	128.742	98	1.314		
	Total	128.792	100			
Client Experience	Between Groups	4.913	2	2.456	3.394	.038

One-Way ANOVA

Project Success Factors		Sum of Squares	Df	Mean Square	F	Sig.
	Within Groups	70.929	98	.724		
	Total	75.842	100			
Contractor Competence	Between Groups	.076	2	.038	.150	.861
	Within Groups	24.756	98	.253		
	Total	24.832	100			
Contractor Experience	Between Groups	2.589	2	1.294	4.770	.011
	Within Groups	26.321	97	.271		
	Total	28.910	99			
Consultant Competence	Between Groups	.274	2	.137	.540	.585
	Within Groups	24.855	98	.254		
	Total	25.129	100			
Consultant Experience	Between Groups	.003	2	.002	.007	.993
	Within Groups	25.185	98	.257		
	Total	25.188	100			

Table (4.20): One-way ANOVA test results for the project SFs

As highlighted before the one-way ANOVA results indicates that there is a difference between the project managers from the three practice in their perception of the importance for clear project objectives, projectized organisation structure, client experience and contractor experience, this entails that there is at least one practice group for which the project managers perception about the importance of each of those factors differs from the perception of the project managers of the other two practice groups.

The one-way ANOVA test results are unable to reveal the groups that do not share the same perception of these factors importance; therefore, the Tukey post-hoc test was conducted to identify the practice groups between which the difference in the perceived importance of these factors was evident.

Table 4.21 illustrates the results obtained from this test that relies mainly on multi comparison between the three practice group means for each of the project SFs where two practice group means are compared at a time.

The Tukey post-hoc comparisons between the three practice groups indicate that the contractor project managers group perceived clear project objectives as being less important than the client project managers group ($p = 0.034$), Comparisons of the perceived importance of clear project objectives between the consultant project managers group and the other two project managers groups were not statistically significant at $p < 0.05$.

In addition the client project managers group perceived projectized organisation structure as being less important than both the contractor and the consultant ($p = 0.000$ for both comparisons), where on the other hand; comparison of the perceived importance of projectized organisation structure between the consultant and the contractor project managers groups was not statistically significant at $p < 0.05$.

Moreover, the client experience was perceived as being less important by the consultant project managers group than the contractor project managers group ($p = 0.041$), comparisons of the perceived importance of client experience between the client project managers group with the other two groups were not statistically significant at $p < 0.05$.

Finally the perceived importance of the contractor experience was lower in the consultant project managers group than that of the contractor project managers group ($p = 0.008$), whereas the comparisons of the perceived importance of contractor experience between the client project managers group and the other two groups were not statistically significant at $p < 0.05$.

Multiple Comparisons

Project SFs	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Clear Scope	Client
	Contractor	.012	.105	.992	-.24		.26
Consultant	Client	.072	.101	.759	-.17		.31

Multiple Comparisons

Project SFs	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
							Contractor
Project Type	Contractor	Client	-.012	.105	.992	-.26	.24
		Consultant	-.084	.104	.697	-.33	.16
	Client	Consultant	.404	.264	.283	-.23	1.03
		Contractor	.071	.275	.964	-.58	.72
	Consultant	Client	-.404	.264	.283	-1.03	.23
		Contractor	-.332	.271	.440	-.98	.31
Project Complexity	Contractor	Client	-.071	.275	.964	-.72	.58
		Consultant	.332	.271	.440	-.31	.98
	Client	Consultant	.717	.314	.063	-.03	1.46
		Contractor	.621	.326	.142	-.15	1.40
	Consultant	Client	-.717	.314	.063	-1.46	.03
		Contractor	-.096	.322	.952	-.86	.67
Clear Project Objectives	Contractor	Client	-.621	.326	.142	-1.40	.15
		Consultant	.096	.322	.952	-.67	.86
	Client	Consultant	-.121	.146	.688	-.47	.23
		Contractor	-.386*	.152	.034	-.75	-.02
	Consultant	Client	.121	.146	.688	-.23	.47
		Contractor	-.265	.150	.186	-.62	.09
Top Management Support	Contractor	Client	.386*	.152	.034	.02	.75
		Consultant	.265	.150	.186	-.09	.62
	Client	Consultant	-.351	.242	.320	-.93	.23
		Contractor	-.162	.252	.796	-.76	.44
	Consultant	Client	.351	.242	.320	-.23	.93
		Contractor	.189	.248	.727	-.40	.78
Change Management	Contractor	Client	.162	.252	.796	-.44	.76
		Consultant	-.189	.248	.727	-.78	.40
	Client	Consultant	-.105	.288	.930	-.79	.58
		Contractor	-.044	.299	.988	-.75	.67
	Consultant	Client	.105	.288	.930	-.58	.79
		Contractor	.061	.295	.977	-.64	.76
Contractor	Client	.044	.299	.988	-.67	.75	

Multiple Comparisons

Project SFs	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
							Consultant
Projectized Organisation Structure	Client	Consultant	1.178*	.224	.000	.65	1.71
		Contractor	1.254*	.232	.000	.70	1.81
	Consultant	Client	-1.178*	.224	.000	-1.71	-.65
		Contractor	.076	.229	.941	-.47	.62
	Contractor	Client	-1.254*	.232	.000	-1.81	-.70
		Consultant	-.076	.229	.941	-.62	.47
Organisation Culture	Client	Consultant	-.136	.275	.875	-.79	.52
		Contractor	-.231	.286	.698	-.91	.45
	Consultant	Client	.136	.275	.875	-.52	.79
		Contractor	-.096	.282	.938	-.77	.58
	Contractor	Client	.231	.286	.698	-.45	.91
		Consultant	.096	.282	.938	-.58	.77
PPP for HR Allocation	Client	Consultant	.103	.232	.897	-.45	.66
		Contractor	-.373	.241	.274	-.95	.20
	Consultant	Client	-.103	.232	.897	-.66	.45
		Contractor	-.476	.238	.118	-1.04	.09
	Contractor	Client	.373	.241	.274	-.20	.95
		Consultant	.476	.238	.118	-.09	1.04
PPP for Financial Resources Allocation	Client	Consultant	-.255	.136	.151	-.58	.07
		Contractor	-.201	.141	.331	-.54	.13
	Consultant	Client	.255	.136	.151	-.07	.58
		Contractor	.054	.139	.921	-.28	.38
	Contractor	Client	.201	.141	.331	-.13	.54
		Consultant	-.054	.139	.921	-.38	.28
PPP with Effective Projects Prioritization	Client	Consultant	-.194	.175	.510	-.61	.22
		Contractor	-.210	.182	.484	-.64	.22
	Consultant	Client	.194	.175	.510	-.22	.61
		Contractor	-.015	.179	.996	-.44	.41
	Contractor	Client	.210	.182	.484	-.22	.64
		Consultant	.015	.179	.996	-.41	.44
Periodic reviews of	Client	Consultant	-.129	.202	.799	-.61	.35

Multiple Comparisons

Project SFs	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
						Projects Alignment with Strategy	Contractor	Client
	Consultant	Contractor	.129	.202	.799	-.35	.61	
		Client	.128	.207	.810	-.36	.62	
	Contractor	Client	.001	.210	1.000	-.50	.50	
		Consultant	-.128	.207	.810	-.62	.36	
Adequate Project Team Selection	Client	Consultant	.077	.114	.781	-.20	.35	
		Contractor	.060	.119	.870	-.22	.34	
	Consultant	Client	-.077	.114	.781	-.35	.20	
		Contractor	-.017	.117	.988	-.30	.26	
	Contractor	Client	-.060	.119	.870	-.34	.22	
		Consultant	.017	.117	.988	-.26	.30	
	Tendering Process	Client	Consultant	.018	.115	.987	-.26	.29
			Contractor	-.160	.120	.378	-.45	.12
Consultant		Client	-.018	.115	.987	-.29	.26	
		Contractor	-.178	.118	.292	-.46	.10	
	Contractor	Client	.160	.120	.378	-.12	.45	
		Consultant	.178	.118	.292	-.10	.46	
	Procurement Strategy	Client	Consultant	.020	.223	.996	-.51	.55
			Contractor	.305	.231	.389	-.25	.85
Consultant		Client	-.020	.223	.996	-.55	.51	
		Contractor	.285	.228	.427	-.26	.83	
	Contractor	Client	-.305	.231	.389	-.85	.25	
		Consultant	-.285	.228	.427	-.83	.26	
	Region Economy Conditions	Client	Consultant	-.083	.173	.880	-.50	.33
			Contractor	.097	.180	.853	-.33	.53
Consultant		Client	.083	.173	.880	-.33	.50	
		Contractor	.180	.178	.570	-.24	.60	
	Contractor	Client	-.097	.180	.853	-.53	.33	
		Consultant	-.180	.178	.570	-.60	.24	
	Region Political Conditions	Client	-.092	.137	.782	-.42	.23	
		Contractor	.127	.142	.645	-.21	.47	

Multiple Comparisons

Project SFs	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Project SFs	Consultant	Client	.092	.137	.782	-.23	.42	
		Contractor	.219	.140	.268	-.11	.55	
	Contractor	Client	-.127	.142	.645	-.47	.21	
		Consultant	-.219	.140	.268	-.55	.11	
	Region Social Conditions	Client	Consultant	-.033	.344	.995	-.85	.79
			Contractor	-.185	.358	.863	-1.04	.67
Consultant		Client	.033	.344	.995	-.79	.85	
		Contractor	-.152	.353	.903	-.99	.69	
Contractor		Client	.185	.358	.863	-.67	1.04	
		Consultant	.152	.353	.903	-.69	.99	
Region Technological Condition	Client	Consultant	.124	.157	.710	-.25	.50	
		Contractor	.090	.163	.845	-.30	.48	
	Consultant	Client	-.124	.157	.710	-.50	.25	
		Contractor	-.034	.161	.976	-.42	.35	
	Contractor	Client	-.090	.163	.845	-.48	.30	
		Consultant	.034	.161	.976	-.35	.42	
Project Manager Experience	Client	Consultant	-.131	.100	.392	-.37	.11	
		Contractor	-.086	.104	.688	-.33	.16	
	Consultant	Client	.131	.100	.392	-.11	.37	
		Contractor	.044	.103	.903	-.20	.29	
	Contractor	Client	.086	.104	.688	-.16	.33	
		Consultant	-.044	.103	.903	-.29	.20	
Project manager Authority	Client	Consultant	-.225	.134	.217	-.54	.09	
		Contractor	-.269	.139	.136	-.60	.06	
	Consultant	Client	.225	.134	.217	-.09	.54	
		Contractor	-.043	.137	.947	-.37	.28	
	Contractor	Client	.269	.139	.136	-.06	.60	
		Consultant	.043	.137	.947	-.28	.37	
Project Manager Competence	Client	Consultant	.106	.116	.631	-.17	.38	
		Contractor	.057	.120	.884	-.23	.34	
	Consultant	Client	-.106	.116	.631	-.38	.17	

Multiple Comparisons

Project SFs	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
							Contractor
	Contractor	Client					
		Consultant					
Client Competence	Client	Consultant					
		Contractor					
	Consultant	Client					
		Contractor					
	Contractor	Client					
		Consultant					
Client Experience	Client	Consultant					
		Contractor					
	Consultant	Client					
		Contractor					
	Contractor	Client					
		Consultant					
Contractor Competence	Client	Consultant					
		Contractor					
	Consultant	Client					
		Contractor					
	Contractor	Client					
		Consultant					
Contractor Experience	Client	Consultant					
		Contractor					
	Consultant	Client					
		Contractor					
	Contractor	Client					
		Consultant					
Consultant Competence	Client	Consultant					
		Contractor					
	Consultant	Client					
		Contractor					

Multiple Comparisons							
Project SFs	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
	Profession area	Profession area				Lower Bound	Upper Bound
	Contractor	Client	-.113	.125	.640	-.41	.18
		Consultant	-.113	.123	.632	-.41	.18
Consultant Experience	Client	Consultant	.002	.121	1.000	-.29	.29
		Contractor	.013	.126	.994	-.29	.31
	Consultant	Client	-.002	.121	1.000	-.29	.29
		Contractor	.012	.124	.995	-.28	.31
	Contractor	Client	-.013	.126	.994	-.31	.29
		Consultant	-.012	.124	.995	-.31	.28

*. The mean difference is significant at the 0.05 level.

