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Exploring Factors behind Project Scope Creep—Stakeholders' Perspective

Abstract

Purpose—This study's purpose is to explore the different views of major project stakeholders about the factors that contribute to poor project scope leading to project scope creep.

Design/methodology/approach—Major factors of project scope creep are identified using commonality analysis of stakeholders' perceptions. An interview-based industry research method is applied to collect data from different projects in the United Arab Emirates.

Findings—Relying on stakeholders' theory, the study proposes a framework for managing project scope creep. Results indicate that communication is among the major causes of project scope creep, as reported by all project stakeholder groups in this study.

Practical/implications—The study is expected to support the assessment of the causes of project scope creep, simultaneously expanding knowledge on the topic for both researchers and practitioners.

Originality/value—This study is among the first few to explore the commonality of various stakeholder views in the factors that hinder project success.

Keywords—Project management, Project scope creep, Project stakeholders

Paper type—Research paper

1. Introduction

Enterprises today compete looking for methods to achieve project success and justify the huge organizational investment in their projects (Mir & Pinnington, 2014; Sanchez *et al.*, 2017). This is especially critical considering the increasing complexity of projects, including a multitude of activities that are dependent on each other in various ways (Browning, 2014). Projects are usually assessed for three constraints: cost, time, and quality. A successful and efficient project is one that achieves its goals within the budget, on time, and as per the standards, while satisfying the client (Ferrada & Serpell, 2013). Managing project scope is the best solution to eliminating any ambiguity and uncertainty in projects (Tsiga *et al.*, 2017). Scope management plays a key role in achieving a project's goals, simultaneously satisfying the customer's needs (Dekker & Forseluius, 2007; Thomas & Mullaly, 2008).

Scope creep is, however, a major issue caused by incomplete definition of scope that, in turn, leads to changes in scope that negatively affect time, cost, and quality or risk of a project (Dekker & Forseluius, 2007). Project scope creep is referred to as "the tendency for a project to extend beyond its initial boundaries" (Integrated Management Systems, 2007); (Janssen *et al.*, 2014). Poor scope is deemed to be one of the biggest contributors to project failure because it results in frequent modifications and changes (Bjarnason *et al.*, 2012; Sethia & Pillai, 2013a; Sethia & Pillai, 2013b; Alami, 2016).

Scope creep is not an industry-specific problem—project practitioners all over the world suffer from this issue in almost all kinds of industries and sectors. A report reveals that 19% of all projects fail, and more than 50% of those suffered scope creep (Project Management Institute, 2017). Another report found that 31% have declared complete failures (Alami, 2016). While these problems continue to exist, very little research has attempted an in-depth investigation of failed projects to identify the factors behind the failure (Alami, 2016). Despite the importance of achieving project success, even with the existence of many studies that address factors leading to project success, the literature as a whole, does not address the interrelationships of these factors (Project Management Institute, 2017; Sanchez *et al.*, 2017). More so, megaproject performance has seen little improvement in recent years because of the inability to meet basic targets in cost, time, and benefits (Flyvbjerg, 2014; McKinsey Global Institute, 2016). This calls for further research to highlight the causes of project failure, and more specifically, the reasons behind poor project scope. Furthermore, it is of great importance to explore the interrelations among these factors for better project management.

This study focuses on factors that cause project scope creep from a stakeholder's perspective. Delivering project outcomes successfully requires an active interaction between project firms and their stakeholders. Thereafter, this study explores the main reasons behind poor project scope. It adds to the knowledge in project management literature by focusing on stakeholders' perspectives to develop a framework that manages the causes of project scope creep. The study's objectives are three-fold: 1) to identify causes of project scope creep from the stakeholders' perspective; 2) to identify the common causes of project scope creep among stakeholder groups, and 3) to propose remedies for project scope creep in major projects. Most project stakeholders have different needs, expectations, and interests (Ward, 1999). Therefore, in this study, we identify four main stakeholder groups in projects, that is, the Project Management Office (PMO), the project team, consultants, and clients/ customers. Furthermore, by addressing each group's perspective, we rely on stakeholder theory (Freeman, 1984) to understand the dynamics between stakeholders and the roles they play in project management. Data were collected from major projects in the public and private sectors in Abu Dhabi and Dubai.

The rest of the paper is organized as follows. The literature is reviewed in Section 2 to describe the notion of project scope and scope creep, the possible causes of scope creep, and insights from different industries. Sections 3 and 4 present the research framework and research approach of this study, respectively. Findings are reported and discussed in Sections 5 and 6, and finally, we present conclusions in Section 7.

2. Literature Review

2.1.Project Scope and Scope Creep

Projects in different sectors are increasingly being characterized as complex, high-stakes, and time bound ventures fraught with uncertainty (Chiocchio, 2007; Gale *et al.*, 2010). Project management extends beyond skilful and competent management of individual projects, to a complete set of systems, processes, structures, and capabilities that enable an organization to undertake the right projects (Drouin & Besner, 2012). Efficient projects involve following the right steps and producing the required deliverables within the budget and time estimations (Serrador & Turner, 2015; Badewi, 2016; Zidane *et al.*, 2016). In other words, project effectiveness depends on whether the project meets its objectives (Yamin & Sim, 2016). To achieve this, projects have to have a scope identified in the earlier stages of their life cycle, more particularly in the pre-project planning process, using the inputs of various stakeholder groups with the declaration of project goals, budget, schedule, outcomes, constraints,

resources, and deliverables (Kähkönen, 1999; Project Management Institute, 2000; Wang, 2002; Fageha & Aibinu, 2013). Project scope also encompasses risk identification and analysis, which involves avoiding key changes that can affect project performance negatively.

