The Influence of Stakeholder Management on the Successful Implementation of Agile Project Management Methodology in Mega-Events Projects

تأثير إدارة أصحاب المصلحة على التنفيذ الناجح لمنهجيات إدارة المشاريع الرشيقة في مشاريع الأحداث الكبرى

by

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ABSTRACT

Mega-events bring challenges of different scale and complexities, and many scholars demanded flexible strategies and plans in managing hallmark events giving their complexity and unpredictability. Conventional methods in managing projects are considered unqualified and ill-prepared to handle these dynamic settings. Agile methodologies have acquired considerable vogue, significant interest and growing attention from the public as well as industries. The possibilities it brings are tremendous, and its benefits and values are well manifested and potentially more to offer in the other fields than software. Nowadays, agile has surpassed the small scale projects, and recently, many companies are keener to apply it on organisational level and large scale projects.

This research is geared toward exploring the different characteristics that support and promote agile project management methodology within the context of mega-events. It will also investigate from the stakeholder perspective, how this application can be influenced and boosted through effective management of stakeholders.

A conceptual framework developed from the thorough and critical review of the literature is proposed to determine the influence the effective stakeholder management framework (adopted after Yang et al. 2009) has on these 'scaled' agile characteristics and eventually on agile implementation in mega-events. The framework was applied in an exploratory survey with experienced people from diverse mega-events environments. The data gathered were processed via specialised software packages and thoroughly analysed against statistical standards. Due to the scarcity of scholarly papers that tackle mega-events from a project management perspective, and the modernity and novelty of agile methodology and its confined application within information technology and software development sectors, it was quite a challenge to find literature that explored this methodology in megaprojects. Hence, a broader approach in reviewing the scholarships was followed. Non-IT industries focusing primarily on large-sized organisations, construction sectors, enterprise-level agility and programme/ portfolio management levels (agile-at-scale) were investigated.

The literature revealed of eleven peculiar features of agile in the mega-events context covering the following dimensions; project output & business values, customer involvement, communication and transparency, planning approach, team structure, leadership and culture, organisation structure, governance, learning & coaching, and hybrid method. The adopted

framework for stakeholder management identified fifteen factors bundled into four groups; namely, information inputs, stakeholder estimate, decision making and stakeholder sustainable support. All stakeholder factors have proved evident influence on the agile characteristics. The study suggested the comprehension of all these factors to achieve an optimum influence. It also proposes – given the level of influence of these factors – classifying “information inputs” and “stakeholder estimate” as primary factors and “decision making” and “stakeholder sustainable support” and secondary.

The study ends with a set of recommendations concluded from the study's outcomes and the literature review. These propositions mainly target organisations and decision makers within the mega-events industry and agile practitioners to shape the path forward in managing projects in mega-events.

Keywords: agile project management, stakeholder management, mega-events projects

الملخص

تجلب الأحداث الكبرى تحديات ذات نطاقات وتعقيدات متباينة، وقد طالب العديد من الباحثين تطوير استراتيجيات وخطط مرنة في إدارة الأحداث الضخمة في ضوء تعقيداتها وصعوبة التنبؤ بمتطلباتها وحيثياتها. تعتبر الطرائق والأساليب التقليدية في إدارة المشاريع غير مؤهلة وغير كفؤة للتعامل مع هذه التعقيدات والمجالات الديناميكية سريعة التغير.

اكتسبت المنهجيات الرشيقة في إدارة المشاريع رواجًا كبيرًا واهتماماً بالغاً ومتزايدًا في الأونة الأخيرة من الأفراد والنظمات على حد سواء. إن الإمكانيات التي توفرها وتجلها هذه المنهجيات الرشيقة هائلة، وتتجلى فوائدها وقيمها بشكل جلي وواضح، مع إمكانية توسع نظاق فوائدها لتشمل الصناعات والمجالات الأخرى على غرار نجاحها في حقول البرمجيات وتقنية المعلومات. في الوقت الحاضر ، تجاوزت هذه الأساليب الرشيقة المشاريع الصغيرة الحجم، حيث تتطلع العديد من الشركات مؤخراً على تطبيقها على المستوى التنظيمي والمشاريع الضخمة.

يهدف هذا البحث إلى استكشاف الخصائص المميزة التي تدعم وتعزز منهجية إدارة المشاريع الرشيقة في سياق الأحداث الكبرى. سوف يبحث أيضًا من منظور أصحاب المصلحة وتأثيره على تطبيق الأساليب الرشيقة في إدارة المشاريع وتعزيزه من خلال الإدارة الفعالة لأصحاب المصلحة.

تقترح الدراسة في متناول اليد إطار عمل مفاهيمي طُور من خلال المراجعة النقدية الشاملة للأدبيات لتحديد التأثير الذي يتمتع به إطار إدارة أصحاب المصلحة الفعال (الذي تم تبنيه بعد يانغ وآخرون 2009) على هذه الخصائص المرنة وعلى التنفيذ الفعال لهذه المنهجيات في الأحداث الكبرى . تم ترجمة الإطار المفاهيمي في استبيان استهدف أفراداً من ذوي الخبرة في مجالات صناعة الأحداث الضخمة. تمت معالجة البيانات المجمعة عن طريق الاستبيان عبر حزم برمجيات متخصصة وتحليلها بدقة وفقا للمعايير والمقاييس الإحصائية.

نظرًا لندرة الأوراق العلمية التي تتناول الأحداث الكبرى من منظور إدارة المشاريع ، وحداثة المنهجيات الرشيقة وتطبيقاتها المحصورة في قطاعات تكنولوجيا المعلومات وتطوير البرمجيات، كان من الصعب بمكان العثور على منشورات علمية تتطرق إلى هذه المنهجية في المشاريع الضخمة ومشاريع الأحداث الضخمة. وبالتالي تم اتباع نهج أوسع في مراجعة الدراسات المختصصة حيث جرى مراجعة وتحقيق المنشورات العلمية في المجالات غير المتعلقة بتكنولوجيا المعلومات والتي تركز في المقام الأول على المنظمات الكبيرة الحجم وقطاعات الإنشاءات وعلى مستوى التنظيمية للمؤسسات (إدارة برامج المشاريع / محافظ المشاريع).

كشفت الأدبيات عن أحد عشر سمة مميزة للمنهجيات الرشيقة في سياق الأحداث الضخمة، وتغطي هذه السمات الأبعاد التالية: ناتج المشروع وقيم العمل ومشاركة المتعاملين وأصحاب المصلحة والتواصل والشفافية ونهج/ أسلوب التخطيط وتشكيل الفريق والقيادة والثقافة المؤسسية/ التنظيمية والهيكل التنظيمي والحوكمة والتعلم والتدريب والطرق المهجنة. يُعرف الإطار المتبنى لإدارة أصحاب المصلحة من خمسة عشر عاملاً مصنفة في أربع مجموعات هي مدخلات المعلومات وتقدير أصحاب المصلحة واتخاذ القرارات والدعم المستدام لأصحاب المصلحة.

أثبتت جميع عوامل أصحاب المصلحة تأثيراً جلياً على خصائص المنهجيات الرشيقة في إدارة الأحداث الضحمة. واقترحت الدراسة أنه لتحقيق تأثير أقوى وأمثل على هذه الخصائص وجب تتوافرهذه العوامل كلها مجتمعة. وتقترح الدراسة أيضًا - بالنظر إلى مستوى تأثير هذه العوامل - تصنيف "مدخلات المعلومات" و"تقدير أصحاب المصلحة" كعوامل أساسية و"اتخاذ القرارات" و"الدعم المستدام لأصحاب المصلحة" كعوامل ثانوية.

تُختم الدراسة بمجموعة من التوصيات المستخلصة من نتائج الدراسة ومراجعة الأدبيات، وتستهدف هذه المقترحات بشكل أساسي المنظمات وصناع القرار في صناعة الأحداث الكبرى والممارسين للمنهجيات الرشيقة نحو تبني هذه أساليب المنهجيات الرشيقة في إدارة المشاريع في الأحداث الكبرى.

الكلمات المفتاحية: إدارة المشاريع الرشيقة، إدارة أصحاب المصلحة، مشاريع الأحداث الكبرى

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1. CHAPTER 1: INTRODUCTION

1.1. Overview

Projects are originally organised and ordered, however recently they witnessed drastic changes and became more "disordered", that is mainly attributed to the complexity associated with turbulent environments where project management is being extensively called upon and employed (Thiry 2010).

Project management as a knowledge field should incorporate unique un-conventional methods, as the traditional (linear rational) approaches demonstrated their insufficiency in dealing with complexities (Romanenko & Ferrazzo 2014). These classical methodologies deemed inadequate and ineffective in coping with complex settings and fuzzy contexts (Geraldi 2008; Marques 2010; Koppenjan et al. 2011).

Mega-events are "ambulatory occasions of a fixed duration that attract a large number of visitors, have a large mediated reach, come with large costs and have large impacts on the built environment and the population" (Müller 2015, p. 638). Hence – besides the usual aspects of a project; scale and cost – "visitor attractiveness, mediated reach, and transformative" impact are fundamental aspects of mega-events (Clark, Kearns & Cleland 2016).

Mega-events bring challenges of different scale and complexities such as stakeholders' participation and organisational requirements. Such scale and complexity require a different management approach (Grabher & Thiel 2015).

Scholars demanded flexible strategies and plans in managing hallmark events giving their complexity and unpredictability (Bramwell 1997). Slootman (2007) noted during his study of several mega-events, the necessity for "dynamic planning" that enables "progressive work-packages" to be developed during execution phase which he claims will boost the overall performance and overcome the challenges associated with the traditional approach of planning-execution.

Flexible, adaptive project management approaches that enable progressive planning is a necessity in dynamic and complex environments where broad and diverse scopes are present like mega-events (Romanenko & Ferrazzo 2014). These conditions have led to the emergence of new practices in project management (Thiry 2010).

Disciplines like Complexity Management, Programme and Portfolio Management, Heart-beating Management, Multi-Project Management (Romanenko & Ferrazzo 2014), Lean management and agile management (Thiry 2010) are modern techniques introduced in an attempt to overcome some traditional project management shortcomings (Romanenko & Ferrazzo 2014). These contemporary disciplines are capable of tackling complex situations that conventional project management is considered unqualified and ill-prepared to handle (Thiry 2010).

Agile methodologies have acquired considerable vogue, significant interest and growing attention from the public as well as industries (Cottmeyer 2011). Agile project management was developed lately in 2001 by a cohort of scholars who released the "Agile Manifesto" that shaped the fundamental principles of agile – which back then was referred to as "lightweight methods" (Thiry 2010).

Companies who applied 'agile' methods have witnessed dramatic advantages and significant optimisation and improvements in productivity, quality, predictability, and skills developments on individual and organisational levels as well as a substantial reduction in cost (Owen et al. 2006).

The possibilities that agile brings are tremendous, and its benefits and values are well manifested (Cottmeyer 2011), and potentially more to offer in the construction field than software and product development (Owen 2006). There is also an increasing international appetite and openness among practitioners for alternative approaches in managing projects (Cottmeyer 2011).

Though agile methods have been predominately utilised in the information systems, software developments and product delivery fields (Cottmeyer 2011), however, nowadays it has surpassed the small scale projects, and recently, many companies are keener to apply it on organisational level and large scale projects (Dillon 2014). Some scholars claimed the adaptability of agile practices and methods in other contexts and projects whose specifics and characteristics resemble those of the software projects that are dynamic, innovative, and constantly changing (Conforto et al. 2014).

There are a plethora of scholarly papers around megaprojects compared to mega-events, and this might be attributed to the fact that some scholars do recognise mega-events as a subset or a "special case" of megaprojects (Romanenko & Ferrazzo 2014) while others do consider them

the same (Frawley & Adair 2013) despite few characteristics that set them apart. However, there is an emphasis on treating mega-events as a standalone type of project and field of study (Romanenko & Ferrazzo 2014).

Mega-events stakeholders (authorities, sponsors, media, etc.) are the main determents of their success (Sousa et al. 2016), and their early and continuous involvement is vital and one of the important aspects in mega-events management as pointed bout by Slootman (2007).

This research is concerned with exploring prime characteristics that support agile project management implementation in mega-event projects. It will also investigate the success factors for effective stakeholder management that will promote this methodology and support its implementation in the mega-event context.

The paper will start by defining agile, looking at its historical development and stating the main differences between agile methods and the traditional approaches. Agile implementation and applicability outside technology and software development industries will also be investigated.

Due to scarcity of scholarly papers that tackle agile outside the software and technology sector, and the majority of what was found was basically dealing either with agile project management applicability in construction projects and scaling it up on the organisational level or programme management level. Even the large scale agile was predominantly focused on the software industry (none of the scholarly papers tackled it from mega-projects perspective); however, given the similarities between the mega-projects and mega-event as pointed out earlier it, the review of the literature will then expand to explore the different characteristics that promote agile methodology in mega-event contexts derived from the intensive investigation of the application of agile in megaprojects and enterprise agile (portfolio/programme levels) as well as other non-IT sectors.

Additionally, literature review process will explore the stakeholder management and effective concepts/ frameworks will be investigated, and critical factors for successful management of stakeholder will be identified.

Literature findings will be conceptualised in a theoretical framework which will be then validated using quantitative means via a survey questionnaire. Since the survey examines people perceptions, opinions and attitudes toward the research topic, experts and specialist input will be integral to the results verification process. Afterwards, the gathered data will be processed using specialised software and analysed thoroughly against statistical thresholds,

literature findings and the hypothetical propositions (null hypotheses). The paper will conclude with the implications of the study and will present a set of recommendations for future research opportunities.

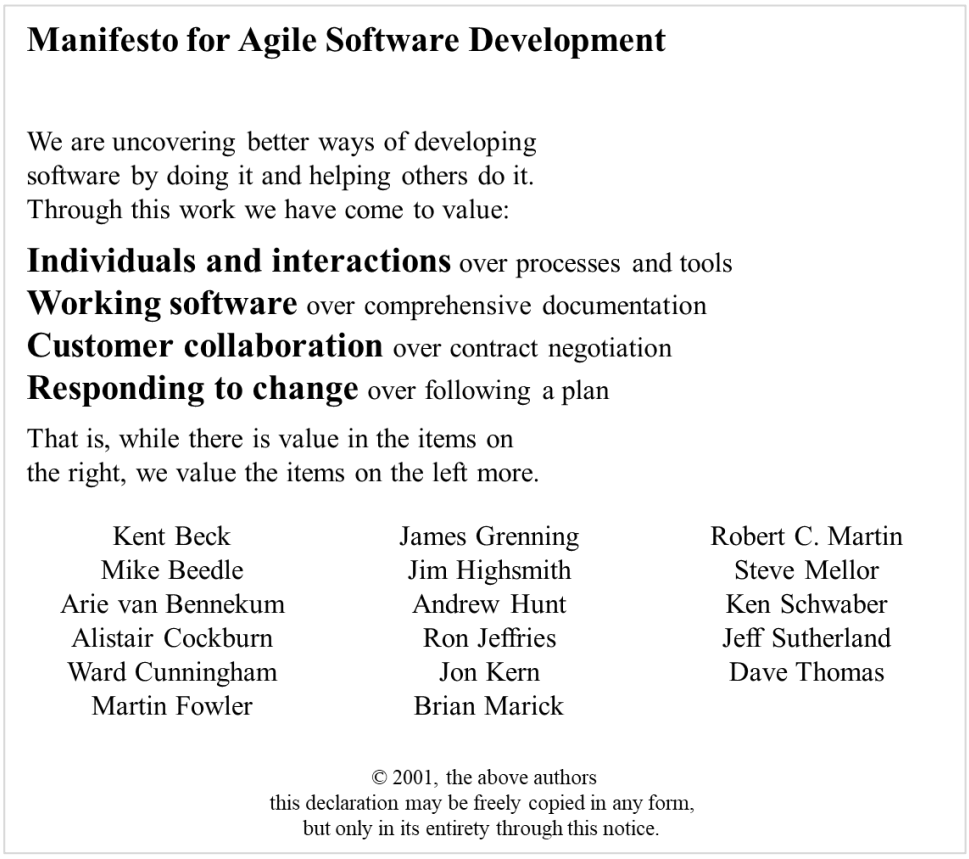
1.2. Agile Definition and Historical Development

Agile Project Management (APM) as defined by Conforto et al. is: "an approach based on a set of principles, whose goal is to render the process of project management simpler, more flexible and iterative in order to achieve better performance (cost, time and quality), with less management effort and higher levels of innovation and added value for the customer" (2014, p.22).

In 2001, the "Agile Manifesto" was constituted by professionals who then designed numerous of agile methods. The manifesto laid the foundation for agile approach that encompasses four main values (figure 1.1) and 12 principles (figure 1.2). In order to be agile, these values and principles need to be put into practice (www.agilemanifesto.org; Shores 2007; Dybå & Dingsøyer 2008). The relatively steady rate of projects failure, the increase frustrations among practitioners with the unchangeable decisions made early in the project, and the lengthy processes, those what prompted the birth of agile methodology (Serrador & Pinto 2015).

The term "agile project management" become a well-known terminology in virtue of a set disseminated methods specially designed for software and technology fields including Scrum, Lean Software Development, Feature Driven Development (FDD), Adaptive Software Development, Dynamic System Development Method (DSDM), and Extreme Programming (Conforto et al. 2014).

Since its development, it has been utilised widely in the software industry (Lindvall et al. 2002). Agile methods use less initial planning, minimal documentation and promote more flexibility, resilience and responsiveness to dynamic environments and evolving settings. However, this does not imply that agile disregard the front-end planning, but just the right amount of planning especially at the early stages of the projects, that gradually evolves and details as the project progresses, instead of one cut-off planning style (i.e. the planning is carried throughout the project) (Serrador & Pinto 2015).



Manifesto for Agile Software Development

We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on
the right, we value the items on the left more.

Kent Beck	James Grenning	Robert C. Martin
Mike Beedle	Jim Highsmith	Steve Mellor
Arie van Bennekum	Andrew Hunt	Ken Schwaber
Alistair Cockburn	Ron Jeffries	Jeff Sutherland
Ward Cunningham	Jon Kern	Dave Thomas
Martin Fowler	Brian Marick	

Figure (1. 1): Agile values (adapted from Beck et al. 2001, p.1)

Since its development, it has been utilised widely in the software industry (Lindvall et al. 2002). Agile methods use less initial planning, minimal documentation and promote more flexibility, resilience and responsiveness to dynamic environments and evolving settings. However, this does not imply that agile disregard the front-end planning, but just the right amount of planning especially at the early stages of the projects, that gradually evolves and details as the project progresses, instead of one cut-off planning style (i.e. the planning is carried throughout the project) (Serrador & Pinto 2015).

Agile methods also rely on continuous stakeholder involvement and prompt feedback, both when setting-up project's goals and when providing input throughout the project life-cycle. Thus the iterative planning approach of agile methods enables close, regular and ongoing contact with the customers, realigning project's outputs and redefining scope as per new requirements and needs (Serrador & Pinto 2015). The progressive planning approach and close interactions with the customers provide more insight and understanding of the project progress and development process to both the company and the stakeholders (Dybå & Dingsøyer 2008).

Principles behind the Agile Manifesto
We follow these principles:

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals.
Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Working software is the primary measure of progress.

Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

Continuous attention to technical excellence and good design enhances agility.

Simplicity--the art of maximizing the amount of work not done--is essential.

The best architectures, requirements, and designs emerge from self-organizing teams.

At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Figure (1. 2): Agile principles (adapted from Beck et al. 2001, p.2-3)

Traditional project management practices focus on adequate "predictive" up-front planning and proper in-place change management controls (Cottmeyer 2011). Whereas agile approaches tend to lean more toward the light "just-enough" up-front planning mainly when uncertainty and lack of clarity around project scope are the norms, and when the change is integral to the delivery process (Cottmeyer 2011).

1.3. Traditional Project Management and Agile Project Management

Agile methods are geared toward delivering values continually via dividing the work into smaller iterations and delivering tangible outputs at each iteration, whereas the traditional approaches take the contract path (i.e. one go delivery) (Merla 2012), performed in sequential stages that include initiation, planning, execution and closure (Straçusser 2015). Agile

approaches also embrace changes throughout the project and encourage ongoing enhancements via small incremental changes (i.e. backwards-looking at the delivered outputs for any improvements on the next delivery), while traditional methods look at the lessons learned at the project closure to improve future projects (Merla 2012).

Main contrasts between traditional and agile approaches after Serrador and Pinto (2015) are presented hereunder in table (1.1).

	Traditional Development	**Agile Development**
Fundamental Assumption	Systems are fully specifiable, predictable, and are built through meticulous and extensive planning	High-quality adaptive software is developed by small teams using the principles of continuous design improvement and testing based on rapid feedback and Change
Management style	Command and control	Leadership and collaboration
Knowledge management	Explicit	Tacit
Communication	Formal	informal
Development model	Life-cycle model	The evolutionary-delivery model
Desired organizational form/structure	Mechanistic (bureaucratic with high formalization), aimed at large organizations	Organic (flexible and participative encouraging cooperative social action), aimed at small and medium sized Organizations
Quality control	Heavy planning and strict control. Late, heavy testing	Continuous control of requirements, design and solutions. Continuous testing

Table (1. 1): Differences between traditional and agile project management

1.4. Agile Application outside Software Industry

Agile methods have always assumed as intended exclusively for software development and IT fields. However, apparently, that assumption is no longer true as several companies have adopted the methodology and acquire remarkable benefits and profits. The presence of agile enablers allowed these companies to adopt agile methodology seamlessly. Marketing/ advertising, construction, event planning, finance are a few examples of industries who embraced agile (Narayanamurthi 2017).

Straçusser (2015) reported while studying agile application in non-IT projects (case studies around construction project and performance improvement programme), that if agile was correctly applied, then immense and significant values can be achieved. He also claimed that

the fruitful results that the examined projects obtained demonstrate the success of the methodology and its applicability.

Conforto et al. (2014) while exploring agile practices in medium-sized to large-sized non-software Brazilian companies, he noticed that agile project management enablers pretty much exist in these organisations which forms a fertile ground for swift adaptation of agile theory and thus provide proven examples of agile presence in non-IT industries.

1.5. Research Gap

Majority of the scholarly papers –investigated during the intensive review process of the literature– tackled agile project management in the software industry; whether on small scale projects or large-software development endeavours. A handful of papers found to discuss the methodology outside that field and those were mainly focused on either construction projects or enterprise agile (organisational level/programme management).

On the other hand, the publications conferring mega-event projects significantly cover topics related to social impacts, legacy projects and post-event plans, sustainability and environmental impact, knowledge transfer, and other aspects entirely distance from the project management context. Thus the literature lacks researches in mega-event from project management standpoint and how new methodologies in managing projects would add value to this exponentially growing field that attracts the global attention and most recently the Middle East region that is aiming towards hosting such events in the near future.

A business model for managing projects that is claimed to best-fit a mega event context was proposed by Sousa et al. (2016). The model basically was built from the traditional principles of project management; however, sustainability principles and project maturity were introduced. This does not bring anything new to the table, though it enhances the current methodologies being practised by incorporating different dimensions.

The research is primarily focused on how agile project management methodology can be applied in these mega-scale contexts, and what would be the characteristics that support such implementation from various dimensions; team structure, organisation structure, leadership and environment, governance, planning approach, etc. Not only the research will tackle agile implementation from this facet but will investigate on how would stakeholder influence and promote such implementation through a proposed model of effective stakeholder management.

1.6. Problem Statement

The problem associated with the above-summarised research gap is the limited application of agile project management methodology in areas outside the technology industry, particularly in mega-event projects which lack the introduction of new methodologies and innovative approaches in managing projects (all that has been applied is the old-school traditional methods of project management). As well as the lack of clarity and the identification of the new methodology characteristics that if existed and properly practised would boost the implementation efforts in these mega-event contexts with particular focus on agile methods.

This research presents a conceptual framework to identify the characteristics of agile project management methodology within mega-event context. The proposed framework will also determine the influence the effective stakeholder management framework (suggested by Yang et al. 2009) has on these 'scaled' agile characteristics and eventually on agile implementation in mega-events. The framework was applied in an exploratory survey with experienced people from diverse mega-event environments; those individuals have not experienced the new methodology and/ or may not formally use or recognise agile methods.

1.7. Research Question

This research aims at answering the following questions:

What are the characteristics of agile project management in mega event project, and what are the Stakeholder Management Success Factors that influence these characteristics and hence, the implementation of the methodology within mega-event environments?

The research objectives can be outlined as below:

1. To carry out a thorough and intensive review of the literature to:
   - **a)** Understand the development of Agile Project Management (APM) methodology and how it differs from the conventional approaches in managing projects (i.e. traditional project management);
   - **b)** Investigate Agile Project Management (APM) applicability outside the technology and software development industry;
   - **c)** Identify the main characteristics that promote the implementation of Agile Project Management (APM) methodology in mega-event projects; and
   - **d)** Understand Stakeholder Management (SM) and investigate its success factors.

2. To examine and assess the influence of Stakeholder Management Success Factors on the characteristics of Agile Project Management (APM) methodology in mega-event projects (i.e. the influence of SM on APM implementation in mega-event context) via the following:
   a. Assess the influence of Stakeholder Management "Information Inputs" success factors on the characteristics of APM methodology in mega-event projects;
   b. Assess the influence of Stakeholder Management "Estimate" success factors on the characteristics of APM methodology in mega-event projects;
   c. Assess the influence of Stakeholder Management "Decision Making" success factors on the characteristics of APM methodology in mega-event projects; and
   d. Assess the influence of the Stakeholder Management "Sustainable Support" success factors on the characteristics of APM methodology in mega-event projects.

1.8. Scope of the Study

To address the above questions appropriately and sufficiently, this study will focus on achieving the following objectives:

1. To identify the main characteristics of Agile Project Management methodology in mega-event projects and the success factors in Stakeholder Management; and
2. To verify and confirm the relationship between Stakeholder Management Success Factors on the characteristics of Agile Project Management methodology in mega-event projects and subsequently APM implementation in mega-event contexts.

1.9. Expected Implication

This study's anticipated implications will imply mostly on the promotion of Agile Project Management methodology implementation in mega-event projects via stakeholder management success factors. A compilation of recommendations for future research opportunities will also be listed along with the proposed list of actions – developed from the study findings – from different influencing parities and critical players within the mega-event environments.

1.10. Research Structure and Framework

This research paper will be structured in the following format:

Literature Review: As the practice with all research paper, an intensive literature review will be carried out in consonance with the study's aims in which an adequate number of researches and scholarly papers will be surveyed and reviewed

Theoretical Framework: Based on the literature review findings, a conceptual model will be introduced, presenting the hypothetical propositions for the study, and demonstrating the hypothesised relationship between the different variables.

Research Methodology: The philosophical rationales will be explored and outlined, different research methodologies will be examined, and the selected research method will be presented and justified. Also will touch base on the survey as a tool for data collection and the rationales that support this direction. Additionally, the questionnaire design and pilot test will be discussed.

Data Analysis: A thorough analysis of the gathered data will be performed using specialised statistical software and critically reported following acceptable statistical criteria and thresholds.

Discussion: The analysis results from the previous chapter will be exhaustively discussed and challenged against the hypothetical propositions (Null hypotheses) presented earlier in the paper and how that will support the acceptance and/or rejection of the Null hypotheses. Alignment between various tests' outputs and literature review will also be highlighted. Further review of the literature and analysis of the data might be conducted to interpret and underpin the study findings.

Conclusion: A synthesis of the study's key points will be presented along with a brief outline of the results. Study limitation and new areas for future research will be highlighted.