Table (4.21): Tukey post-hoc test results for the project SFs

4.2.4. Importance Ranking of The Project Success Factors

The one sample t-test was used to test whether the sample mean values of the perceived importance of the project SFs for each of the 3 practice groups were equal to the population means, so that ranking for the project management SFs relative importance for each of the aforementioned practice groups can be provided.

The one-sample t-test was conducted at 95% confidence interval one time for each set of data obtained from each of the three individual practice groups. The null hypothesis for the one-sample t-test states that the mean of the sample equals to the hypothesized mean of the population, the null hypothesis was rejected if the value of significance is less than 0.05 ($p < 0.05$), and was not rejected if the value of significance is equal or greater than 0.05 ($p \geq 0.05$).

4.2.4.1. Client PM's Ranking

The test value for the one-sample t-test for any given factor from the project success group was set to the same mean value of that respective factor in the client sample. Table 4.22 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the client project managers sample is depicted in Table 4.22, the results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project SFs have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project SFs. This entails that the mean values of all project SFs are equal to the population mean values of these factors for the client project managers, therefore a valid ranking according to the relative importance of these factors from the client project managers perspective can be obtained based on the factors mean values. The ranking summary is presented Table 4.22.

Project SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Clear Scope	34	1.21	-.058	33	.954	2
Project Type	34	2.26	.021	33	.983	25
Project Complexity	34	2.91	.007	33	.995	27
Clear Project Objectives	34	1.32	.043	33	.966	3
Top Management Support	34	1.68	-.022	33	.983	15
Change Management	34	2.12	-.011	33	.991	23
Projectized Organisation Structure	34	2.71	-.019	33	.985	26
Organisation Culture	34	2.06	-.006	33	.995	22
PPP for HR Allocation	34	1.85	.020	33	.984	18
PPP for Financial Resources Allocation	34	1.41	.021	33	.984	7
PPP with Effective Projects Prioritization	34	1.50	.000	33	1.000	11
Periodic reviews of Projects Alignment with Strategy	34	1.68	-.028	33	.978	15
Adequate Project Team Selection	34	1.38	.028	33	.978	6
Tendering Process	34	1.32	.043	33	.966	3
Procurement Strategy	34	1.85	.017	33	.987	18
Region Economy Conditions	34	2.00	.000	33	1.000	21
Region Political Conditions	34	1.35	.035	33	.972	5
Region Social Conditions	34	2.91	.007	33	.994	27
Region Technological Conditions	34	1.74	-.037	33	.971	17

Project SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Project Manager Experience	34	1.15	-.048	33	.962	1
Project manager Authority	34	1.44	.012	33	.990	10
Project Manager Competence	34	1.41	.021	33	.984	7
Client Competence	34	2.15	-.016	33	.988	24
Client Experience	34	1.91	.014	33	.989	20
Contractor Competence	34	1.41	.021	33	.984	7
Contractor Experience	34	1.56	-.012	33	.990	14
Consultant Competence	34	1.50	.000	33	1.000	11
Consultant Experience	34	1.53	-.007	33	.995	13

Table (4.22): One-sample t-test results of the Client PM's for project SFs and their ranking

4.2.4.2. Consultant PM's Ranking

The test value for the one-sample t-test for any given factor from the project success group was set to the same mean value of that respective factor in the consultant sample. Table 4.23 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the consultant project managers sample is depicted in Table 4.23. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project SFs have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project SFs. This entails that the mean values of all project SFs are equal to the population mean values of these factors for the consultant project managers group, therefore a valid ranking according to the relative importance of these factors from the consultant project managers perspective can be obtained based on factors mean values. The ranking summary is presented Table 4.23.

Project SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Clear Scope	36	1.28	-.029	35	.977	1
Project Type	36	1.86	.007	35	.995	20
Project Complexity	36	2.19	.021	35	.984	23
Clear Project Objectives	36	1.44	.038	35	.970	6
Top Management Support	36	2.03	-.013	35	.990	21
Change Management	36	2.22	.010	35	.992	26
Projectized Organisation Structure	36	1.53	-.018	35	.986	10
Organisation Culture	36	2.19	.024	35	.981	23
PPP for HR Allocation	36	1.75	.000	35	1.000	17
PPP for Financial Resources Allocation	36	1.67	-.032	35	.975	13
PPP with Effective Projects Prioritization	36	1.69	.031	35	.975	15
Periodic reviews of Projects Alignment with Strategy	36	1.81	-.029	35	.977	18
Adequate Project Team Selection	36	1.31	-.057	35	.955	3
Tendering Process	36	1.31	-.057	35	.955	3
Procurement Strategy	36	1.83	.021	35	.983	19
Region Economy Conditions	36	2.08	.024	35	.981	22
Region Political Conditions	36	1.44	.036	35	.971	6
Region Social Conditions	36	2.94	.018	35	.986	28
Region Technological Condition	36	1.61	.012	35	.990	12
Project Manager Experience	36	1.28	-.029	35	.977	1
Project manager Authority	36	1.67	-.057	35	.955	13
Project Manager Competence	36	1.31	-.057	35	.955	3
Client Competence	36	2.19	.022	35	.982	23
Client Experience	36	2.33	.020	35	.984	27
Contractor Competence	36	1.47	.026	35	.979	8
Contractor Experience	36	1.69	.057	35	.955	15
Consultant Competence	36	1.50	.000	35	1.000	9
Consultant Experience	36	1.53	-.026	35	.979	10

Table (4.23): One-sample t-test results of the consultant PM's for project SFs and their ranking

4.2.4.3. Contractor PM's Ranking

The test value for the one-sample t-test for any given factor from the project success group was set to the same mean value of that respective factor in the contractor sample. Table 4.24 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the contractor project managers sample is depicted in Table 4.24. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project SFs have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project success factors; this entails that the mean values of all project SFs are equal to the population mean values of these factors for the contracting project managers group. Therefore, a valid ranking according to the relative importance of these factors from the contractor project managers group perspective can be obtained based on the factors mean values. The ranking summary is presented Table 4.24

Project SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Clear Scope	31	1.19	.049	30	.961	1
Project Type	31	2.19	.020	30	.984	23
Project Complexity	31	2.29	.002	30	.999	26
Clear Project Objectives	31	1.71	-.003	30	.998	16
Top Management Support	31	1.84	-.007	30	.995	19
Change Management	31	2.16	.008	30	.994	22
Projectized Organisation Structure	31	1.45	.013	30	.989	9
Organisation Culture	31	2.29	.001	30	.999	26
PPP for HR Allocation	31	2.23	-.019	30	.985	25
PPP for Financial Resources Allocation	31	1.61	.029	30	.977	13
PPP with Effective Projects Prioritization	31	1.71	-.003	30	.998	16
Periodic reviews of Projects Alignment with Strategy	31	1.68	-.016	30	.987	15
Adequate Project Team Selection	31	1.32	.030	30	.976	5

Project SFs	Test Value = varied as per factor mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Tendering Process	31	1.48	.042	30	.966	10
Procurement Strategy	31	1.55	-.011	30	.991	12
Region Economy Conditions	31	1.90	.030	30	.976	21
Region Political Conditions	31	1.23	-.055	30	.957	2
Region Social Conditions	31	3.10	-.013	30	.990	27
Region Technological Condition	31	1.65	-.041	30	.968	14
Project Manager Experience	30	1.23	.042	29	.966	2
Project manager Authority	31	1.71	-.003	30	.997	16
Project Manager Competence	31	1.35	.055	30	.956	6
Client Competence	31	2.19	.017	30	.986	23
Client Experience	31	1.84	-.010	30	.992	20
Contractor Competence	31	1.42	-.007	30	.994	8
Contractor Experience	30	1.30	.000	29	1.000	4
Consultant Competence	31	1.39	-.033	30	.974	7
Consultant Experience	31	1.52	-.042	30	.966	11

Table (4.24): One-sample t-test results of the contractor PM's for project SFs and their ranking

4.2.4.4. Comparison of Various Project Success Importance Rankings

A comparison between the project management SFs ranking from three types of project managers perspectives is summarized in table 4.25.

Project Success Factors	Client		Consultant		Contractor	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Project Manager Experience	1.15	1	1.28	1	1.23	2
Clear Scope	1.21	2	1.28	1	1.19	1
Tendering Process	1.32	3	1.31	3	1.48	10
Clear Project Objectives	1.32	3	1.44	6	1.71	16
Region Political Conditions	1.35	5	1.44	6	1.23	2
Adequate Project Team Selection	1.38	6	1.31	3	1.32	5
PPP for Financial Resources Allocation	1.41	7	1.67	13	1.61	13
Project Manager Competence	1.41	7	1.31	3	1.35	6
Contractor Competence	1.41	7	1.47	8	1.42	8
Project manager Authority	1.44	10	1.67	13	1.71	16
PPP with Effective Projects Prioritization	1.50	11	1.69	15	1.71	16

Project Success Factors	Client		Consultant		Contractor	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Consultant Competence	1.50	11	1.50	9	1.39	7
Consultant Experience	1.53	13	1.53	10	1.52	11
Contractor Experience	1.56	14	1.69	15	1.30	4
Periodic reviews of Projects Alignment with Strategy	1.68	15	1.81	18	1.68	15
Top Management Support	1.68	15	2.03	21	1.84	19
Region Technological Condition	1.74	17	1.61	12	1.65	14
PPP for HR Allocation	1.85	18	1.75	17	2.23	25
Procurement Strategy	1.85	18	1.83	19	1.55	12
Client Experience	1.91	20	2.33	27	1.84	20
Region Economy Conditions	2.00	21	2.08	22	1.90	21
Organisation Culture	2.06	22	2.19	23	2.29	26
Change Management	2.12	23	2.22	26	2.16	22
Client Competence	2.15	24	2.19	23	2.19	23
Project Type	2.26	25	1.86	20	2.19	23
Projectized Organisation Structure	2.71	26	1.53	10	1.45	9
Project Complexity	2.91	27	2.19	23	2.29	26
Region Social Conditions	2.91	27	2.94	28	3.10	28

Table (4.25): Comparison of project SFs various rankings

The one-way ANOVA test suggests that the project managers from the three groups did not differ in their perception about the importance for most of the project success factor, however; the ranking obtained for these factors still differed from the three perspectives.

This can be simply referred to the fact that two independent comparisons have been conducted, the first one was a comparison for any given factor mean value across the three practice areas which resulted in identifying whether this factor's perceived importance differ among these practice areas. Whereas the other comparison was conducted between the factors mean value within the same practice group and the importance ranking of any given factor was dependent on its mean value once compared to the other factors mean values within this group.