A poorly defined scope is often the main reason behind project failure (Mirza *et al.*, 2013). Project managers suffer from the tendency to add features and functionalities to project scope without addressing the effects on project boundaries (time, costs, and resources), or without customer approval (Barry *et al.*, 2006; Gibson *et al.*, 2006; Thakurta *et al.*, 2009; Mantel *et al.*, 2010). Project scope creep is attributed to conflicting requirements caused by the contrasts in the needs/requirements of stakeholders and decisions of project managers (Kotonya & Sommerville, 1998; Davis *et al.*, 2008). Causes that inflate the problem include poor scope definition, unsatisfactory and unbalanced input from stakeholders, unpredictable economic cycles, price fluctuations, and high competition. (Heywood & Smith, 2006; Sharma & Lutchman, 2006)

The quality of project deliverables is affected by poor scope because of changes in or cancelation of the initial plan, not meeting customer expectations, lack of communication, and reduced motivation (Nurmuliani *et al.*, 2004; Larson & Larson, 2009; Kumari & Pillai, 2014). Therefore, the internal and external project participants need to sufficiently reveal their requirements during the scope definition process, to ensure comprehensiveness and control of the project scope (Ward, 1999; Heywood & Smith, 2006; Kerzner, 2006).

2.2.Scope Creep in Projects: An Industry-Wide Phenomenon

A successful project is always completed within the allocated budget, as per the deadline, and at the required specifications (Alami, 2016). However, scope creep is the leading cause of project failure globally (Hussain, 2012). Virtually, every mega construction project in the world is running overdue and over budget (Schneider, 2017). A report, based on the insights of 3234 project management professionals, 200 senior executives, and 510 PMO directors from many industries, revealed that 19% of all projects fail, and more than half of them suffered budget loss or scope creep (Project Management Institute, 2017). Another report found that only 16.2% of the projects met the requirements, whereas 31% have been declared complete failures (Alami, 2016). While these problems continue to exist, very little research has attempted an in-depth investigation of failed projects to identify exactly what the factors were behind the failures (Alami, 2016). One of the reasons for this gap in research is that failed projects are difficult to access, and most of the research on the topic is based on successful projects (Sanchez *et al.*, 2017).

Project scope creep is a concern to all project practitioners in all industries, globally. For example, although megaprojects in both private and public sectors have seen little improvement in recent years, they are also unable to meet cost, time, and quality targets (Flyvbjerg, 2014; McKinsey Global Institute, 2016). It was reported that 25% of unsuccessful IT projects experienced uncontrollable increases in budgetary costs, and 52% suffered from project scope creep and lost budget (Standish, 2015; Alami, 2016; Project Management Institute, 2017; Sanchez *et al.*, 2017). This is because managers in most of these projects either did not properly oversee risk or utilize the correct methodologies during project execution (Keith *et al.*, 2013). Moreover, in software development projects, lack of stakeholder engagement often increases the cost of project delivery because of lack of clarity in project scope, which extends the time required to understand objectives and might lead to complete failure of projects. (Bryson, 2004; Kappelman *et al.*, 2006; Kloppenborg *et al.*, 2009; Project Management Institute, 2014)(Project Management Institute, 2013). This emphasizes the necessity for balancing the needs of stakeholders during project execution, as

their views of what represents a successful project can vary substantially (Price, 2016). The software development literature falls short in exploring how to reduce the possibility of project failure and what techniques project managers use to assist in successful delivery (Price, 2016).

In the oil and gas industry, projects are complex and multi-disciplinary, requiring a relatively long time and huge capital investment, and are developed progressively through the project life cycle (Conroy & Soltan, 1997; Dey, 1999; Moreau & Back, 2000; Rashid, 2006). Therefore, managing scope is essential for project success, because it ensures smooth progression of the project in making the right decisions to optimize project objectives within overall constraints (Demarco, 2008; Parast, 2011). Surprisingly; however, in the oil and gas industry, there is no formal definition of project success or the factors that lead to it. Moreover, there has been little academic research on project management in the industry (Tsiga *et al.*, 2017). In fact, oil and gas companies are more concerned about the quality of the products and services in terms of costs incurred (Lang, 1990; Sylvester *et al.*, 2011). In addition, the literature on oil and gas projects falls short in terms of what causes project delays (Salama *et al.*, 2008).

In the construction industry, project successes are not common (Ahmed *et al.*, 2003). In 2014, over 50% of the construction project owners worldwide suffered one or more underperforming projects. Cost and time overruns are also marked in these projects, with only 31% of construction projects finishing within 10% of budget, and just 25% within 10% of the original deadlines from 2012 to 2014 (Schwartz, 2015). Delays in project execution are usually accompanied by cost overruns, which have a detrimental effect in terms of adversarial relationships, mistrust, and cash flow problems, even in gigantic projects (Ahmed *et al.*, 2003; Hussain, 2012).

As the problem continues to appear in all projects globally, it is of great importance that the reasons behind project scope creep are explored for better project management practices.

2.3.Factors behind Scope Creep

Addressing the factors that might hinder project success is as important as studying those that contribute to project success (Integrated Management Systems, 2007; Martens *et al.*, 2018). Whereas the literature has referred to a number of factors that lead to project failure, this section outlines the most common causes of project scope creep (Pinto & Mantel, 1990; Yeo, 2002; C. B. Daniels & La Marsh, 2007; Nelson, 2007; Lu *et al.*, 2010).