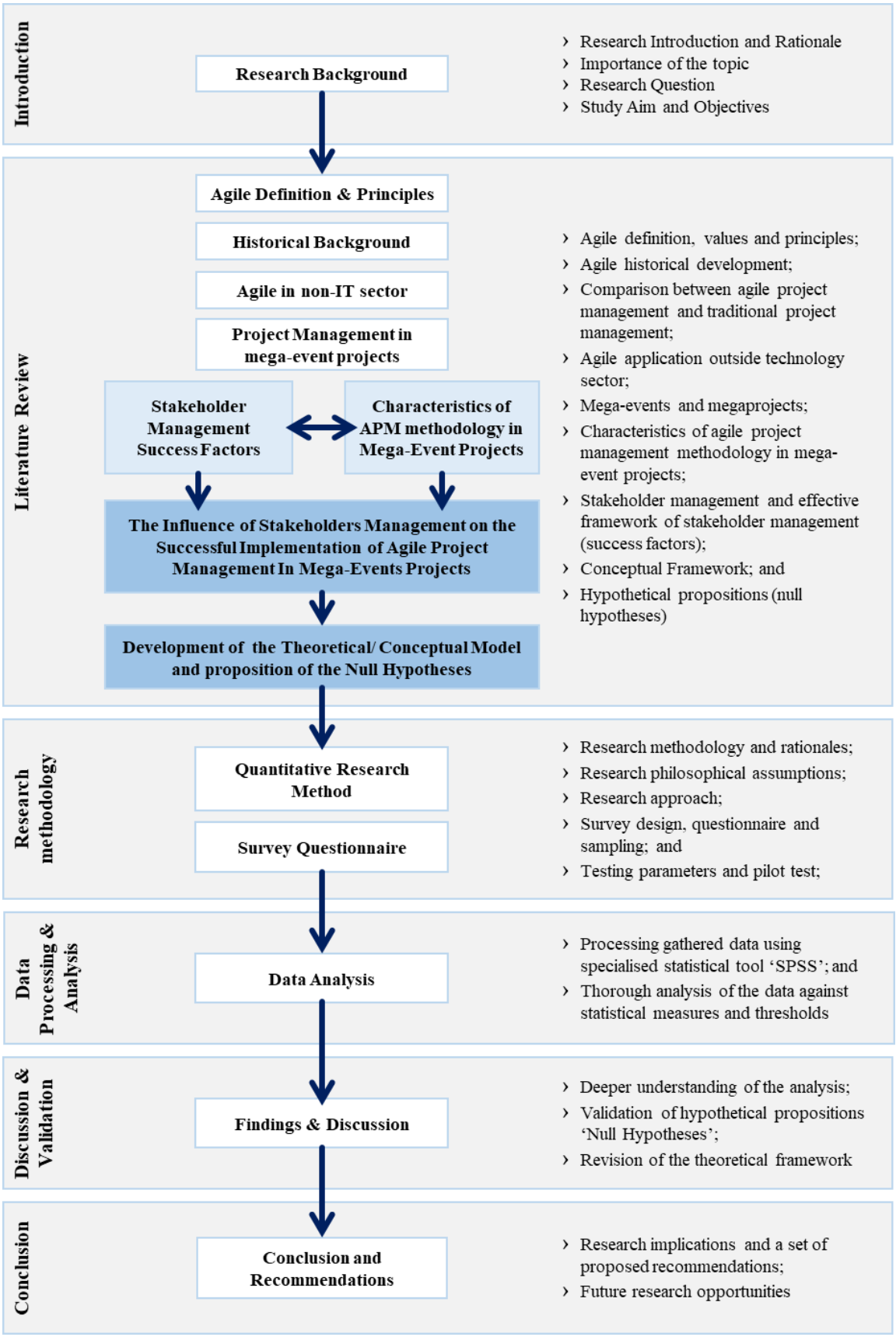


Figure (1. 3): Research Structure

2. CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter will address adequately the research questions mentioned in the introduction chapter via a thorough and exhaustive review process of the relevant literature and trusted publications about agile project management methodology in mega-event contexts as well as the stakeholder management frameworks and models.

Due to the scarcity of scholarly papers that tackle mega-events from a project management standpoint, as most papers in mega-events deal with topics around economics gains, environmental aspects, tourist behaviour, post-event and legacy plans and so forth. Additionally, due to the abundance researches on megaprojects, given the fact that some scholars do view mega-events and megaprojects as similar under their various commonalities (Frawley & Adair 2013). It was decided to relay on the megaprojects literature in deriving the characteristics of agile project management within mega-events context.

Furthermore, due to the modernity and novelty of agile methodology and its confined application within information technology and software development sectors, it was quite a challenge to find literature that explored this methodology in megaprojects. Hence the research was expanded to investigate its application generally in non-IT industries focusing primarily on large-sized organisations, construction sectors, enterprise-level agility and programme/ portfolio management levels (agile-at-scale).

The broader approach in reviewing the scholarships was beneficial in foreshadowing the peculiarities of agile methods in diverse fields based on their successful application of the methodology in these sectors and the characteristics that supported such application.

The agile principles identified in the agile manifesto were taken as baseline and guide in identifying these characteristics; however, as those were principally developed for the software industry, not all will be applicable in the mega-event context. These principles were introduced in the previous chapter and deal with the following dimensions of a project: customer satisfaction, early and continuous deliverables, embracing changes, short delivery timeframes, constant customer involvement, trusted and motivated individuals, close daily communication, self-organising teams, effectiveness, and simplicity.

Moreover, investigation around these characteristics within the mega-event sector will also be looked at from a different angle; the stakeholder management and how would it affect agile characteristics identified, and hence the new methodology implementation within mega-event projects. Stakeholder management models/ frameworks used in megaprojects context will be utilised in this study for the mentioned purpose; accordingly, the literature will be examined to recognise the critical/ success factors that lead to the effective management of stakeholders.

The identified characteristics of agile project management methodology in mega-event contexts will represent the dependent variable in this paper, whereas the success factors for effective stakeholder management will act as the independent variable.

The findings from the literature will form the basis for the study's conceptual framework and the hypothetical propositions that will be the topic of the next chapter.

2.2. Agile Project Management (APM)

Agile Project management is a newly developed methodology in managing projects. It was initially developed in the software industry; however, nowadays, many other sectors have adopted agile management solutions. Agile targets to boost project resilience and adaptability 'flexibility', product/ outcome peculiarity 'quality', pertinence and applicability 'relevance' and business value and financial worth. This management avenue is primarily designed to overcome obstacles anciently faced in the IT sector (software designing and building as well as service delivery projects) such as slipped deadlines and due dates, poor-appalling quality products and disgruntled customers/ clients (Sohi et al. 2016).

Despite that agile project management methodology is scarcely applied and exercised outside IT and software industries, that doesn't imply its inapplicability and ineffectiveness in other fields and industries (Owen et al., 2006). Since agile application in the construction field is quite poor and limited, thus the knowledge about it is very limited, and the interest and attention around its implementability in these fields is rising (Owen et al., 2006 and Sohi et al. 2016).

Given the limitation of the currently applied project management methodologies (Owen et al., 2006), and rising intricacy and complexity of project needs and requirements (Sohi et al. 2016) the construction sectors are searching for 'complementary' avenues and tailored methodologies to overcome such restrictions and to successfully execute complex projects. Agile project management methodology does float on the surface among the proposed solutions due to

several reasons; the unnecessity of detailed planning, the use of self-managed and self-directed teams, are few to mention (Owen et al., 2006 and Sohi et al. 2016). Owen et al. (2006) did exhaustively conferred the suitability and pertinency of agile project management to the construction field.

2.2.1. Characteristics of APM Methodology in Mega-Events Projects

2.2.1.1. Project Outcomes and Business Value

Sohi et al. (2016) argued that a better comprehending of project goals and objectives is resulted from dividing the project into smaller chunks associated with immediate deliveries of project outcomes. They also claimed that smaller projects are digestible, have lesser goals and consequently making them evident compared to big ones with imprecise objectives that basically are made up from smaller ones. Cottmeyer (2011) also claimed that delivering incremental values in an orderly rhythm to the customer and organisation is critical for agile implementation on an enterprise level.

Converting change into an added value is basically what agile project management is founded on. Project scope and the associated planning are characterised and delineated as far as the value to the customer at that particular point of time is recognised and can be specified and described, which makes it relatively easier to deliver interim values and outcomes that are quite relevant (Sohi et al. 2016). Owen et al. (2006) also emphasised on the early and sustained delivery of values.

Enterprise agile is about generating a stream of business values that are continuously realised at every level of the organisation, allowing instant input and feedback and embracing changes and swiftly reacting upon as the project progresses (Cottmeyer 2011).

Straçusser (2015) reported that U.S. Department of Energy (DOE) in cooperation with a nuclear energy corporation (Centrus) had adopted agile principles while delivering one of their mega projects in Piketon, Ohio of an estimated capital of $US350 million. Instead of conventional sequential massive delivery of the project, components once achieved were delivered to the customers, conjointly tested and pushed into operations and thus averting the single massive/ bulk handover of the project and providing prompt values continuously to their customer throughout the project.

2.2.1.2. Customer Involvement

Receiving early and instant feedback from the customer continuously and on a frequent interval (Sohi et al. 2016 and Straçusser, 2015) shall boost the learning around the project scope and customer expectation (Sohi et al. 2016). Consequently, this results in an improving and evolving value and outcomes that are more relevant and more satisfactory to the customers (Sohi et al., 2016). Active customer involvement is a vital and influential factor in agile implementation. As noted by Conforto et al. (2014).

All stakeholders and end users were part of the integrated project team; their feedback and input were considered and incorporated into the system design in the nuclear project referred to earlier. Late design changes were regarded, however, kept only to the critical ones (Straçusser 2015).

Dikert, Paasivaara, and Lassenius (2016) stated that if an organisation decided to scale-up agile practices across the board, inclusiveness is a key. Stakeholder engagement, involvement throughout the transition phase is reported to be critical and regarded as one of the primary success factors. Owen et al. (2006) also pointed out that customer involvement right through the project is key, and their input is core to the dynamic value realisation.

Validating project's direction and assumptions with the customer is vital in a rapidly changing environment and thus getting continuous feedback from them is considered a critical success factor (Cottmeyer 2011).

2.2.1.3. Communication and Transparency

Nowotarski and Paslawski (2015) have emphasised on the importance of the recurrent reciprocal meetings of an unofficial nature with project members. Such forums aim at sharing the progress updates and the responsibly of the project implementation. Sohi et al. (2016) while investigating the correlation between organisational structure and agile management characteristics showed that communication amongst team members increased when they work closely together and fully dedicated and assigned to the project, compared to the case in which members were working distinctively on individual/ separate projects. Besides, the amount of sharable and circulated information between project members increased due to the close working environment. Straçusser (2015) and Owen et al. (2006) have similar views; they stressed the importance of dense, face-to-face communication between all involved parties through regular progress meetings.

Communication and transparency were also an emphasis in Dikert, Paasivaara and Lassenius (2016) study, in which they have highlighted that transformational effort toward agile will not pay off unless the communication was integral to the process. Transparency as well goes hand by hand with communication, without transparently communicating the updates, efforts and changes, the transitional aims might not be achieved.

2.2.1.4. Embracing Changes (Flexibility and Responsiveness)

Change has always seen as threats and impedance to the plan. Therefore, to adopt agile, the attitude toward change has to be changed; it should be perceived positively as opportunities for emerging new values (Owen et al. 2006). Changes are anticipated, welcomed and recognised positively (Nowotarski & Paslawski 2015) and can be mutated and converted into added values for the customer and benefits to the project (Sohi et al. 2016; Cottmeyer 2011). Comprehending changes and reacted upon appropriately are requirements for organisation and project teams, as claimed by Nowotarski and Paslawski (2015).

Positively apprehending and perceiving changes as an opportunity and favourable circumstances to enhance business values are fundamentals for proactive environments and thus for Agile Project Management implementation as claimed by Sohi et al. (2016) and Cottmeyer (2011).

The characteristics of learning potentiality from change and swift action are fundamentals for being flexible in turbulent-constantly changing environments. The ability to adapt to anticipated and unpredicted changes and attending/ addressing those promptly are quite critical characteristics for agile implementation (Nowotarski & Paslawski 2015). Owen et al. (2006) claimed that to be agile, an enterprise or project must be structured appropriately to proactively and quickly adapt to change, seizing such opportunities to enhance value outcomes. They also noted that scope definition is an on-going task and should be defined from the perspective of value realisation.

2.2.1.5. Project Planning Approach

Sohi et al. (2016) claimed that the planning exercise from the outset in a detailed fashion isn't any more efficient due to the ambiguity and uncertainty associated with the project and un-clarity of its scope. Instead, they believe that it should be carried on iteratively and gradually as the project progresses and as more details and clarity around the project are obtained. They also

claimed that such update and detailing of the project should be carried on regularly on a short-intervals basis (weekly or monthly).

Cottmeyer (2011) noted that the organisation needs just enough up-front planning that ensures the project is progressing in the desired direction, and that allows swift adjustments if circumstances required, and the market conditions changed/ demanded. The scope of the project and associated planning are characterised and delineated as far as the value to the customer at that particular point of time is recognised and can be specified and described (Sohi et al. 2016).

Conforto et al. (2014) reported that macro planning at the beginning of the project and detailing by phase (phased-planning) or throughout the project is one of the enablers for agile implementation and it has to be developed collaboratively with shared responsibility amongst team members. Owen et al. (2006) noted that the plan should have a realistic level of details that enables the early delivery of project outcomes.

Likert, Paasivaara and Lassenius (2016) noted that projects requirements should be broke down into small elements for the project team to process and deliver. The issues arise when the requirements are broad and thus make it challengeable for the team to manage. They have recommended that proper investment shall be made to teach the project team on how to refine project requirements and elements.

Team members should vigorously take part in the project plan development and decision making and shall bear the responsibility and accountability of the project progress and the overseeing and monitoring of project's activities (Nowotarski and Paslawski 2015).

2.2.1.6. Team Structure

Conforto et al. (2014) referred to the employment of multi-disciplinary project teams is a key enabler for agile implementation. They have reported that for an innovative business environment, such a team structure is an important aspect. They have reported that such structure enables easy access to the data and hence, faster decision making.

Establishing stable cross-functional, multi-disciplinary teams are vital for agile adaptation as reported by Elatta and Mersino (2012). These teams shouldn't be dissolved once a project is delivered, but should be kept for the following project with some tweaks in their roles to match and appropriately address the needs and requirements of the new assignment (e.g. new

specialities, expertise, etc.). Similar concept to these traditional teams are the communities of practice that consists of diverse specialities and qualities that satisfy the enterprise requirements or an organisation rather than a specific project (Elatta & Mersino 2012).

Owen et al. (2006) reported that multi-skilled teams and relies on "flatter, team-based structure" are indispensable for agile implementation. Such a structure eliminates interactions, reduced communication protocols overhead.

2.2.1.7. Leadership and Culture

Transforming to agile is not merely about the specifics around the methodologies and practices; rather, it is around the mindset shifting and willingness to change (Elatta and Mersino, 2012). For transformation to agile to happen, a certain degree of autonomy has to be granted to the project teams. The direct-command leadership style predominantly used in conventional systems is not supportive of agile. This style hinders and weakens teams' performance and erodes their ability to self-manage (Elatta and Mersino, 2012).

Adopting 'autonomous' working groups/ teams, and reinforcing culture and behaviour that support the self-governance and independence among project team members were accentuated by Nowotarski and Paslawski (2015) which they considered as requisite conditions to adopt agile management practices.

Dikert, Paasivaara and Lassenius (2016) claimed that agile project management is in place and truly established only when full control to the project team is granted, such mindset allows teams to take the ownership of project's activities and spontaneously participate in project delivery. Team members should vigorously take part in the project plan development and decision making and shall bear the responsibility and accountability of the project progress and the overseeing and monitoring of project's activities (Nowotarski and Paslawski 2015). Owen et al. (2006) reported that leadership as facilitator enables agile and fosters creativity.

Agile teams are self-directed, self-organised and high-performing teams and supporting such structure and nature would require a leadership style that is flexible, supportive, that listens, understands, values teams and empowers them to unleash their capabilities and potentials. These characteristics are more embodied in the servant leadership style compared to the prevalent conventional direct-control style (Elatta & Mersino 2012). To promote that leadership style, proper management education on agile is vital as indicated by Dikert, Paasivaara and Lassenius (2016).

M Management support is considered indispensable essentiality for agile transformation as Dikert, Paasivaara and Lassenius (2016) have affirmed as moving toward agile project management challenges the prevailing norms in managing projects, the matter that requires management's complete and continuous support. This characteristic is widely supported and reflected in the literature. Showing such support visibly across the organisation will enormously help agile adaptation (Dikert, Paasivaara, and Lassenius, 2016).

2.2.1.8. Simple Governance (Simplicity)

Elatta and Mersino (2012) pressed on the point that to transform to agile project management and adapt agile mindset, a thorough review of processes and documentation from value standpoint has to be undertaken. Adopting agile project management while still requiring all waterfall –conventional project management– documentation is not helpful and shall not support the transformation.

However, Agile isn't encouraging the dispensing of all processes and procedures. Instead, it promotes simplifying and making them more relevant. That is favouring values over unnecessary, superfluous documentation (Elatta & Mersino 2012). This characteristic was also highlighted by Straçusser (2015) in his paper, which he referred to it as the "right amount" of documentation.

Simplicity and practicality of processes were underlined by Dikert, Paasivaara and Lassenius (2016). They have also reported that the focus should be exerted on engaging people rather than detailing and complicating processes.

The core to agile at scale (large-scale projects) is not over-complicate, however, to develop frameworks that complement the existing ones and bring agile to the world of programme and portfolio management (Dillon 2014).

Conforto et al. (2014) urged that "minimal textual description' is a favourable indication of the agile project management approach adaptation to cope with dynamic, innovative conditions/ settings. The latter also reported that having partially formalised processes could contribute toward a better application of agile.

2.2.1.9. Organisation Structure

Conforto et al. (2014) reported that having project-oriented organisational structure supports the autonomousness, multi-disciplinary, self-managing team structure (i.e. the previously

identified characteristics of team structure, and leadership & culture). They have claimed that project-oriented organisation and strong matrix structure are best conditions for agile implementation.

Owen et al. (2006) emphasised on the organisation type that supports the collective decision-making, empowers teams, promotes freedom and trust among worker and encourages the employee-employer relationship, such structure as they claimed to prove a natural management fit with agile techniques.

2.2.1.10. Investment in Agile Training and Coaching

As Agile Project Management challenges the prevalent practices in managing project and propels us toward looking at things differently, training and coaching become crucial. Amongst the ‘don'ts” that were emphasised by Elatta and Mersino (2012) in their study on successful transformation into an agile organisation is the detraction of the importance of agile training and coaching. Training will also facilitate the transformation as people become more favourably disposed to agile shift (Dikert, Paasivaara, and Lassenius, 2016).

Lack of training is viewed as a critical hindrance toward agile transformation as adduced in Dikert, Paasivaara and Lassenius (2016) study. Also, the insufficient funding, as well as management unwillingness and disinclination to invest in such training, would significantly hamper the transformation efforts.

Agile training was of significant value to the project as it introduced the team to valuable tools and techniques that enabled them to deliver a project that is completed on time as scheduled and under budget. Albeit referring to agile training as 'irrelevant' to the core business areas, they were of a prominent advantage to the project (Straçusser 2015).

Inappropriate application (applying techniques based on team’s desire and neglecting others) and inconsistence application of agile methodologies/ practices are amongst the issues that might result from the absence of proper training and coaching as described by Elatta and Mersino (2012).

Owen et al. (2006) noted that as we are adopting agile, we do confront large culture problem which must change, training and learning is a key to achieve multi-skilled and self-managing teams.

Agile coaching is pivotal. Exercising agile outside classrooms and training sessions through proper coaching and mentoring is vital and integral in the transition to agile (Dikert, Paasivaara & Lassenius, 2016).

2.2.1.11. Hybrid Agile Methods (finding Own Procedure)

It is pretty apparent from the literature that as projects are getting more complex –and such complexity is presumed to increase drastically in the future–, the current practices of project management require a change to cope to these changes to become more capable and competent (Sohi et al. 2016).

To realise agility at scale (i.e. successfully scaling up agile), organisations are urged to blend project management approaches (Cottmeyer 2011). In many organisations, the degree of which the portfolio of activities varies is augmenting starkly, thus constructing a 'hybrid method' comprising of a contrasting/ distinctive array of practices, tools and techniques, and team competence and qualities will support the organisations to thrive in dynamics and fuzzy contexts (Nowotarski & Paslawski 2015).

Nowotarski and Paslawski (2015) also suggested that the application of agile project management should be combined with a blended approach 'hybrid' depending on a complete/ broad spectrum of tools aptly and relatively fitting the context applied in. In their view, the agile mixed approach will evolve comparably to the raising application of information technology in construction sectors.

Sohi et al. (2016) claimed that project scale, uniqueness/ differentness and complexity exert pressure on the need of bespoke management avenues, practices and tailored approaches, as the current classical methods for managing projects are not any more competent and capable. They have referred that "latent" or "implicit" use of agile project management methodologies will assist in dealing with such complex characteristics and conquering them.

Tailoring agile methodology to fit the need suitably and the context was reported to be imperative for successful transformation. However, all customisation has to be within agile boundaries without deviating from its core principles as emphasised by Dikert, Paasivaara and Lassenius (2016).

Conforto et al. (2014) urged the project management community of practice to investigate further how to develop hybrid management models considering agile project management and

traditional approaches in order to balance the agility needs and pitfalls and limitation of traditional methods.

Table (2.1) below lists the identified characteristics of agile project management in mega-event projects along with the literature supporting.

	Characteristic	*# Ref*	*References List*
1	**Project outcomes and business value**	4	Sohi et al. 2016; Straçusser 2015; Cottmeyer 2011; Owen et al. 2006
2	**Customer Involvement**	6	Sohi et al. 2016; Dikert, Paasivaara, and Lassenius 2016; Straçusser 2015; Conforto et al. 2014; Cottmeyer 2011; Owen et al. 2006
3	**Communication and Transparency**	5	Sohi et al. 2016; Dikert, Paasivaara & Lassenius 2016; Nowotarski & Paslawski 2015; Straçusser 2015; Owen et al. 2006
4	**Embracing Changes** *(Flexibility and Responsiveness)*	4	Nowotarski & Paslawski 2015; Sohi et al. 2016; Cottmeyer 2011; Owen et al. 2006
5	**Project Planning Approach** *(Progressive and Iterative)*	6	Sohi et al. 2016; Likert, Paasivaara & Lassenius 2016; Nowotarski & Paslawski 2015; Conforto et al. 2014; Cottmeyer 2011; Owen et al. 2006
6	**Team structure**	3	Elatta & Mersino 2012; Conforto et al. 2014; Owen et al. 2006
7	**Leadership and Culture**	5	Dikert, Paasivaara & Lassenius 2016; Nowotarski & Paslawski 2015; Conforto et al. 2014; Elatta & Mersino 2012; Owen et al. 2006
8	**Simple Governance** *Simplicity*	6	Dikert, Paasivaara & Lassenius 2016; Straçusser 2015; Dillon 2014; Conforto et al. 2014; Conforto et al. 2014; Elatta & Mersino 2012
9	**Organisation Structure**	7	Sohi et al. 2016; Dikert, Paasivaara & Lassenius 2016; Nowotarski & Paslawski 2015; Conforto et al. 2014; ; Elatta & Mersino 2012; Cottmeyer 2011; Owen et al. 2006

10	**Investment in Agile Coaching and Training**	4	Dikert, Paasivaara & Lassenius 2016; Straçusser 2015; Elatta & Mersino 2012; Owen et al. 2006
11	**Hybrid Methods** *Finding Own Procedure*	5	Sohi et al. 2016; Dikert, Paasivaara & Lassenius 2016; Nowotarski & Paslawski 2015; Conforto et al. 2014; Cottmeyer 2011

Table (2. 1): Agile Project Management characteristics in mega-event projects with the Supporting Literature

This table (2.2) shows the fields investigated from which agile characteristics where extracted/ deducted.

	Reference	*Field/ Industry*
1	**Sohi et al. 2016**	Construction projects, complex projects
2	**Straçusser 2015**	Construction projects and non-IT projects; case study on a nuclear plant (Research, Design and Development 'RD&D), performance improvement programme
3	**Cottmeyer 2011**	Large scale programme and portfolio management
4	**Dikert, Paasivaara & Lassenius 2016**	Large scale agile transformation
5	**Nowotarski & Paslawski 2015**	Construction projects
6	**Owen et al. 2006**	Construction projects
7	**Elatta & Mersino 2012**	Enterprise Agile (PMO)
8	**Dillon 2014**	Large projects
9	**Conforto et al. 2014**	Non-IT, Innovative projects; focused on medium-sized to large-sized companies in the following industries: mining, steel and metallurgical industry, auto industry, energy, engineering projects, consumer goods, electronics, and telecommunications

Table (2. 2): Agile project management characteristics - Fields investigated

2.3. Stakeholder Management

Many scientist and professionals have recognised the importance of stakeholder management. Numerous critical factors for successful management of stakeholder were proposed in the literature (Yang et al. 2009). Stakeholder management (SM) is an approach to effectively deal with stakeholders, identify their needs, accommodate their interests and develop robust strategies to achieve the intended values and qualities from the project (Mok, Shen & Yang 2015).

Project managers have a critical role in balancing different stakeholders' needs, interests and competing claims and conflicting interests (Yang, Wang & Jin 2014). The stakeholder management processes identified by Cleland (1976) consist of four steps, stakeholder identification, classification, analysis and strategy development (Yang et al. 2009).

The diagram xx below developed by Elisa et al. (2002) shows the history of the stakeholder concept development in the management literature. Clearly, three distinct stages of development are shown on the map.

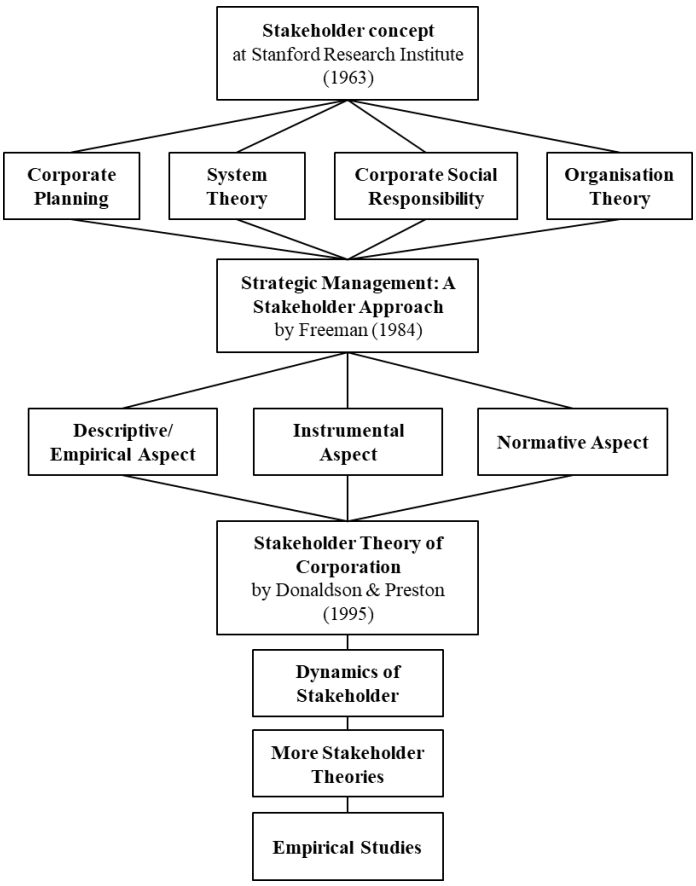


Figure (2. 1): Stakeholder Literature (Elisa et al. 2002, p. 304)

2.3.1. Stakeholder Management Framework

The subject of stakeholder management was exhaustively addressed by numerous scholars and the factors contributing to its success were also previously identified in the literature. Due the limitation and scarcity in the publication of the mega-event projects and the similarities between megaprojects and mega-event projects as pointed out earlier, the factors applied in the former would effectively/ ideally be applicable for the latter.