Tendering process among other similar factors within this group illustrates such distinguish between the two results, although the perception about tendering process did not differ among project managers from the three practice groups it was still ranked 3 for client , 2 for consultant and 10 for contractor project managers with respect to its relative importance.

As it was highlighted from the Tukey post-hoc test results the perceived importance of some of the project SFs differed among the project managers from the three practice groups. The perceived importance of clear objectives was less for contracting project managers than the client project managers, this was reflected on the overall ranking summary that was presented in Table 3.25 as clear objectives was ranked 3rd by the client project manager groups (mean= 1.32) while it was ranked 16th by the contracting project managers group (mean= 1.71).

Similar case was evident when the client project manager group perceived projectized organisation structure as being less important than both the contractor and the consultant project managers groups and the relative importance ranking was 26th by the client project managers group (mean= 2.71), 10th by the consultant project managers group (mean= 1.53) and 9th by the contracting project managers group (mean= 1.45)

In addition the client experience was perceived as being less important by the consultant project managers group than the contractor project managers group, client experience was ranked 27th by the former and 26th by the latter with the mean values of (2.33) and (1.84) respectively

Finally the perceived importance of the contractor experience was lower in the consultant project managers group than that of the contractor project managers group, the relative rankings of the contractor experience was 15th by the consultant group (mean= 1.69) and 4th by the contractor group (mean= 1.3).

The top ranked project SFs in terms of their relative importance were project manager experience, clear scope, tendering process, clear project objectives and

region political conditions for the client project managers with mean values of (1.15), (1.21) (1.32), (1.32) and (1.35) respectively, while Project manager experience, clear scope, tendering process, adequate project team selection, clear project objectives and region political conditions for the consultant project managers group with mean values of (1.28), (1.28), (1.31), (1.31), (1.44) and (1.44) respectively, and clear scope, project manager experience, region political conditions, contractor experience and adequate project team selection for the contracting project managers group with mean values of (1.19), (1.23), (1.23), (1.30) and (1.32) respectively.

On the other hand, the lowest ranked project management factors in terms of their relative importance from the client project managers group perspective were client competence (mean= 2.15), project type (mean= 2.26), projectised organisation structure (mean= 2.17), project complexity (mean = 2.91) and regional social conditions(2.91), from the consultant project managers group perspective the organisation culture (mean= 2.19), client competence (mean= 2.19), project complexity (2.19), change management (2.22), client experience (mean= 2.33) and regional social conditions (mean= 2.94) were ranked lowest with respect to their relative importance, finally the contractor project manager group lowest ranked project management factors were region social conditions (mean= 3.10), project complexity, organisation culture (mean= 2.29), effective project portfolio practice for human resource allocation (mean= 2.23), client competence (mean = 2.19) and project type (mean = 2.19).

4.2.5. Perceived Importance of Project Management Success Criteria

The research hypothesis H3: Client, consultant and contractor project managers do not share the different perceived importance of project management SC was tested using the one-way ANOVA test.

Table 14.26 depicts the results obtained from the one-way ANOVA test that has been conducted with 95% confidence level interval on the 6 variables within the project management SC group.

The results indicate that all the variables have significance values that were greater than 0.05 ($p \geq 0.5$) except for stakeholders satisfaction with the project management process for which the significance value was (0.000). Therefore, the null hypothesis for this test was not rejected for all project management SC except for the aforementioned criterion.

Contrasting these results to the research hypothesis H3, Client, consultant and contractor project managers do not share the different perceived importance of budget, schedule, quality of deliverables, health and safety and quality of the project management process while they did not share the same perceived importance of satisfaction of stakeholders with the project management process.

The one-way ANOVA test results have also revealed that not sharing the differences in perceptions between the three practice groups were evident with high significance values for schedule ($p= 0.975$) quality of the project management process ($p= 0.973$) and health and safety ($p= 0.852$) among the project managers from the 3 practice groups, and with low significance values budget ($p=0.329$) and quality of deliverables ($p= 0.134$).

One-Way ANOVA

Project Management Success Criteria		Sum of Squares	Df	Mean Square	F	Sig.
Budget	Between Groups	3.095	2	1.547	1.124	.329
	Within Groups	134.945	98	1.377		
	Total	138.040	100			
Schedule	Between Groups	.038	2	.019	.025	.975
	Within Groups	74.259	98	.758		
	Total	74.297	100			
Quality of Deliverables	Between Groups	.978	2	.489	2.050	.134
	Within Groups	23.378	98	.239		
	Total	24.356	100			
Health and Safety	Between Groups	.358	2	.179	.160	.852
	Within Groups	109.484	98	1.117		
	Total	109.842	100			
Quality of Project Management Process	Between Groups	.013	2	.007	.027	.973
	Within Groups	23.690	98	.242		
	Total	23.703	100			

One-Way ANOVA

Project Management Success Criteria		Sum of Squares	Df	Mean Square	F	Sig.
Stakeholder Satisfaction with the Project Management Process	Between Groups	4.472	2	2.236	9.862	.000
	Within Groups	22.221	98	.227		
Total		26.693	100			

Table (4.26): One-way ANOVA test results for the project management SC

As highlighted before the one-way ANOVA results indicates that there is a difference between the project managers from the three practice in their perception of importance of stakeholders satisfaction with the project management process. This entails that there is at least one practice group for which the project managers perception about the importance of this criterion differs from the perception of the project managers of the other two practice groups.

The results shown in Table 4.26 are unable to reveal the groups that do differ in their perception about this criterion importance. The Tukey post-hoc test was conducted to identify the practice groups between which the difference in this perception was evident.

Table 4.27 illustrates the results obtained from this test that relies mainly on multi comparison between the three practice group means for each of the project management SC where two practice group means are compared at a time.

The Tukey post-hoc comparisons of the three practice groups indicate that the contractor project managers group perceived stakeholders satisfaction with the project management process as being more important than both project managers in the client and the consultant group as the significance values were ($p = 0.000$) for the comparison between the contractor project managers group and the client project manager group means and ($p = 0.011$) for the comparison between the contractor project managers group and the consultant project managers group, the Comparison of the perceived importance of this criterion between the consultant project managers group and the client project managers group was not statistically significant at $p < 0.05$.

Multiple Comparisons

Project Management Success criteria	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Budget	Client
Contractor	-.122	.291	.907	-.82	.57		
Consultant	Client	-.292	.281	.552	-.96		.38
	Contractor	-.415	.288	.323	-1.10		.27
Contractor	Client	.122	.291	.907	-.57		.82
	Consultant	.415	.288	.323	-.27		1.10
Schedule	Client	Consultant	-.042	.208	.977	-.54	.45
		Contractor	-.039	.216	.982	-.55	.48
	Consultant	Client	.042	.208	.977	-.45	.54
		Contractor	.004	.213	1.000	-.50	.51
	Contractor	Client	.039	.216	.982	-.48	.55
		Consultant	-.004	.213	1.000	-.51	.50
Quality of Deliverables	Client	Consultant	-.002	.117	1.000	-.28	.28
		Contractor	.213	.121	.191	-.08	.50
	Consultant	Client	.002	.117	1.000	-.28	.28
		Contractor	.214	.120	.178	-.07	.50
	Contractor	Client	-.213	.121	.191	-.50	.08
		Consultant	-.214	.120	.178	-.50	.07
Health and Safety	Client	Consultant	.000	.253	1.000	-.60	.60
		Contractor	-.129	.262	.875	-.75	.50
	Consultant	Client	.000	.253	1.000	-.60	.60
		Contractor	-.129	.259	.872	-.75	.49
	Contractor	Client	.129	.262	.875	-.50	.75
		Consultant	.129	.259	.872	-.49	.75
Quality of Project Management Process	Client	Consultant	.021	.118	.982	-.26	.30
		Contractor	-.005	.122	.999	-.30	.29
	Consultant	Client	-.021	.118	.982	-.30	.26
		Contractor	-.026	.120	.975	-.31	.26
	Contractor	Client	.005	.122	.999	-.29	.30
		Consultant	.026	.120	.975	-.26	.31
Stakeholder Satisfaction with the	Client	Consultant	.175	.114	.279	-.10	.45
		Contractor	.518*	.118	.000	.24	.80

Multiple Comparisons

Project Management Success criteria	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
	Project Management Process	Consultant	Client	-.175	.114	.279	-.45
Contractor			.343*	.117	.011	.07	.62
Contractor		Client	-.518*	.118	.000	-.80	-.24
		Consultant	-.343*	.117	.011	-.62	-.07

*. The mean difference is significant at the 0.05 level.

Table (4.27): Tukey post-hoc test results for the project management SC

4.2.6. Importance Ranking of The Project Management Success Criteria

The one sample t-test was used to test whether each of the 3 practice group mean values for perceived importance of the project management SC were equal to the population mean values in order to rank the project management SC according to the relative importance for each of the aforementioned practice groups.

The one-sample t-test was conducted at 95% confidence interval one time for each set of data obtained from each of the three individual practice groups.

The null hypothesis for the one-sample t-test states that the mean of the sample equals to the hypothesized mean of the population, the null hypothesis was rejected if the value of significance is less than 0.05 ($p < 0.05$), and was not rejected if the value of significance is equal or greater than 0.05 ($p \geq 0.05$).

4.2.6.1. Client PM’s Ranking

The test value for the one-sample t-test for any given criterion from the project management SC group was set to the same mean value of that respective criterion in the client sample. Table 4.28 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the client project managers sample is depicted in Table 4.28.

The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project management SC have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project management SC. This entails that the mean values of all project management SC are equal to the population mean values of these criteria for the client project managers, therefore a valid ranking according to the relative importance of these criteria from the client project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.28.

Project Management SC	Test Value = varied as per criterion mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Budget	34	2.26	.020	33	.984	6
Schedule	34	1.74	-.031	33	.976	4
Quality of Deliverables	34	1.47	.007	33	.995	2
Health and Safety	34	2.00	.000	33	1.000	5
Quality of Project Management Process	34	1.38	.028	33	.978	1
Stakeholder Satisfaction with the Project Management Process	34	1.65	-.032	33	.975	3

Table (4.28): One-sample t-test results of the client PM's for project management SC and their ranking

4.2.6.2. Consultant PM's Ranking

The test value for the one-sample t-test for any given criterion from the project management SC group was set to the same mean value of that respective criterion in the consultant sample. Table 4.29 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the consultant project managers sample is depicted in Table 4.29. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all the project management SC have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project management SC which entails that the mean values of all project management SC are equal to the population mean values of these variables for the consultant project managers group. Therefore, a valid ranking according to the relative importance of these criteria from the consultant project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.29.