Project Complexity

Projects have been described as complex systems, because of technical and organizational factors that are beyond the control of project managers (Whitty & Maylor, 2009). “Complexity” is a key attribute of any project in which project practitioners address and analyse problems, challenges, and opportunities while managing projects (Hartono, 2018). The interrelationships between a project’s components increase the complexity and affect the project’s clarity (Rodrigues & Bowers, 1996; Rodrigues & Williams, 1998; Hass, 2009; Project Management Institute, 2014). Project complexity is a major concern for project managers because it consists of ‘many varied interrelated parts and can be operationalized in terms of differentiation and interdependency’ (Baccarini, 1996). Failure to comprehend and manage this aspect can lead to loss of time and money and consequently, to project failure (T. Williams, 2005; Konrad & Gall, 2008).

Largely, project managers try to control the complex and diverse activities of a project through cost, time, and quality (Atkinson *et al.*, 2006). Despite this, the vagueness of the concept makes it difficult to describe and frame (Klir, 1985; Sinha *et al.*, 2001). This complexity in projects may result from technical, environmental, and most importantly, organizational aspects (Bosch-Rekveldt *et al.*, 2011; Vidal *et al.*, 2011; Qureshi & Kang, 2015).

Although anticipating and controlling project complexity is a not an easy task, project managers play a critical role in foreseeing complexity and keeping it under control (Vidal *et al.*, 2011; Project Management Institute, 2013). Implementing methods that help deal with complexity in projects, such as quantifying it would assist in overcoming potential difficulties and making informed decisions in terms of project prioritization and resource allocation (Nguyen *et al.*, 2015; Alami, 2016).

Uncertainty

High levels of complexity can create uncertainty because of misleading and conflicting interpretation among project members (T. Williams, 1999; Vickery *et al.*, 2016). Uncertainty negatively affects the time and cost of projects (T. Williams, 2005; Konrad & Gall, 2008). The performance of projects exposed to high levels of uncertainty, is either reinforced and improved by collaboration or hindered by opportunism (Um & Kim, 2018).

There are three main sources of uncertainty in project management (Atkinson *et al.*, 2006). First, uncertainty arises in cost, duration, and quality estimations of planned activities. Second, it is associated with the presence of multiple project stakeholders with conflicting interests and expectations (Ward, 1999). Last, but not least, uncertainty is associated with the failure to clearly define the project scope in the initiation phase of the project life cycle, which increases uncertainty throughout other phases, leading eventually to negative effects on the project scope, budget, and schedule (Atkinson *et al.*, 2006).

Tasks

A project consists of interrelated tasks that are interdependent and call for a certain sequence towards the achievement of an overall objective or milestone of the project (Integrated Management Systems, 2007). The tasks are constrained by the deadlines. Once identified, dependency relationships between the tasks help establish proper workflow. Whereas task interdependence features the influence of one party's activities on another, timing can be assigned to each task with the projects' budgetary and resource constraints considered (Integrated Management Systems, 2007; Puranam *et al.*, 2009). However, all projects incorporate a variety of tasks (T. Williams, 1999). This increases project complexity, which accommodates the extra details in achieving the intended quality (Sylvester *et al.*, 2011). Moreover, mixing tasks might affect project performance and lead to scope creep (). To achieve objectives while managing the complexity of tasks, many tasks are often accomplished as separate work packages or elements and then integrated into the final product (Mirza *et al.*, 2013).

Accordingly, project management assists in planning and controlling the necessary tasks to reach the required project objectives (). It is the project scope manager’s role to assist the project team and the customers to perform and manage these tasks (Dekker & Forseluius, 2007). The performance of collaborative but equitable tasks between team members helps foster knowledge and trust, which contributes to granting improved overall productivity (Wagner *et al.*, 2014).

Specifications

Managing project scope entails the ability to capture and control the exact requirements of the project (Tsiga *et al.*, 2017). The requirements and specification process's purpose is to capture the business needs for the project to be performed (L. Daniels, 2000). Project requirements are formally documented and communicated to the project stakeholders (Rahmesh & Madhavan, 2000). Hence, complete and well-documented user requirements are the core of scope management and should describe project objectives comprehensively (Dekker & Forseluius, 2007).

Project specifications are classified into three categories: functional user requirements (what the software will do); non-functional requirements (how the piece of software must meet quality and performance constraints); and, technical requirements (such as team skills, tools support, hardware platform… etc.) (Dekker & Forseluius, 2007). When the requirements are complex, spending more time in collecting and analysing customers' needs is beneficial and can help reduce the complexity of the project (Alami, 2016). Incomplete specifications result from unclear organizational business strategy, unclear goals, and the lack of skills to meet the required organizational goals (Kumari & Pillai, 2014). This causes changes in requirements, which leads to poor project performance, adversely affecting the project cost, time, and quality if those changes are not managed well (Mirza *et al.*, 2013); (Atkinson *et al.*, 2006). It is; therefore, important to keep the requirements specification updated and approved by the respective stakeholders (Kumari & Pillai, 2014; Alami, 2016).

Risk

Risk is a major threat to the whole project. With the dynamic nature of projects, and changing business environments, unexpected risk occurrence during project execution exposes the entire project to detrimental consequences in terms of cost, time, and quality (Besson & Rowe, 2001; Nguyen *et al.*, 2015) (Besson & Rowe, 2001; Atkinson *et al.*, 2006). Therefore, risk has received great attention; previous research has highlighted the importance of risk management and allocation in project success through meeting time constraints and budget goals (Sanchez *et al.*, 2017; Tsiga *et al.*, 2017).