The stakeholder management success factors presented in this paper was adopted by Yang et al. (2009) stakeholder management framework, which was developed for the construction sector (figure xx). These factors were derived from different publications that tackled stakeholder involvement, engagement and participation in megaprojects.

However, further investigation was done on these factors, and different publications were reviewed. Not only articles that generally tackled stakeholder management were examined, but also those particularly focused in detail on any of the success elements –identified by Yang et al. (2009)–. Although these factors were recognised differently by different scholars, however, they can be described by generic attributes that reflect them and their meanings appropriately.

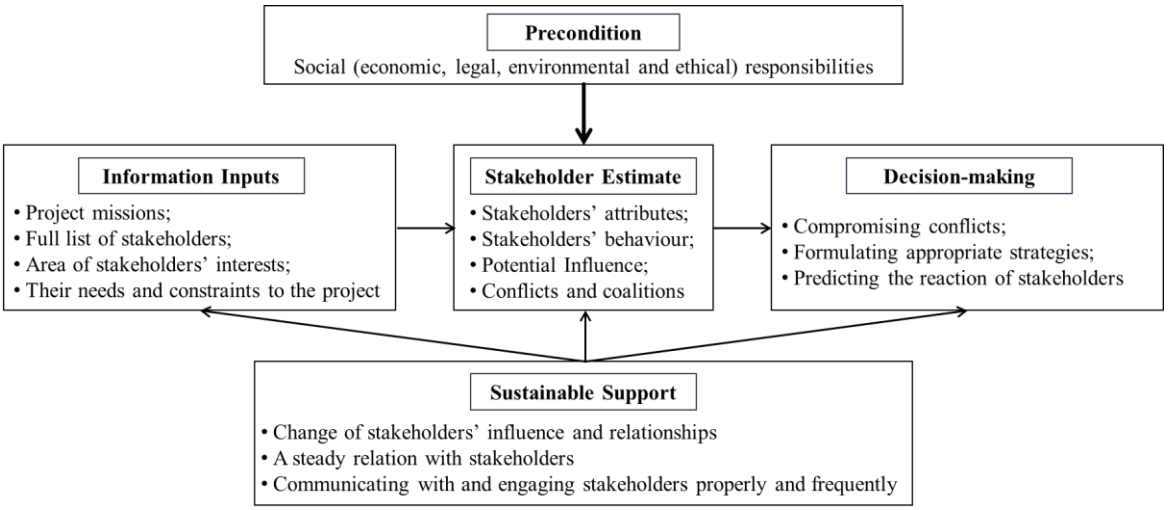


Figure (2. 2): Stakeholder Management Framework (Yang et al. 2009, p. 345)

Based on the framework adopted, fifteen (15) critical factors contributing to the success of stakeholder management were identified. These factors are clustered for the sake of this study into four groups (a bit different than what is proposed by Yang et al. (2009), where they have

identified the social responsibility as a precondition; this factor was grouped with the stakeholder estimate group). All these factors will be looked at in detail as following:

2.3.1.1. Information Inputs

2.3.1.1.1. Definition of Project Mission and Objectives

Identifying clear project's objectives and communicating it continuously amongst stakeholders throughout project life-cycle is another critical element in the effective management of stakeholders. Many scholars broadly acknowledge this factor and abundantly recognised in the literature (Mok, Shen & Jing 2015; Yang et al. 2009).

Jergeas et al. (2000) concluded from several interviews they have conducted the importance and momentous of "setting common goals, objectives and project priorities" in stakeholder management.

To make the project purposeful and meaningful to the stakeholder, they should be educated around its purpose and goals, which a measure a project manager should be accountable for to get stakeholders support and buy-in.

2.3.1.1.2. Identifying Stakeholders

WHO is one of the questions listed by Frooman (1999) in his paper when trying to identify stakeholders. Stakeholders' identification subject was considerably mentioned in the literature by numerous scholars who emphasised its significance when it comes to stakeholder management (Mok, Shen & Jing 2015; Yang et al. 2009).

Stakeholders can be categorised to various groups using diversified gauges and criteria (Yang et al. 2009), however, as pointed out by Frooman (1999) "Who are stakeholder" a question that should be addressed at the outset before any compartmentalisation or management of stakeholders.

Also, Karlsen (2002) has pointed in his research on the identification of the stakeholder via a question he posted "Which stakeholder is the most important to the project?" several techniques can be used to facilitate to identify who are directly involved in the project and any other potential stakeholder such as interviews, brainstorming sessions and checklist.

2.3.1.1.3. Understanding Stakeholders' Areas of interests

Freeman et al. (2007) have regarded stakeholders' interests as one of the significant factors when analysing stakeholders. Different interests are associated with various stakeholders, and these interest might be financial, economic, health and safety, etc. (Yang et al. 2009). Karlsen (2002) as well supported such belief and emphasised on the point that each stakeholder have different priorities and thus different interests which should be analysed as part of the stakeholder management process he introduced.

In mega construction projects, skilful project managers and appropriate strategies and measures are required to deal and accommodate with stakeholders' diverse interests as reported by Yang, Wang and Jin (2014).

2.3.1.1.4. Exploring of Stakeholders' Needs and Constraints

Examining the needs, desires and wants of stakeholder and listing, attending and paying attention to all of their concerns and issues is another element when it comes to stakeholder management (Yang et al. 2009; Freeman et al. 2007). Freeman et al. (2007) also pointed out that all stakeholders' interests should go together throughout the project without any favouritism towards one in particular on others (Freeman et al. 2007). Stakeholders' needs should be assessed in a way that a favourable and passable result/ outcome for the project is obtained (Yang et al. 2009).

Stakeholders' needs can also provide insights on stakeholders' concerns and requirements as well as issues and obstacles encountered by the project team. Olander and Landin (2008) have noted that stakeholder concerns and needs analysis is one of the factors in the stakeholder management process.

2.3.1.2. Stakeholder Estimate

2.3.1.2.1. Understanding Social Responsibilities

Stakeholders are tied to and very often coupled with corporate social responsibility framework/ concept, and the former is core and central to the latter's performance as suggested by Wood and Gary (1991). Carroll (1991) believes that stakeholder is pertinent to social responsibility and both naturally fit together.

Further to this, Donaldson and Preston (1995) demonstrated through their stakeholder theory, the link between stakeholder and social responsibilities. They have considered that attending and responding to stakeholders' diverse needs a moral requirement through a framework mutually supported by both the organisation and the stakeholders.

Social responsibility comprises of economic, legal and ethical responsibilities. Economic responsibility refers to the "obligation to produce goods and services, sell them at fair prices and make a profit". Legal responsibility refers to "obligation to obey the law", and ethical responsibility deals with "issues not embodied in law but expected by society, i.e. the expectation that society has of an organisation at a given point in time" (Carroll 1979; Yang et al. 2009).

Environment aspect was recently highlighted due to sustainability causes and lately was added as part of the social responsibility as a fourth element to the economic, ethical and legal perspectives. Thus project managers should tackle social responsibility from these four aspects while managing stakeholders (Mok, Shen & Jing 2015; Yang et al. 2009).

2.3.1.2.2. Assessing Stakeholders Attributes

Stakeholder characteristics have to be appraised when managing stakeholders which are a task/ exercise that projects managers/ teams should handle properly (Yang et al. 2009; Mitchell et al. 1997; Bourne 2005). Three attributes distinctly appear in the literature that are considerably supported by many experts, namely, power, urgency and legitimacy (Yang, Wang & Jin 2014; Yang et al. 2009; Mitchell et al. 1997; Bourne 2005).

The power to influence the project outcome, the Legitimacy of relationship and urgency in calling for claims (Bourne 2005). Power relates to the possession of the capability to mandate a change (Bourne 2005) that is the ability to "control resources, create dependencies and support the interest of some organisation members or groups over others" (Mitchell et al. 1997). Also, Bourne and Walker (2005) emphasised not only on the visible powers, but also on the hidden "invisible" ones that only successful project managers can comprehend and understand, and have referred to such ability as a "critical skill" for project managers.

The second attribute is urgency, which is quite self-explanatory and has two aspects; time-sensitivity and criticality (Yang et al. 2009; Mitchell et al. 1997; Bourne 2005). Mitchell et al. (1997) define it as "the degree to which stakeholder claims call for immediate attention". The

legitimacy of stakeholders' relations with the project is the third attribute. Legitimacy, as defined by (Suchman), is "a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed systems of norms, values, beliefs, and definitions".

Another attribute considered by Bourne (2005) and Yang et al. (2009) as an important is the proximity, which can be viewed from two perspectives; directly working or indirectly/ remotely involved with the project — considering, comprehending and assessing lead to a better understanding of stakeholders and enhance management of their relationships in relevance to the project (Yang et al. 2009).

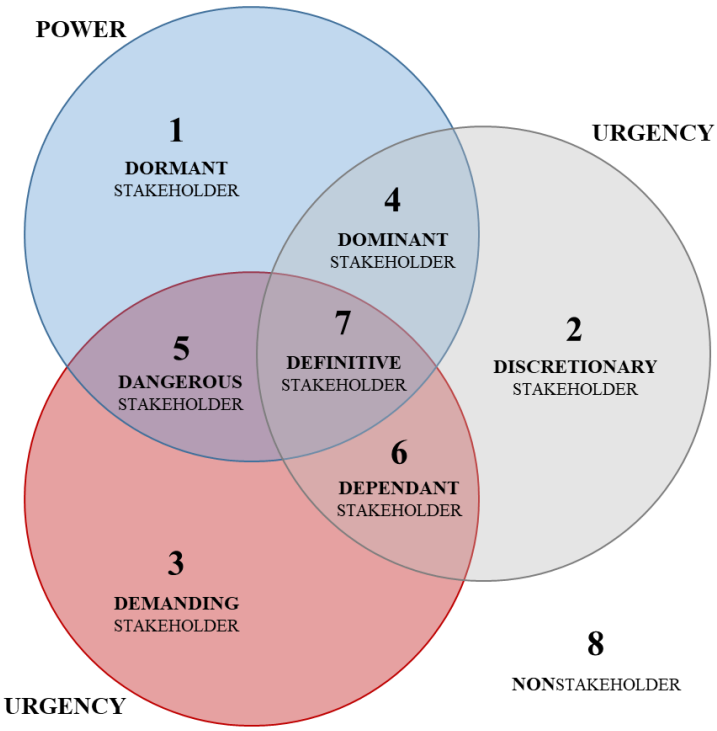


Figure (2. 3): Stakeholder Typology (Elisa et al., 2002, p. 304)

2.3.1.2.3. Assessing Stakeholders' Behaviour

Stakeholder perceptions and behaviours are significant factors of stakeholder management (Mok, Shen & Jing 2015). Their behavioural tendency toward the project whether positively (cooperative potential) or negatively (threatening potential) should be analysed thoroughly during the stakeholder management process (Yang et al. 2009; Savage et al. 1991), such behaviour assessment was attributed as critical by Savage et al. (1991). The latter have classified the stakeholder –behaviorally– to four (04) types; supportive, mixed blessing, non-supportive

and marginal stakeholders (Savage et al. 1991). Yang et al. (2009) have categorised them differently into three (03) groups; observed behaviour, cooperative potential, and competitive threat.

As emphasised by Freeman et al. (2007), stakeholders' behaviours matter more than their attitudes, the thing that should be taken into account – both actual and current behaviours – when managing stakeholders' relationships. These behaviours positively affect the project progress as well as the value creation process if appropriately managed and adversely if mismanaged. Aaltonen et al. (2008) confirmed the prominence of the stakeholders' behaviour while examining a project in Uruguay through eight (08) strategies were put into practice to demonstrate and formulate salience characteristics.

2.3.1.2.4. Predicting Stakeholders Influence

Project management processes are highly dependent on project stakeholders (Olander 2007) and significantly affected by them (Yang et al. 2009). Thus as noted by Olander and Landin (2005), to plan and deliver an adequately stringent process for stakeholder management, it is vital for their influence to be considered. A technique introduced by Olander (2007) referred to as "Stakeholder Impact Index" used to understand the different interest that stakeholder has in the project and support project manager in analysing stakeholders. It also used to determine the nature of stakeholders' influence and the impact of such influence as well as the likelihood of stakeholders' in practising such influence and their ranking in relevance to the project (Mok, Shen & Jing 2015; Yang et al. 2009).

When project managers decide on the appropriate strategies to implement, stakeholders' reactions are prominence consideration that needs to be paid attention to, as noted by Freeman et al. (2007).

2.3.1.2.5. Analysing Conflicts and Alliances among Stakeholders

In a social context, conflicts and disagreements go hand-in-hand and occur concurrently; whenever the former arises, the latter exist (Schermerhorn et al. 2003). Analysing both characteristics, as noted by Yang et al. (2009), is a prominence aspect of stakeholder management.

Schermerhorn et al. (2003) have recognised two types of conflicts that may occur when dealing with stakeholders; "substantive conflict and emotional conflicts". Diverse interests of

stakeholders may produce different conflicts and disputes; however, –at the same time– they might be a source of coalitions (Yang et al. 2009).

As stakeholders share a joint mission and objectives for the project, and this forms an excellent ground to establish a coalition – a concept supported by Yang et al. (2009) and others. It is the role of project managers to look for such alliances and capitalise on them (Freeman 1984). They also need to pay attention to the conflicts that might be brought about by different stakeholders' interests (Frooman 1999).

2.3.1.3. Decision-Making

2.3.1.3.1. Compromising Conflicts

Conflicts are inevitable when dealing with projects (Pinto & Kharbanda 1995), and since various interests of stakeholders produce multiple conflicts, it is vital to compromise these for the success of the project (Freeman 1982). Leung et al. (2005) in their paper have tackled the conflict resolution and its consequences on the project's participants' satisfaction and proved the relationship between these two dimensions. When conflicts are handled/ processed in an integrated manner involving all stakeholders –within project context, mission and objections– the satisfaction level will positively rise, taken into consideration the conflict types and the resolution measures adopted.

Handling conflicts in a way that creates a win-win outcome to all involved parties is critical to the success of the project, and it is a challenging and strenuous task for project managers as described by Bana eCosta et al. (2001). The extent to which the conflict impede project progress depends significantly on project managers and their desire to acquaint and get familiar with the conflict to handle it efficaciously and appropriately (Pinto & Kharbanda, 1995).

Competing claims need to be balanced among stakeholders, and the decision on the appropriate strategy defence, compromise, or concession/adaptation) highly depends on the stakeholders' attributes (Yang, Wang & Jin 2014).

2.3.1.3.2. Formulating Appropriate Strategies

The need for developing strategies and plans was among several needs indicated by professionals for better management of stakeholders, as reported in a study carried by Karlsen (2002). Develop implementation strategies was characterised as a fifth step in a process proposed by Karlsen for managing project stakeholders. Four (04) strategies for stakeholder

management were identified based on a classification suggested by Savage et al. (1991); Involvement Strategy (supportive stakeholder), Monitoring Strategy (for marginal stakeholders), Defensive Strategy (for non-supportive stakeholders), and Collaboration Strategy (for mixed blessing stakeholders).

Schwager (2004) he addressed in his paper an essential aspect in managing stakeholders and factors that impact the stakeholders' relationships. Developing appropriate strategies came amongst the critical factors in the effective management of stakeholders via a question posted in his research "what are the strategies that the organisation use to address stakeholders?"

In an intensive study conducted on different projects by Aaltonen and Sivonen (2009), five (05) response-type strategies to manage stakeholders were formulated. These strategies range from inactive (passive) to active (strenuous) methods exercised by project managers. These strategies are adaptation, compromising, avoidance, dismissal and influence response strategies. All these scholars and many others have emphasised on the importance of devising appropriate strategies for effective stakeholder management (Mok, Shen & Jing 2015; Yang et al. 2009).

2.3.1.3.3. Predicting Stakeholder's Reactions and Responses

Predicting stakeholder responses and define favourable plans is considered as one of the essential activities project teams should carry as part of the stakeholder management process (Yang et al. 2009; Verzuh 2005).

Stakeholder reactions, as described by Epstein and Roy (2001), is an essential element of the organisational performance framework they have proposed. Dias (1999) emphasised on this aspect as well and has considered stakeholders' responses when composing a comprehensive composite stakeholder's strategy. Different stakeholders react variously (Epstein & Widener 2011). These reactions may have serious impacts on the organisations on the short and long terms equally. Revenues and cost relatively affected on a short-run, whereas performance is impacted on a more extended period. Media, voting and donation are other aspects that might be affected as well by stakeholders' reactions (Epstein & Widener 2011).

Literature is quite limited when it comes to the topic of measuring stakeholder reactions as pointed out by Epstein and Widener (2011). Few quantifiable models were developed to measure stakeholder reaction such as cost-benefit analysis, contingent valuation (CV) and willingness to pay (WTP). Surveys, as described by Epstein and Widener (2011), are one of the

measures used to quantify stakeholder reactions. Basically, they detect their emotional reactions and responses (feelings, attitudes and opinions). Cleland and Ireland (2002) have also affirmed the inclusion of stakeholder behaviour while formulating strategies.

2.3.1.4. Stakeholder Sustainable Support

2.3.1.4.1. Analysing the Change of Stakeholders

Analysing the change of stakeholders is considered one of the critical characteristic of the stakeholder model (Yang et al. 2009; Elias et al. 2002). As stakeholders may vary throughout the project, their influence and leverage may differ as well in the same fashion (Freeman 1984). The change in stakeholder and its dynamicity were recognised in the literature (Mitchell et al. 1999; Elias et al. 2002). Stakeholders' perspectives toward the project and their prominence/ salience vary as the project progresses over time, apprehending such dynamic will enhance stakeholder analysis as claimed by Elias et al. (2002). Stakeholders – as described by Ward and Chapman (2008) – are the prime provenance of uncertainty and thus the dynamicity. These uncertainties comprise of the stakeholders that are pertinent to the project and the newly emerged ones (who are they), their leverage and impact (how would they affect the project), new/ existence requirements (what are their needs and requirements) and the entanglement between each other (relationships among different stakeholders) (Ward & Chapman 2008).

2.3.1.4.2. Promoting Good Relationship amongst Stakeholders

Managing stakeholders effectively and maintaining a good relationship with them will notably increase the odds of project successful delivery (Retfalvi 2014; Jergeas et al. 2000; Hartman et al. 2002).

Getting all stakeholders consent –despite their categories– on project's mission and goals will have a vital impact on project success, and the project manager plays a significant role in reaching to such agreement (Retfalvi 2014). Not only that, and for the project to be successful, project managers must establish and foster an environment that promotes and instigates trust, confidence and commitment amongst all its stakeholders through effective relationship management (Retfalvi 2014; Bourne 2005). Hartman et al. (2002) believed that the performance of a project significantly impacted by the trust amongst its participants.

2.3.1.4.3. Ensuring Effective Communication

Communication is crucial, and one of the essential elements to gain stakeholders support and commitment throughout the project (Mok, Shen & Jing 2015; Yang et al. 2009; Briner et al. 1996). Karlsen (2002) considered communication as vital in the process of stakeholder management as a standalone step in a six-step process he proposed. Various scholars regard it as one of the features that prompt the success of a project if carried out effectively, steadily and regularly (Briner et al. 1996; Cleland 1995). Weaver (2007) noted that negotiation and communication are essential characteristics that project managers should be armoured with to deal, interact and manage stakeholders' expectation effectively and foster a culture that embraces change and perceives it positively.

Mok et al. (2015) has identified communication as one of the critical pillars in stakeholder management and consistently undertaken this factor throughout the stakeholder management process will yield in stakeholder support and implement a project that is more "issue-driven rather than stakeholder-driven". Some literature focus on the criticality of communication element in the stakeholder management at the very early stages of the project (Yang et al. 2009; Olander & Landin 2008; Mok et al. 2015).

	Success Factor	*# of Ref*	*References*
1	**Social Responsibilities Pledge and Commitment**	6	Mok, Shen & Jing 2015; Yang et al. 2009; Donaldson & Preston 1995; Carroll 1991; Gary 1991; Carroll 1979;
2	**Definition of Project Mission and Objectives**	4	Mok, Shen & Jing 2015; Yang et al. 2009; Jergeas et al. 2000
3	**Identifying Stakeholders**	4	Mok, Shen & Jing 2015; Yang et al. 2009; Karlsen 2002; Frooman 1999
4	**Understanding Stakeholders' Areas of Interests**	4	Mok, Shen & Jing 2015; Yang et al. 2009; Karlsen 2002; Freeman et al. 2007
5	**Exploring of Stakeholders' Needs and Constraints**	4	Mok, Shen & Jing 2015; Yang et al. 2009; Olander & Landin 2008; Freeman et al. 2007
6	**Assessing Stakeholders' Behaviour**	5	Mok, Shen & Jing 2015; Yang et al. 2009; Aaltonen et al. 2008; Freeman et al. 2007; Savage et al. 1991

7	**Predicting Stakeholders Influence**	4	Mok, Shen & Jing 2015; Yang et al. 2009; Freeman et al. 2007; Olander 2007; Olander & Landin 2005
8	**Assessing Stakeholders Attributes**	5	Yang, Wang & Jin 2014; Yang et al. 2009; Bourne 2005; Bourne & Walker 2005; Mitchell et al. 1997;
9	**Analysing Conflicts and Alliances among Stakeholders**	4	Yang et al. 2009; Schermerhorn et al. 2003; Frooman 1999; Freeman 1984
10	**Compromising Conflicts**	6	Yang, Wang & Jin 2014; Yang et al. 2009; Leung et al. 2005; Bana eCosta et al. 2001; Pinto & Kharbanda 1995; Freeman 1982
11	**Promoting Good Relationship amongst Stakeholders**	5	Yang et al. 2009; Retfalvi 2014; Bourne 2005; Hartman et al. 2002; Jergeas et al. 2000
12	**Predicting Stakeholder's Reactions and Responses**	6	Yang et al. 2009; Verzuh 2005; Cleland & Ireland 2002; Epstein & Roy 2001; Epstein & Widener 2011; Dias 1999
13	**Formulating Appropriate Strategies**	6	Mok, Shen & Jing 2015; Yang et al. 2009; Aaltonen & Sivonen 2009; Schwager 2004; Karlsen 2002; Savage et al. 1991
14	**Analysing the Change of Stakeholders**	5	Yang et al. 2009; Ward & Chapman 2008; Elias et al. 2002; Mitchell et al. 1999; Freeman 1984
15	**Ensuring Effective Communication**	9	Mok, Shen & Jing 2015; Yang et al. 2009; Yang et al. 2009; Olander & Landin 2008; Weaver 2007; Karlsen 2002; Briner et al. 1996; Briner et al. 1996; Cleland 1995

Table (2. 3): Stakeholder Management Success Factor with the Supporting Literature

2.4. Summary

A comprehensive review of the relevant literature in the study's two dimensions was conducted to explore and identify agile project management methodology application in mega-event projects as well as to investigate in models/ frameworks for effective management of stakeholders. The review process revealed of eleven (11) peculiar features for agile project management covering the following aspects; project output & business values, customer involvement, communication and transparency, planning approach, team structure, leadership

and culture, organisation structure, governance, learning & coaching, and hybrid methods. The characteristics will represent the dependent variable for our study.

A framework for effective stakeholder management was also identified through the review process proposed by Yang et al. (2009). This management model is presumed to be effective for construction project and hence applicable for mega-event projects -given the similarities between megaprojects and mega-events. This framework comprises of fifteen success factors categorised under four (04) groups; namely: information inputs, stakeholder estimate, decision making and stakeholder sustainable support. All these factors will represent the independent variable for our study.

The findings of the literature review will form the basis on which the conceptual framework and hypothetical propositions will be proposed, which will be the topics for the succeeding chapter.

3. CHAPTER 3: CONCEPTUAL FRAMEWORK

3.1. Introduction

As outlined earlier in the previous chapters and excessively elaborated upon, an intensive review of the literature was carried on in order to identify the critical elements and characteristics for the implementing Agile Project Management methodologies within the context of meg- event projects. It was assumed – from the literature – that there are eleven peculiar elements that enable the implementation of Agile Project Management in mega event projects and those elements touch on the following dimensions of the project: project output, customer involvement, project/ scope changes, leadership and culture (autonomy), governance, planning approach, team structure, organisation structure, learning and coaching, and lastly the hybrid approach in managing mega-event projects.

Literature was also reviewed and examined quite swiftly as scholars have generously tackled the stakeholder management topic in different projects' scale; from small to medium, to large and mega projects, as well as its dimensions and success factors.

The literature examination revealed numerous frameworks and models for stakeholder management. However, we will be adopting the grouping proposed by Yang et al. (2009) who categorize the success factors into four main groups as Information Inputs, Stakeholder Estimation, Decision-making, and Stakeholder Sustainable Support. Those groups collectively consist of fifteen success factors for successful management of stakeholder (one defined factor defined as precondition was grouped with the Stakeholder Estimation).

3.2. Hypotheses Development

In light of the literature outcomes, it is prospected to find an apparent influence of the Stakeholder Management success factors on the implementation of Agile Project Management methodology in mega-event context. It is also anticipated that all Stakeholder Management success factors will conjointly and collectively impact the implementation of Agile Project Management methodology and in the same direction of influence.

Additionally, it is projected that each Stakeholder Management success factor grouping will individually affect the application of the methodology; however, collectively, these factors would have an evident and significant influence on the implementation. Hence,

monodirectional/ unidirectional influence is presumed to present here on two levels: the collective/ overall level of the factors and on individual grouping level.

3.3. Null Hypotheses

Null Hypothesis is one of the prevalent and most predominant statistical measures used prominently in the academic research field. The Hypothesis implies no relationship between two measured components or any kind of association amongst a group of variables. The Null Hypothesis would be passable and acceptable unless a vigorous proof that confirms the opposite. Consequently, when a study reveals and confirms empirically that there is some sort of pattern exists between its variables, it effectively rejects what the Null Hypothesis states and confirms the existence of the relationship and thus the alternative hypothesis (ese) (Frick, 1996).

The literature revealed that if specific characteristics exist in the mega-event context, then this will boost and support the implementation of agile project management methodology within these scaled contexts. Moreover, as stakeholders are the indispensable to agile implementation depend upon, then it is presumed that effective management of stakeholder would undoubtedly influence the application of agile methodology. Those were the foundation on which the following null hypotheses were constructed and proposed for the study in hand:

Null hypothesis H_o: *The Stakeholder Management Success Factors are not influencing the characteristics of Agile Project Management methodology in mega-events projects***.**

The above formulated Null hypothesis contradicts with what presumed from the literature, and thus, it is the objective of the study through chapters 5 and 6 to boosts the literature findings and supports the refusal of the null hypothesis.

It was also suggested that the Stakeholder Management success factors collectively (on the macro level) have a more potent influence on the Agile Project Management implementation compared to each of them individually (micro level). Accordingly, this formulates the following propositions of the null hypotheses (collective/ separate effect of the factors; all factors integrated will have significant influence compared to each of them individually):

Null Hypothesis H_o1(a – d): *"The characteristics of the agile project management methodology in mega-event projects are not affected by the a) Information Inputs; b) Stakeholder Estimation; c) Decision Making; and d) Stakeholder Sustainable Support".*

Null Hypothesis H_o2: *"The Stakeholder Management Success factors collectively have the same degree or level of influence on the Characteristics of Agile Project Management methodologies in the mega-event projects as of each factor individually".*

3.4. Conceptual Framework

The refusal of the preceding proposed hypotheses will support the existence of the predicted patterns of relation between the study variables and thus the alternative hypotheses. The latter is depicted graphically in the following theoretical/ conceptual framework.