Project Management SC	Test Value = varied as per criterion mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Budget	36	1.97	.013	35	.990	5
Schedule	36	1.78	-.016	35	.987	4
Quality of Deliverables	36	1.47	.026	35	.979	2
Health and Safety	36	2.00	.000	35	1.000	6
Quality of Project Management Process	36	1.36	.014	35	.989	1
Stakeholder Satisfaction with the Project Management Process	36	1.47	.026	35	.979	2

Table (4.29): One-sample t-test results of the consultant PM's for project management SC and their ranking

4.2.6.3. Contractor PM's Ranking

The test value for the one-sample t-test for any given criterion from the project management SC group was set to the same mean value of that respective factor in the contractor sample. Table 4.30 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the contractor project managers sample is depicted in Table 4.30. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project management SC have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project management SC. This entails that the mean values of all the project management SC are equal to the population mean values of these variable for the contracting project managers group. Therefore, valid ranking according to the relative importance of these

criteria from the contractor project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.30

Project Management SC	Test Value = varied as per criterion mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Factor Ranking
Budget	31	2.39	-.015	30	.988	6
Schedule	31	1.77	.026	30	.979	4
Quality of Deliverables	31	1.26	-.024	30	.981	2
Health and Safety	31	2.13	-.004	30	.997	5
Quality of Project Management Process	31	1.39	-.033	30	.974	3
Stakeholder Satisfaction with the Project Management Process	31	1.13	-.016	30	.987	1

Table (4.30): One-sample t-test results of the contractor PM's for project management SC and their ranking

4.2.6.4. Comparison of Various Project Management SC Rankings

A comparison between the project management SC rankings from the perspectives of the three types of project managers is summarized in table 4.31.

Project Success Criteria	Client		Consultant		Contractor	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Quality of Project Management Process	1.38	1	1.36	1	1.39	3
Quality of Deliverables	1.47	2	1.47	2	1.26	2
Stakeholder Satisfaction with the Project Management Process	1.65	3	1.47	2	1.13	1
Schedule	1.74	4	1.78	4	1.77	4
Health and Safety	2.00	5	1.97	5	2.13	5
Budget	2.26	6	2.00	6	2.39	6

Table (4.30): Comparison of project management SC various rankings

The one-way ANOVA test suggests the perceived importance of most of the project management SC did not differ among the project managers from the three groups, however, the ranking obtained for these variables still differed among these practice area.

This can be simply referred to the fact that two independent comparisons have been conducted. The first one was a comparison for any given criterion mean value across the three practice areas which resulted in identifying whether this criterion's perceived importance is the differs among the project managers in these practice areas, whereas the other comparison was conducted between the criteria mean values within the same practice group and the importance ranking of any given criterion was dependent of its mean value once compared to the other criteria mean values within this group.

Quality of project management process illustrates such distinguish between the two results, although its perceived importance did not differ among the project managers from the three practice groups, its relative importance ranking was 1 for both the client and consultant project managers while it was ranked 3 by the contractor project managers.

As it was highlighted from the Tukey post-hoc test results, the perceived importance of stakeholders management with the project management process was higher for contracting project managers than the client and consultant project managers, this was reflected on the overall ranking summary that was presented in Table 3.30 as the relative importance ranking of stakeholders management with the project management process was 1st by the contractor project manager groups (mean= 1.13) while it was ranked 2nd by the consultant project managers (mean= 1.47), and was ranked 3rd by the client project managers group (mean= 1.65).

The top ranked project management SC terms of their relative importance were almost similar for the client and consultant project managers, those project managers groups top ranked criteria were quality of project management process, stakeholders satisfaction with the project manager process, the client project managers mean values for these criteria were (1.38), (1.47) and (1.65) respectively while the consultant mean values of (1.36), (1.47) and (1.47) respectively. The contractor top ranked criteria were stakeholders satisfaction with the project management process, quality of deliverables and the quality of

the project management process with mean values of (1.13), (1.26) and (1.39) respectively.

On the other hand; the lowest ranked project management SC were the same for the project managers from the three practice areas, those criteria were schedule, health and safety and budget with mean values of (1.74), (2.00) and (2.26) respectively for the client group, (1.78), (1.97) and (2.00) respectively for the consultant group and (1.77), (2.13) and (2.39) respectively for the contractor group.

4.2.7. Perceived Importance of Project Success Criteria

The research hypothesis H4: Client, consultant and contractor project managers do not share the different perceived importance of project SC was tested using the one-way ANOVA test.

Table 14.32 depicts the results obtained from the one-way ANOVA test that has been conducted with 95% confidence level interval on the 19 variables within the project SC group.

The results indicate that all the variables have significance values that were greater than 0.05 ($p \geq 0.5$) except for consultant satisfaction with the project deliverables, contractor satisfaction with the project deliverables and other stakeholders satisfaction with the project deliverables for which the significance values were (0.002), (0.004), and (0.000) respectively. Therefore, the null hypothesis for this test was not rejected for all variables within the project SC group except for those criteria corresponding to significance values that were less than (0.05).

Contrasting these results to the research hypothesis H4, the Client, contractor, and consultant project managers did not differ in their perception about the importance for all project SC except for consultant satisfaction with the project deliverables, contractor satisfaction with the project deliverables and other stakeholders satisfaction with the project deliverables.

The one-way ANOVA test results have also revealed that the high significance was evident for not sharing the different perceived importance of impact on community economy ($p= 0.987$), enhancing organisation market share ($p= 0.878$), profitability ($p= 0.854$), maintainability ($p= 0.848$), deliverables meeting technical specifications ($p= 0.828$), reliability ($p= 0.800$), and impact on organisation reputation ($p=0.767$) among the project managers from the 3 practice groups, while moderate significance was evident for validity ($p= 0.642$), user satisfaction with the project deliverables ($p=0.588$), impact on organisation business ($p=0.503$), achievement of organisation strategic goals ($p=0. 492$) and opportunity for personal growth and professional learning ($p= 0. 402$), and finally low significance values where related to deliverables meeting functionality requirements ($p=0.341$), organizational learning ($p= 0.151$), client satisfaction with the project deliverables ($p= 0.192$) and impact on the environment ($p= 0.172$)

One-Way ANOVA

Project SC		Sum of Squares	Df	Mean Square	F	Sig.
Client Satisfaction with the Deliverables	Between Groups	.806	2	.403	1.677	.192
	Within Groups	23.550	98	.240		
	Total	24.356	100			
User Satisfaction with the Deliverables	Between Groups	.260	2	.130	.533	.588
	Within Groups	23.898	98	.244		
	Total	24.158	100			
Consultant Satisfaction with the Deliverables	Between Groups	10.189	2	5.095	6.694	.002
	Within Groups	74.583	98	.761		
	Total	84.772	100			
Contractor Satisfaction with the Deliverables	Between Groups	9.497	2	4.748	5.744	.004
	Within Groups	81.018	98	.827		
	Total	90.515	100			
Other Stakeholders Satisfaction with the Deliverables	Between Groups	17.806	2	8.903	14.552	.000
	Within Groups	59.956	98	.612		
	Total	77.762	100			
Deliverables Meeting Technical Specification	Between Groups	.097	2	.048	.189	.828
	Within Groups	25.131	98	.256		
	Total	25.228	100			

One-Way ANOVA

Project SC		Sum of Squares	Df	Mean Square	F	Sig.
Deliverables Meeting Functionality Requirements	Between Groups	.515	2	.258	1.089	.341
	Within Groups	23.188	98	.237		
	Total	23.703	100			
Maintainability	Between Groups	.135	2	.068	.165	.848
	Within Groups	40.221	98	.410		
	Total	40.356	100			
Reliability	Between Groups	.372	2	.186	.224	.800
	Within Groups	81.469	98	.831		
	Total	81.842	100			
Validity	Between Groups	.750	2	.375	.445	.642
	Within Groups	82.458	98	.841		
	Total	83.208	100			
Profitability	Between Groups	.431	2	.215	.158	.854
	Within Groups	133.609	98	1.363		
	Total	134.040	100			
Opportunity for Personal Growth and Professional Learning	Between Groups	2.485	2	1.242	.921	.402
	Within Groups	132.208	98	1.349		
	Total	134.693	100			
Organizational Learning	Between Groups	2.295	2	1.148	1.576	.212
	Within Groups	71.348	98	.728		
	Total	73.644	100			
Impact on Organisation Business	Between Groups	.346	2	.173	.692	.503
	Within Groups	24.486	98	.250		
	Total	24.832	100			
Impact On Organisation Reputation	Between Groups	.191	2	.096	.266	.767
	Within Groups	34.809	97	.359		
	Total	35.000	99			
Enhancing Organisation Market Share	Between Groups	.158	2	.079	.130	.878
	Within Groups	59.485	98	.607		
	Total	59.644	100			
Achievement of Organisation Strategic Goals	Between Groups	.607	2	.304	.715	.492
	Within Groups	41.611	98	.425		
	Total	42.218	100			
Impact on the Environment	Between Groups	3.271	2	1.635	1.795	.172
	Within Groups	89.284	98	.911		
	Total	92.554	100			
Impact on Community	Between Groups	.028	2	.014	.013	.987

One-Way ANOVA

Project SC		Sum of Squares	Df	Mean Square	F	Sig.
Economy	Within Groups	103.398	98	1.055		
	Total	103.426	100			

Table (4.32): One-way ANOVA test results for the project SC

As highlighted before the one-way ANOVA results indicate that there is a difference between the project managers from the three practice areas in their perception of the importance for consultant satisfaction with the project deliverables, contractor satisfaction with the project deliverables and other stakeholders satisfaction with the project deliverables.

This entails that there is at least one practice group for which the project managers perception about the importance of each of those criteria differs from the perception of the project managers of the other two practice groups.

The results shown in Table 4.32 are unable to reveal the groups that do not share the same perceived importance of these criteria, therefore, the Tukey post-hoc test was conducted to identify the practice groups between which the difference in the perceived importance was evident.

Table 4.33 illustrates the results obtained from this test that relies mainly on multi comparison between the three practice group means for each of the project SC where two practice group means of any given criteria are compared at a time.

The Tukey post-hoc comparisons between the three practice groups indicate that the client project managers group perceived consultant satisfaction with the project deliverables as being less important than both the contractor and consultant project manager groups ($p = 0.003$) for the comparison between client and consultant project managers and ($p=0.015$) for the comparison between client and contractor project managers, comparison of the perceived importance of consultant satisfaction with the project deliverables between the consultant project managers group and the contractor project managers group was not statistically significant at $p < 0.05$.

In addition the contractor project managers group perceived contractor satisfaction with the project deliverables as being more important than both the client and consultant project manager groups ($p = 0.006$) for the comparison between contractor and client project managers and ($p=0.002$) for the comparison between contractor and consultant project managers, comparison of the perceived importance of the contractor satisfaction with the project deliverables between the client project managers group and the consultant project managers group was not statistically significant at $p < 0.05$.

Finally the contractor project managers group perceived other stakeholders satisfaction with the project deliverables as being more important than both the client and consultant project manager groups ($p = 0.000$) for the comparison between contractor and client project managers and ($p=0.003$) for the comparison between contractor and consultant project managers, comparison of the perceived importance of the stakeholders satisfaction with the with the project deliverables between the client project managers group and the consultant project managers group was not statistically significant at $p < 0.05$.