Project risk might be associated with initiation, identification, assessment, response planning, and response implementation (known as hard risk dimensions), or corresponds to risk communication and attitude, monitoring, and review (i.e. soft risk dimensions) (Didraga, 2013; R. Rabechini & Carvalho, 2013; Almajed & Mayhew, 2014). Whereas it was found that the soft side of risk management is deemed to be more important that the hard aspects, it is very important that these aspects are addressed and managed throughout all stages of project life cycle to avoid causing problems in performance (Atkinson *et al.*, 2006; Tsiga *et al.*, 2017).

Managing project risk effectively includes three major activities: identifying and anticipating risks during project planning, assessing risks that might occur during project execution, and finally, developing risk mitigation strategies with the tools to help overcome or reduce the risks being identified (Integrated Management Systems, 2007).

Communication

Communication is based on relationships between project firms and clients and has more influence on project success than other factors related to tasks (Phua, 2005; Cserháti & Szabó,

2014). It facilitates creating projects, determining directions, and determining outcomes. In other words, communication brings project managers and project stakeholders together to shape the project scope (Söderlund, 2004; Winter *et al.*, 2006). Poor scope caused by incomplete requirements is attributed to gaps in communication between project stakeholders (Integrated Management Systems, 2007; Bjarnason *et al.*, 2012). By contrast, more and faster communication results in better transmission and thus better control over a project. (Ziek & Anderson, 2015)

The literature highlights the importance of engaging project stakeholders in the project and keeping them informed about progress. Overlooking stakeholders' inputs and needs leads to delays in achieving project objectives (Assaf *et al.*, 1995; Integrated Management Systems, 2007; Kumari & Pillai, 2014; Mpofu *et al.*, 2017). For instance, poor communication between stakeholders is the major source of problems in construction projects (Fageha & Aibinu, 2013).

Communication allows stakeholders to convey their interest, needs, and expectations of a project. Accordingly, a communication plan should be established to help resolve conflicts among stakeholders and improve project performance (Integrated Management Systems, 2007).

Customers (End-Users)

Another cause of scope creep and project failure is the poor involvement of customers or end-users in project scope definition (Yu & Kwon, 2011); (Standish Group Report, 2018). Customers have to be engaged in a project to ensure complete identification of requirements as well as to clarify their expectations and priorities (Atkinson *et al.*, 2006; Nik & Kasirun, 2011; Ogwueleka, 2012; Kumari & Pillai, 2014); (Alami, 2016); (Mirza *et al.*, 2013). Conflict about the implementation of a project might result from ineffective management of stakeholders' concerns and expectations (Olander & Landin, 2005). In addition, incomplete project definition can occur when the inputs of one or more stakeholders are intentionally or unintentionally omitted, while at the same time, inputs from others dominate (Sharma & Lutchman, 2006). Furthermore, inexperienced project managers tend to ignore customer satisfaction measures, which also affects the completeness of the project scope definition, and therefore, leads to project scope creep (Müller & Turner, 2007).

To maximize positive input and minimize negative attitudes, customers have to take part in project scope identification (Alami, 2016; Di Maddaloni & Davis, 2018). This requires that every project should identify its user classes and their attributes during the development of the project scope (Rahmesh & Madhavan, 2000; Sylvester *et al.*, 2011). Moreover, to avoid any later informal scope changes, project managers have to develop a project scope that satisfies stakeholders' expectations and concerns (Heywood & Smith, 2006; Fageha & Aibinu, 2013).

Technicality

Project stakeholders have to deal with the technical complexity of projects because of frequent changes in requirements, either as the result of technical issues or customer preferences (Procaccino & Verner, 2009; Um & Kim, 2018). In fact, changes to project scope may have wider technical implications than first thought, leading to subsequent disputes between client and project firms about liability for costs and delays in project schedule (T. Williams *et al.*, 1995; Price, 2016). Unforeseen technical aspects impose huge challenges, especially when they cannot be adjusted to the constraints and requirements. When requirements are insufficiently documented design work is often performed prior to the

project team being fully aware of the technical specifications. Under-developed requirements may be wrongly used as a working assumption throughout the design phase, which amplifies the background dynamics of the ecosystem (Alami, 2016).

A successful construction project is said to be one that has accomplished its technical performance, maintained its schedule, and remained within budgetary provision (Frimpong *et al.*, 2003). A project plan should, therefore, be developed and reviewed with the customer for both the technical and business portions of the project (Integrated Management Systems, 2007).

Environment

A project does not exist in isolation; it is subject to many different influences from its environment. Many circumstances originate from the inability to predict and anticipate all events and concerns (Besson & Rowe, 2001). Besides, rapid evolvement of internal and external business environments during the project results in changes in customer requirements, markets, and regulations, and hence, affects the comprehensiveness of the project scope (Integrated Management Systems, 2007). Environmental complexity is an important component of project complexity (Nguyen *et al.*, 2015). Project complexity increases as a result of environmental factors such as: weather conditions, stability of project environment, political issues, and remoteness of location, number, and variety of stakeholders' perspectives, environmental risks, and competition (Baccarini, 1996; T. Williams, 1999; Geraldi & Adlbrecht, 2007; Vidal & Marle, 2008; Bosch-Rekveldt *et al.*, 2011; Project Management Institute, 2013; Nguyen *et al.*, 2015).