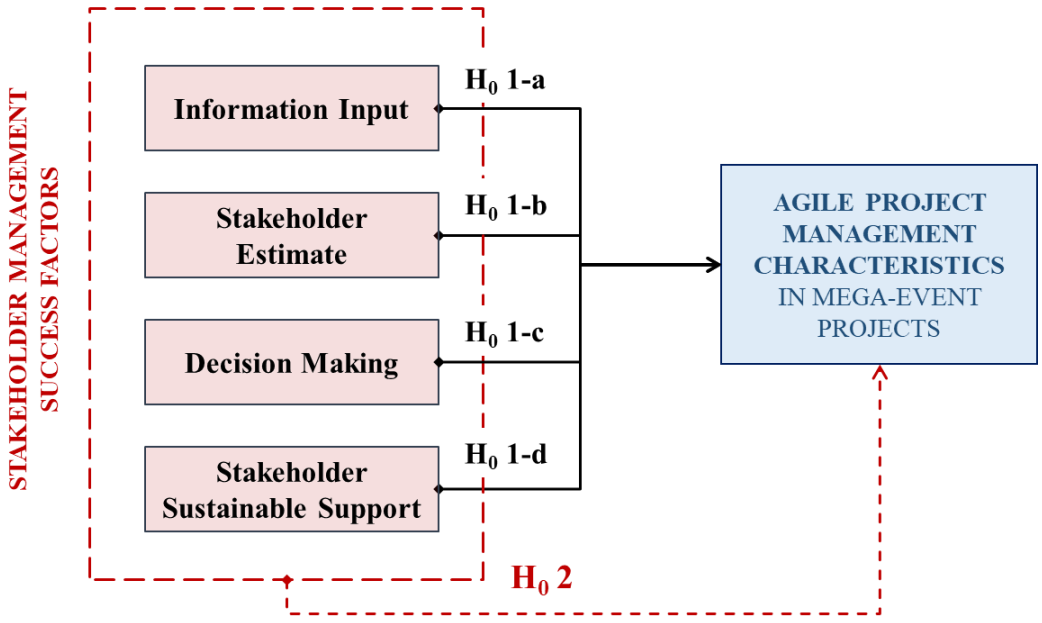


Figure (3. 1): Theoretical, conceptual model

3.5. Summary

In this chapter, the literature review findings were put in a logical format (theoretical conceptual framework) and developed hypothetically based on Null Hypothesis principles. These hypothetical propositions (proposed null hypotheses) will be subject to further examination, evaluation and validation in the following chapters.

Based on the literature review, a potential relationship might exist between the "Stakeholder Management success factors" and the "Characteristics of Agile Project Management methodology in mega-event context". The null hypotheses were devised on the basis that [1] such pattern does not exist (i.e., there is no relationship or influence between Stakeholder Management Success Factors and the Characteristics of Agile Project Management in mega-

event projects) and [2] the relation is absent on all levels; from macro perspective of the collective success factors of the Stakeholder Management, and from the micro-level; each SM factor separately; “information inputs, stakeholder estimation, decision making and stakeholder sustainable support”, or alternatively, the influence of those factors is similar whether acted collectively or individually. All these propositions will be discussed in fuller details following statistical measures and standards in the succeeding chapters.

4. CHAPTER 4: RESEARCH METHODOLOGY

4.1. Introduction

This chapter will shed light on the different research methods used academically and the suitability of the chosen method alongside the rationales behind such selection. The philosophical issues will generally be introduced, detailing those related to the study in hand. Additionally, the research processes and the one adopted for this study will be discussed. These topics will be presented alongside adequate justifications that support the selection.

Research design and the process will be the next to tackle in this chapter. Lastly will cover the topics of survey questionnaire as a data collection tool, its structure, the targeted population and pilot testing.

4.2. Research Methods

Quantitative, qualitative, and the mixed approach analysis are primary academic methodologies recognised widely for scientific research and examination. Quantitative and qualitative methodologies are two distinctive paradigms via which the social world is explored and examined (Brannen 2005). The quantitative methodology looks for facts; they simply search for answers to ‘what’ queries. Oppositely, qualitative approach targets generally the ‘why’ question responses (Barnham 2015).

A difference that is widely known between the two mentioned approaches, however not utterly precise is that quantitative research interprets human experience into numbers, whereas qualitative approach uses words. Both methods count on experimental data, but both addresses distinctive scientific questions (Duffy & Chenail 2009).

Qualitative analysis is exploratory in nature, aimed primarily at investigating human interactions as they happen in reality. It is a broad term that encompasses various sets of language-based research methods (Polkinghorne 2005). Whereas the qualitative research, as Flick (2000) described, is the broad spectrum between science “hard facts” and socials “life experiences”. This method reflects what was actually sensed, observed and witnessed by the writers/ fieldworker allowing the audience to ‘live’ the emotions experienced by them. This methodology comprises human elements in the interpretations of human behaviours, experiences, views, insights, intentions, relations and connections.

The quantitative approach deals fundamentally with data and thus offers facts 'factual data' while qualitative methods interact with views and opinions 'sense data' and thereby provides subjective insights and interpretations (Barnham 2015). Biography, phenomenology, grounded theory, ethnography and case study are scholarly recognised methods for qualitative research. However, the data type and collection tools amongst these methods drastically vary (Polkinghorne 2005).

The mixed approach has lately been broadly recognised as a third paradigm in research methodologies alongside the qualitative and quantitative approaches (Johnson, Onwuegbuzie & Turner 2007). As its name implies, it uses a mixture of methodologies (Frels and Onwuegbuzie, 2013) and defined as "an intellectual and practical synthesis based on qualitative and quantitative research" (Johnson, Onwuegbuzie & Turner 2007, p.129).

4.3. Selection of Research Methodology

The preceding section has laid all the known methodologies in the world of research and stated their divergences. Recognising these distinctions allows for a better selection of the appropriate research paradigm. The quantitative methodology appears to be the most appropriate analysis tool that will be adopted for the study in hand due to the following rationales:

- Since the study explores the relationship between two variables; the stakeholder management success factors as an independent variable through its influence on the characteristics of agile project management methodology –which acts as the dependent variable – in mega-event context, the quantitative approach found to be the convenient tool to proceed with and examine the relationship and its intensity. Since the quantitative method is founded on the "positivist philosophy" which presumes that events exist independently from people's opinions, views and persuasions whereas in contrast the qualitative approach is firmly established on "phenomenological paradigm" which assumes that reality is socially constructed and dependent on individuals (Firestone, 1987).
- From a researcher standpoint, the quantitative examiner is disconnected (detached) to avert bias, whereas in qualitative one is immensely involved (Bohannan, 1968) and since the study explores a unique approach for managing projects in mega-events and in order to ensure biases amongst participants are minimised, a qualitative method was deemed more suitable.

- Quantitative methodology is predominantly used for similar research topics that are concerned with the exploration of influences specific variables have on others and when public views matter (Yang et al. 2009; Clarke 1999; Sohi et al. 2015).
- The positivist scientific approach is founded on the theoretical supposition that reality is constituted from unambiguous and undiscovered facts, anticipated to be disclosed and revealed by the researcher (Mayoux 2006). The study we are conducting is concerned with exploring the existence of a relationship between the different variables empirically and thus in line with the stated positivist approach.
- Quantitative and qualitative methods are associated with the type of data produced from the research process. Numbers are generated when applying quantitative methods, while textual data result when qualitative methods are employed and thus utilising different tools produces different data (Garbarino & Holland 2009), and since the study focuses in producing quantifiable data, the direction toward the chosen method is accordingly justified.

Based on the rationales laid out in the previous section, it is evident that the quantitative approach is the convenient research tool to proceed with for the study in hand. Moreover, the systematic approach presented in Flynn et al. (1990) paper will be utilised to ensure the integrity of the process and the logicality and rationality of the methodology adopted.

The process is initiated/ commenced by the formation of a "theoretical or hypothetical base" which is a result of the intensive review of the literature (prior studies and scholars' researches). This theoretical foundation then is verified and tested using either 'build' or 'verify' theory approaches depending on the problem being examined.

A research design step would then follow that, succeeded by a data collections method (either one or a mixture of methods simultaneity with the research design). The survey is the most common design tool used; however, there are plenty of other methods that can be exploited (Flynn et al. 1990), and a mixture of methods is deemed more beneficial than a solo method.

The fourth step is the implementation, and this step encompasses the selection of the sample, the development of the survey questionnaire, and management of the data collection tool. Data processing and analysis using specialised software is the fifth stage in the process. Generating the research report and the publication are the last steps. These whole processes described

earlier, are depicted diagrammatically below, extracted from Flynn et al. (1990, p. 254) paper, as noted previously.

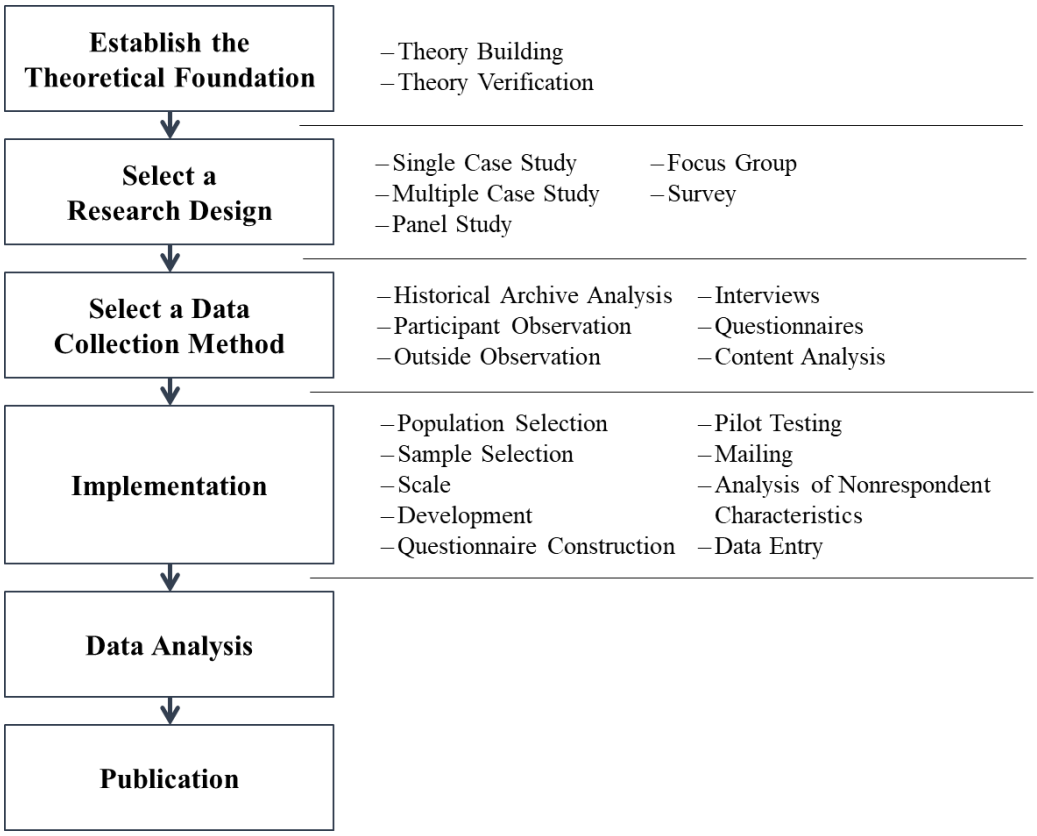


Figure (4. 1): A Systematic Approach for Empirical Research

4.4. Research Philosophical Assumptions

This section will tackle the philosophical assumptions behind the study. These assumptions were basically the preliminary thoughts and ideas that established the research problem. It is significant to grasp the inherent ontological and epistemological assumptions of the research as well as select the appropriate methodology and methods based on these assumptions (Scotland 2012).

A paradigm as recognised by Lincoln and Guba (1994) is a system of cardinal beliefs that deals with the first propositions that guide the researcher on the methods but more fundamentally on the ontological and epistemological perspectives. A paradigm comprises of four main elements which underpin any research: ontology, epistemology, methodology, and methods & techniques. Distinct paradigms substantially incorporate varying ontological and epistemological perspectives and judgments and subsequently various assumptions which affect the methodology and methods undertaken (Scotland 2012).

A research paradigm is structural exploratory approach in which a phenomenon is investigated in an attempt to reveal and understand its underlying motives and behavioural interactions (Creswell 1994).

It is vital for the researchers to thoroughly comprehend the philosophical matters that links data with the theory as they are focal to the research design and significantly affect the research quality (Easterby-Smith, Thorpe & Jackson 2010). The significance of the philosophical issues underpins from the fact that these support the researchers in clarifying and recognising the suitable research design and the limitation of other approaches, assist them with the identification, collection and interpretation of evidence, and ensure good responses are obtained as well as the quality report is produced. These philosophical matters can also support the researchers in adopting different designs or even in developing new research design they have not yet experienced. Discussions, critique, deliberation, arguments are critical to the philosophical design process (Easterby-Smith, Thorpe & Jackson 2010).

Researches have to determine their studies' philosophical point before proceeding to the following steps in their researches. Philosophical assumptions whether singular or in tandem are recognised in the literature (Saunders, Lewis & Thornhill 2016)

There are four prime types of philosophical issues; positivism, interpretivism, critical realism, and pragmatism (realism). Positivism is a multi-usage term prevalent in social science and philosophy. It objectively explores human affairs in natural systems via scientific methods (Hollis 1994). Hollis has referred to positivism as "a term with many uses in social science and philosophy. At the broad end, it embraces any approach which applies the scientific method to human affairs conceived as belonging to a natural order open to objective enquiry" (1994, p. 41).

Interpretivism or constructionism is the complete opposite of the positivism, it examines the reality from a social perspective and thus is affected by different views, opinions and subjective interpretations (Easterby-Smith, Thorpe & Jackson 2010). It takes into account actors/ respondents' views, opinions and individual meanings that stimulate them to respond in a particular way and their views need to be comprehended for their actions to be interpreted (Porter 2007). Table (02) below shows key differences between these positivism and interpretivism approaches (Weber 2004).

	Positivism	***Interpretivism***
Ontology	Person (researcher) and reality are separate	Person (researcher) and reality are inseparable (life-world)
Epistemology	Objective reality exists beyond the human mind	Knowledge of the world is intentionally constituted through a person's lived experience
Research Object	Research object has inherent qualities that exist independently of the researcher	Research object is interpreted in light of meaning structure of person's (researcher's) lived experience
Number of Scales	Five (05) scales, influence of each construct will separately measured	One (01) scale, all factors will be computed collectively (global factor
Method	Statistics, content analysis	Hermeneutics, phenomenology, etc.
Theory of Truth	Correspondence theory of truth: one-to-one mapping between research statements and reality	Truth as intentional fulfillment: interpretations of research object match lived experience of object
Validity	Certainty: data truly measures reality	Defensible knowledge claims
Reliability	Replicability: research results can be reproduced	Interpretive awareness: researchers recognize and address implications of their subjectivity

Table (4. 1): Differences between positivist and interpretive research approaches (Weber 2004, p. iv).

Critical realism, as its title implies interprets reality critically or objectively with the belief that truth cannot be measured or achieved. If a positivist believes that a study can reveal and explain the reality, the critical realist in contrary believes that such reality cannot be reached even if the study aims at achieving that goal (Sekaran & Bougie 2013). Positivism affirms the subsistence of fixed/ explicit "causal laws", whilst realism assumes causality as comprising of "generative mechanisms" whose effects are dependent on the contexts and vary in the varying contexts (Porter 2007).

The final philosophy is the pragmatism; it takes both views; objectivity and subjectivity in consideration while examining a phenomenon depending on the study's research questions (Sekaran & Bougie 2013).

The study in hand tackles the implementability/ characteristics of agile project management methodology in mega-event projects and how these are influenced by stakeholder management. Since we are aiming at exploring population views on the influence the effective stakeholder management has on the characteristics of agile project management methodology in mega-event projects, hence the positivism philosophy seems to be the most appropriate philosophical issues to this study as stated earlier it aims to produce general rules to anticipate human/ social behaviours and views.

4.5. Research Approach

In the deductive process, we start broadly with a general hypothesis/ principle then narrow it down to specific situation (i.e. apply the theory to a particular context) (Sekaran & Bougie 2013). Hypothesis testing is by default deductive; a general theory is examined (in our case, the argument that characteristics of agile project management in mega-event context is dependent on and influenced by effective stakeholder management) to check and determine whether it can explicate a particular phenomenon; a phenomenon that stimulate our research to anticipate relationships between its variables in specific situation (for instance, there is a positive relationship between stakeholder management and agile project management implementation in mega-event projects). In a completely different direction, the inductive reasoning works. It starts with an observation of a particular event, a situation or a case and then arrives at a general proposition (Sekaran & Bougie 2013).

Putting it simply – as Kopper (2004) stated; the deduction is moving from general toward specific whereas the induction is the complete opposite; going from the specific to the general. He claimed that deduction approach does not add or provide new knowledge – all that it tries to explore is "implicitly contained" in the hypothesis/ assumption, whereas the induction produces new knowledge and broaden our horizons.

Both deductive (theory testing) and inductive (theory generation) processes can be exploited in scientific investigations (quantitative and qualitative studies). However, the deductive process is frequently applied in "causal and quantitative researches", while inductive are often exploited in "exploratory and qualitative studies" (Sekaran & Bougie 2013).

The method of commencing a research study with a theoretical framework (around the success factors of stakeholder management and specific characteristics of agile project management

methodology in mega-event projects), then formulating hypothesis (the influence of stakeholder management on the characteristics of agile project management methodology in mega-event contexts), and then logically concluding/ deducting from the study's results, is recognised as the Hypothetic-deduction method which is basically testing "hypothesized outcomes" (Sekaran & Bougie 2013), and thus "deductive approach" is what will be adopted as a research approach.

Table (03) below reported by Alexandris et al. (2006, p.20, cited in Caputo, Evangelista & Russo 2016) summarises the major differences between deductive and inductive reasoning/ processes:

Attribute	***Deductive approach***	***Inductive approach***
Direction	'Top-down'	'Bottom-up'
Focus	Prediction changes, validating theoretical construct, focus in 'mean' behaviour, testing, assumptions and hypotheses, constructing most likely future	Understanding dynamics, robustness, emergence, resilience, focus on individual behaviour, constructing alternative futures
Spatial Scales	Single (one landscape, one resolution)	Multiple (multiple landscapes, one resolution)
Cognitive scales	Single (homogeneous preferences)	Multiple (heterogeneous preferences)
Aggregation scales	Single (core aggregation scale)	Single or multiple (one or more aggregation scales)
Predictive vs. stochastic accuracy	High-low (one likely future)	Low-high (many likely futures)
Data intensity	Low (group or partial attributes)	High (individual or group attributes)

Table (4. 2): Comparison between deductive and inductive approaches (Alexandris et al. 2006, p.20)

4.6. Research Design and Process

The next step in constructing/ designing the research in a manner that allows for the collection, analysis, and arriving at a conclusion that answers the research questions. Thus a **Research Design** is a scheme or model for collecting, measuring and analysing the data in line with the research problem being investigated (Sekaran & Bougie 2013). The study purpose, strategy, location, level of interference by the researcher, temporal dimensions, analysis level and mechanism are all intrinsic to the designing process (Sekaran & Bougie 2013; Cavana et al. 2001).

The research design encompasses as per (Forza 2002) the following steps (depicted in figure (05) below): the process of transferring the theoretical model (conceptual framework) into experimental/ empirical elements, the process of pilot survey design and test, the process of collecting the data, and finally the process of analysing, explaining the findings and then preparing the research paper.

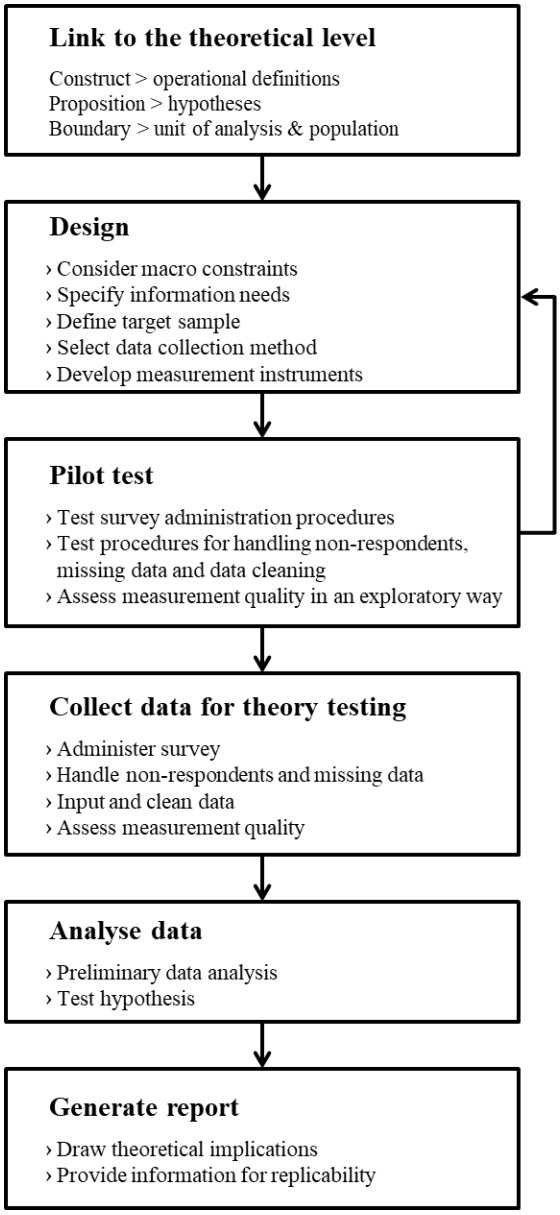


Figure (4. 2): Survey research process (Forza 2002, p.157)

Prior to the data collection and how that is carried out, the following are crucial to be undertaken (Forza 2002): [1] Determine the "unit of analysis" (Forza 2002), that is the level at which the data will be aggregated, processed and analysed (Sekaran & Bougie 2013) which is fundamental in constructing research questions (Forza 2002), [2] Define and validity test the operational

definitions (that is slicing out the abstract conceptual elements of the theory into observable measurable/ computable components) and finally [3] formulate the hypotheses (testable statements) (Forza 2002).

4.7. Survey Questionnaire

Interview, observation and questionnaire are three main data collection methods (Sekaran & Roger 2013). A mail questionnaire as a data collection mechanism was found to be convenient to the study in hand, and that is due to the following advantages, though every tool has its own cons, the points hereunder justify the rationales behind the chosen method:

- Geographical Reach and Access to unique Populations (Wright, 2005): Due to the scarcity of mega-event projects in the region and the limited access to the needed information and required specialities, as well as due to the sensitivity of the targeted audiences (particular knowledge and experience in mega-event fields), a questionnaire as a data collection mechanism is seemed to address the gap correctly. Electron means was used to distribute the survey to reach out for those who are not locally positioned in the UAE and possess the needed requisites.
- Cultural barriers: Questionnaire was structured in a multiple-choice format which doesn't require a high language proficiency to comprehend. Additionally, with the electronic means, participants have the opportunity to translate any of its content if needed (Wright, 2005).
- Time-saving: the questionnaire compared to the other data collection mechanisms (interview and observation), saves time and reaches out to the specific individuals momentary despite their geographical locations as well as enables the researches to collect the data while working on others tasks and activities.
- Design, administration and data analysis: questionnaires in comparison with other mechanisms (particularly mail questionnaire) are easy to design and administer, facilitate the segregation and quantifying of the gathered data, the processing and objective analysis using software packages.
- Anonymity and privacy of respondents: Identification of the participants is quite hard with a questionnaire (especially the electronic means) and thus maintain the confidentiality and anonymity of the respondents, the thing that urges them to freely and openly state and their opinions and views (Sekaran & Roger 2013).

Sound principles were applied when designing the survey questionnaire; the conceptual model was translated and worded into questions. Variables were categorised, scaled and coded, the general appearance and look-and-feel have been worked on (Sekaran & Roger 2013). The pilot test conducted afterwards to test the survey questions, and obtained results proceeded. The broader-scale questionnaire launch will follow the pilot analysis.

Notably, a well-structured survey questionnaire along with proper introduction and guidance will decrease participants' bias, Minimise measurement errors as well as will assist participants in answering the questions effortlessly without a hitch (Sekaran & Roger 2013; Forza 2002).

Once the required data is gathered (from the actual questionnaire), it will be processed and analysed using specialised software (Statistical Package for Social Science SPSS). The assessment for data validity, reliability, correlation, regression, as well as frequency, will be performed using the software and will be discussed thoroughly in the next chapter.

The design process of the survey questionnaire described about shall support in validating and verifying empirically the theoretical framework proposed for this study from two dimensions; examining and validating the suggested characteristics of agile project management methodology in mega-event projects as a dependent variable (DV), measuring the degree of influence that stakeholder management success factors have on the agile PM characteristics and eventually on its implementation in mega-event context (as an independent variable 'IV').

The survey is structured into three sections:

- Classification Data or Demographical Questions: this section intended to elicit participants' personal information as age, gender, education level, job level, years of experience, type of mega-event projects they have been working on and the like. These variables are collected for sampling description and characteristics purposes, even if the theoretical framework does not postulate its inclusion within the survey structure (Sekaran & Roger 2013).
- Characteristics of Agile Project Management Methodology in Mega-Event Projects: this section focuses on the survey's dependent variable and aims at eliciting participants' opinion and attitudes toward each element. Each aspect/ characteristic of the agile project management in mega-event projects is formulated in a question. These peculiarities are around the following dimensions: project output & business values, customer involvement, communication and transparency, planning approach, team

structure, leadership and culture, organisation structure, governance, learning & coaching, and hybrid methods.

- Stakeholder Management Success Factors: the last section is dedicated to the independent variable (i.e. the influence of the Stakeholder Management Success Factors on the dependent variable described above). Each question corresponds to a factor, grouped into four constructs/ groups as follows: information inputs, stakeholder estimate, decision making, and stakeholder sustainable support.

The scale utilised for this study is the Likert rating system of 5-point scale; where five (05) represents a complete agreement and one (01) represents a full disagreement.

Given the fact that the study is exploring a new methodology (agile) in a unique field (mega-event projects), the targeted population was cautiously selected who possesses the required knowledge, qualities and experience in the mega-event industry and who were exposed to different ways of managing projects. For the participants to broadly comprehend agile methodology (given its uniqueness in the mega-event world), some terminologies and definitions were added to the questionnaire structure. A comparison between traditional methods in managing projects and agile methodology was also incorporated within the invitation email that contained the questionnaire link which went out to all participants. This information was extracted from literature as well as trusted website; Project Management Institute PMI®.

Table (04) below outlines questionnaire's variables and different scales:

	Independent Variable	***Dependent Variable***
Definition	Stakeholder Management Success Factors	Characteristics of Agile Project management methodology in Mega Event Projects
Number of Factors	Fifteen (15) factors	Eleven (11) factors
Number of Constructs	Four (04) constructs	One (01) construct
Number of Scales	Five (05) scales, the influence of each construct will separately be measured	One (01) scale, all factors will be computed collectively (global factor)

Table (4. 3): Questionnaire variables and scales

4.8. Sampling and population

The targeted population was selected based on research objective and the scope of the study (Sekaran & Roger 2013), and therefore specific criteria were developed to assure minimum experience, and reasonable knowledge within the mega-event sector are maintained in all participating individuals.

The following are considered eligibility criteria if met shall qualify the respondents to participate in the survey questionnaire:

- Minimum two (02) years of experience in the mega-event sector; and
- Reasonable knowledge or familiarity with traditional project management methods.

Electronic means was used to distribute the questionnaire, as noted earlier. The target audience was 178, only ninety (90) feedback/ responses were received, equivalent to a response rate of 50%, which is highly acceptable (Sekaran & Roger 2013; Baruch 1999).

4.9. Pilot Testing

A pilot study is a "pre-test of your fuller study" (Woken 2008, p. 1). The literature has advised testing the survey questionnaire via a pilot test before the actual broader launch of the survey to ensure appropriateness for the sampling and coherency of the responses (Muijs 2004). It also enables the researchers to revise their work, make the necessary tweaks and improve the survey questions to serve the research aim and objectives better. It also tests public interest around the topic being researched and hence influences its relevance and importance (Glesne 2011). The pilot study allows initial testing of the hypothesis and assessing the convenience and practicality of the data (Woken 2008).