Multiple Comparisons

Project SC	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Client Satisfaction with the Deliverables	Client
Contractor	.207	.122	.211	-.08	.50		
Consultant	Client	-.168	.117	.327	-.45		.11
	Contractor	.039	.120	.945	-.25		.32
Contractor	Client	-.207	.122	.211	-.50		.08
	Consultant	-.039	.120	.945	-.32		.25
User Satisfaction with the Deliverables	Client	Consultant	-.033	.118	.959	-.31	.25
		Contractor	.089	.123	.748	-.20	.38
	Consultant	Client	.033	.118	.959	-.25	.31
		Contractor	.122	.121	.574	-.17	.41
	Contractor	Client	-.089	.123	.748	-.38	.20
		Consultant	-.122	.121	.574	-.41	.17

Multiple Comparisons

Project SC	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Consultant Satisfaction with the Deliverables	Client
Contractor	.617*	.217	.015	.10	1.13		
Consultant	Client	-.711*	.209	.003	-1.21		-.21
	Contractor	-.094	.214	.899	-.60		.41
Contractor	Client	-.617*	.217	.015	-1.13		-.10
	Consultant	.094	.214	.899	-.41		.60
Contractor Satisfaction with the Deliverables	Client	Consultant	.101	.217	.887	-.42	.62
		Contractor	.711*	.226	.006	.17	1.25
	Consultant	Client	-.101	.217	.887	-.62	.42
		Contractor	.609*	.223	.020	.08	1.14
	Contractor	Client	-.711*	.226	.006	-1.25	-.17
		Consultant	-.609*	.223	.020	-1.14	-.08
Other Stakeholders Satisfaction with the Deliverables	Client	Consultant	.402	.187	.085	-.04	.85
		Contractor	1.042*	.194	.000	.58	1.50
	Consultant	Client	-.402	.187	.085	-.85	.04
		Contractor	.640*	.192	.003	.18	1.10
	Contractor	Client	-1.042*	.194	.000	-1.50	-.58
		Consultant	-.640*	.192	.003	-1.10	-.18
Deliverables Meeting Technical Specification	Client	Consultant	.056	.121	.891	-.23	.34
		Contractor	-.016	.126	.991	-.32	.28
	Consultant	Client	-.056	.121	.891	-.34	.23
		Contractor	-.072	.124	.832	-.37	.22
	Contractor	Client	.016	.126	.991	-.28	.32
		Consultant	.072	.124	.832	-.22	.37
Deliverables Meeting Functionality Requirements	Client	Consultant	-.149	.116	.411	-.43	.13
		Contractor	.001	.121	1.000	-.29	.29
	Consultant	Client	.149	.116	.411	-.13	.43
		Contractor	.150	.119	.424	-.13	.43
	Contractor	Client	-.001	.121	1.000	-.29	.29
		Consultant	-.150	.119	.424	-.43	.13
Maintainability	Client	Consultant	.033	.153	.975	-.33	.40
		Contractor	-.057	.159	.932	-.44	.32

Multiple Comparisons

Project SC	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Consultant	Client
Reliability	Client	Consultant	Contractor	Client	Contractor	Client	Contractor
		Consultant	Contractor	Client	Contractor	Client	Contractor
	Consultant	Client	Contractor	Client	Contractor	Client	Contractor
		Client	Contractor	Client	Contractor	Client	Contractor
	Contractor	Client	Consultant	Client	Consultant	Client	Consultant
		Client	Consultant	Client	Consultant	Client	Consultant
Validity	Client	Consultant	Contractor	Client	Contractor	Client	Contractor
		Consultant	Contractor	Client	Contractor	Client	Contractor
	Consultant	Client	Contractor	Client	Contractor	Client	Contractor
		Client	Contractor	Client	Contractor	Client	Contractor
	Contractor	Client	Consultant	Client	Consultant	Client	Consultant
		Client	Consultant	Client	Consultant	Client	Consultant
Profitability	Client	Consultant	Contractor	Client	Contractor	Client	Contractor
		Consultant	Contractor	Client	Contractor	Client	Contractor
	Consultant	Client	Contractor	Client	Contractor	Client	Contractor
		Client	Contractor	Client	Contractor	Client	Contractor
	Contractor	Client	Consultant	Client	Consultant	Client	Consultant
		Client	Consultant	Client	Consultant	Client	Consultant
Opportunity for Personal Growth and Professional Learning	Client	Consultant	Contractor	Client	Contractor	Client	Contractor
		Consultant	Contractor	Client	Contractor	Client	Contractor
	Consultant	Client	Contractor	Client	Contractor	Client	Contractor
		Client	Contractor	Client	Contractor	Client	Contractor
	Contractor	Client	Consultant	Client	Consultant	Client	Consultant
		Client	Consultant	Client	Consultant	Client	Consultant
Organizational Learning	Client	Consultant	Contractor	Client	Contractor	Client	Contractor
		Consultant	Contractor	Client	Contractor	Client	Contractor
	Consultant	Client	Contractor	Client	Contractor	Client	Contractor
		Client	Contractor	Client	Contractor	Client	Contractor

Multiple Comparisons

Project SC	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Contractor	Client
	Contractor	Client	-.268	.209	.409	-.77	.23
Impact on Organisation Business	Client	Consultant	.056	.120	.888	-.23	.34
		Contractor	.145	.124	.474	-.15	.44
	Consultant	Client	-.056	.120	.888	-.34	.23
		Contractor	.090	.122	.745	-.20	.38
	Contractor	Client	-.145	.124	.474	-.44	.15
		Consultant	-.090	.122	.745	-.38	.20
Impact On Organisation Reputation	Client	Consultant	-.071	.144	.876	-.41	.27
		Contractor	.033	.150	.973	-.32	.39
	Consultant	Client	.071	.144	.876	-.27	.41
		Contractor	.104	.147	.759	-.25	.45
	Contractor	Client	-.033	.150	.973	-.39	.32
		Consultant	-.104	.147	.759	-.45	.25
Enhancing Organisation Market Share	Client	Consultant	-.005	.186	1.000	-.45	.44
		Contractor	-.088	.193	.892	-.55	.37
	Consultant	Client	.005	.186	1.000	-.44	.45
		Contractor	-.083	.191	.900	-.54	.37
	Contractor	Client	.088	.193	.892	-.37	.55
		Consultant	.083	.191	.900	-.37	.54
Achievement of Organisation Strategic Goals	Client	Consultant	.093	.156	.822	-.28	.46
		Contractor	-.098	.162	.818	-.48	.29
	Consultant	Client	-.093	.156	.822	-.46	.28
		Contractor	-.191	.160	.459	-.57	.19
	Contractor	Client	.098	.162	.818	-.29	.48
		Consultant	.191	.160	.459	-.19	.57
Impact on the Environment	Client	Consultant	-.412	.228	.174	-.95	.13
		Contractor	-.331	.237	.346	-.90	.23
	Consultant	Client	.412	.228	.174	-.13	.95
		Contractor	.081	.234	.937	-.48	.64
	Contractor	Client	.331	.237	.346	-.23	.90

Multiple Comparisons

Project SC	(I) Profession area	(J) Profession area	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						Consultant	
Impact on Community Economy	Client	Consultant	.039	.246	.986	-.55	.62
		Contractor	.012	.255	.999	-.59	.62
	Consultant	Client	-.039	.246	.986	-.62	.55
		Contractor	-.027	.252	.994	-.63	.57
	Contractor	Client	-.012	.255	.999	-.62	.59
		Consultant	.027	.252	.994	-.57	.63

*. The mean difference is significant at the 0.05 level.

Table (4.33): Tukey post-hoc test results for the project SC

4.2.8. Importance Ranking of The Project Success Criteria

The one sample t-test was used to test whether the sample mean values of the perceived importance of the project SC for each of the 3 practice groups were equal to the population means in order to provide a valid ranking for the project SC in terms of their relative importance for each of the aforementioned practice groups.

The one-sample t-test was conducted at 95% confidence interval one time for each set of the data obtained from each of the three individual practice groups. the null hypothesis for the one-sample t-test states that the mean of the sample equals to the hypothesized mean of the population, the null hypothesis was rejected if the value of significance is less than 0.05 ($p < 0.05$), and was not rejected if the value of significance is equal or greater than 0.05 ($p \geq 0.05$).

4.2.8.1. Client PM's Ranking

The test value for the one-sample t-test for any given criterion from the project SC group was set to the same mean value of that respective criterion in the client sample. Table 4.34 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the client project managers sample is depicted in Table 4.34. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project SC have significant levels that are greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all the project SC. This entails that the mean values of all project SC are equal to the population mean values of these criteria for the client project managers group. Therefore, valid ranking according to the relative importance of these criteria from the client project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.34.

Project Success Criteria	Test Value = varied as per criteria mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Criteria Ranking
Client Satisfaction with the Deliverables	34	1.53	-.007	33	.995	6
User Satisfaction with the Deliverables	34	1.41	.021	33	.984	2
Consultant Satisfaction with the Deliverables	34	2.29	.022	33	.983	18
Contractor Satisfaction with the Deliverables	34	2.32	.020	33	.984	19
Other Stakeholders Satisfaction with the Deliverables	34	2.24	-.027	33	.979	16
Deliverables Meeting Technical Specification	34	1.50	.000	33	1.000	4
Deliverables Meeting Functionality Requirements	34	1.32	.043	33	.966	1
Maintainability	34	1.59	-.016	33	.988	7
Reliability	34	1.88	.018	33	.986	10
Validity	34	2.15	-.020	33	.984	13
Profitability	34	2.24	-.023	33	.982	16
Opportunity for Personal Growth and Professional Learning	34	2.21	-.020	33	.984	14
Organizational Learning	34	1.79	.035	33	.972	9
Impact on Organisation Business	34	1.50	.000	33	1.000	4
Impact On Organisation Reputation	33	1.48	.049	32	.961	3
Enhancing Organisation Market Share	34	1.91	.012	33	.991	11
Achievement of Organisation Strategic Goals	34	1.68	-.030	33	.976	8
Impact on the Environment	34	2.09	-.014	33	.989	12

Project Success Criteria	Test Value = varied as per criteria mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Criteria Ranking
Impact on Community Economy	34	2.21	-.023	33	.982	14

Table (4.34): One-sample t-test results of the Client PM's for project SC and their ranking

4.2.8.2. Consultant PM's Ranking

The test value for the one-sample t-test for any given criterion from the project SC group was set to the same mean value of that respective criterion in the consultant sample. Table 4.35 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the consultant project managers sample is depicted in Table 4.35. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05), therefore it can be noted that all project SC have significant levels that are greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project SC, this entails that the mean values of all project SC are equal to the population mean values of these criteria for the consultant project managers, therefore a valid ranking according to the relative importance of these criteria from the consultant project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.35.

Project Success Criteria	Test Value = varied as per criteria mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Criteria Ranking
Client Satisfaction with the Deliverables	36	1.36	.014	35	.989	1
User Satisfaction with the Deliverables	36	1.44	.053	35	.958	2
Consultant Satisfaction with the Deliverables	36	1.58	.026	35	.979	8
Contractor Satisfaction with the Deliverables	36	2.22	.013	35	.989	16
Other Stakeholders Satisfaction with the Deliverables	36	1.83	.026	35	.980	10
Deliverables Meeting Technical Specification	36	1.44	.053	35	.958	2
Deliverables Meeting Functionality Requirements	36	1.47	.026	35	.979	5

Project Success Criteria	Test Value = varied as per criteria mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Criteria Ranking
Maintainability	36	1.56	-.048	35	.962	6
Reliability	36	1.97	.016	35	.987	12
Validity	36	2.33	.018	35	.986	17
Profitability	36	2.11	.006	35	.995	13
Opportunity for Personal Growth and Professional Learning	36	2.53	-.011	35	.991	19
Organizational Learning	36	2.14	-.006	35	.995	14
Impact on Organisation Business	36	1.44	.053	35	.958	2
Impact On Organisation Reputation	36	1.56	-.041	35	.968	6
Enhancing Organisation Market Share	36	1.92	-.031	35	.976	11
Achievement of Organisation Strategic Goals	36	1.58	.040	35	.968	8
Impact on the Environment	36	2.50	.000	35	1.000	18
Impact on Community Economy	36	2.17	-.019	35	.985	15

Table (4.35): One-sample t-test results of the consultant PM's for project SC and their ranking

4.2.8.3. Contractor PM's Ranking

The test value for the one-sample t-test for any given criterion from the project SC group was set to the same mean value of that respective criterion in the contractor sample. Table 4.36 represents these mean values.