Therefore, defining the project constraints and the relationships within a project fosters the exchange between the project and its environment and facilitates control. Moreover, defining these boundaries allows for the use of project management tools and techniques in isolation from environmental influences (Atkinson *et al.*, 2006). Figure 1 highlights the causes of scope creep mentioned in the literature:

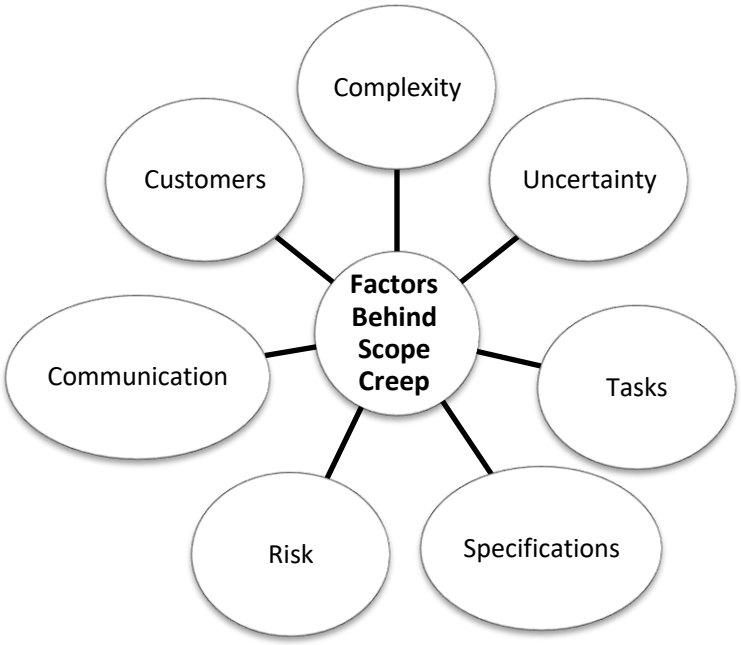

Figure 1: Causes of Project Scope Creep

3. Research Approach and Framework

Businesses today, experience complexity and uncertainty associated with managing their partners. This complexity stems from the unique relationship that firms have with their multiple stakeholders and partners, with conflicting interests and different rights, objectives, expectations, and responsibilities (Clarkson, 1995; Donaldson & Preston, 1995; Spekman & Davis, 2004). Project management defines a stakeholder as anyone who is affected by a project process or outcome (Kerzner, 2009). The stakeholder theory emphasizes a fit between the 'values of the corporation and its managers, the expectations of stakeholders, and the societal issues, which will determine the ability of the firm to sell its products' (Freeman, 2004). It looks at the effect that the connections between the organization and stakeholders have on the way business activities are conducted. The theory posits that to create business value, firms have to consider and interact with diverse groups and individuals, either internal or external, who might affect and be affected by the business operations (Beringer *et al.*, 2012). Therefore, managers and researchers must simultaneously consider the complete set of stakeholders (Donaldson & Preston, 1995).

Different approaches to managing project stakeholders are being grounded in the stakeholder theory. In the project management literature, project stakeholders are treated as critical resources to successful delivery throughout the project management life cycle (Littau *et al.*, 2010). More so, a major criterion for achieving project outcomes successfully is related to engaging stakeholders and understanding and meeting their needs (Pinto & Kharbanda, 1995; Project Management Institute, 2013). All projects, without exception, depend on involving stakeholders and can only be successfully implemented when both project teams and stakeholders cooperate (Karlsen, 2002; Markič *et al.*, 2012).

Despite this, project management discipline has been too focused on the technical process, to the detriment of stakeholder needs (McLeod *et al.*, 2012). Whereas technique is important, soft skills are equally as critical. Stakeholder theory; therefore, has become a central theme in the literature on project management, and has been increasing and expanding in all fields of project management, but particularly in the areas of improving project success rates, managing project risk, and increasing project effectiveness (Littau *et al.*, 2010).

Following the premises of stakeholder theory, this study adds to the body of knowledge by addressing the problem of project scope creep from the project stakeholder perspective. As stakeholder theory has not been widely applied from the perspective of all stakeholders, this study is among the first to draw on the theory with the purpose of integrating the perspectives of all stakeholders to explore the causes of project scope creep. Hence, our proposed research framework (Figure 2) encompasses the perspectives of four mutually important stakeholder groups in projects. These groups are: the Project Management Office (PMO), project team, consultants, and clients/ customers. These four clusters/groups are the main stakeholders of any project and are the focus in this research.

Because unstructured project stakeholder management would negatively affect project delivery, particularly in the areas of scope definition, requirements gathering, and cost, we rely on the stakeholder theory as it addresses the stakeholder's roles and perceptions and provides a useful lens for analysing the interrelationships between organizations, groups, and individuals (Donaldson & Preston, 1995; Project Management Institute, 2013). This study aims to emphasize the key role of stakeholders in managing project outcomes, and in satisfying the need to produce successful project outcomes within time and cost constraints.