A pilot test was conducted on a sample of (10) individuals, they were encouraged to comment on the survey and identify any ambiguity around the questions and/or any further clarification and simplification that may require to facilitate the response process. The survey was fine-tuned based on the feedback received from the participated individuals, and the gathered responses were inputted in the SPSS for preliminary testing. The results showed reasonable reliability and correlation to proceed with the actual launch of the research questionnaire.

4.10. Summary

Various research methods recognised academically were briefly introduced and differentiated; qualitative, quantitative and mixed approach. The rationales on the appropriateness around the chosen method (i.e. quantitative research methodology) were stated and excessively elaborated upon. Additionally, philosophical matters and research approach were discussed (i.e. positivism and deductive approach deemed to fit the research objectives properly).

Different mechanisms for data collections were also presented, and the underlying reasons around the applicability of the survey questionnaire were demonstrated. Survey questionnaire design process, population sampling, pilot/ validity testing all were discussed and presented in line with the research topic.

5. CHAPTER 5: DATA ANALYSIS

5.1. Introduction

As deliberately discussed in the previous chapter on the appropriateness of quantitative research as a methodology for the study to verify the conceptual model postulated/ put forward as well as the hypothetical propositions, and the suitableness of questionnaire as a means for data collection. It is now time to examine the data collected and analyse it via specialised software packages.

This chapter will look into this topic thoroughly, will start with the demographical analysis of the gathered data; the data related to the participants' gender, age group, educational level, professional occupation, years of experiences, mega-event projects they experienced in and worked with as well as their involvement in these projects. Testing the data will be tackled the next, several tests will be performed on the gathered data; Reliability, Correlation, Regression

Reliability test's objective is to determine the validity of the collected data, the truthfulness of these data and its representativeness. Correlation testing was carried among the different factors (constructs) of the dependent and independent variables to verify whether the null hypothetical propositions outlined in the study are acceptable and satisfactory or dismissible. The level of influence the independent variable has on the dependent variable is also examined and predicted to formulate the path forward and future directions.

Sensitivity and accuracy were integral to the testing exercises performed on the collected data. Moreover, all results and outputs will be subject to thorough critique and examination in the subsequent chapter to understand the drives, stimulus and justifications behind participants' responses and accordingly future proceedings in light of the study findings will be put forward.

5.2. Descriptive Statistics

5.2.1. Classification and Demographic Data

The participants' classification/ demographic specifics will be discussed below; the total number of individuals participated in the survey questionnaire was 90. As shown in the gender graph, 55 participants were male versus 35 female, corresponds to 61% and 39% respectively. The adjacent graph demonstrates the participants' different age group.

It is apparent that age group (30-39) recorded the highest 47% (equivalent to 42 participants), followed by age group (40-49) with a 23 participants and the rest age groups came in the following order (50-59), (20-29) and (60 and above) corresponding to 13, 10 and 2 participants, respectively.

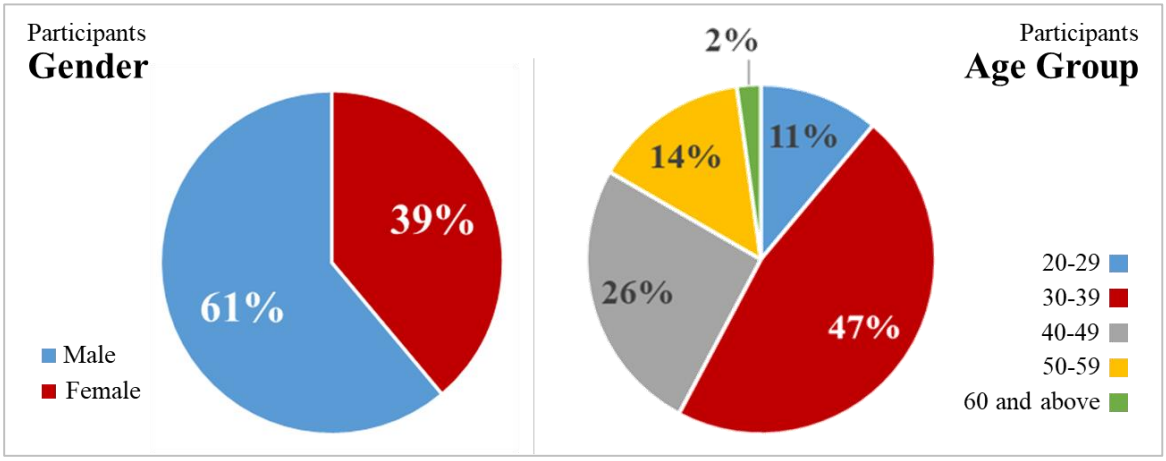


Figure (5. 1): Participants Gender and Age Group

The succeeding graphs display the professional occupation of the participants as well as their educational level. The vast majority of the participants were from the mid-management layer (52% = 47 participants), followed by the senior-management layer (26% corresponds to 23 individuals), then the senior level (18% = 16 participants) lastly the junior level (4% = 4 participants).

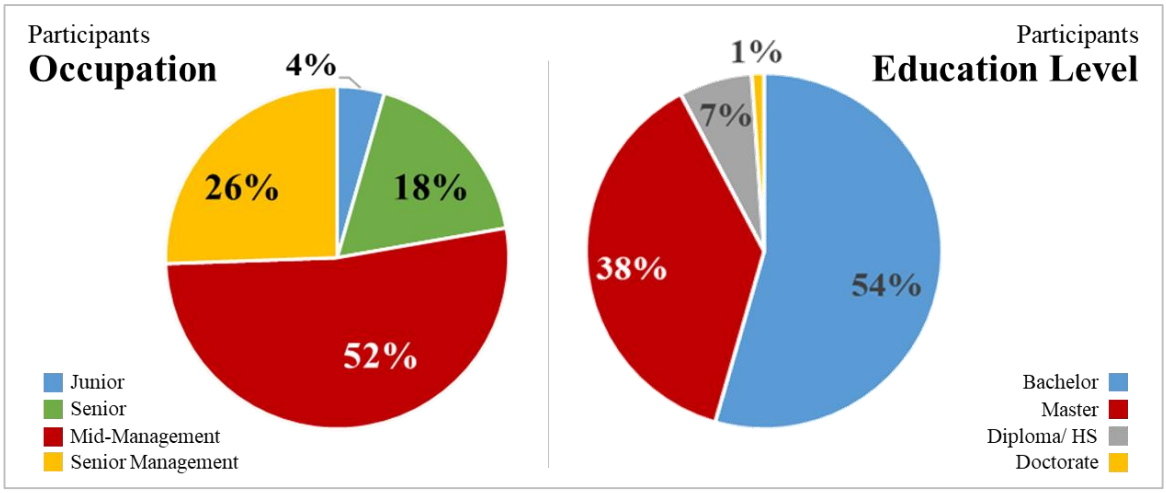


Figure (5. 2): Participants Occupation and Education Level

49 participants hold a bachelor degree (54%), 34 hold a master degree (38%), one holds a doctorate degree, and the rest high school/ diploma holders (6 participants). The next diagrams represent the current involvement of the participant in the mega-event project (Expo2020 Dubai) as well as their total years of experience. The "Participant Involvement" diagram shows 64 participants are directly working within Expo2020 Dubai as clients (71%), 12 as consultants, 2 as contracts, 6 as specialist providers and the rest (6) aren't' involved with Expo2020 Dubai; however, they do work on other mega-events.

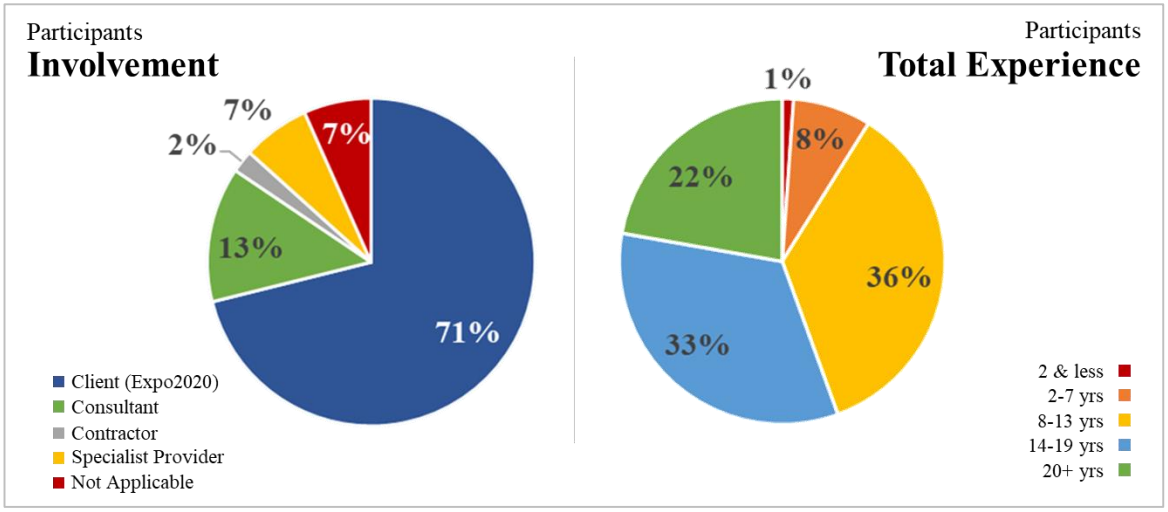


Figure (5. 3): Participants Involvement and Total Years of Experience

Also, the years of experience graph is adjacently displayed, majority of the respondents have 8-13 years of experience (32), 30 participants have 14-19 years of experience (33%), 20 participants have 20 and above years of experience and the rest ranges between 2-7 years of experience (8 participants).

5.2.2. Variables and Factors Descriptions

This study aims at defining the level of association, correlation and influence between its main elements; the "stakeholder management success factors" as an independent variable (IV) and the "characteristics of agile project management methodology in mega-event projects" representing the dependent variable (DV).

The following sections provide descriptive definitions of these variables and the elements they compose of (factors/ constructs).

5.2.2.1. Independent Variable (IV):

As pointed out that the independent variable (IV) in this study is demonstrated by "stakeholder management success factors". This variable composes of – as the literature review revealed – fifteen (15) success factors (or items). These 15 factors are grouped into 4 constructs/ factors, namely; Information Inputs, Stakeholder Estimation, Decision Making, and the Stakeholder Sustainable Support. These four (04) constructs form the four factors/ scales against which the "characteristics of agile project management methodology in mega-event projects" is assessed. The descriptive statistics of these four constructs (factors/ scales) is illustrated in the table below:

		INFOINPUT Information Input	**ESTM** Estimate	**DCSMK** Decision Making	**SUSSPT** Sustainable Support
N	**Valid**	**90**	**90**	**90**	**90**
	Missing	0	0	0	0
	Mean	17.2667	20.0222	12.1667	12.9778
	Median	17.0000	20.0000	12.0000	13.0000
	Mode	16.00	20.00	12.00	14.00
	Std. Deviation	2.03784	2.34151	1.57402	1.47624
	Minimum	12.00	15.00	6.00	6.00
	Maximum	20.00	25.00	15.00	15.00

Table (5. 1): Descriptive Statistics – Independent Variable Constructs

A. Information Inputs Construct/ Factor:

The "Information Inputs" is the first scale/ factor in measuring the influence of stakeholder management success factors on the characteristics of agile project management methodology in mega-event projects. This construct comprises four (04) items clustered based on the project

and stakeholders' information. These four factors are represented by four questions in the survey questionnaire each of them records participants' views and attitudes toward these factors and how they would influence the agile PM characteristics in mega-event projects. Responses were rated using the Likert scale of a 5 point scale, where five (05) represents a strong agreement, whereas one (01) represents the least. Thus, the minimum response value for a question is four (04) and corresponds to the 'full disagreement' while the maximum is twenty (20) and represents the 'complete agreement'.

The frequency statistics of the 'Information Inputs' construct is presented in figure (5.4) below. As demonstrated, the participants' responses lean mostly toward agreeing that 'information inputs' highly influences the characteristics of agile project management methodology in mega-event projects. The mean value of the responses was at 17.27 of 2.038 standard deviation, which is closer to the maximum value (20.00) than the minimum value (12.00).

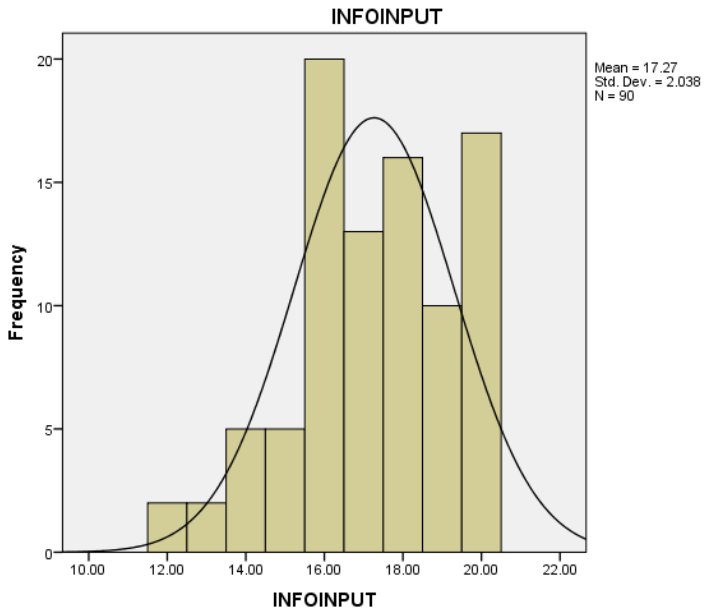


Figure (5. 4): 'Information Inputs' Construct Frequency

B. Stakeholder Estimation Construct/ Factor:

The 'Stakeholder Estimation' is the second factor in measuring the influence of stakeholder management success factors on the characteristics of agile project management methodology in mega-event projects. This construct is comprised of five (05) items clustered based on stakeholders' attributes, behaviour, potential influence, social responsibilities and their conflicts and coalitions. These five (05) items were represented by five (05) questions in the survey questionnaire, each of them records participants' views, opinions and attitudes toward these

factors and how they would influence the characteristics agile project management methodology in mega-event projects. Responses were rated – as with the previous factor – using the Likert scale of a 5 point scale, where (05) represents a strong agreement whereas (01) represents the least. Thus, the minimum response value for a question is five (05) and corresponds to a 'full disagreement' while the maximum is twenty-five (25) and represents the 'complete agreement'.

The frequency statistics of the 'Stakeholder Estimation' construct/ factor is represented hereunder in the in figure (5.5). As it is noticeable from the graph that the participants' responses varied between supporters and opponents (or simply neutral) on whether this factor 'Stakeholder Estimation' is influential or not on the characteristic of agile project management methodology in mega-event projects. The mean value of the responses was at 20.02 point of 2.34 standard deviation, which quite in the middle between the maximum value (25.00) and the minimum (15.00).

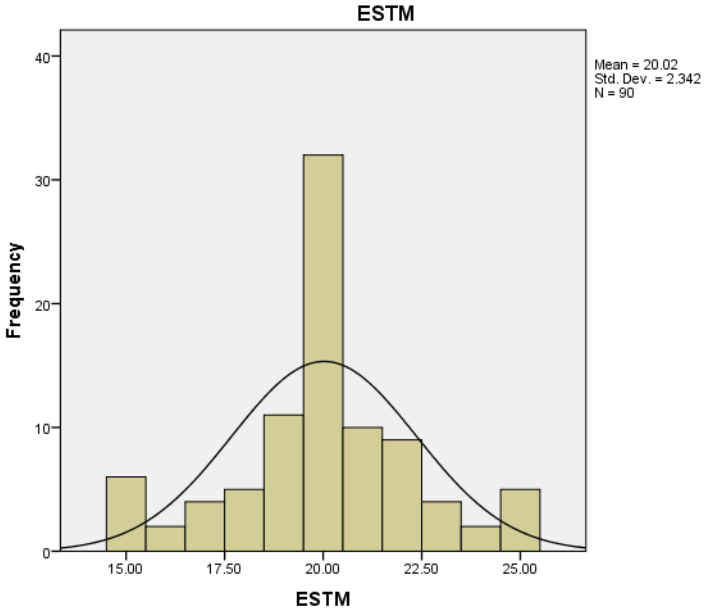


Figure (5. 5): 'Stakeholder Estimation' Construct Frequency

C. Decision Making Construct/ Factor:

The 'Decision Making' is the third factor in measuring the influence of stakeholder management success factors on the characteristics of agile project management methodology in mega-event projects. This construct/ factor is comprised of three (03) items clustered based on project managers' decision-making capabilities in compromising conflicts, formulating appropriate strategies and predicting stakeholders reactions. These three (03) items were

represented by three (03) questions in the survey questionnaire each of them records participants' views, opinions and attitudes toward these elements and how they would influence agile project management characteristics in mega-event projects. Responses were rated using the Likert scale of a 5 point scale, where (05) represents a strong agreement, whereas (01) represents the least. Thus, the minimum response value for a question is three (03) and corresponds to a 'full disagreement' while the maximum is fifteen (15) and represents the 'complete agreement'.

The frequency statistics of the 'Decision Making' construct is presented in the diagram below (figure 5.6). As demonstrated in the graph, the participants' responses lean mostly toward agreeing that 'Decision Making' highly influences the characteristics of agile project management methodology in mega-event projects. The mean value of the responses was 12.17, with a 1.57 standard deviation. The mean's value is closer to the maximum (15.00) than the minimum (6.00).

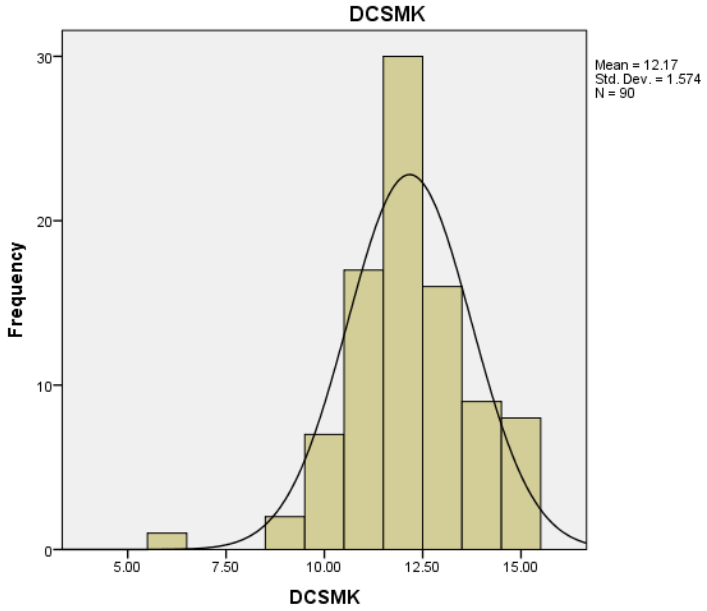


Figure (5. 6): 'Decision Making' Construct Frequency

D. Stakeholder Sustainable Support Construct/ Factor:

The 'Stakeholder Sustainable Support' is the fourth and last factor in measuring the influence of stakeholder management success factors on the characteristics of agile project management methodology in mega-event projects. This construct comprises three (03) factors clustered based on stakeholders' sustainable support. These three (03) factors were represented by three (03) questions in the survey questionnaire, each of them records participants' views, opinions

and attitudes toward these factors and how they would influence agile project management methodology characteristics in mega-event projects. Responses were rated using the Likert scale of a 5 point scale, where (05) represents a strong agreement, whereas (01) represents the least. Thus, the minimum response value for a question is three (03) and corresponds to a 'full disagreement' while the maximum is fifteen (15) and represents the 'complete agreement. The frequency statistics of the 'Stakeholder Sustainable Support' construct is presented in the diagram below (figure 5.7). As displayed hereunder, the participants' responses lean mostly toward agreeing that 'Decision Making' profoundly influences the characteristics of agile project management methodology in mega-event projects. The mean value of the responses was 12.98 of 1.48 standard deviation. The mean's value is closer to the maximum (15.00) than the minimum (6.00).

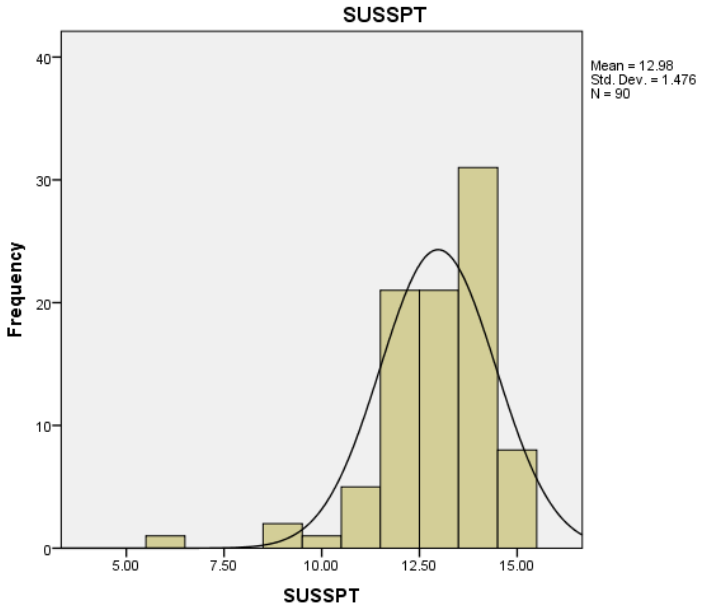


Figure (5. 7): 'Stakeholder Sustainable Support' Construct Frequency

5.2.2.2. Dependent Variable (DV):

The "characteristics of agile project management methodology in mega-event projects" represent the dependent variable in this study. This variable encompasses eleven (11) elements characterising the agile methodology within mega-event projects. These attributes and features are related to project output & business values, customer involvement, communication and transparency, planning approach, team structure, leadership and culture, organisation structure, governance, learning & coaching, and hybrid methods. All these eleven (11) elements were

considered collectively as one construct/ factor (global factor). Each of these characteristics was represented by a corresponding question in the survey questionnaire that records participants' views, opinions and attitudes toward them and how would they support the implementation of agile project management methodology in mega-event projects. The descriptive statistics of these elements is demonstrated in table (5.2) hereunder.

	N	**Minimum**	**Maximum**	**Mean**	Median	**Std. Dev.**
APM Global	90	**30.00**	**54.00**	**42.9000**	42.9000	**5.14083**

	N Valid	N Missing	Mean	Median	Mode	Std. Dev.	Min	Max
Project Output	90	0	**3.522**	4	4	**0.9269**	**1**	**5**
Customer Involvement	90	0	**3.989**	4	4	**0.8413**	**2**	**5**
Project/ Scope Changes	90	0	**3.833**	4	4	**0.9271**	**2**	**5**
Communication	90	0	**4.411**	4	4	**0.5976**	**3**	**5**
Leadership and Culture	90	0	**3.989**	4	4	**0.9539**	**1**	**5**
Governance	90	0	**4.044**	4	4	**0.792**	**1**	**5**
Team Structure	90	0	**3.522**	4	4	**0.8641**	**1**	**5**
Planning Approach	90	0	**3.989**	4	4	**0.8002**	**2**	**5**
Organisation Structure	90	0	**3.867**	4	4	**0.7818**	**1**	**5**
Training and Coaching	90	0	**3.789**	4	4	**0.8413**	**2**	**5**
Hybrid Approach	90	0	**3.944**	4	4	**0.8395**	**2**	**5**

Table (5. 2): Descriptive Statistics – Dependent Variable

Participants' responses were rated as well using the Likert scale of a 5 point scale, where five (05) represents a 'strong agreement', whereas one (01) represents the least. Thus, the minimum response value is eleven (11) and corresponds to a 'full disagreement' while the maximum is fifty-five (55) and represents the 'complete agreement'. The frequency statistics of the 'agile project management characteristics in mega-event projects' factor is presented in the diagram below (figure 5.8). As it is evident from the graph that participants' responses lean more toward agreeing that these characteristics profoundly influence and support the implementation of agile project management methodology in mega-event projects. The mean value of the responses was at 42.90, with a 5.14 standard deviation. The mean's value is closer to the maximum (54.00) than the minimum (30.0).

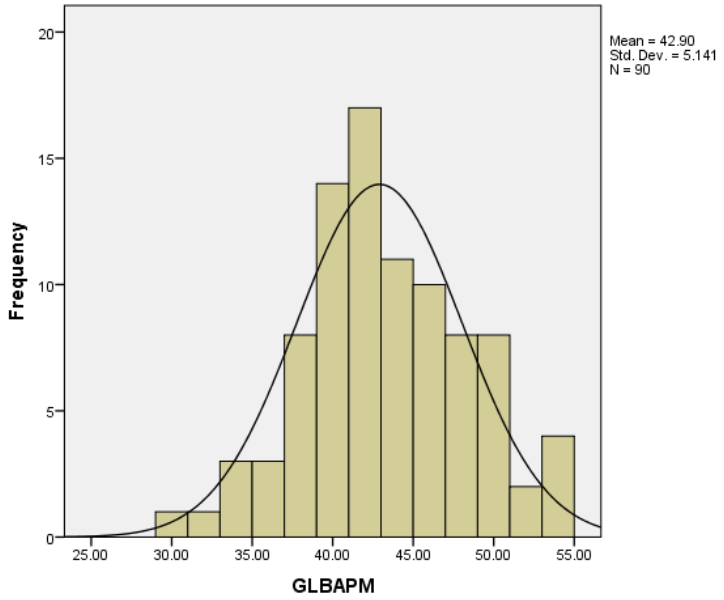


Figure (5. 8): 'Agile Project Management Characteristic' Global Factor Frequency

5.3. Reliability Test

Cronbach's Coefficient Alpha was used to test scales/ factors reliability, and that is to scrutinise and assess the internal consistency of the constructs/ factors. The reliability test was applied in three (03) stages as below: testing constructs' reliability of the independent variable and testing the reliability of the global factors (both independent and dependent variables).

Stage I: Constructs/ Factors Reliability Test

Each construct of the 'independent variable' was tested. Since there are four (04) constructs/ factors, the reliability test was undertaken four (04) times equivalent to the number of the constructs, examining each time the reliability of the items within a construct. The results are shown in table (5.3) below.

	Scale Mean if Item Deleted	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Cronbach's Alpha if Item Deleted*	*Cronbach's Alpha*
SMMISSION	12.967	2.392	0.437	0.765	
SMSKH	12.811	2.492	0.650	0.628	**0.744**
SMINT	13.044	2.537	0.551	0.678	
SMNDS	12.978	2.719	0.566	0.677	
SMBR	15.978	4.269	0.390	0.696	
SMINF	15.978	3.640	0.547	0.636	
SMSR	16.078	3.938	0.424	0.684	**0.714**
SMATRB	16.011	3.314	0.579	0.618	
SMCON	16.044	3.638	0.432	0.685	

SMCOMP	8.133	1.488	0.300	**0.610**	
SMSTRG	7.967	1.269	0.498	0.326	**0.582**
SMRACT	8.233	1.237	0.390	0.487	
SMINCHNG	9.067	1.321	0.371	0.768	
SMRLSH	8.489	.994	0.607	0.480	**0.698**
SMCOMS	8.400	1.029	0.579	0.520	

Table (5. 3): Independent Variable Reliability Statistics (Cronbach's Coefficient Alpha)

Stages II & III: Testing Global Factors' Reliability: Testing the dependent and independent variables' global factors separately and then all factors together. Results of all testing stages are shown in table (5.4) below:

Test Stage	*Test Subject*	*Test*	*Cronbach's Alpha*	*N of Items*
Step I	IV Factors	Information Inputs	0.744	4
		Stakeholder Estimate	0.714	5
		Decision Making	**0.582**	**3**
		Stakeholder Sustainable Support	0.698	3
Stage II	Global IV	All IV Factors	0.872	15
	Global DV	All DV Factors	0.778	11
Stage III	All Factors	All Factors	0.884	26

Table (5. 4): Reliability Statistics (Cronbach's Coefficient Alpha) – All Stages

The testing was carried on every construct/ factor level of the independent variable individually, followed by all items of the independent and those of the dependent variables separately and finally, all factors of both variables together (global factors). Alpha values higher than 0.7 are considered sufficient and reliable (Pallant 2001, George & Mallery 1999).