The summary of the one-sample t-test results that has been obtained from the contractor project managers sample is depicted in Table 4.36. The results can be interpreted by comparing the test significant to the level of significance which was set at (0.05). Therefore, it can be noted that all project SC have a significant level that is greater than 0.05 ($p > 0.05$) within this sample.

The decision was not to reject H_0 for the all project SC; this entails that the mean values of all project SC are equal to the population mean values of these criteria for the contracting project managers, therefore a valid ranking according to the relative importance of these criteria from the contractor project managers perspective can be obtained based on their mean values. The ranking summary is presented Table 4.36

Project Success Criteria	Test Value = varied as per criteria mean value					
	N	Mean	T	Df	Sig. (2-tailed)	Criteria Ranking
Client Satisfaction with the Deliverables	31	1.32	.030	30	.976	2
User Satisfaction with the Deliverables	31	1.32	.030	30	.976	2
Consultant Satisfaction with the Deliverables	31	1.68	-.022	30	.983	10
Contractor Satisfaction with the Deliverables	31	1.61	.026	30	.979	8
Other Stakeholders Satisfaction with the Deliverables	31	1.19	.049	30	.961	1
Deliverables Meeting Technical Specification	31	1.52	-.042	30	.966	7
Deliverables Meeting Functionality Requirements	31	1.32	.030	30	.976	2
Maintainability	31	1.65	-.038	30	.970	9
Reliability	31	2.03	.011	30	.991	14
Validity	31	2.16	.010	30	.992	15
Profitability	31	2.26	-.009	30	.993	17
Opportunity for Personal Growth and Professional Learning	31	2.55	-.008	30	.994	19
Organizational Learning	31	1.87	.007	30	.994	12
Impact on Organisation Business	31	1.35	.055	30	.956	5
Impact On Organisation Reputation	31	1.45	.016	30	.987	6
Enhancing Organisation Market Share	31	2.00	.000	30	1.000	13
Achievement of Organisation Strategic Goals	31	1.77	.031	30	.976	11
Impact on the Environment	31	2.42	-.003	30	.998	18
Impact on Community Economy	31	2.19	.020	30	.984	16

Table (4.36): One-sample t-test results of the contractor PM's for project SC and their ranking

4.2.8.4. Comparison of Various Project SC Ranking

A comparison between the project SC rankings from three types of project managers perspectives is summarized in table 4.37.

Project Success Criteria	Client		Consultant		Contractor	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Deliverables Meeting Functionality Requirements	1.32	1	1.47	5	1.32	2
User Satisfaction with the Deliverables	1.41	2	1.44	2	1.32	2
Impact On Organisation Reputation	1.48	3	1.56	6	1.45	6

Project Success Criteria	Client		Consultant		Contractor	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Deliverables Meeting Technical Specification	1.50	4	1.44	2	1.52	7
Impact on Organisation Business	1.50	4	1.44	2	1.35	5
Client Satisfaction with the Deliverables	1.53	6	1.36	1	1.32	2
Maintainability	1.59	7	1.56	6	1.65	9
Achievement of Organisation Strategic Goals	1.68	8	1.58	8	1.77	11
Organizational Learning	1.79	9	2.14	14	1.87	12
Reliability	1.88	10	1.97	12	2.03	14
Enhancing Organisation Market Share	1.91	11	1.92	11	2.00	13
Impact on the Environment	2.09	12	2.50	18	2.42	18
Validity	2.15	13	2.33	17	2.16	15
Opportunity for Personal Growth and Professional Learning	2.21	14	2.53	19	2.55	19
Impact on Community Economy	2.21	14	2.17	15	2.19	16
Other Stakeholders Satisfaction with the Deliverables	2.24	16	1.83	10	1.19	1
Profitability	2.24	16	2.11	13	2.26	17
Consultant Satisfaction with the Deliverables	2.29	18	1.58	8	1.68	10
Contractor Satisfaction with the Deliverables	2.32	19	2.22	16	1.61	8

Table (4.37): Comparison of project SC various rankings

The one-way ANOVA test results suggest that the perceived importance of most of the project SC did not differ among the project managers from the three groups however, the ranking obtained for these criteria still differed across the three perspectives.

This can be simply referred to the fact that two independent comparisons have been conducted. The first one was a comparison for any given criterion mean value across the three practice areas which resulted in identifying whether this criterion's perceived importance differed among these practice areas, whereas the other comparison was conducted between the criteria mean values within the same practice group sample and the relative importance ranking for any given

criterion was dependent on its mean value once compared to other criteria mean values within the same practice group sample.

Deliverables meeting functionality requirements is one among other similar criteria within this group that illustrates such distinguish between the two results, although the project managers from the three practice groups did not differ in their perception about the importance of this criterion, its relative importance was still ranked 1 for client , 5 for consultant and 2 for contractor project managers.

As it was highlighted from the Tukey post-hoc test results that the perceived importance of the three SC differed among the project managers from the three practice groups. The perceived importance of consultant satisfaction with the project deliverables was less for client project managers than both consultant and contractor project managers, this was reflected on the overall ranking summary that was presented in Table 4.36 as consultant satisfaction with the project deliverables was ranked 18rd by the client project manager groups (mean= 2.29) while it was ranked 8th by the consultant project managers group (mean = 1.58) and was ranked 10th by the contracting project managers group (mean= 1.68).

Similar case was evident when the contractor project managers group perceived contractor satisfaction with the project deliverables as being more important than both the client and consultant project manager groups and the relative importance ranking of contractor satisfaction was 19th by the client project managers group (mean= 2.32), 16th by the consultant project managers group (mean= 2.22) and 8th by the contracting project managers group (mean= 1.61).

In addition other stakeholders satisfaction with the project deliverable was perceived as being more important by the contractor project managers group than both the client and consultant project manager groups and the relative importance ranking of this variable was 16th by the client project managers group (mean= 2.24), 10th by the consultant project managers group (mean= 1.83) and 1th by the contracting project managers group (mean= 1.19).

The top ranked project SC in terms of their relative importance were deliverables meeting functionality requirements, user satisfaction with the deliverables, impact on organisation reputation, deliverables meeting technical specifications and impact on organisation business for the client project managers with mean values of (1.32), (1.41) (1.48), (1.50) and (1.50) respectively. While client satisfaction with the project deliverables, user satisfaction with the project deliverables, deliverables meeting technical specification, impact on organisation business, and deliverables meeting functionality requirements were the top ranked project SC for the consultant project managers group with mean values of (1.36), (1.44), (1.44), (1.44), (1.44) and (1.47) respectively. Finally the contractor project managers group top ranked project SC in term of their relative importance were other stakeholders satisfaction with the deliverables, deliverables meeting functionality requirements, user satisfaction with the deliverables, client satisfaction with the project deliverables and impact on organisation business with mean values of (1.19), (1.32), (1.32), (1.32) and (1.35) respectively.

On the other hand; the lower ranked project SC in terms of their relative importance from the client project managers group perspective were opportunity for personal growth and professional learning (mean= 2.21), impact on community economy (mean= 2.21), other stakeholders satisfaction with the project deliverables (mean= 2.24), profitability (mean= 2.24), consultant satisfaction with the project deliverables (mean= 2.29) and contractor satisfaction with the project deliverables (mean= 2.32). From the consultant project managers group perspective were the impact on the community (mean= 2.19), contractor satisfaction with the project deliverables (mean= 2.22), validity (mean= 2.33) impact on the environment (mean= 2.50), opportunity for personal growth and professional development (mean= 2.53) were ranked lowest with respect to their relative importance, finally the contractor project manager group lowest ranked project criteria were validity (mean= 2.15), impact on community economy (mean= 2.19), profitability (mean= 2.26), impact on the environment (mean = 2.42) and opportunity for personal growth and professional learning (mean = 2.55).

5. Conclusion and Recommendations

5.1. Conclusion

This research has identified 32 factors and 25 criteria that were related to the fit-out projects success in the UAE. The SFs were segmented into 2 categories; namely the project management SFs that included 5 variables and the project SFs that included 28 variables. Similarly the SC were allocated to two categories; project management SC and the project SC with 6 and 19 variables respectively. The list of variables and criteria are shown in Appendix 1.

One-way ANOVA test was undertaken to ascertain whether the project managers from the three practice groups; the client, consultant, and contractor project managers, have different perceptions about the perceived importance of each SFs and criteria within each of the aforementioned categories by testing the following four research hypotheses:

H1: Client, consultant and contractor project managers do not share the different perceived importance of project management SFs.

H2: Client, consultant and contractor project managers do not share the different perceived importance of project success factors.

H3: Client, consultant and contractor project managers do not share the different perceived importance of project management success criteria.

H4: Client, consultant and contractor project managers do not share the different perceived importance of project success criteria.

From the individual one-way ANOVA tests and Tukey post-hoc tests that were carried out on the project management success factors, project success factors, project management SC and project SC partial support for the four research hypotheses was identified according to the following:

Project Management Success Factors:

It was found that there were no differences in views on the perceived importance of planning, control, communication, and stakeholders management between the project managers from the three practice groups, however, the difference in the perceived importance of monitoring was evident between the consultant and client project managers groups.

The client project managers group perceived monitoring as being less important than the consultant group, this can be practically referred to the fact that the clients rely on their consultants to attend to various monitoring aspects such as approving samples and mock-ups, reporting and justifying variations, attending meetings and reporting time progress etc., which may result in less client involvement in various issues that may affect the outcome of the project or may hinder its overall performance.

Project Success Factors:

It was found that there were no differences in views between the project managers from the three practices groups about the perceived importance of clear scope, awareness of project type, awareness of project complexity, top management support, change management, organisation culture, effective project portfolio practice for human resources allocation, effective project portfolio practice for financial resources allocation, periodic reviews of projects alignment with the organisation strategy, adequate project team selection, tendering process, procurement strategy, region economy, conditions, region political conditions, region technological advancement condition, region social conditions, project manager authority, project manager competence, project manager experience, client competence, contractor competence, consultant experience and consultant competence. However, the difference in opinions with regard to the perceived importance of clear project objectives, projectized organisation structure, client experience and contractor experience was evident between these groups.

The contractor group perceived clear project objectives as less important than the client group since they are usually engaged in the project at a relatively late stage after the engagement of the consultant when the project objectives are communicated. It is likely that the contractor project manager believes that the consultant should develop a design package that meets those objectives, while his responsibility is only limited to execute it without emphasizing on the project objectives. A practical implication to this is that the misalignment of project objectives of the contractor and those of the client may exist and overall hold risks to project success.

The client project managers perceived projectized organisation structure as being less important than both consultant and contractor project managers, this can be referred to the nature of the organisation structure implemented in the 3 practice areas, where the consultant and contractor organisations are relying on projectized structure while the majority of client organisation built around functional structure.