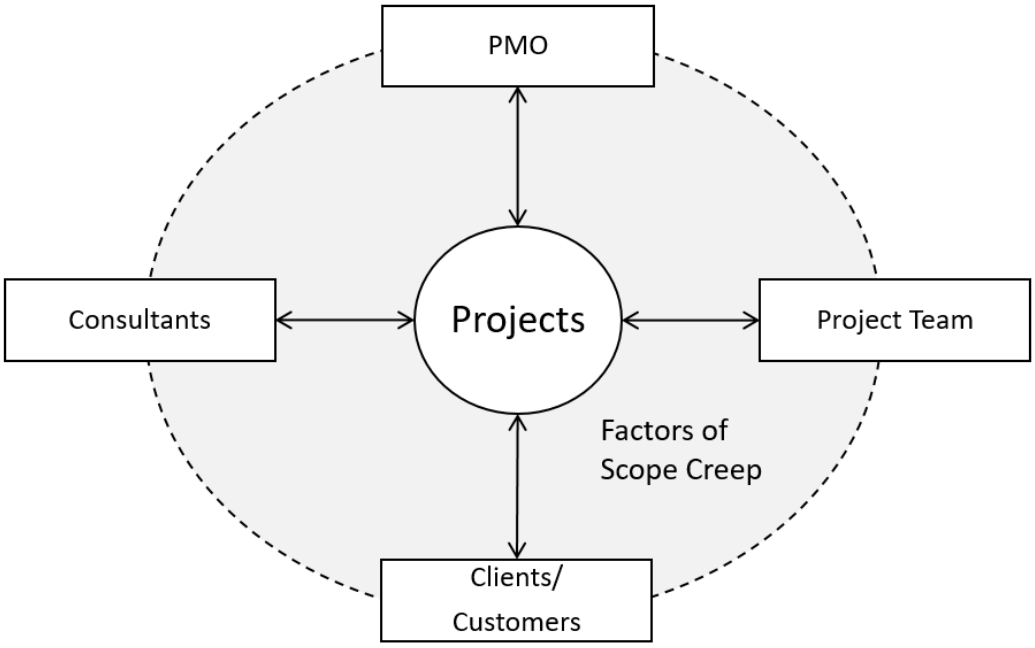

Figure 2: Conceptual research framework (Stakeholder's view of the causes of project scope creep)

To test the proposed framework, the study adopted an interview-based industry research method to collect data from multiple projects in the United Arab Emirates. The collected data are expected to support the objective of assessing the causes of project scope creep.

The structure of the interviews was developed based on the framework in Figure 2. It was ensured that the selected respondents have considerable experience working on big projects. The target population was senior managers and directors in project management offices, project team leaders, senior consultants, as well as the main clients and customers who will be benefiting from the projects.

The respondents were asked to report both internal and external factors that might cause project scope creep. Initially, five different Project Management Offices from different sectors were interviewed. Secondly, five different Project Managers/ Assistant Managers representing their project teams were interviewed. Then five different senior consultants and finally, five clients/ customers were interviewed. Twenty interviews were conducted to collect data from different stakeholder groups.

The contents of the interview results were first validated and then analysed to assess the perspectives of each of the four stakeholder groups in relation to project scope creep. Content validity in exploratory research is derived during concept elicitation, which is the measurement property that assesses whether outcomes are comprehensive and adequately reflect the phenomenon for the population of interest (Brod *et al.*, 2009). In this research, the collected information was used to answer the key research questions and to develop insights and guidelines for effective project management practices in the context of the United Arab Emirates. However, this research approach is more a like explorative in nature and most of the respondents from different stakeholders' groups represent service industry in large. So, this is one of the limitation of this study approach.

3.1.Research Objectives

A key objective of the study is to investigate the causes of project scope creep in major projects in the United Arab Emirates. The research sub-objectives are as follows:

1. To identify causes of project scope creep from the stakeholders' perspective;
2. To identify the commonalities among stakeholder groups in terms of causes of project scope creep, and
3. To propose remedies for project scope creep in major projects.

4. Analysis and Findings

As this study explores the views of four stakeholder groups regarding the causes behind project scope creep, a structured interview approach was used to investigate their perspective and to obtain their input about what causes scope to extend beyond its criteria, planned schedule, and time. The study participants' responses were initially filtered and shortlisted to generate main themes. Some were found to be similar, so more detailed filtration was employed to avoid duplication. After that, the filtered inputs were further analysed to investigate what those similar responses indicate. For example, 'unclear customer needs', 'lack of comprehensive specifications', and 'imprecise language to describe specifications' (as reported in Table 1, Column 1) were reported as the consultants' view of scope creep causes. By analysing these points, we realize that they are related to 'specifications' of the project, and therefore, we merged all those responses under a 'Specifications' theme and so on. These themes help distinguish between the views of all stakeholders groups in terms of what is uniquely identified by each stakeholder and what is agreed on by two, three, or all of the four groups.

A thorough analysis of the interview results on the causes of project scope creep categorised into common themes, is presented in Table 1. These themes were finalised after eliminating repetitive responses and grouping the responses that relate to the same concept. The final list of causes of project scope creep includes 38 factors identified by the four stakeholder groups. These sub-factors are grouped into 9 main categories, as shown in Table 1.

Table 1: Stakeholders' views of causes of project scope creep

Sub-Factors	Main Factor	Project Office (PMO)	Project Team	Consultants	Clients/ Customers
1. Tasks overlapping	Tasks		√		√
2. Hierarchical structure					
3. Lack of organization for task execution					
4. Task requirements variety					
5. Lack of comprehensive specifications	Specifications			√	
6. Unclear customer needs					
7. Imprecise language to describe specifications					
8. Change in customer's requirements	Customers	√		√	
9. Lack of understanding customer requirements					
10. Flow project scope definition					
11. Technical complexity	Technicality	√	√	√	
12. Lack of technical expertise & skills					
13. Unavailability of technical staff					
14. Lack of risk identification	Risk	√	√	√	
15. Lack of risk measurements					
16. No risk management personnel identified					
17. Lack of internal stakeholder's involvement in risk identification					
18. Lack of external stakeholder involvement in risk identification					
19. Unavailability of risk mitigation strategy					
20. Macro environmental factors	Environment	√		√	
21. Micro environmental factors					
22. Excessive stakeholder involvement					
23. Involvement of a high number of contractors & vendors	Complexity	√	√	√	
24. Involvement of a high number of internal functions & departments					
25. High number of Work Breakdown Structure (WBS) levels					
26. High degree of product/system customization					
27. The variety of distinct knowledge bases					
28. Lack of formal communication plan	Communication	√	√	√	√
29. Traditional, non-internet based communication methods					
30. unsupportive environment for free & open communication					
31. Lack of communication with affected parties					
32. High technological novelty	Uncertainty	√		√	
33. Frequent change in customer requirements					
34. Lack of involvement of suppliers in the design phase					
35. Lack of involvement of customers and users in the design phase					
36. lack of clarity of project goals and requirements					
37. High degree of embedded software					
38. High degree of regulatory compliance					

The next step was to investigate whether common perceptions exist among stakeholders. Analysing the factors in the previous table, some factors were found to be common among the groups. Therefore, Table 2 classifies factors of scope creep according to the commonality in stakeholders' views of what inhibits project success.