The results of Cronbach's Coefficient Alpha in this survey were in the range of 0.582 to 0.884. Only one construct/ factor scored quite low in the reliability test; namely; "Decision Making" which scored 0.582 and this is below the acceptable threshold of 0.7. However, the rest of the independent variable factors recorded an Alpha score equivalent to or higher than 0.7, namely; 'information inputs', 'stakeholder estimate' and 'stakeholder sustainable support' with Cronbach's of values 0.744, 0.714 and 0.698 respectively, thus there is high internal consistency among these factors and that they are deemed reliable.

The reliability test was re-done for the 'decision making' construct by removing the item that caused the low Alpha score. The test yielded the following results, as shown in table (5.5) below. Alpha for that construct raised to 0.610, which is still below the acceptable threshold for

reliability, however, this item will not be eliminated at this stage from the study till the regression test is performed and results are analysed.

Also, the testing for reliability for all items together was recorded at 0.884, and this value is regarded as "reliable" (George & Mallery 2011). This result provides evidence that there is a high internal consistency amongst all items/ factors.

	Scale Mean if Item Deleted	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Cronbach's Alpha if Item Deleted*	*Cronbach's Alpha*
SMMISSION	12.967	2.392	0.437	0.765	**0.744**
SMSKH	12.811	2.492	0.650	0.628	
SMINT	13.044	2.537	0.551	0.678	
SMNDS	12.978	2.719	0.566	0.677	
SMBR	15.978	4.269	0.390	0.696	**0.714**
SMINF	15.978	3.640	0.547	0.636	
SMSR	16.078	3.938	0.424	0.684	
SMATRB	16.011	3.314	0.579	0.618	
SMCON	16.044	3.638	0.432	0.685	
SMSTRG	7.967	1.269	0.498	0.326	**0.610**
SMRACT	8.233	1.237	0.390	0.487	
SMINCHNG	9.067	1.321	0.371	0.768	**0.698**
SMRLSH	8.489	.994	0.607	0.480	
SMCOMS	8.400	1.029	0.579	0.520	

Table (5. 5): Repeated Reliability Statistics (Cronbach's Coefficient Alpha)

5.4. Correlation Test

Correlations between variables are tested using different measures (coefficients), the widely common ones are Pearson's coefficient (r), Spearman's rho coefficient (r_s), and Kendall's tau coefficient (τ) (Hauke & Kossowski 2011). The Pearson's Product-Moment correlation test is a measure used to test the association/ relationship significance, strength as well as direction. The correlation test findings support invalidating the null hypotheses proposed for the study.

The Pearson's Product-Moment correlation coefficient (r) ranges between (-1) to (1), where (-1) indicates a perfect negative correlation while (+1) a perfect positive correlation, the zero (0) values demonstrate negligible correlation (perfect independence). A 'VERY WEAK' correlation is present when the absolute value of Pearson's coefficient (r) ranges between 0.0 and 0.2 ($0.0 < |r| < 0.2$), and it is described as 'WEAK' when (r) absolute value is either equal to 0.2 or between the values 0.2 and 0.4 ($0.2 \leq |r| < 0.4$), and it is 'MODERATELY STRONG'

correlation when (r) absolute value is either equal to 0.4 or between the values 0.4 and 0.6 (0.4 ≤ |r| < 0.6). 'STRONG' correlation exists when (r) absolute value falls in range 0.6 ≤ |r| < 0.8, and correlation is regarded as 'VERY STRONG' if 0.8 ≤ |r| < 1.0.

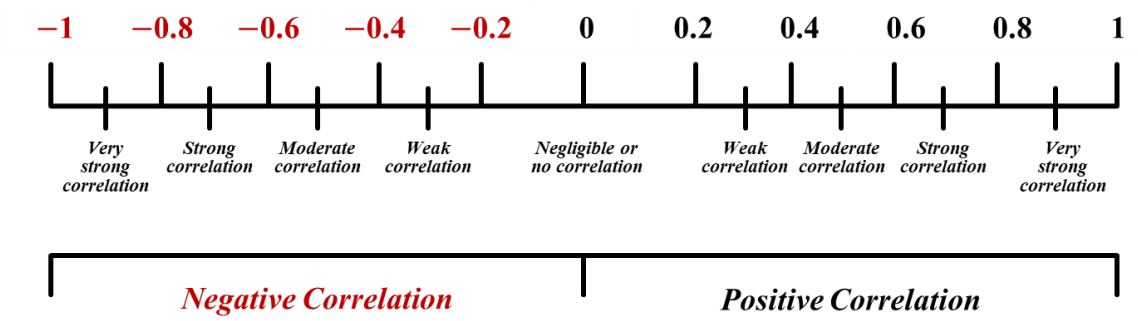


Figure (5. 9): Correlation coefficient values

A Pearson's Product-Moment correlation was applied to examine the relationship between the characteristics of agile project management methodology in mega-event projects and the success factors of stakeholder management. The test is performed on the data on the construct/ factor levels as well as on both global levels of the independent and dependent variables.

Pearson's Product-Moment correlation test is targeted at examining the following aspects in the collected data: [1] The correlation between the variable's different constructs (all constructs within the independent variable in our study). [2] The correlation between constructs of different variables (dependent variable constructs and independent variables constructs) – irrelevant to our study as the independent variable consists of constructs, while the dependent is one whole construct recognised as a global factor; thus this will not be applied). [3] The correlation between global factors and the individual constructs of both variables (i.e. the dependent variable global factor against the individual constructs of the independent variable), and finally [4] the correlation strength between the global factors of independent and dependent variables.

It is essential at this stage to ensure that all collected data are associated and highly correlated with each other, and the correlation values are that of a high significance amongst all items. Any item(s) that proves the opposite will be discarded from the study.

Through examining and analysing the correlation test results, the following are noted:

1. The correlation amongst constructs of the Independent variable: There is an association/ correlation within the independent variable's constructs (stakeholder management success

factor). It is evident from the values obtained that correlation is moderately strong amongst these constructs with a significance of 0.0005 < p=0.05 across all constructs, i.e. each construct – of this independent variable – correlates highly with the other three constructs.

		INFOINPUT	ESTM	DCSMK	SUSSPT
INFOINPUT	Pearson Correlation	1	**.536****	**.469****	**.551****
	Sig. (2-tailed)		.000	.000	.000
	N	90	90	90	90
ESTM	Pearson Correlation	**.536****	1	**.529****	**.605****
	Sig. (2-tailed)	.000		.000	.000
	N	90	90	90	90
DCSMK	Pearson Correlation	**.469****	**.529****	1	**.645****
	Sig. (2-tailed)	.000	.000		.000
	N	90	90	90	90
SUSSPT	Pearson Correlation	**.551****	**.605****	**.645****	1
	Sig. (2-tailed)	.000	.000	.000	
	N	90	90	90	90

***. Correlation is significant at the 0.01 level (2-tailed).*

Table (5. 6): Correlation Statistics (Independent Variable's Constructs)

2. Each construct of the independent variable (stakeholder management success factor) along with all items of the independent variables (global independent variable).

		INFOINPUT	ESTM	DCSMK	SUSSPT	GLBASM
INFOINPUT	Pearson Correlation	1	.536**	.469**	.551**	**.798****
	Sig. (2-tailed)		.000	.000	.000	.000
	N	90	90	90	90	90
ESTM	Pearson Correlation	.536**	1	.529**	.605**	**.850****
	Sig. (2-tailed)	.000		.000	.000	.000
	N	90	90	90	90	90
DCSMK	Pearson Correlation	.469**	.529**	1	.645**	**.778****
	Sig. (2-tailed)	.000	.000		.000	.000
	N	90	90	90	90	90
SUSSPT	Pearson Correlation	.551**	.605**	.645**	1	**.829****
	Sig. (2-tailed)	.000	.000	.000		.000
	N	90	90	90	90	90
GLBASM	Pearson Correlation	**.798****	**.850****	**.778****	**.829****	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	90	90	90	90	90

***. Correlation is significant at the 0.01 level (2-tailed).*

Table (5. 7): Correlation Statistics (Independent Variable Constructs and Global IV)

3. Each construct of the independent variable (stakeholder management success factor) in association with all items of the dependent variable (global dependent variable; characteristics of agile project management methodology in mega-event projects).

		INFOINPUT	ESTM	DCSMK	SUSSPT	GLBAPM
INFOINPUT	Pearson Correlation	1	.536**	.469**	.551**	**.508****
	Sig. (2-tailed)		.000	.000	.000	.000
	N	90	90	90	90	90
ESTM	Pearson Correlation	.536**	1	.529**	.605**	**.444****
	Sig. (2-tailed)	.000		.000	.000	**b**
	N	90	90	90	90	**90**
DCSMK	Pearson Correlation	.469**	.529**	1	.645**	**.403****
	Sig. (2-tailed)	.000	.000		.000	.000
	N	90	90	90	90	90
SUSSPT	Pearson Correlation	.551**	.605**	.645**	1	**.401****
	Sig. (2-tailed)	.000	.000	.000		.000
	N	90	90	90	90	90
GLBAPM	Pearson Correlation	**.508****	**.444****	**.403****	**.401****	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	90	90	90	90	90

**. *Correlation is significant at the 0.01 level (2-tailed).*

Table (5. 8): Correlation Statistics (Independent Variable Constructs and Global DV)

4. The above-mentioned findings presented in table (5.8) confirm the association between the stakeholder management success factors and the characteristics of agile project management methodology, the correlation was of a high significance of values equivalent or higher than 0.4 and a significance of 0.0005 < p=0.05, and subsequently this finding backs up the rejection of the null hypotheses $H_0$1a-d and subsequently the acknowledgement and acceptance of the alternative hypotheses.

As shown in orange in the above table (5.8), the "Information Inputs" factor has a value of 0.508, p=0.005<0.05 (alternative hypothesis $H_0$1a), the "Stakeholder Estimation" factor has a value of 0.444, p=0.005<0.05 (alternative hypothesis $H_0$1b), the "Decision Making" factor has a value of 0.403, p=0.005<0.05 (alternative hypothesis $H_0$1c), and lastly the "Stakeholder Sustainable Support" factor has a value of 0.401, p=0.005<0.05 (alternative hypothesis $H_0$1d). All values of these factors are positive, of high significance of below p=0.05, which is regarded as highly accepted and confirms the alternative hypotheses.

5. On the global aspect; a strong association exists between the global dependent variable (characteristics of agile project management methodology) and the global independent variable (stakeholder management success factor), the Pearson's Product-Moment correlation coefficient recorded at 0.544 of a significate equals to p=0.0005 (<0.05), which indicates that participants responses were in the same direction with no significant outliers to be reported (table 5.9). This result as well supports the rejection of the Null hypothesis

H_0 and hence, the acceptance of the alternative hypothesis. This finding reflects that the participants are experienced in mega-event projects, possess reasonable knowledge and awareness about the agile project management methodology. Another rationale that would be referred to in interpreting the high consensus in participants' responses is the adequate briefings and terminologies the invitation and the questionnaire contained. Particularly around agile project management, as this considered a unique approach in the mega-event project, not commonly used outside the technology and software industry. Supplying the participants with sufficient precise information was helpful for them and beneficial to the study outcomes.

		GLBAPM	GLBSM
GLBAPM	Pearson Correlation	**1**	**.544****
	Sig. (2-tailed)		**.000**
	N	**90**	**90**
GLBSM	Pearson Correlation	**.544****	**1**
	Sig. (2-tailed)	**.000**	
	N	**90**	**90**

***. Correlation is significant at the 0.01 level (2-tailed).*

Table (5. 9): Correlation Statistics (IV & DV Global factors)

The above-listed findings and interpretations align thoroughly with the study's proposed hypothetical framework. All these results are listed in the table below:

		INFO INPUT	ESTM	DCSMK	SUSSPT	GLBAPM	GLBSM
INFOINPUT	Pearson Correlation	1	.536**	.469**	.551**	**.508****	.798**
	Sig. (2-tailed)		.000	.000	.000	**0**	.000
	N	90	90	90	90	**90**	90
ESTM	Pearson Correlation		1	.529**	.605**	**.444****	.850**
	Sig. (2-tailed)			.000	.000	**0**	.000
	N		90	90	90	**90**	90
DCSMK	Pearson Correlation			1	.645**	**.403****	.778**
	Sig. (2-tailed)				.000	.000	.000
	N			90	90	**90**	90
SUSSPT	Pearson Correlation				1	**.401****	.829**
	Sig. (2-tailed)					**.000**	.000
	N				90	**90**	90
GLBAPM	Pearson Correlation					1	**.544****
	Sig. (2-tailed)						**.000**
	N					90	**90**
GLBSM	Pearson Correlation						**1**
	Sig. (2-tailed)						
	N						**90**

Table (5. 10): Correlation Statistics Results

5.5. Factors Deletion

The purpose of the factor-deletion exercise is to ensure that the suggested factors are working coherently together and contributing positively to the study. All factors/ items will be subject to further validation and inspection for any prospective/ potential deletion using the results and data already obtained from the reliability and correlations tests.

Thoroughly examining the reliability test results, particularly the "Cronbach's Alpha if Item Deleted" values, it is noticeable that all constructs/ factors of the independent variable are reliable except for one which scored quite low; namely; "Decision Making" which reported a valued of 0.582. Eliminating the item SMCOMP "compromising conflicts" from the "Decision Making" construct will not do any better to the alpha value, it will still be below the threshold of 0.7 to consider it reliable (0.610).

Nevertheless, the correction tests reported contrast results; the "Decision Making" construct has a strong correlation with all other constructs of the independent variable as well as with the global factors of both independent and dependent variables as shown in tables (5.6), (5.7) and (5.9).

Hence, we can comfortably state that there no such item that adversely impacts the study outputs and all items will be considered in the study without a need for any deletion.

5.6. Regression Test

A regression test is used to measure the strength of a relationship between numerical variables; one-to-one (an independent variable on a dependent variable) or many-to-one (many independent variables on a dependent variable). It also utilised in predicting the variables' values (particularly the dependent variable) as well as deducting the cause-effect relationship between the variables.

A regression coefficient is referred to as (r square, R^2), and it measures the strength of an association/ relationship. Its value ranges from (0) to (+1) where (+1) demonstrates a perfect predictor. Linear Regression test is utilised to evaluate the influence level the independent variable(s) have on the dependent variable (separately or collectively), that is to assess each construct of the independent variable (stakeholder management success factor) and their influence on the dependent variable (characteristics of agile project management in mega-event

projects) and anticipate the expected change in the dependent variable value's every time the independent variable is modified/ varied. The test will undergo two (02) stages as detailed hereunder:

Stage I: The linear regression was initially performed on the independent variable by treating each construct (information inputs, stakeholder estimate, decision making, and stakeholder sustainable support) as a standalone, independent variable and test it alongside with the dependent variable global factor (characteristics of agile pm methodology in mega-event projects). The exercise is iterated accordingly four times, using each time a different construct.

Stage II: The linear regression test is next applied on the independent variable global factor (stakeholder management success factor) – all items collectively – and test it against the dependent variable global factor (characteristics of agile project management methodology in mega-event projects). The objective here is to assess the influence of all independent variable's factors/ constructs on the characteristics of agile project management methodology in mega-event projects and predict the change in the latter's value against a corresponding change in the independent variable.

The stages mentioned above consist of five (05) regression tests detailed as follow:

6. Test I: "Information Inputs" Construct Regression with the Characteristics of Agile Project Management Methodology in Mega-Event Projects:

The linear regression test was applied to anticipate and measure the change on the "characteristics of agile project management methodology in mega-event projects" upon the change of "stakeholder management success factor" identified within the "information inputs" construct. Test results are depicted graphically in the figure (5.10) below.

Model Summary [b]

Model	***R***	***R Square***	***Adjusted R Square***	*Std. Error of the Estimate*
1	**.508**[a]	**.258**	**.249**	4.45399

a. Predictors: (Constant), INFOINPUT
b. Dependent Variable: GLBAPM

Table (5. 11): Liner Regression Test – Information Inputs (IV) on DV global factor

This table (5.11) displays the values of the regression coefficient (R^2) and the adjusted R^2 (0.258 and 0.249, respectively). The regression model appears to be of a high degree of fit for the data,

which is attributed to the minimal difference between these two values. The (R^2) value of 0.258 indicates that the proportion of variance in the dependent variable can be explained by the predictor "independent variable"; that is 25.8% of "characteristics of agile project management methodology in mega-event projects" can be explained by the "Information Inputs" factor.

ANOVA table (5.12) below reports the overall significance of the regression model; how well the regression equation predicts the dependent variable "characteristics of agile project management methodology in mega-event projects", and how well it fits the data. The output is displayed, as shown below:

ANOVA [a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	**Regression**	606.352	1	606.352		
	Residual	1745.748	88	19.838	**30.565**	**.000**[b]
	Total	2352.100	89			

a. Dependent Variable: GLBAPM
b. Predictors: (Constant), INFOINPUT

Table (5. 12): Linear Regression Test (ANOVA) – Information Inputs (IV) on DV global factor

It is evident from the values shown in table (5.12) – F = 30.57 and its associated significance (p = 0.0005<0.05) – that the executed regression model was significantly well in predicting the dependent variable 'characteristics of agile project management methodology in mega-event projects' and that the model is a good predictor.

The coefficients table (5.13) hereunder supports in predicting the outcome/ dependent variable, i.e. the characteristics of agile project management methodology in mega-event projects from the predictor/ independent variable 'Information Inputs' factor. The Unstandardized Coefficients (ß) beta value of 1.281 and p=0.0005<0.05 indicates that the 'Information Inputs' positively predicts the 'characteristics of Agile Project Management methodologies' which basically restates and reassures the results already obtained from the correlation test. Also, from the same (ß) value, the regression equation can be formulated as: ***Dependent Variable (outcome variable) = 20.784 + 1.281 (Information Inputs)***

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		ß	Std. Error	Beta		
1	(Constant)	**20.784**	4.028		**5.160**	**.000**
	INFOINPUT	**1.281**	.232	.508	**5.529**	**.000**

a. Dependent Variable: GLBAPM

Table (5. 13): Linear Regression Test (Coefficients) – Information Inputs (IV) on DV global factor

The graph xx below shows the above formulated slope equation of the regression line (y = 20.784 + 1.281*x) which basically means for every additional one-unit increase in the "Independent Variable", an increase in the "Dependent Variable" is expected by an average value of 1.281 points (i.e., the "characteristics of agile project management methodologies in mega-event projects" increases by a value of 1.281 for each one unit increase in the "Information Inputs"). Graphically putting; if we scroll right or left along the x-axis by a value that represents a one-point change in "Information Inputs", the fitted line rises or drops by a value of 1.281.

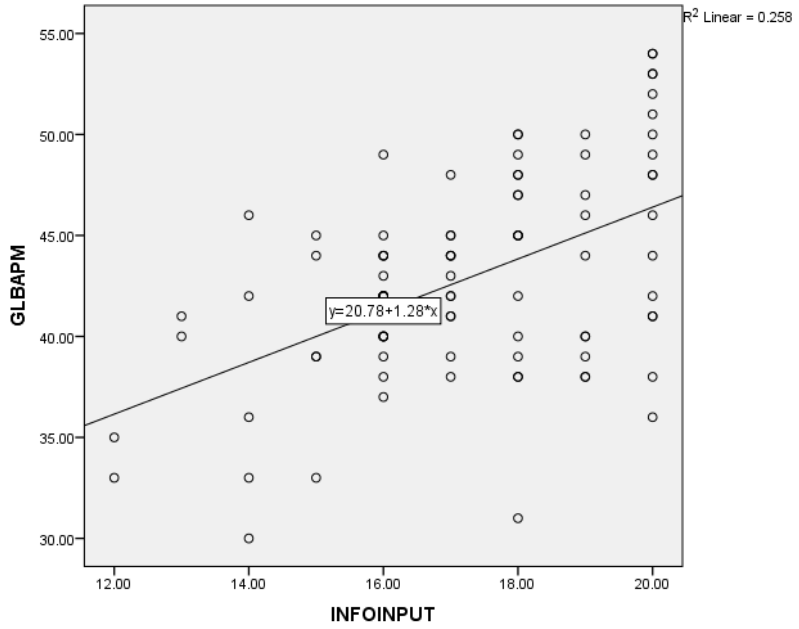


Figure (5. 10): Regression Model – Global DV and "Information Inputs" Construct

(Regression line between the "Information Inputs" factor/ construct as IV and the "Characteristics of agile project management methodology in mega-event projects" as DV).

It is evident from the linear regression test output that "Information Inputs" construct is of high significance and positively predict the "characteristics of agile project management methodology in mega-event projects".

7. Test II: “Stakeholder Estimation” Construct Regression with the Characteristics of Agile Project Management Methodology in Mega-Event Projects:

The linear regression test was applied to predict the change on the “characteristics of agile project management methodology in mega-event projects” upon the change of stakeholder management success factors identified within the “Stakeholder Estimation” construct. Test results are depicted graphically in figure (5.11).

Model Summary [b]

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	**.444**[a]	**.197**	**.188**	4.63353

a. Predictors: (Constant), ESTM
b. Dependent Variable: GLBAPM

Table (5. 14): Liner Regression Test – Stakeholder Estimate (IV) on DV global factor

This table (5.14) displays the values of the regression coefficient (R^2) and the adjusted R^2 (0.197 and 0.188, respectively). The regression model appears to be of a high degree of fit for the data, which is attributed to the minimal difference between these two values. The (R^2) value of 0.197 indicates that the proportion of variance in the dependent variable can be explained by the predictor “independent variable”; that is 19.7% of “characteristics of agile project management methodology in mega-event projects” can be explained by the “Stakeholder Estimate” factor.

ANOVA table (5.15) below reports the overall significance of the regression model; how well the regression equation predicts the dependent variable “characteristics of agile project management methodology in mega-event projects”, and how well it fits the data. The output is displayed, as shown below:

ANOVA [a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	462.778	1	462.778		
	Residual	1889.322	88	21.470	**21.555**	**.000**[b]
	Total	2352.100	89			

a. Dependent Variable: GLBAPM
b. Predictors: (Constant), ESTM

Table (5. 15): Liner Regression Test (ANOVA) – Stakeholder Estimate (IV) on DV global factor

It is evident from the values shown in the table – F = 21.56 and its associated significance (p = 0.0005<0.05) – that the executed regression model was significantly well in predicting the

dependent variable "characteristics of agile project management methodology in mega-event projects" and that the model is a good predictor.

The coefficients table (5.16) hereunder supports in predicting the outcome/ dependent variable, i.e. the characteristics of agile project management methodology in mega-event projects" from the predictor/ independent variable "Stakeholder Estimate" factor. The Unstandardized Coefficients (ß) beta value of 0.974 and p=0.0005<0.05 indicates that the "Stakeholder Estimate" positively predicts the "characteristics of Agile Project Management methodologies" which basically restates and reassures the results already obtained from the correlation test. Also, from the same (ß) value, the regression equation can be formulated as:

Dependent Variable (outcome variable) = 23.401 + 0.974 (Stakeholder Estimate)

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		ß	Std. Error	Beta		
1	(Constant)	**23.401**	4.228		**5.535**	**.000**
	ESTM	**.974**	.210	.444	**4.643**	**.000**

a. Dependent Variable: GLBAPM

Table (5. 16): Linear Regression Test (Coefficient ß) – Stakeholder Estimation Factor (IV) on global DV

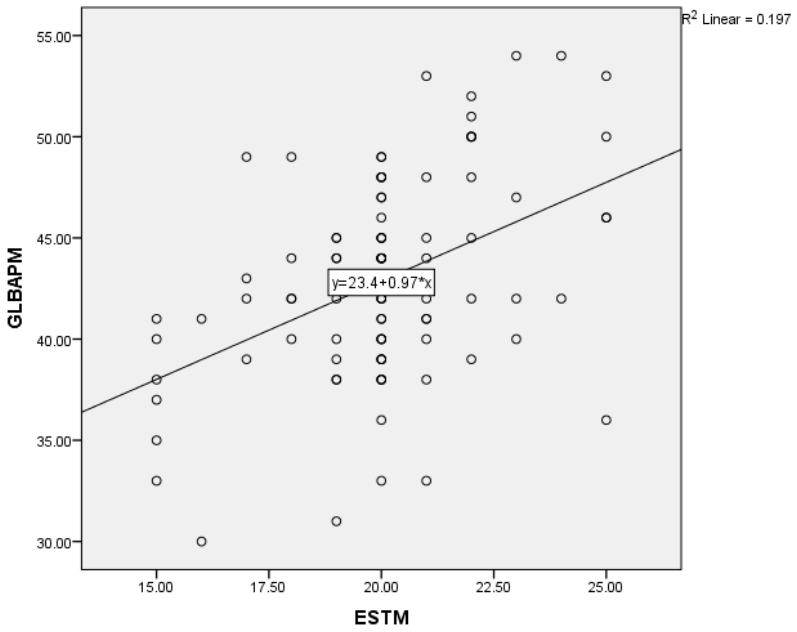


Figure (5. 11): Regression Model – Global DV and "Stakeholder Estimation" Construct

(Regression line between the "Stakeholder Estimation" factors construct as IV and the "Characteristics of APM methodology implementation in mega-event projects" as DV).

Graph (5.11) shows the above-formulated slope equation of the regression line (y = 23.40 + 0.974 *x) which basically means for every additional increase in the "Independent Variable", an increase in the "Dependent Variable" is expected by an average value of 0.974 points (i.e., "characteristics of agile project management methodology in mega-event projects" increases by a value of 0.974 unit for each one unit increase in the "Stakeholder Estimation"). And graphically, if we scroll right or left along the x-axis by a value that represents a one-point change in "Stakeholder Estimation", the fitted line rises or falls by a value of 0.974.

It is evident from the linear regression test output that "Stakeholder Estimation" construct is of high significance and positively predicts the "characteristics of agile project management methodology in mega-event projects".

8. Test III: "Decision Making" Construct Regression with the Characteristics of Agile Project Management Methodology in Mega-Event Projects:

The linear regression test was applied on the "characteristics of agile project management methodology in mega-event projects" to predict its change upon the change of stakeholder management success factor identified within the "Decision Making" construct. Test results are depicted graphically in figure (5.12).

Model Summary [b]

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	**.403**[a]	**.163**	**.153**	4.73068

a. Predictors: (Constant), DCSMK
b. Dependent Variable: GLBAPM

Table (5. 17): Liner Regression Test – Decision Making (IV) on DV Global Factor

This table (5.17) displays the values of the regression coefficient (R^2) and the adjusted R^2 (0.163 and 0.153, respectively). The regression model appears to be of a high degree of fit for the data, which is attributed to the minimal difference between these two values. The (R^2) value of 0.163 indicates that the proportion of variance in the dependent variable can be explained by the predictor "independent variable"; that is 16.3% of "characteristics of agile project management methodology in mega-event projects" can be explained by the "Decision Making" factor.

ANOVA table (5.18) below reports the overall significance of the regression model; how well the regression equation predicts the dependent variable "characteristics of agile project management methodology in mega-event projects", and how well it fits the data. The output is displayed, as shown below:

ANOVA [a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	382.722	1	382.722	17.102	.000[b]
	Residual	1969.378	88	22.379		
	Total	2352.100	89			

a. Dependent Variable: GLBAPM
b. Predictors: (Constant), DCSMK

Table (5. 18): Liner Regression Test (ANOVA) – Decision Making (IV) on DV Global Factor

It is evident from the values shown in the table (5.18) – F = 17.102 and its associated significance (p = 0.0005 <0.05) – that the executed regression model was significantly well in predicting the dependent variable "characteristics of agile project management methodology in mega-event projects" and that the model is a good predictor.