The consultant project managers regarded both client experience and contractor experience as being less important than the contracting project managers. The nature of consultation business entails that the consultant should provide advice and guidance to both the client and contractor during the project life cycle as such, this lower perception of importance about both the client experience and consultant experience may be evident. An implication to this is that the consultant may under estimate the contractor experience value when they put recommendations forward to their clients during the appointment stage, and hence may negatively impact the project performance when the wrong contractor is selected. In addition, inexperienced contractors may struggle dealing with the standards the consultant set during the project execution phase are fit for highly experienced contractors and require minimum consultant involvement, while it might waste well experienced contractor's time if it was set for an inexperienced contractor and require unnecessary extensive consultant involvement.

Project Management Success Criteria

It was found that there were no differences in views on the perceived importance of schedule, quality of deliverables, health and safety, quality of the project management process between the project managers from the three practices groups, however; the difference in perception about the perceived importance of the satisfaction of stakeholders with the project management process was evident between these project managers groups.

The contractor project manager is involved in the day-to-day activities, he is usually responsible to commit to various documentation and procedures that are set by the developer and authority bodies (Municipality, Civil Defense, Power and Water Authorities), therefore, it is normal that he allocates higher importance to the stakeholders satisfaction with his project management process than both the consultant and client, the implication to this is that the consultant and client project managers may not realize that, in some situations, such procedures are complicated and require longer time than they have already allowed the contractor with, or their turnaround time for any requirement by the contractor to commit to any of the other stakeholders requirement may be poor.

Project Success Criteria

It was found that there were no differences in views on the perceived importance of client satisfaction with the project deliverables, user satisfaction with the project deliverables, deliverables meeting technical specification, deliverables meeting functionality requirements, maintainability, reliability, validity, profitability, opportunity for personal growth and professional learning, organizational learning, impact on organisation reputation, enhancing organisation market share, achievement of organisation strategic goals, impact on the environment, and impact on the community economy between the project managers from the three practices groups, however; the difference in the perceived importance of consultant satisfaction with the project deliverables, contractor satisfaction with

the project deliverables and other stakeholders satisfaction with the project deliverables was evident between these groups.

The client project managers allocated less importance to the consultant satisfaction with the project deliverables than both the consultant and contracting project managers. Practically contractors obtain sign-off for their installations by the consultant which justify the reason behind relating higher importance to the consultant satisfaction by the contractor than the client. Consultants are also keen to be satisfied with all various technical aspects of the installation. The client, on the other hand, might be more concerned with the level of satisfaction of various employees in different levels within their organisation with the final project outcome as they consider the relationship with the consultant and contractor as a short term relationship.

The contractor project managers perceived his satisfaction with the project deliverables as being more important than both the consultant and client project managers. This emphasis by the contractor project managers may be related to achieving self set objectives or objectives related to the contractor project managers organisations. The low emphasis by the consultant and client project managers on the contractor satisfaction with the deliverables may negatively impact the outcome, some contractors may hold an experience that enables them from adding value to the design package during execution, ignoring such inputs by the consultant and the client in some situation may dissolve this added value and result in dissatisfaction of contractors.

The contractor project managers perceived other stakeholders satisfaction with the project deliverables as being more important than both the consultant and client project managers. The contractors project managers are not only more keen to satisfy the stakeholders with the project management process, but also with the project deliverables, this is constituted due to the nature of liability associated to the dissatisfaction of those stakeholders, for instance a civil defense inspection that results in rejecting the fire life safety installation will derive negative implication to the contractor such as delays in handing over that

will result in applying liquidated damages by the client which explains the contractor emphasis on this aspect.

The lack of emphasis of the consultant on satisfying the stakeholders requirements may be harmful to the project and may lead to negative implication to its success, the consultant assumes the responsibility of developing a design package that is compliant to various stakeholders requirements and standards and therefore should be also keen to satisfy these stakeholders in the same manner as the contractor.

From another perspective some clients force unrealistic demands, for example fitting employees headcount that exceed the allowed design parameters set by the developer and/or authorities due to their low emphasis on these stakeholders requirements and underestimating of the consequences of their dissatisfaction i.e. rejecting the site and delay of handing over.

From the one sample t-test, it was concluded with 95% confidence interval that the data collected with regard to the perceived importance of SFs and SC in both categories were representing the population of the project managers of the three groups. Valid rankings of the relative importance of project management SFs, project SFs, project management SC and project SC from the three project manager groups perspectives have been carried out.

It was found that the criteria and factors rankings differed among the project managers from the three practice groups. A summary of the top ranked and bottom ranked SFs and SC for each practice group are illustrated in Table 4.37

Despite the various importance rankings among the project managers from the three practice groups it can be concluded that there were dominant top and lowest ranked SFs and SC among these three practice groups.

Planning and control were common top ranked factors among the three project managers groups within the project management SFs category. Clear scope, project manager experience, and region political conditions were common top

ranked factors while client competence project complexity and region social conditions were common lowest ranked factors among the three practice groups within the project SFs category.

Quality of the project management process, stakeholders satisfaction with the project management process and quality of deliverables were the common top ranked criteria, while schedule, health and safety and budget were the common lowest ranked criteria among the three project managers group within the project management SC group. In the project SC category, the impact on organisation business, deliverables meeting functionality and user satisfaction with the deliverables were common top ranked criteria among the project managers from the 3 practice areas, while opportunities for personal growth and professional learning and Impact on the community economy were common lowest ranked criteria among the same project managers groups.

Considering the golden triangle constraints, the top and lowest ranked project SC indicate that project managers from the three practice groups assigned more priority to the importance of deliverables meeting the desired quality than the priority assigned to meeting the project schedule and budget, this was also reflected in the project SC when the user satisfaction and client satisfaction with the deliverables, deliverable meetings technical specifications, and deliverables meeting functionality were top ranked criteria in at least two project managers group, which may suggest that these criteria are interrelated.

The overall findings of the relative importance ranking of the SFs and SC suggests that there seems to be a lack of emphasis of project managers from the three practice areas on SC and SF that are associated to their organisations strategic long term objectives.

Apart from impact on organisation business other long terms SC such as project contribution to the achievement of organisation strategic objectives, impact on organization reputation and impact on the organisation market share were almost

intermediate in terms of their relative importance ranking for the project managers in the three practices groups.

Similar intermediate ranking were also evident for the relative importance of project SFs related to long term objectives such as project portfolio practice with effective human resources/financial resources allocation, periodic reviews of project alignment with the organisation strategy and effective project prioritization. This suggests that there might be a communication gap between the strategy makers and the project managers in these organisation, which may entails low levels of strategic project management implementation by the fit-out project managers in the UAE

Category		Client	Consultant	Contractor
Project Management SFs	Top ranked	Control	Planning	Planning
		Planning	Communication	Control , Communication
		Stakeholder Management	Control, Monitoring	
	Lowest ranked	Communication	Stakeholders management	Stakeholders Management
Monitoring		Monitoring		
Project success factors	Top ranked	PM experience	PM experience, clear scope	Clear scope
		Clear scope		PM experience, Region political conditions
		Tendering process, clear project objectives	Tendering process, adequate project team selection	Contractor experience
		Region political conditions	Clear objectives, region political conditions	Adequate project team selection
	Lowest ranked	Client competence	Organisation culture, client competence, project complexity	Project type
		Project type		Client competence
		Projectized organisation structure		PPP for HR allocation
		Project complexity, regional social conditions	Change management	Project complexity, Organisation culture
			Region social conditions	Region social conditions
		management success	Top ranked	Quality of the project management process

Category		Client	Consultant	Contractor
		Quality of deliverables	Quality of deliverables,	Quality of deliverables
		Stakeholders satisfaction with the project management process	Stakeholders satisfaction with the project management process	Quality of the project management process
		Schedule	Schedule	Schedule
	Lowest ranked	Health and safety	Health and safety	Health and safety
		Budget	Budget	Budget
Project success Criteria	Top ranked	Deliverables meeting functionality	Client satisfaction with project deliverables	Other stakeholders satisfaction with the project deliverables
		User satisfaction with the deliverables	User satisfaction with the deliverables, Deliverables meeting technical specification, Impact on organisation business	Deliverables meeting functionality requirements, user satisfaction with the deliverables, client satisfaction with the deliverables
		Impact on organisation reputation		
		Deliverables meeting technical specifications, Impact on organisation business	Deliverables meeting functionality requirements	Impact on organization business
	Lowest ranked	Opportunity for personal growth and professional learning, Impact on the community economy	Impact on the community economy	Validity
		Other stakeholders satisfaction with the deliverables, Profitability	Contractor satisfaction with the deliverables	Impact on the community economy
		Validity	Validity	Profitability
		Impact on the environment	Impact on the environment	Impact on the environment
		Consultant satisfaction with the deliverables	Opportunity for personal growth and professional learning	Opportunity for personal growth and professional learning
		Contractor satisfaction with the deliverables		

Table (5.1): Summary of SC and SFs Ranking

5.2. Recommendations

The following recommendations are segmented according to their recipients

5.2.1 Recommendations to Clients

- Client project managers should be more involved in their projects, it seems that the client project managers rely on their consultant when it comes to project overall monitoring, and are only concerned with the communication that is addressing them.
- Client project managers perceived low importance of projectized organisation structure which was also associated to assigning client competence with low relative importance. This may be referred to the fact that the majority of client organisations assign the responsibility of managing their fit-out projects to an in-house functional managers who may lack the experience and knowledge in this area, it is therefore recommended for large client organisations to establish a project management office and recruit expertise in this area, this should also reflect positively on their organisation learning and will provide an opportunity for personal growth and professional learning which were regarded as medium and low in terms of their relative importance and should overall positively impact their fit-out projects success.
- The consultant is the right entity to advise whether the deliverables are meeting the technical specification or not, therefore his satisfaction is essential and the client should rely on his consultant satisfaction with the project deliverables especially when the technical conformance is concerned.
- Client should be aware of various regulatory bodies and developer's standards and design parameters, this will enable their consultants from developing design packages that are compliant to these standards and parameters to avoid any delays associated to non-compliance design that have resulted from illogical client requests.
- Client project managers should put more emphasis on the health and safety aspects of their fit-out projects; this may be achieved by increasing their involvement in the project through conducting regular or irregular site visits.

- Client organisations should pay more attention to the communication channels relevant to the strategic objectives that will be achieved by successfully completing their fit-out projects. This should enable their project managers from establishing the link between the organization strategic objectives and the fit-out project in hand and will overall enhance the maturity of the strategic project management practice in the client organisations.

5.2.2 Recommendations to Consultants

- Consultant project managers should be fully aware of the level of each contractor experience during the bid evaluation stage, and deal with the appointed contractor according to his experience level, awareness, adapting and flexibility of the consultant with this aspect should positively impact the project success.
- Consultant project managers should emphasis more attention to their project management process; they should ensure that it is consistent with the contractor process as a manner to avoid any issues that may result in the dissatisfaction of the stakeholders with the implemented project management process. Their project management process should also guarantee adequate turnaround time for any documentations or drawings that may be requested by the contractor to attend to any of these stakeholders requirements.
- Consultant project managers should emphasize more on both stakeholders management and other stakeholders satisfaction with the project deliverables through meeting various design criteria and standards set by developers, civil defense, power authorities...etc, not doing so might lead to negative implications on the schedule performance. It seems that consultants are not concerned with this aspect as the liquidated damages associated to delays are usually assigned to contractors.