Table 2: Commonality in stakeholders' views of the causes of project scope creep

Stakeholder group	**Common factor/s**
Project Management Office (PMO)	-
Project Team	-
Consultants	• Specifications
Customers/ Clients	-
PMO-Consultants	• Customers • Environment • Uncertainty
PMO-Project team	-
PMO-Clients/customers	-
Project team-Consultants	-
Project team-Clients/ customers	• Tasks
Consultants-Clients/ customers	-
PMO-Project team-Consultants	• Technicality • Risk • Complexity
PMO-Project team-Clients/customers	-
Project team-Consultants-Clients/ customers	-
PMO-Project team-Consultants-Clients/ customers	• Communication

It should be noted that whereas the PMO, Project Team, and Clients/ customers didn't provide a unique input in terms of scope creep causes, Consultants identified specifications as the reason why projects can't keep up with the completion date and the budget. Moreover, a similarity in opinions was noted among some stakeholder groups. This intersection of opinions was identified in the table above. As noted from the table, some intersections among the four groups didn't report common themes, whereas other intersections did. We found intersections in views among two stakeholder groups, three stakeholders, and among all the groups. An intersection among two groups was noted in the 'PMO-Consultant' intersection, in which both groups clarified that frequent changes requested by the customers, environmental circumstances, as well as high level of uncertainty are major causes of scope creep. In addition, the 'Project team-Clients/ customers' intersection reported a common view of Tasks as being a cause of project scope creep.

Besides that, a commonality of opinions is found among three groups 'PMO-Project team-Consultants', who shared similar thoughts of technicality, risk, and complexity as being the dominant factors that lead the project to suffer from poor scope. The final intersection was found among all four groups. PMO, Project team, Consultants, and Clients/ customers all

believe that the communicative practices of project managers affect the dialogue with stakeholders, which might eventually affect the content, direction, and outcome of a project. In particular, project managers are unaware of the constitutive nature of communication, and therefore, do not take into consideration that they are designers and co-creators of a dialogue that crafts the trajectory of a project (Ziek & Anderson, 2015). This consensus, among all stakeholders, that poor communication is the cause of scope creep, provides insights on how project managers should handle the communication through the life span of the project in a more efficient and timely manner. The literature supports this approach, citing the importance of properly involving and communicating with stakeholders throughout the project life cycle (Kappelman *et al.*, 2006; Nelson, 2007; Kerzner, 2009; Project Management Institute, 2013). Moreover, when stakeholders are actively engaged during project initiation, clarity regarding other project phases is gained. This in turn improves risk identification and mitigation (Karlsen, 2002; Wheatley, 2009).

Figure 3 visualizes the commonality in the stakeholders' perspectives of project scope creep factors. As shown in the figure, areas of intersection represent the commonality among the stakeholder groups, and "communication" mirrors the intersection among all four stakeholders.