The coefficients table (5.19) hereunder supports in predicting the outcome/ dependent variable, i.e. the characteristics of agile project management methodology in mega-event projects" from the predictor/ independent variable "Decision Making" factor. The Unstandardized Coefficients (ß) beta value of 1.317 and p=0.0005<0.05 indicates that the "Decision Making" positively predicts the "characteristics of agile project management methodology" which basically restates and reassures the results already obtained from the correlation test. Also, from the same (ß), value the regression equation can be formulated as: ***Dependent Variable (outcome variable) = 26.871+ 1.317 (Decision Making)***

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	**26.871**	3.908		6.876	.000
	DCSMK	**1.317**	.319	.403	4.135	.000

a. Dependent Variable: GLBAPM

Table (5. 19): Linear Regression Test (Coefficient ß) – Decision Making Factor (IV) on Global DV

The graph xx below shows the above-formulated slope equation of the regression line y = 26.871 + 1.317*x) which basically means for every additional increase in the "Independent Variable", an increase in the "Dependent Variable" is expected by an average value of 1.32 points (i.e., "Characteristics of Agile Project Management methodology in mega-event projects" increases by a value of 1.32 unit for each one unit increase in the "Decision Making").

Graphically if we scroll right or left along the x-axis by a value that represents one point change in “Decision Making”, the fitted line rises or falls by a value of 1.32.

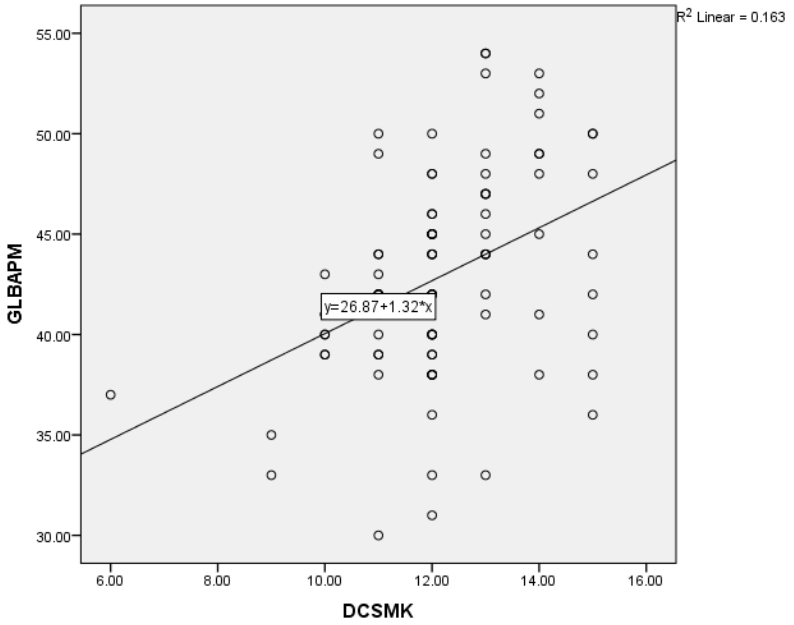


Figure (5. 12): Regression Model – Global DV and “Decision Making” Construct

(Regression line between the “Decision Making” factor as IV and the “Characteristics of Agile Project Management methodology implementation in mega-event projects” as DV).

It is evident from the linear regression test output that “Decision Making” construct is of high significance and positively predicts the “characteristics of agile project management methodology in mega-event projects”.

9. Test IV: “Stakeholder Sustainable Support” Construct Regression with the Characteristics of Agile PM methodology in Mega-Event Projects:

The linear regression test was applied on the “characteristics of agile project management methodology in mega-event projects” to predict its change upon the change of stakeholder management success factor identified within the “Stakeholder Sustainable Support” construct. Test results are depicted graphically in figure (5.13).

Model Summary [b]

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	**.401**[a]	**.161**	**.151**	4.73624

a. Predictors: (Constant), SUSSPT
b. Dependent Variable: GLBAPM

Table (5. 20):Table 5.20: Liner Regression Test – Stakeholder Sustainable Support (IV) on DV Global Factor

This table (5.20) displays the values of the regression coefficient (R^2) and the adjusted R^2 (0.161 and 0.151, respectively). The regression model appears to be of a high degree of fit for the data, which is attributed to the minimal difference between these two values. The (R^2) value of 0.161 indicates that the proportion of variance in the dependent variable can be explained by the predictor "independent variable"; that is 16.1% of "characteristics of agile project management methodology in mega-event projects" can be explained by the "Stakeholder Sustainable Support" factor.

ANOVA table (5.21) below reports the overall significance of the regression model; how well the regression equation predicts the dependent variable "characteristics of agile project management methodology in mega-event projects", and how well it fits the data. The output is displayed, as shown below:

ANOVA [a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	378.090	1	378.090	16.855	.000[b]
	Residual	1974.010	88	22.432		
	Total	2352.100	89			

a. Dependent Variable: GLBAPM
b. Predictors: (Constant), SUSSPT

Table (5. 21): Liner Regression Test (ANOVA) – Stakeholder Sustainable Support (IV) on DV Global Factor

It is evident from the values shown in the table (5.21) – F = 16.855 and its associated significance (p = 0.0005 <0.05) – that the executed regression model was significantly well in predicting the dependent variable "characteristics of agile project management methodology in mega-event projects" and that the model is a good predictor.

The coefficients table (5.22) hereunder supports in predicting the outcome/ dependent variable, i.e. the characteristics of agile project management methodology in mega-event projects" from the predictor/ independent variable "Stakeholder Sustainable Support" factor. The Unstandardized Coefficients (ß) beta value of 1.396 and p=0.0005<0.05 indicates that the "Stakeholder Sustainable Support" positively predicts the "characteristics of agile project management methodologies" which basically restates and reassures the results already obtained

from the correlation test. Also, from the same (ß) value, the regression equation can be formulated as:

Dependent Variable = 24.780 + 1.396 (Stakeholder Sustainable Support)

The graph (5.12 below shows the above-formulated slope equation of the regression line (y = 24.780 + 1.396*x) which basically means for every additional increase in the "Independent Variable", an increase in the "Dependent Variable" is expected by an average value of 1.4 points (i.e., "characteristics of agile project management methodology in mega-event projects" increases by a value of 1.4 unit for each one unit increase in the "Stakeholder Sustainable Support"). Graphically if we scroll right or left along the x-axis by a value that represents a one-point change in "Stakeholder Sustainable Support", the fitted line rises or falls by a value of 1.4.

Coefficients [a]

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	Std. Error	Beta		
1	(Constant)	**24.780**	4.442		5.579	.000
	SUSSPT	**1.396**	.340	.401	4.105	.000

a. Dependent Variable: GLBAPM

Table (5. 22): Linear Regression Test (Coefficient ß) – Stakeholder Sustainable Support Factor (IV) on global DV

It is evident from the linear regression test output that "Stakeholder Sustainable Support" construct is of high significance and positively predicts the "characteristics of agile project management methodology in mega-event projects".

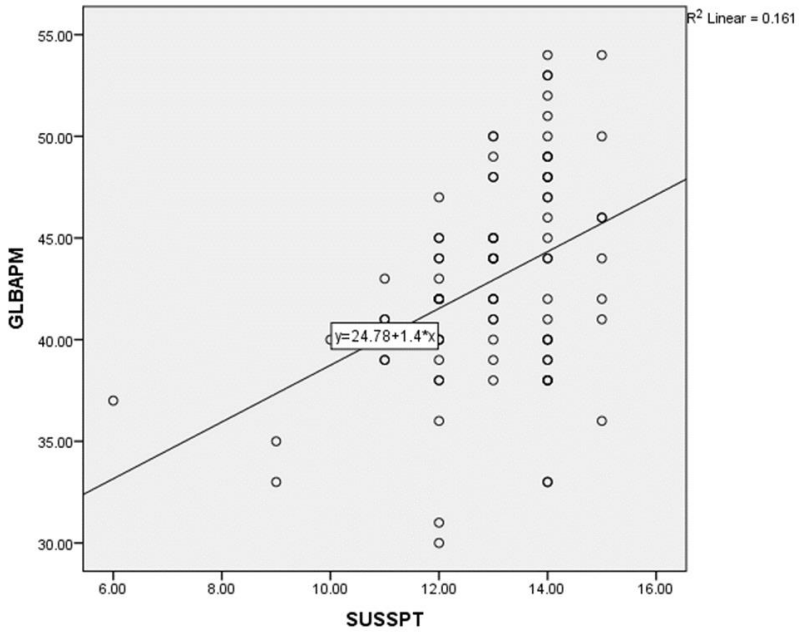


Figure (5. 13): Regression Model – Global DV and "Sustainable Support" Construct

(Regression line between the "Stakeholder Sustainable Support" factor as IV and the "Characteristics of Agile Project Management methodology implementation in mega-event projects" as DV).

10. Test V: "Stakeholder Management Success Factor" Global Independent Variable Regression with the "Characteristics of Agile PM methodology in Mega-Event Projects" Global Dependent Variable:

The linear regression test was applied to the "characteristics of agile project management methodology in mega-event projects" to predict its change upon the change of independent variable global factor "Stakeholder Management success factors". Test results are depicted graphically in figure 5.13.

Model Summary [b]

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	**.544**[a]	**.296**	**.288**	4.33827

a. Predictors: (Constant), GLBSM
b. Dependent Variable: GLBAPM

Table (5. 23): Liner Regression Test – IV Global Factor on DV Global Factor

This table (5.23) displays the values of the regression coefficient (R^2) and the adjusted R^2 (0.296 and 0.28, respectively). The regression model appears to be of a high degree of fit for the data, which is attributed to the minimal difference between these two values. The (R^2) value of 0.296 indicates that the proportion of variance in the dependent variable can be explained by the

predictor “independent variable”; that is 29.6% of “characteristics of agile project management methodology in mega-event projects” can be explained by the “Stakeholder Management Success Factors” factor.

ANOVA table (5.24) below reports the overall significance of the regression model; how well the regression equation predicts the dependent variable “characteristics of agile project management methodology in mega-event projects”, and how well it fits the data. The output is displayed, as shown below:

ANOVA [a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	695.888	1	695.888	36.975	.000[b]
	Residual	1656.212	88	18.821		
	Total	2352.100	89			

a. Dependent Variable: GLBAPM
b. Predictors: (Constant), GLBSM

Table (5. 24): Liner Regression Test (ANOVA) – IV Global Factor on DV Global Factor

It is evident from the values shown in the table (5.24) – F = 36.975 and its associated significance (p = 0.0005<0.05) – that the executed regression model was significantly well in predicting the dependent variable “characteristics of agile project management methodology in mega-event projects” and that the model is a good predictor.

The coefficients table (5.25) hereunder supports in predicting the outcome/ dependent variable, i.e. the characteristics of agile project management methodology in mega-event projects” from the predictor/ independent variable “Stakeholder Management Success Factors” factor. The Unstandardized Coefficients (ß) beta value of 1.281 and p=0.0005<0.05 indicates that the “Stakeholder Management Success Factors” positively predicts the “characteristics of agile project management methodologies” which basically restates and reassures the results already obtained from the correlation test. Also, from the same (ß) value, the regression equation can be formulated as:

Dependent Variable = 14.126 +0.461 ***(Stakeholder Management Success Factors)***

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	**14.126**	4.754		2.971	.004
	GLBSM	**.461**	.076	.544	6.081	.000

a. Dependent Variable: GLBAPM

Table (5. 25): Linear Regression Test (Coefficient ß) – IV Global Factor on DV Global Factor

The graph xx below shows the above formulated slope equation of the regression line (y = 14.126 + 0.461*x) which basically means for every additional increase in the "Independent Variable", an increase in the "Dependent Variable" is expected by an average value of 0.461 points (i.e., "Characteristics of Agile Project Management methodology in mega-event projects" increases by a value of 1.4 unit for each one unit increase in the "Stakeholder Management Success Factors". Graphically if we scroll right or left along the x-axis by a value that represents a one-point change in "Stakeholder Management Success Factors", the fitted line rises or falls by a value of 0.461.

It is evident from the linear regression test output that "Stakeholder Management Success Factors" construct is of high significance and positively predicts the "characteristics of agile project management methodology in mega-event projects".

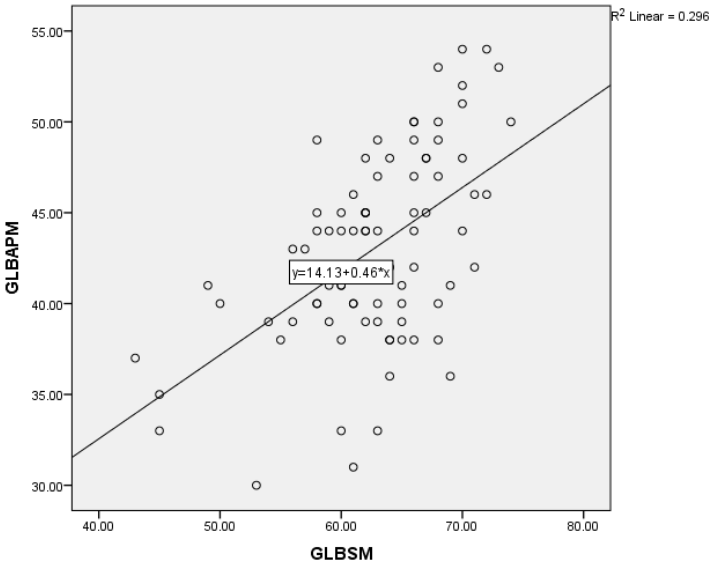


Figure (5. 14): Regression Model – Global DV and Global IV

(Regression line between the "Stakeholder Management Success Factor" as IV and the "Characteristics of Agile Project Management methodology implementation in mega-event projects" as DV).

All regression tests' results presented earlier are gathered and summarised hereunder in table (5.26) and table (5.27).

Test	*Factor*	*R Square*	*Adjust R Square*	*Std. Error of the Estimate*	*F*	*Sig*
I	Information Input	**0.258**	**0.258**	4.63353	**30.565**	**.000[b]**
II	Estimate	**0.197**	**0.188**	4.63353	**21.555**	**.000[b]**
III	Decision Making	**0.163**	**0.153**	4.73068	**17.102**	**.000[b]**
IV	Sustainable Support	**0.161**	**0.151**	4.73624	**16.855**	**.000[b]**
V	Global IV	**0.296**	**0.288**	4.33827	**36.975**	**.000[b]**

Table (5. 26): Linear Regression Tests (combined results); IV factors, IV global factor and DV global factor

Test	*Factor*	*Constant*	*B*	*Sig*
I	Information Input	20.784	**1.281**	**.000[b]**
II	Estimate	23.401	**0.974**	**.000[b]**
III	Decision Making	26.871	**1.317**	**.000[b]**
IV	Sustainable Support	24.780	**1.396**	**.000[b]**
V	Global IV	14.126	**0.461**	**.000[b]**

Table (5. 27): ß values of all Linear Regression

5.7. Summary

In this chapter, the data gathered from the survey questionnaire instrument were inputted in the specialised software (SPSS) and analysed thoroughly using various statistical tests and measures. Various statistical tests (reliability, correlation and regression) were performed on the study's variable, independent variable presented by "Stakeholder management success factors" and the dependent variable exemplified by "characteristics of agile project management methodology in mega-event projects" were.

The analysed tests' output presented in here will be further looked at, discussed thoroughly in the following chapter and challenged to acquire a deeper understanding and establish solid and sound grounds on which the acceptance or rejection of the null hypotheses proposition shall relay.

6. CHAPTER 6: DISCUSSION

6.1. Introduction

Based on the statistical tests performed on the collected data and the analysis of SPSS outcomes discussed in the previous chapter, this chapter will tackle in further detail these outcomes in line with literature review findings, the suggested theoretical framework, and the hypothetical propositions laid out in chapters 3.

Additionally, all SPSS results will be further re-looked at, thoroughly challenged and inspected in order to fully comprehend the reasons and rationale that yielded these results. Also, further examinations of the literature might be undertaken to explain any deviations in the results of what was projected. The proposed null hypotheses will be checked and challenged in accordance with the SPSS results obtained in the previous chapter, and subsequently, agreement or refusal of the Null hypotheses will be reported.

6.2. Null Hypotheses Testing

Notwithstanding the fact that the correlation test is used to verify the association between the variables. However, it does not prove or provide any evidence if influence does exist between these variables. Hence the linear regression test was applied to measure and assess such influence if existed. The regression test was run broadly on all success factors of the stakeholder management (global independent variable) to assess their collective influence on the characteristics of agile project management methodology in mega-event projects (global dependent variable).

It was also executed individually on the construct-level of the stakeholder management success factors (the independent variable) to check each construct's impact and effects on the APM characteristics in mega-event projects (the global dependent variable). The regression test outcomes were presented in the previous chapter (table 5.26 and 5.27). However, these findings will be analysed hereunder in parallel with the proposed null hypotheses as following:

> ***H_o: The Stakeholder Management Success Factors are not influencing the Characteristics of Agile project management methodology in mega-events projects***

The aforementioned hypothesis **H_o** is presumed that there is no relationship or any kind of influence between the stakeholder management success factors (represented as the independent

variable IV) and the characteristics of agile project management methodology in mega-event projects (the dependent variable DV), however the correlation test performed in section xx and xx asserts the opposite and assures the association/ relationship between these two variables which thus supports the refusal/ rejection of this proposed null hypothesis **H_o**.

		INFO INPUT	ESTM	DCSMK	SUSSPT	GLBAPM	GLBSM
INFOINPUT	Pearson Correlation	1	.536**	.469**	.551**	**.508****	.798**
	Sig. (2-tailed)		.000	.000	.000	**0**	.000
	N	90	90	90	90	**90**	90
ESTM	Pearson Correlation		1	.529**	.605**	**.444****	.850**
	Sig. (2-tailed)			.000	.000	**0**	.000
	N		90	90	90	**90**	90
DCSMK	Pearson Correlation			1	.645**	**.403****	.778**
	Sig. (2-tailed)				.000	.000	.000
	N			90	90	**90**	90
SUSSPT	Pearson Correlation				1	**.401****	.829**
	Sig. (2-tailed)					**.000**	.000
	N				90	**90**	90
GLBAPM	Pearson Correlation					1	**.544****
	Sig. (2-tailed)						**.000**
	N					90	**90**
GLBSM	Pearson Correlation						**1**
	Sig. (2-tailed)						
	N						**90**

Table (6. 1): Correlation Statistics Results

A further test was undertaken to support the repudiation/ refusal of the null hypothesis in fully and affirms the influence of the stakeholder management success factors on the characteristics of APM methodology. The linear regression test was executed to foresee the change in the characteristics of APM methodology based on the change in stakeholder management success factors (recognised in four constructs). F value was recorded at 36.975 of associated significance (p = 0.0005 < 0.05) and R^2 and adjusted R^2 were reported at 0.296 and 0.288, respectively. These values indicate that the executed regression model was significantly well in predicting the dependent variable 'characteristics of Agile APM methodology in mega-event projects' and that the model was a good fit for the data.

Such a high degree of influence from stakeholder management success factors on the characteristics of Agile project management methodology in mega-event projects is potent evidence on the relationship between both variables, and thus the null hypothesis **H_o is rejected**.

H_o1a: 'Characteristics of Agile project management methodology in mega-event projects is not affected/ influenced by the Information Inputs'.

The above null hypothesis ***H_o1a*** suggests no influence on the 'characteristics of agile project management methodology in mega-event projects' by the 'Information Inputs' construct of the stakeholder management success factors (i.e. the absence of influence of the latter on the former).

The factors of the 'Information Inputs' construct were derived from the literature and grouped on a scale of 4 items. The Cronbach's Alpha test was performed on the construct to measure its reliability, and the test revealed the value of alpha of 0.744. This value regarded as highly acceptable, according to George and Mallery (2011). A good correlation was also recorded in between construct's items as well as between other constructs' within the independent variable. That is; between the 'Information Inputs' construct and the following constructs of the 'Stakeholder Management success factor': 'Stakeholder Estimation', 'Decision Making', and 'Stakeholder Sustainable Support'.

A moderately strong correlation (Pearson's coefficient (r) = 0.508, p = 0.0005, <0.05) was also reported between the 'Information Inputs' construct and the global dependent variable (i.e., characteristics of agile project management methodology in mega-event projects) as shown in table (5.8), (5.10) and interpreted exhaustively in section 5.4 of the previous chapter.

The influence of the 'Information Inputs' construct on the 'characteristics of agile project management methodology in mega-event projects' was also measured. The linear regression test was used to predict and assess the change in the 'characteristics of agile project management methodology in mega-event projects' based on the change of the items identified within the 'Information Inputs' construct. The test results –as presented in table (5.26) and (5.27) – show a significant regression of F value reported as 30.565 of an associated significance of p = 0.0005, < 0.05, and R^2 and adjusted R^2 were 0.258 and 0.249 respectively. This shows that the regression model was a good fit for the data and of a high significance. The regression line slope between the 'Information Inputs' and 'Characteristics of APM methodology in mega-event projects' can be written as y=20.784 + 1.281*x.

Based on the above, the 'Information Inputs' is a positive predictor of a high significance on the 'characteristics of agile project management methodology in mega-event projects'. The

influence of the 'Information Inputs' was as well potent, and of 95% significance, thus the null hypothesis **H_o1a is rejected** (Frick, 1996).

H_o1b: 'The characteristics of agile project management methodology characteristics in mega-event projects are not affected/ influenced by Stakeholder Estimate'.

The above null hypothesis **H_o1b** suggests no influence in the 'characteristics of agile project management methodology in mega-event projects' by the 'Stakeholder Estimate' construct of the stakeholder management success factors (i.e. the absence of influence of the latter on the former).

The factors of the 'Stakeholder Estimate' construct were derived from the literature and grouped on a scale of 5 items. The Cronbach's Alpha test was performed on the construct to measure its reliability. The test revealed a value of alpha of 0.714. This value is regarded as highly acceptable, according to George and Mallery (2011). A good correlation was also recorded in between the construct's items and in between other constructs' items within the independent variable. That is; between 'Estimate' construct and the following constructs of the 'Stakeholder Management success factor': 'Information Inputs', 'Decision Making', and 'Sustainable Support'. The Pearson's coefficient (r) were 0.536, 0.529 and 0.604 respectively

A high correlation was also reported between 'Stakeholder Estimate' cluster and the items of that of the dependent variable (i.e., characteristics of agile project management methodology in mega-event projects) as shown in tables (5.8) and (5.10) and interpreted exhaustively in section 5.4 of the previous chapter.

A moderately strong correlation (Pearson's coefficient (r) = 0.444, p = 0.0005, <0.05) was reported between the 'Stakeholder Estimate' cluster and the global dependent variable (i.e., characteristics of Agile project management methodology in mega-event projects) as shown in table 5.10 and interpreted exhaustively in section 5.4 of the previous chapter.

The influence of the 'Estimation' construct on the 'characteristics of agile project management methodology in mega-event projects' was also measured. The linear regression test was used to anticipate and assess the change in the 'characteristics of agile project management methodology in mega-event projects' based on the change of the items identified within the 'Estimation' construct. The test results –as presented in tables (5.26) and (5.27) – shows a significant regression of F value reported as 21.555 of an associated significance of p = 0.0005 <0.05, and R^2 and adjusted R^2 were 0.197 and 0.188 respectively. This shows that the

regression model was of a high statistical significance and of a high degree of goodness of fit. The regression line slope between the 'Stakeholder Estimate' and 'Characteristics of agile project management methodology in mega-event projects) can be written as: y=23.401+ 0.974*x.

Based on the above, the 'Stakeholder Estimate' is a positive predictor of high significance influence on the 'characteristics of agile project management methodology in mega-event projects'. Thus the null hypothesis **H_o1b is rejected**.

H_o1c: '*The characteristics of agile project management methodology in mega-event projects are not affected/ influenced by Decision Making'.*

The above null hypothesis H_o1c suggests no influence on the 'characteristics of agile project management methodology in mega-event projects' by the 'Decision Making' construct of the Stakeholder Management success factors (i.e. the absence of influence of the latter on the former).

The factors of the 'Decision Making' construct were also derived from the literature and grouped into a scale of three (03) items. The Cronbach's Alpha test was performed on the construct to measure its reliability. The analysis revealed a value of alpha of 0.610 after the deletion of 'compromising conflicts' item within the construct, as it yielded an Alpha value of 0.582, which is regarded as unacceptable. However, the whole construct –including this item had a quite high satisfactory result in the regression test –, this was kept in the study. This might be attributed to the fact that the participants have underestimated the significance and importance of this element when managing stakeholder and that might be attributed to their inexperience and unfamiliarity around it and how it is being practised in projects as well as it might be attributed to their poor negotiation skills (Abma 2000).

A high correlation was recorded between the construct's items and other constructs' items within the independent variable. That is; between 'Decision Making' construct and the following constructs of the 'stakeholder management success factor': 'Information Inputs', 'Stakeholder Estimate', and 'Stakeholder Sustainable Support' constructs and the Pearson's coefficient (r) were 0.469, 0.529 and 0.645 respectively.

A moderate positive correlation (0.403, p= 0.0005, < 0.05) was also reported between 'Decision Making' construct and the global dependent variable (i.e., characteristics of Agile project

management methodology in mega-event projects) as shown in tables (5.26) and (5.27) and interpreted exhaustively in section 5.4 of the previous chapter.

The influence of 'Decision Making' construct on the 'characteristics of agile project management methodology in mega-event projects' was also measured. The linear regression test was used to predict and assess the change on the 'characteristics of agile project management methodology in mega-event projects' upon the change of the factors identified within the 'Decision Making' construct. The test results –as presented in table (5.10) – shows a significant regression model of F value reported as 17.102 of an associated significance of p = 0.0005 < 0.05, and R^2 and adjusted R^2 were 0.163 and 0.153 respectively. This shows that the regression model was of a high statistical significance and a good fit for the data. The regression line slope between the 'Decision Making' and 'Characteristics of APM methodology in mega-event projects) can be written as: y=26.871+ 1.317*x.

Based on the above, the 'Decision Making' is a positive predictor of high significance for the 'characteristics of agile project management methodology in mega-event projects'. The influence of the 'Decision Making' was as well potent and of 95% significance, thus the null hypothesis **H_o2c is rejected**.

H_o1d: 'The characteristics of the agile project management methodology in mega-event projects are not affected/ influenced by the Stakeholder Sustainable Support'.

The aforesaid null hypothesis H_o1d suggests no influence on the 'characteristics of agile project management methodology in mega-event projects' by the 'Stakeholder Sustainable Support' construct of the stakeholder management success factors (i.e. the absence of influence of the latter on the former).

The factors of the 'Stakeholder Sustainable Support' construct were derived from the literature and grouped in a scale of three (03) items. The Cronbach's Alpha test was performed on the construct to measure its reliability. The test revealed a value of alpha of 0.698 (≈0.7). This value is regarded as acceptable, according to George and Mallery (2011).

A good correlation was also recorded between the items of this scale and other scales' items within the same variable (independent variable). That is; between 'Stakeholder Sustainable Support' and the following constructs of the 'stakeholder management success factor': 'Information Inputs', 'Stakeholder Estimate', and 'Decision Making' constructs. The Pearson's

coefficient (r) were 0.551, 0.605, 0.645 respectively, i.e. a moderately strong correlation exists between these constructs.

A moderately strong correlation was also reported between 'Stakeholder Sustainable Support' cluster's items and the items of that of the dependent variable (i.e. characteristics of agile project management methodology in mega-event projects) as shown in table (6.10) and interpreted exhaustively in the section 5.4 of the previous chapter (Pearson's Correlation (r) = 0.401).