- Consultants should assign more importance to the contractor satisfaction with the deliverable. Whilst they should pay attention to any short cut attempt intended by the contractor installations, they can increase the contractor interest with the project through accepting alternative methods of installation which will result higher levels of contractor satisfaction with the deliverables and will positively impact the project performance, gained value and outcomes.
- Early awareness of project complexity is essential especially for consultants, there are unique developments that may have certain complex standards which must be met by the design package developed by the consultants. LEED Gold developments is an example on this and are becoming widespread in the UAE where developers are so strict about meeting certain standards with an extensive amount of documentation which is usually a responsibility that is assigned to consultant during the project design phase, it is therefore recommended that consultants focus more on realizing the project complexity at early project stages.
- Consultants to put more emphasis on the health and safety aspect of the projects, in addition pay more attention to the impact of their design on the environment, for example, recommending furniture suppliers who rely on recycled items, specify power saving fixtures and fitting...etc.
- It is recommended that consultant organisations invest more in the developing project managers and provide opportunities for the growth of their personnel.
- Similar to the client organisations, consultants should enhance their strategic project management practice, by implementing programmes and portfolio practices that will enable them to establish the connection between their projects and the organisation strategy.

5.2.2 Recommendations contractors

- Contractor should demonstrate complete understanding of the fit-out project objectives immediately up on their engagement, and should also ensure that these objectives are aligned with their own objectives which they should communicate to the client and consultant. This will assist the three parties from identifying any conflict in interests that may exist and resolve it at early stages to avoid negative impacts on the project performance and outcomes.
- More emphasis on the project monitoring aspects should be exhibited by the contractor project managers, it seems that the relay on consultants to inspect and provide them with feedback about their installations, this might lead to increase the re-work amount and will negatively impact the schedule.
- Similar to consultants awareness of project complexity is also essential for the contractors. Examples of those complex projects mentioned in the consultant recommendations is also applicable for the contractor who are usually responsible for compliance with certain standards and an extensive amount of documentation during project execution phase, it is therefore; recommended that the contractors focus more on realizing the complexity of the fit-out project in hand.
- Contractors to emphasize more on the health and safety aspect of the projects. In addition, pay more attention to the impact of their installations on the environment and avoid those that will result in negative impacts.
- It is recommended that contractor organisations invest more in the developing project managers and provide opportunities for the growth of their personnel.
- The lack of contractor organisations emphasis on their projects portfolio practice with effective HR allocation may indicate a lack of connection between the projects they execute and their strategy, it is recommended

that contractor should rely more on the programme and portfolio practice and strategic project management.

5.2.3 Recommendations for future research

Following are potential areas for future researches:

- It is recommended to conduct a research that explores the relationship between SFs and success criteria in the project management success and the project success groups. The purpose will be to develop a framework that provides a mapping between SFs and success criteria. This type of research can be conducted for the construction sector or could be specific for the fit-out industry in the UAE or cover a number of developing countries.
- A research could be undertaken to identify the interrelationships between the project management SFs and project SFs and between the project management SC and SC.
- As the importance of SFs may differ with various project phases, a study could be conducted to identify the relative importance of each factor within both project management success group and project success group with respect to each phase of the fit-out project.
- This study highlighted a concern with regard to the strategic project management practice in the UAE, a research is recommended to investigate the maturity level of the strategic project management practice for the construction sector or the fit-out industry in the UAE or in number of developing countries.

6. Appendices

The following are list of appendices

#	Appendix #	Clarification
1	Appendix 1	List of project success criteria and success factors
2	Appendix 2	Research Questionnaire

Project Management Success Criteria

Budget

Schedule

Quality of project deliverables

Quality of project management process

Stakeholders satisfaction with the project management process

Commitment to health and safety

Project Success Criteria

Client satisfaction with the project deliverables
User satisfaction with the project deliverables
Consultant satisfaction with the project deliverables
contractor satisfaction with the project deliverables
Other stakeholders satisfaction with the project deliverables
Meeting technical performance
Meeting functionality requirements
Maintainability of project deliverables
Reliability of project deliverables
Validity of project deliverables
profitability resulted from the project
Personal growth and professional learning resulted from the project
Organisational learning resulted from the project
Project impact on organisation business performance
Project impact on organisation reputation
Project impact on organisation market share
Project contribution to acheive organisation strategic goals
Project impact on the environment
Project impact on the comunity economy

Project Management Success Factors

Project Planning

Project monitoring

Project control

Communication

Stakeholders management

Project Success Factors

- Clear Scope
- Clarity on project type
- Clarity on project complexity
- Clear project objectives
- Organisation top management support
- Implementing change management process
- Projectized organisation structure
- Culture of parent organisation
- Projects portfolio practice with effective human resources allocation
- Projects portfolio practice with effective financial resources allocation
- Project prioritization and selection process to ensure alignment with strategic objectives
- Periodic reviews of project alignment with organisation strategic objectives
- Adequate project team selection
- Implementing the right tendering process
- Selecting adequate procurement strategy
- Region's economy condition
- Region's political condition
- Region's social condition
- Region's technological advancement condition
- Project manager experience
- Project manager authority
- Project manager competence
- Client competence
- Client experience
- Contractor competence
- Contractor experience
- Consultant competence
- Consultant experience

Appendix (2): Research Questionnaire

QUESTIONNAIRE

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QUESTIONNAIRE

Dear Respondent,

The following questionnaire is a part of a dissertation that is undertaken by Saad Abu Sheikha under the supervision of Dr. Arun Bajracharya to achieve MSc Degree in Project Management from the British University in Dubai (BUiD). The dissertation title is "A Study on Success Factors and Success Criteria in Fit-out Projects in the UAE" and is aiming to identify the significant success factors and success criteria within the fit-out industry in the United Arab Emirates.

The research group kindly requests you to support the aforementioned dissertation by completing this questionnaire no later than 14th April, 2014.

Kindly note that you approximately require 15 minutes to complete the questionnaire comprising mainly of the following parts:

Part 1: Demographic

Part 2: Project Management Success Factors

Part 3: Project Success Factors

Part 4: Project Management Success Criteria

Part 5: Project Success Criteria

It is to be highlighted that participation in this research is voluntary and there are no penalties should you choose not to participate, it is also assured that the results of this questionnaire will be used for the scientific research purposes only and will be considered and handled as confidential information. The research group will not be able to track data obtained from this questionnaire back to corresponding respondents or their organisations, therefore filling this questionnaire will not hold any obligation against the respondent or his/her organization.

Should you require any clarification about this questionnaire and/or should you be interested in receiving information about the findings of this dissertation please contact Saad Abu Sheikha via 100141@student.buid.ac.ae.

Thanks in Advance for the time you will spend in completing this questionnaire.

Please follow the link to complete the questionnaire:

https://docs.google.com/forms/d/1phR2kaQFeoVP3cBIPk11vZHOFvA4_-pxcBN3TpfwfrU/viewform

Alternatively click the "Continue" tab below to access the questionnaire

Sincerely yours

Saad Abu Sheikha

* Required

Part 1: Demographic

1. **Age (Years) ***
Mark only one oval.

- 25-30
 31-40
 41-50
 Above 50

2. **Gender ***
Mark only one oval.

- Female
 Male

3. **Work Experience ***
Mark only one oval.

- 10 Years or less
 More than 10 years

4. **Fit-out Profession area ***
Mark only one oval.

- Client
 Consultant
 Contractor

Part 2: Project Management Success Factors

In this section please express your agreement to each of the following statements

5. **Effective project plan is important for achieving project success ***
Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

6. **Overall project monitoring significantly contributes to its success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
7. **Exhibiting control over the project is essential for delivering successful project ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
8. **Open, clear and timely communication between project stakeholders positively impact project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
 Option 6
9. **Managing stakeholders efficiently and effectively enhance the chances of project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

Part 3: Project Success Factors

In this section please express your agreement to each of the following statements

10. **Successful projects are those having clear defined scope ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
11. **Managing the project according to its type plays an important role in delivering successful projects ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
12. **Realising project complexity leads to achieving project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
13. **It is very important to set clear project objectives to deliver a successful project ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

14. **Organization top management support is essential for project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
15. **Change management can significantly affect project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree nor Disagree
 Disagree
 Strongly Disagree
16. **Projectized Organisation Structure within the parent Organization contributes to project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
17. **The culture of the parent organisation can significantly affect project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

18. **Projects portfolio practice with effective human resources allocation plays an important role in achieving project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
19. **Projects portfolio practice with effective financial resources allocation leads to achieving project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
20. **Projects prioritization and selection process that ensures alignment with the organisation strategic objectives is necessary for successful projects ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
21. **Periodic reviews of Projects alignment status with the organization strategic objectives leads to deliver successful projects ***
Mark only one oval.
- Strongly agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

22. **Adequate Project team selection is essential for project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
23. **Implementing the right tendering process significantly impact project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
24. **Selecting and implementing adequate procurement strategy leads to achieving successful projects ***
Mark only one oval.
- Strongly agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
25. **The region economy conditions can significantly impacts project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

26. **The region political conditions can significantly impacts project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

27. **The region social conditions can significantly impacts project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

28. **The regional technological advancement conditions can significantly impacts project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

29. **The project manager experience is essential for delivering successful projects ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

30. **The Project Manager Authority impacts the delivery of successful projects ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

31. **The project manager competency leads to delivering successful projects ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

32. **Client Competency is essential for successful projects ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Disagree

33. **Client experience is required to deliver successful projects ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

34. **Contractor Competence leads to the delivery of successful projects ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
35. **Contractor Experience is required for successful projects ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
36. **Consultant Competence plays an important role in delivering successful projects ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
37. **Consultant Experience is required for delivering successful projects ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

Project Management Success Criteria

In this section please express your agreement to each of the following statements

38. **Successful projects are those that met their budget ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

39. **Meeting project Schedule is significant when measuring the project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

40. **Assessing Quality of project deliverables is essential to determine the project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

41. **Commitment to health and safety is significant when assessing project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

42. **Assesing the quality of the project management process is important in varifying project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

43. **Stakeholders satisfaction with the project management process is essential for assessing project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

Project Success Criteria

In this section please express your agreement to each of the following statements

44. **Successful projects are those with deliverables satisfying the client ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

45. **User satisfaction with the project deliverables measures project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

46. **Consultant satisfaction with the project deliverables is essential to assess project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

47. **Contractor satisfaction with the project deliverables must be assessed to decide on project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

48. **Other Stakeholders satisfaction with the project deliverables measures projects success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

49. **Successful projects are those with deliverables that meet technical performance requirements ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

50. **Project Deliverables that meet Functionality requirements determine project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

51. **Maintainability of project deliverable is very important when assessing project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

52. **Successful projects are those with reliable deliverables ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

53. **Validity of project deliverable is essential to assess project success ***

Mark only one oval.

- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

54. **Profitability resulted from the project is important to assess project success ***
Mark only one oval.
- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree
55. **Successful projects are those that provided an opportunity for personal growth and professional learning ***
Mark only one oval.
- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree
56. **Organizational learning resulted from the project can measure its success ***
Mark only one oval.
- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree
57. **Project success can be assessed through its impact the organisation business performance ***
Mark only one oval.
- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree

58. **The project Impact on organization reputation can determine project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Strongly Disagree
59. **Successful projects are those lead to enhancing organisation market share ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree nor Disagree
 Disagree
 Strongly Disagree
60. **Successful projects are those that contributed to the achievement of organization strategic goals ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree
61. **The project Impact on the environment is significant when measuring project success ***
Mark only one oval.
- Strongly Agree
 Agree
 Neither Agree Nor Disagree
 Disagree
 Strongly Disagree

62.

Successful projects are those that positively impact the community economy *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree

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