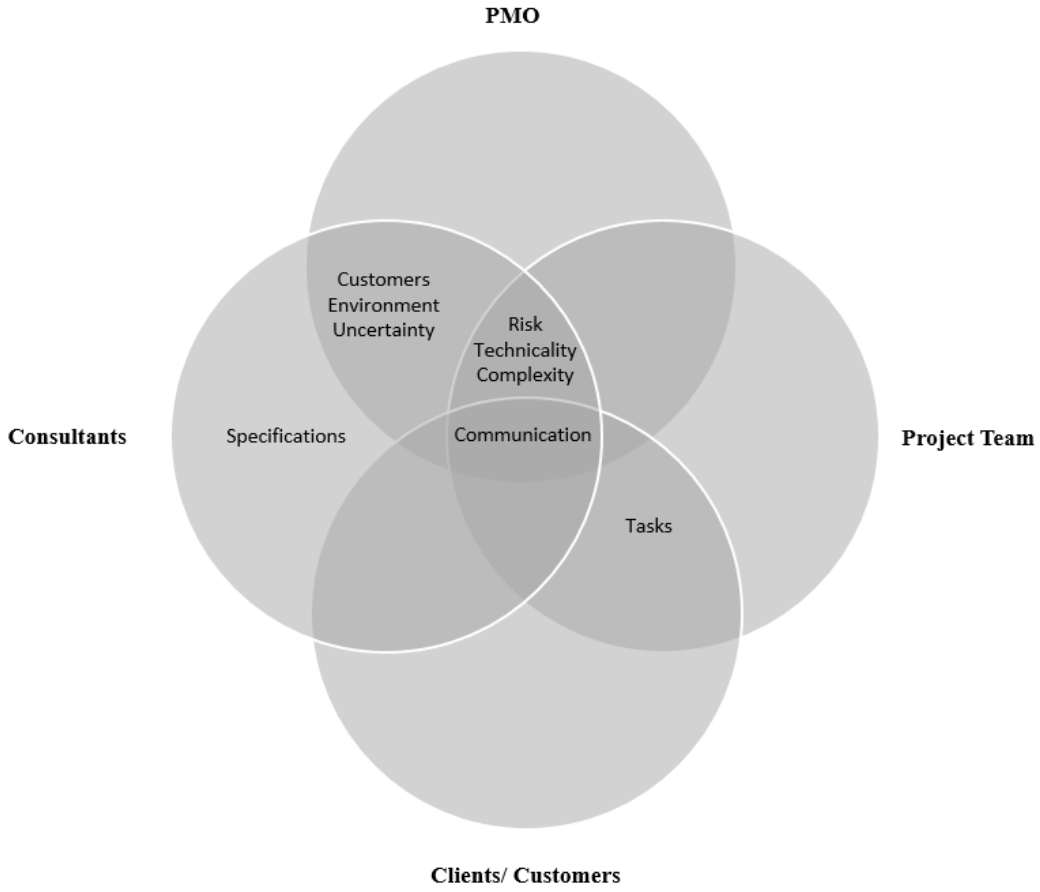

Figure 3: Commonality in stakeholders' view of project scope creep

5. Discussion

Following the principles of stakeholder theory, this study's aim is to explore the various views of four major stakeholder groups interacting and dealing with projects. The study explores the causes of project scope creep, a topic of great concern to professionals working on projects. The literature lags in addressing the interrelationships of factors that contribute to scope creep (Project Management Institute, 2017; Sanchez *et al.*, 2017). More so, little research has attempted to investigate failed projects to identify the factors behind their failure (Alami, 2016; Project Management Institute, 2017). This study seeks to identify the causes behind scope deficiencies in projects in almost every industry in terms of time, cost, and quality specifications; and, how these causes are viewed by various stakeholder groups involved in projects. In this context, the study makes following novel contributions to the field of project management.

— It focuses on the exploration of project scope creep, which is an under-researched area in the project management literature.
— It explores factors that are commonly identified in all types of projects in various industries.
— It analyses different stakeholders' views to highlight the consensus among these groups in identifying the factors that lead to poor project scope, as shown in Figure 3.

The results offer insights into the integrated perspectives of the four stakeholder groups—the PMO, project team, consultants, and clients/customer—on issues related to project scope and more specifically, the scope creep problem. Our findings suggest that a comprehensive analysis of stakeholders' opinions, regarding the factors that hinder effective project scope, would help project managers balance the expectations of all involved parties, through obtaining the highest benefits at the lowest costs. Project management must consider the social relationships with project stakeholders in order to effectively shape the project scope.

As shown in Figure 3, project managers can obtain the highest benefits by targeting those factors that have been agreed on by more than one stakeholder group. To generate greatest benefits at lowest costs, project managers must first target those issues identified by all stakeholder groups. As poor communication has been identified by the four project stakeholders, it is suggested that project managers expand their efforts in establishing a well-grounded communication plan, and make sure that communication incorporates building relationships and not a mere means of exchanging information. In addition, factors that have been agreed by three project stakeholders might also be prioritized in overcoming scope creep. The PMO, project team, and consultants agreed that risk, technicality, and complexity are common reasons for failure in scope. Accordingly, after addressing communication problems, project managers might try to focus on these three project scope dimensions in an attempt to bring the scope back to its correct path.

Factors found in common among two stakeholder groups could also be emphasized, with the availability of the capacity and resources for corrective actions. Finally, factors identified by a single stakeholder group should also not be ignored, especially because each project stakeholder has a unique relation to and role in the project; hence, their needs and expectations differ, which calls for balancing the costs and benefits of prioritizing the adoption of one solution over the other.

Managing the scope of a project has an abrupt and complete effect. Working on one factor also affects others. For example, if a project has established a fruitful and open communication with its stakeholders, improving communication would positively affect team performance and reduce complexity and risks, as stakeholders are engaged right through the project. This will also lead to better identification and mitigation of risks.

6. Conclusion

The framework developed in this study is meant to help project managers in various industries to prioritize the areas of improvement for overcoming project scope creep. Figure 3 reflects those factors that project managers need to emphasize in making major improvements to reach an acceptable level of performance in project scope. Setting priorities would help management allocate more resources and efforts to areas emphasized by all stakeholders. Once a project scope has reached a level where it fulfils the areas identified by various stakeholders, management can move to focus on other factors.

For the framework to be effective, project managers have to analyse the current status of the project scope in their firm to ensure that the scope is comprehensive in each of the identified factors. Afterwards, it becomes easier to identify areas and resources that need improvement. In addition, continuous review of stakeholder roles is required to ensure that projects are in line with stakeholder expectations.

6.1 Implications

In today's globalized business environment it is vital to realize that managing projects has never been more complex. More and more business managers are becoming aware of the importance of satisfying the needs and expectations of stakeholders. In doing so, project managers are faced with conflicts of needs among stakeholders in the same project. Such conflicts, if not managed properly at the initiation phase, may lead to frequent changes in the scope later, which is referred to as project scope creep. As the dilemma grows in intensity in almost every project, project managers suffer losses in all aspects of a project, starting with delayed project completion, followed by revised budgets, and ending with low quality and a very low added value to the client.

This study helps project managers make smarter decisions by integrating their own experience and knowledge with that of stakeholders'. Besides, it fosters creating a comprehensive project scope as a result of engaging and coordinating with each stakeholder. The findings of this study would help project managers in various industries by:

— Addressing areas for improvement in project scope management.

— Encouraging an open communication by engaging stakeholders to ensure their valuable inputs are taken into account when preparing the scope.

— Developing a common approach among different industries in dealing with the issue of poor scope.

6.2 Limitations and Future Research Directions

Though this study highlights the causes of project scope creep from the stakeholders' perspective, it has some limitations that could be addressed in future research. For example, one may:

— Explore the validity of the identified factors and their interrelationship.

— Perform a meta-analysis of several studies to test the proposed framework in other regions in the world.

— Test the mediating effect of project complexity on the interrelationships between factors of poor scope and project success.

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