The influence of 'Stakeholder Sustainable Support' construct on the 'characteristics of agile project management methodology in mega-event projects' was also measured. The linear regression test was used to predict and assess the change on the 'characteristics of agile project management methodology in mega-event projects' upon the change of the factors identified within the 'Sustainable Support' construct. The test results –as presented in tables (5.26) and (5.27) – shows a significant regression model of F value reported as 16.855 of an associated significance of $p = 0.0005 < 0.05$, and R^2 and adjusted R^2 were 0.161 and 0.151 respectively. This shows that the regression model was of a high statistical significance and a good fit for the data. The regression line slope between the 'Stakeholder Sustainable Support' and 'characteristics of APM methodology in mega-event projects) can be written as: y=24.780+ 1.396*x.

Based on the above, the 'Stakeholder Sustainable Support' is a positive predictor of high significance on the 'characteristics of agile project management methodology in mega-event projects'. The influence of the 'Stakeholder Sustainable Support' was as well potent, and of 95% significance, thus the null hypothesis **H_o2d is rejected**.

H_o2: 'The Stakeholder Management Success factors collectively have the same degree or level of influence on the Characteristics of Agile project management methodologies in the mega-event projects as of each factor individually'.

The above-mentioned hypothesis H_o2 deals with the influence of the collective factors of the stakeholder management as well as the influence of these factors separately on the characteristics of agile project management methodology in mega-event projects. The latter (individual influences) was validated through the discussion of the null hypothesis H_o1a-d presented above and consequently, the rejection of those hypotheses.

Through examining the values resulting from the linear regression test (test V) that was applied on the (IV) global factor over the (DV) global factor, it is conspicuous that the value of influence

significance F = 36.975 (all factors/ constructs collectively) is higher than that of each independent variables (individual constructs), refer to the values of F in tables (5.26). In addition the same test revealed a higher value of R^2 (0.296), that is 30% of the change in the characteristics of agile project management methodology in mega-event projects can be interpreted by the change in the Stakeholder Management success factors (global independent variable), which is high percentage, higher than any other individual construct. The regression model is a good fit for the data as the variance between $R^{2,}$ and adjusted R^2 was minimal (0.296 and 0.288, respectively), and the standard error of estimate for the global independent factor is the lowest value compared to the individual factors.

Accordingly, the integration of all stakeholder management success factors will have the most vigorous influence on the characteristics of agile project management in mega-event projects and accordingly, the **null hypothesis $H_0$2 is rejected**.

Additionally, tables (5.26) and (5.27) shows regression test values of 'Information Inputs' and 'Stakeholder Estimate' are comparatively higher than those of the other factors, namely; 'Decision Making' and 'Stakeholder Sustainable Support', which matches Yang et al. (2009) proposal of an effective stakeholder management framework. They have claimed that the items of these factors have the most substantial influence and significance on the successful management of stakeholder.

Based on the above observation of the results, factors 'Information Inputs' and 'Stakeholder Estimate' may be grouped together as primary factors, whereas the other remaining two (Decision Making and Sustainable Support) can be assembled as secondary factors.

In an attempt to comprehend the impact these two newly formed groups have on the characteristics of agile project management methodology in mega-event projects, a linear regression test was applied on these groups and the global dependent variable. The results are displayed hereunder in table (6.1) (the values for global IV are listed for comparison purposes only).

Factor	*R*	*R Square*	*Adjust R Square*	*Std. Error of the Estimate*	*F*	*Sig*
Primary Factors	**0.540**	**0.291**	**0.283**	4.35172	**36.203**	**.000**
Secondary Factor	**0.443**	**0.197**	**0.188**	4.63380	**21.542**	**.000**
Global IV		**0.296**	**0.288**	4.33827	**36.975**	**.000**

Table (6. 2): Linear Regression Tests Results; Primary and Secondary Factors

The figures shown in the above table confirms the categorisation proposed for the factors into primary and secondary constructs. Examining the values of R^2 and F, it is prominent that the primary factors' construct has a stronger influence and explain the characteristics of agile project management methodology in mega-event projects more than the secondary factors' construct.

In spite that the secondary factors may have less impact compared to the primary ones, they nevertheless still positively contribute when assembled with the primary factors. Hence the influence at its optimal state happens when of all four factors integrate and concurrently appear, which again asserts the **rejection of the Null hypothesis $H_0$3.**

6.3. Multicollinearity

Multicollinearity is an issue that appears with the regression test when one or more of the predictors (independent variables) correlate highly/ show high correlation with the others predictors (Salmerón 2016).

In our case, there is a possibility that the regression model results are affected by the Multicollinearity relationship. Thus in order to validate these results and investigate on the mentioned phenomenon, the Variance Inflation Factor analysis (VIF) will be applied; each time by treating one of the independent variables as a dependent variable and running the test across the other remaining independent variables and repeating the same for all other IVs. If the VIF value exceeds 3.3 (threshold), then there is a problem with Multicollinearity (Kock and Lynn, 2012)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ESTM	0.566	**1.765**
	DCSMK	0.541	**1.85**
	SUSSPT	0.484	**2.067**
	GLBAPM	0.757	**1.321**

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	DCSMK	0.552	**1.811**
	SUSSPT	0.503	**1.988**
	GLBAPM	0.704	**1.42**
	INFOINPUT	0.591	**1.692**

Coefficients[c]

Model		Collinearity Statistics	
		Tolerance	VIF
1	SUSSPT	0.559	**1.789**
	GLBAPM	0.697	**1.435**
	INFOINPUT	0.568	**1.761**
	ESTM	0.556	**1.798**

Coefficients[d]

Model		Collinearity Statistics	
		Tolerance	VIF
1	GLBAPM	0.687	**1.457**
	INFOINPUT	0.598	**1.673**
	ESTM	0.596	**1.678**
	DCSMK	0.658	**1.521**

Coefficients[e]

Model		Collinearity Statistics	
		Tolerance	VIF
1	INFOINPUT	0.623	**1.605**
	ESTM	0.555	**1.8**
	DCSMK	0.546	**1.832**
	SUSSPT	0.457	**2.188**

a. Dependent Variable: INFOINPUT
b. Dependent Variable: ESTM
c. Dependent Variable: DCSMK
d. Dependent Variable: SUSSPT
f. Dependent Variable: GLBAPM

Table (6. 3): Multicollinearity tests' outputs

Scrutinising the Multicollinearity test outputs and the values of VIF displayed in the table (6.2) above, it is notable -for all tests- that VIF recorded below 3.3 and hence there is a weak Multicollinearity across the independent variables and the impact of the regression model can be considered negligible. This further corroborates the findings laid earlier and supports the hypothetical propositions and theoretical framework.

6.4. Findings Summary

From the various tests' outputs and detailed analysis provided in the previous chapter alongside the Null hypotheses discussion laid out here, the study findings can be summed up as follows:

On the macro scale, the correlation between the Stakeholder Management Success factors (integration of all four factors) and the characteristics of Agile project management in mega-event projects is found to be evident and of high significance and influence. Moreover, the study revealed and demonstrated that the change in the characteristics of APM methodology in mega-event projects could be predicated upon the change in the Stakeholder Management success factors.

In contrary and on the micro scale, each factor (constructs) of the 'stakeholder management success factor' found to be positively influencing and strongly correlated with the characteristics of APM methodology in mega-event projects as well as highly correlated with other factors (constructs) of the stakeholder management success factor. Hence all of the identified fifteen (15) elements (classified in four constructs) are acceptable without any exclusion (though one element/ item found to be of weak reliability, however, the regression test showed high correlation and significance, and as pointed out earlier that weakness is attributed to participants inexperience and unfamiliarity around the factor as well as their poor negotiation skills (Abma 2000).

The factors of the stakeholder 'Information Inputs' and 'Stakeholder Estimate' were more influential on the successful implementation of APM methodology within mega-event projects in comparison with the stakeholder 'Decision Making' and 'Stakeholder Sustainable Support' factors. Consequently, 'Information' and 'Stakeholder Estimate' can be regarded as primary factors whereas the other two; 'Decision Making' and 'Stakeholder Sustainable Support' as secondary factors.

However, despite regarding these factors as secondary factors, they do still have a significant effect if collectively and integratively acted alongside the primary factors. Thus, the influence of all factors is stronger than the primary factors alone. The study accordingly suggests that all factors of the stakeholder management success factors to be considered to achieve an optimum influence.

6.5. Revised Conceptual Model

The theoretical framework suggested in chapter 3 can now be considered as valid model per the tests' results. However, it could be revisited and slightly amended to reflect the proposed categorisation of the factors (to primary and secondary). Hereunder the modified version of the conceptual model (figure 6.1), the arrows represent the influence direction, and their thickness represents the influence strength.

The light blue line represents the direct and evident influence between the secondary stakeholder management success factor and the characteristics of agile project management methodology in the mega-event context. The dark blue thick line represents a stronger relationship influence that exists among the primary stakeholder management success factors

and APM characteristics, and finally, the bold navy line exemplifies the most significant influence that presents between the stakeholder management success factors (all factors collectively) on agile project management characteristics in mega-event contexts. A detailed version of the model is represented in figure (6.2).

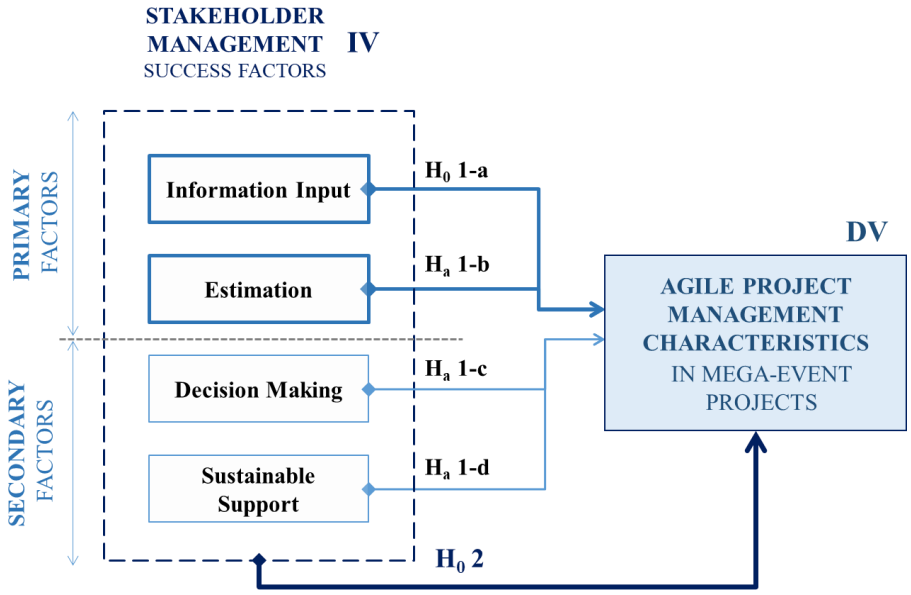


Figure (6. 1): Revised Theoretical Framework (high-level)

6.6. Summary

In this chapter, a thorough discussion on the SPSS outputs was conducted in line with the literature review findings, the hypothetical propositions, and the suggested theoretical/ conceptual framework.

The intensive discussion alongside the SPSS tests analysis resulted on the rejection on the Null hypotheses and consequently the acceptance of the alternative hypotheses and hence revealed of evident and significant relationships of strong influence amongst study's variables on different scales. A positive influence is found globally between the Stakeholder Management Success Factors and the Characteristics of Agile project management methodology in mega-event projects as well as individually between each factor/ construct of the S Stakeholder Management Success Factors on the of APM Characteristics. These influences were found to be of significant and robust effect and stronger if all factors were collectively occurred and simultaneously acted.

Further analysis of the data was performed while discussing the finding which supported in classifying factors/ constructs based on their influence into two groups; primary and secondary.

Accordingly and based on the outline above, the study aims were accomplished, and the achieved results were in line and satisfactorily adequate.

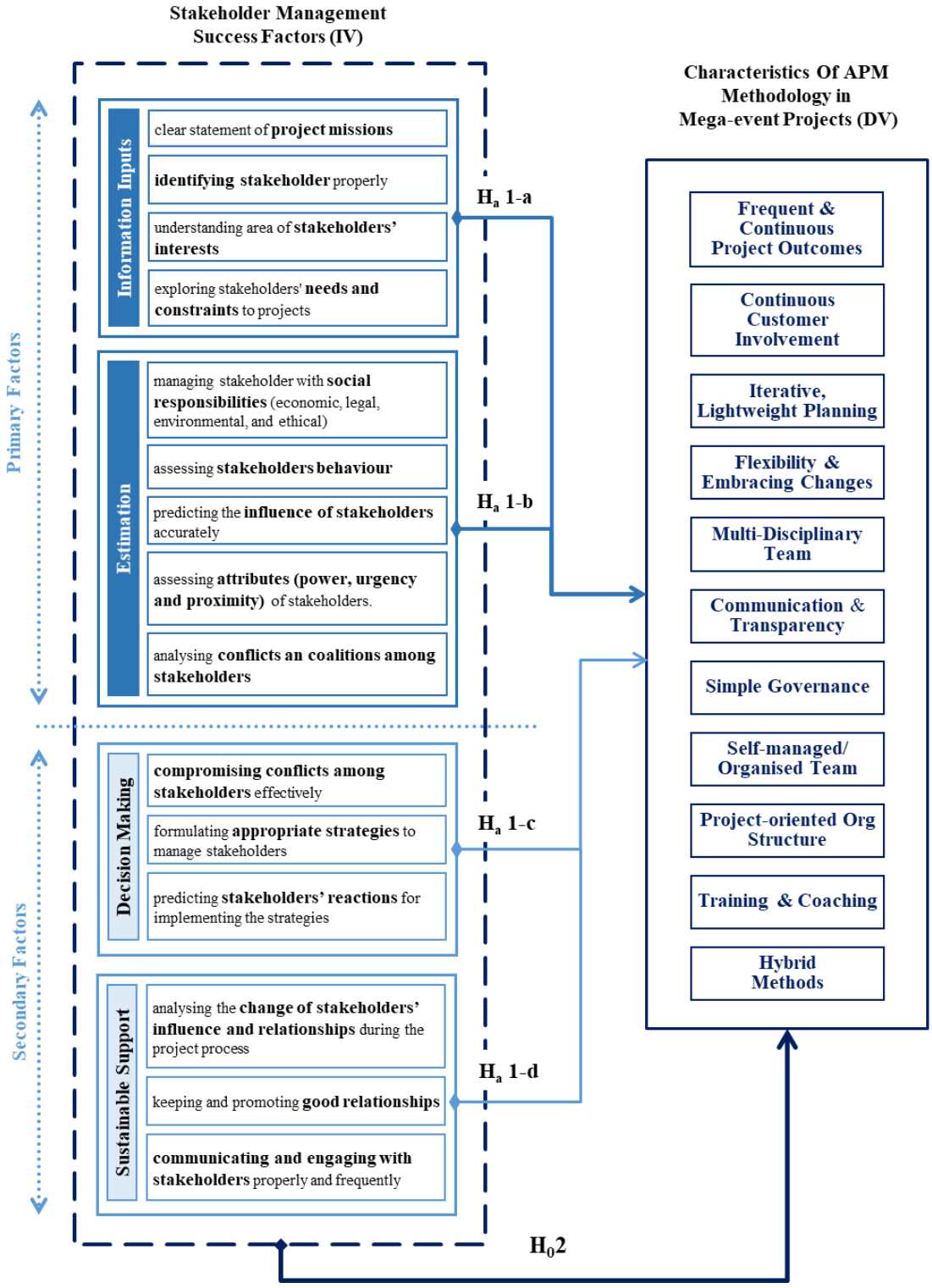


Figure (6. 2): Revised Theoretical Framework (detailed)

7. CHAPTER 7: CONCLUSION

A brief recap of the topics discussed in the previous chapters will be presented here from research objectives to the findings reached. This chapter will also introduce research implication, a compilation of recommendations in light with the study's findings as well as possibilities for future research opportunities in similar fields.

7.1. Study Summary

This research is geared toward introducing a new and innovative approach in managing projects within mega-events industries. Most models and methodologies for managing projects within mega-event are based on traditional project management, few had some tweaks (incorporation of project maturity elements and sustainability principles), however still based on conventional concepts.

This research is intended to explore the different characteristics that support and promote agile project management methodology within the context of mega-events. It will also investigate from the stakeholder perspective, how this application can be influenced by them and boosted through effective management of stakeholders.

The study concerned with identifying the main characteristics that promote agile project management methodology within mega-event projects. The thorough and critical review of the literature brought forth eleven (11) distinctive features that relate to the following dimensions: project outcome & business value, customer involvement, communication & transparency, scope changes, project team structure, organisation structure, governance, leadership & environment, learning & coaching, and hybrid approach.

The study also investigated the influence of effective stakeholder management – a framework proposed by Yang et al. (2009) – on the identified characteristics of agile project management within mega-events. The success factors for successful stakeholder management comprises of fifteen (15) elements grouped into four constructs, namely; information inputs, stakeholder estimate, decision making, and stakeholder sustainable support. These factors were found to be of a potent influence on agile project management characteristics. Though each of these factors has an evident influence on the agile characteristics within mega-events context, they all collectively have more significant influence.

The study findings also distinguished these factors based on their influence level and proposed clustering them into primary factors and secondary factors. The primary factors represented by 'information inputs' and 'stakeholder estimate', while the secondary factors contain the remaining two; 'decision making' and 'stakeholder sustainable support'. Despite the finding that these two categories have significant influence and predictability on agile project management characteristics, however, the study findings suggested the comprehension of all these factors (15 success factors) is vital for optimum influence.

A set of recommendations will be proposed that were concluded from the study's outcomes and the literature review. These propositions mainly target organisations and decision makers within the mega-events industry and agile practitioners to shape the path forward in managing projects in mega-events. These suggestions provide futuristic proposed steps that supposed to support agile implementation in mega-context.

This paper provides some new insights and knowledge in managing mega events and thus fills some gap present in the literature around project management within these contexts. Though the findings reached, have to be further verified and explored due to their exploratory nature, the empirical findings add value to their authenticity and reliability, and form a good ground for future endeavours in this field.

7.2. Practical Implication

In light of the literature review, research outcomes and the revised conceptual framework (figure (6.2) illustrated in chapter 6), the following recommendations are proposed alongside the intended influencers:

7.2.1. Recommendations for Practitioners:

The following recommendations target agile practitioners and professionals, project management communities of practice, consultants and project management associations (PMI, APM, etc.). These bodies/ entities are fundamental pillars in project management and core contributors to the project management knowledge:

- Investigate in the practicality of large-scale agile transformation and how it can be seamlessly achieved in view of the characteristics proposed in this study. Also, investigate the effectiveness and practicality of the used stakeholder management framework in mega-

event projects as well as its influence on the proposed characteristics of agile methodology in light of the study's empirical results.

- Develop a comprehensive framework based on the characteristics proposed in the study for managing agile in mega-event contexts and explore the possibilities of including other characteristics like risk management approach; and
- Expand the agile certification "Agile Certified Practitioner (PMI-ACP)" to include other fields than software projects based on the characteristics presented in this study, or introduce/ develop a certification that is more comprehensive, inclusive and applicable to all fields.

7.2.2. Recommendations for Organisations and Decision Makers:

Another influencer group identified are organisations and decision makers. Agile project management challenges the prevalent practices in managing project and propels us toward looking at things differently, training and coaching become crucial and integral to the transformation process. Hereunder a suggested list of recommendations intended for this group:

- Without adequate training and coaching, agile cannot be appropriately practised; thus investments in agile training and coaching need to be made via collaborative efforts with professional institutions and practitioners;
- Agile implementation considered a drastic change to the way the projects are managed, and such substantial change will inevitably require management commitments. Management support is a prerequisite for agile implementation; thus, they need to be appropriately introduced to and adequately educated around its principles. Additionally, servant-leadership style need to be embraced and practised to facilitate and support the transformation efforts;
- Stakeholder and customer relationship are often built on long-term commitments and road mapping; therefore contracting practices require a thorough review to incorporate elements and clauses that support agile and the "progressive working packages" approach;
- Incorporate the "effective stakeholder management" elements while developing memorandums of understandings with stakeholders. Moreover, agile is around inclusiveness; stakeholders and customers as well need to be educated around its principles and practices.

7.3. Future Research Agenda

The study has encountered limitation related to the scarcity of relevant literature, and given the fact, the topic being investigated in relatively new and its application/ implementation is narrow and restricted to specific projects or companies. Case studies and empirical data on practicality and successful implementation are relatively scarce. Therefore it is suggested to practically re-validate this paper's findings following a further broader application of the methodology in mega contexts.

The study proposed two categorisations of primary and secondary factors for the significant influence of stakeholder management on agile characteristics in mega-event. The relationship between these groups and individual influence on each other could be a topic for future investigation.

The effective stakeholder management framework adopted for this study is based on Yang et al. (2008) model developed mainly from construction industries. However, this is not the only framework available for stakeholder management. Preble (2005) have designed a comprehensive stakeholder management process which can also be explored for appropriateness and effectiveness. This framework also might support in identifying other factors not addressed in this study.

The factor ‘compromising conflicts’ within the ‘decision making’ factor construct scored considerably low in the reliability test. However, its regression test results were of high significance. This was attributed to the skill being under-estimated or un-practised by the project managers and specialists in the mega-event projects, thus exploring this factor within mega-event context can be the possibility of a forthcoming study as of how would this factor influence decision making and the secondary factors.

Broad characteristics were identified for agile project management in mega-event contexts. However, there are opportunities to break these characteristics into smaller elements. Practitioners, agile professionals and project management communities of practices are urged to explore and investigate in this topic, which might present as a potential area for future.

7.4. Summary

In a way to introduce new methodologies in managing projects in mega-event contexts, the intention of this study was on the identification of specific characteristics of agile project

management methodology in these contexts that support and promote its implementation. Eleven (11) peculiarities for agile project management were identified from the critical review of the literature.

Also, this study was geared toward exploring the influence stakeholder management has on the successful implementation of the new methodology through an effective framework proposed in the literature. The framework comprises fifteen (15) success factors, and these elements were proved to have an evident influence on the characteristics of agile project management methodology in mega-events, with higher impact if comprehensively and integratively acted. Hence, the study's objectives were satisfactorily achieved.

A set of recommendations were also introduced as practical implications of the study to be considered by practitioner and decision makers to facilitate the new methodology implementation in mega-event contexts.

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APPENDICES

TITLE

The Influence of Stakeholders Management on the Successful Implementation of Agile Project Management Methodologies in Mega Events Projects

TERMS & DEFINITIONS

A. **Terms to understand before completing the questionnaire:**

Traditional Project Management (TPM): Is a universal practice which includes a set of developed techniques used for planning, estimating, and controlling activities.

Agile Project Management (APM): Is an approach based on delivering requirements iteratively and incrementally throughout the project life cycle.

Project-Oriented Organisation: Is an organisation in which a considerable part of its processes and activities take place in the form of projects. Its organisational structure has elements of matrix organisational structure.

Servant leadership: A servant-leader focuses primarily on the growth and well-being of people and the communities to which they belong.

Client (Businesspeople)/ Customer: A customer, often also referred to as client, can be a person or an organisation that orders and buys products or services that a business offers.

Project Output: The direct deliverable of a project whether it is a product or a service.

DEMOGRAPHIC INFORMATION

A. General Information

Please choose the type of Mega Event you have worked in:

☐ Olympics
☐ FIFA World Cup
☐ World Fairs 'EXPO'
☐ Others (i.e. Rugby World Cup, Cricket World Cup, etc.) – Please Specify: .....

Your current involvement in Expo2020 Dubai as:

☐ Client (Expo2020 Dubai)
☐ Consultant
☐ Contractor
☐ Specialist Provider
☐ Not Applicable
☐ Other – Please specify: .....

Your current position/ occupation:

☐ Junior *(Executive Assistant/ Senior EA, Associate/ Senior Associate, Coordinator, Analyst/ Senior Analyst, Officer, Assistant Manager)*
☐ Senior *(Project Manager/ Senior Project Manager, Project Leader, Specialist/Senior Specialist)*
☐ Mid Management *(Manager, Senior Manager, Deputy Head, Associate Director)*
☐ Senior Management *(C-Level, SVP, VP, Director, Head, Advisor)*
☐ Others – Please Specify: .....

Gender

☐ Male
☐ Female

Age Group

☐ 20 – 29
☐ 30 – 39
☐ 40 – 49
☐ 50 – 59
☐ 60 and above

Education Level

☐ High School degree or equivalent (e.g. GED)
☐ Bachelor's Degree
☐ Master's Degree
☐ Doctorate (e.g. PhD, EdD)
☐ Others – Please Specify: .....

Total years of Experience

☐ Less than 2 year
☐ 2 – 7 years
☐ 8 – 13 years
☐ 14 – 19 years
☐ 20+ years

Of which, how many years in the current Mega-Event Project (Expo2020 Dubai):

☐ Less than 1 year
☐ 1 – 2 years
☐ 3 – 4 years
☐ 5+ years
☐ Not Applicable

The research in mainly concerned in exploring and identifying the main characteristics that supports the implementation of Agile Project Management Methodology (APM) in Mega-Events Projects and the Stakeholders Managements success factors that promote and support such implementation.

QUESTIONNAIRE SECTION I

A. Agile Project Management Characteristics in Mega Events Projects

Please rate the importance of the following characteristics for implementing Agile Project Management in Mega-Events Projects:

1. **Project output is delivered in relatively small investment increment that can be quickly executed, proven and introduced to the customers on a regular basis:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

2. **Customers are continuously involved in the project development/ life cycle:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

3. **Project/ scope changes are anticipated (as they frequently occur), perceived positively, embraced, and responded upon rapidly and appropriately:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

4. **A project team is viewed as integrated evolving system (close and communicate/ collaborate on a daily basis):**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

1. **Project teams are built on the principles of self-organisation and self-management, with a degree of autonomy to make decisions:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

2. **A simple governance approach is adopted based on clear objectives and significant requirements:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

3. **Stable cross-functional/ multi-disciplinary teams and communities of practice are established and cross-project allocation and shuffling are avoided:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

4. **A project plan is developed iteratively as project progresses and refined in response to feedback on early results during implementation:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

5. **The organisation is established based on project-oriented structure strong matrix organisational structure:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

6. **Investments in Agile education and coaching:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

7. **A 'Hybrid Approach' management approach is developed consisting of different sets of practices, tools and techniques, and team competence considering Agile and Traditional Project Management approaches:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

QUESTIONNAIRE SECTION II

A. Stakeholder Management Success Factors on the implementation of Agile Project Management methodologies in Mega-Event Projects

A. Please rate the influence of the stakeholder information input on the Agile project management implementation in mega event projects

1. Identification of a clear mission for the project at different stages:

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

2. Identifying stakeholder properly ***(i.e. The question of "who are stakeholders?" should be answered first before classifying and managing stakeholders:***

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

3. Identifying stakeholder interests ***(i.e. product safety, integrity of financial reporting new product services, and financial returns):***

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

4. Exploring stakeholders' needs and constrains to the project:

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

B. Please rate the influence of the stakeholder estimation on the implementation of Agile project management in mega events projects

5. Assessment of stakeholders' behaviour; The capacity and willingness of stakeholders to threaten or cooperate with project teams:

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

6. Predicting and recognising the influence of stakeholders accurately:

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

7. Managing stakeholders with social responsibilities (economic, legal, ethical, environmental):

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

8. Assessing attributes (power, urgency, and legitimacy) of stakeholders:

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

9. Analysing the conflicts and coalitions among stakeholders:

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

A. Please rate the influence of decision making on Agile project management implementation in mega events projects

1. **Compromising conflicts among stakeholders effectively:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

2. **Formulating appropriate strategies to deal with stakeholders:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

3. **Predicting 'Stakeholders' reactions for implementing the strategies:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

B. Please rate the influence of stakeholder sustainable support on the implementation of Agile project management in mega events projects

4. **Analysing the change of stakeholders' influence and relationships during the project process:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

5. **Keeping and promoting good relationships:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree

6. **Communication and engaging with stakeholders properly and frequently:**

☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree