



## Stakeholder Management: An insightful Overview of Issues

---

Ayman Mashali, Emad Elbeltagi, Ibrahim Motawa and  
Mohamed Elshikh

EasyChair preprints are intended for rapid  
dissemination of research results and are  
integrated with the rest of EasyChair.

November 24, 2019



## Stakeholder Management: An insightful Overview of Issues Paper ID:XX-XX

**Ayman Mashali**

[ayman.mashali@yahoo.com](mailto:ayman.mashali@yahoo.com)

[amashali@km.qa](mailto:amashali@km.qa)

Faculty of Engineering, Mansoura University, Egypt  
KAHRAMAA, Qatar & CEng, MICE.

**Emad Elbeltagi**

[eelbelta@mans.edu.eg](mailto:eelbelta@mans.edu.eg)

Faculty of Engineering, Mansoura University  
Mansoura, Egypt

**Ibrahim Motawa**

[i\\_a\\_motawa@hotmail.commans.edu.eg](mailto:i_a_motawa@hotmail.commans.edu.eg)

Faculty of Engineering, Mansoura University  
Mansoura, Egypt

**Mohamed Elshikh**

[i\\_a\\_motawa@hotmail.commans.edu.eg](mailto:i_a_motawa@hotmail.commans.edu.eg)

Faculty of Engineering, Mansoura University  
Mansoura, Egypt

### ABSTRACT

**Purpose** – This paper attempts to contribute towards investigating the existing literature base of stakeholder management (SM), provide a compilation, and define any gaps in this area. Besides, explore different groups of critical success factors (CSFs) and grouping these actors. **Design/methodology/approach** – This study is based on reviewing the literature. Therefore, more than a hundred research papers were searched using key terms specified in a preliminary literature review. Succeeding rounds of abstract research reviews resulted in forty-two research papers being selected for the compilation. SM constructs were then defined, and subsequent critical analysis identified the gaps in the literature base. **Findings** – The most important outcomes are the lack of research that has studied BIM-based stakeholder management, especially in mega projects. Additionally, further investigations are still required to study the SM influence throughout the different stages of the project life cycle and study the impact of project type and contract type in SM. However, there is still considerable debate about the SM nature and merits approach. **Originality/value** – This research provides a comprehensive gathering of all previously identified SM processes through a structured approach. Additionally, a more realistic and practical methodology for the development and implementation of SM will emerge, and twenty-seven CSFs associated with SM in construction projects are identified. The study is expected to have a theoretical contribution to this subject, especially in the context of the Qatari construction industry.

**Keywords:** Construction Industry, Implementation, Stakeholder Engagement, management, Stakeholder Management, Critical Success Factors (CSFs).

**Paper type:** Research paper - Literature review.

### 1 INTRODUCTION

The construction industry is highly complicated that requires strict systems to achieve projects efficiently and on time. In trying to maintain competitiveness, there has been a growing necessity in organizations to connect the information supplied by each department into a joint entity. The outcome, there has been widened research concentrating on the implementation process and its CSFs

(Al-Mashari et al. 2003; Hong and Kim 2002; Xu et al. 2002; Ribbers and Schoo 2002). Nevertheless, it seems that many of the literature, however, has concentrated on stakeholder management with very limited regard to stakeholders' perspective. For a project execution team, a more understanding of SM would make it possible to assess the project planning phases and determine if the concerns are being managed as effectively as possible. Finally, this will reinforce the probability of gaining higher success levels and, thus, time-saving, cost-savings, quality, and efficiency in their project.

Moreover, different aspects of implementation influence some stakeholder groups more than others, and some groups are higher qualified to comment on particular aspects than others. Furthermore, the identified gaps of the SM approach, identified by previous researchers, need to be further investigated in terms of how they have been addressed in the SM literature. Based on the outcomes of a comprehensive gathering and analysis of SM, this study seeks to introduce a new protocol to further research on SM processes and to uncover the more in-depth application of the broad aspects of SM.

## **2 STAKEHOLDER MANAGEMENT AND CSF LITERATURE COMPILATION**

As per reviewing the literature for SM and identifying its success factors, the first step was to categorize and group success factors that, at least initially, seemed to refer to the same phenomenon. At this point, the proposed relationship was still considered tentative. Then, a successive round of analysis of the concepts resulted in producing 31 CSF in total.

### **2.1 STAKEHOLDERS' DEFINITION AND CATEGORIES**

#### **Stakeholder Definitions**

PMBOK (2018) defines a stakeholder as an individual, groups, or organizations that may affect, be affected through, or perceive themselves to be affected by a decision, activity, or outcome of a project. The stakeholder literature presented different conceptual and definitions of stakeholders ranging from wide to narrow views. Freeman (1984) Proposed a classic definition of stakeholders that it is any group and individuals who can affect or is affected through the fulfilment of an organization's objective. However, this definition is wide in the meaning that it does not specify the relationship between stakeholders and the firm. Also, it does not take a situation whether the claims of the stakeholders are legitimate or not. In conclusion, the most common definitions of project stakeholders broadly, as any individual or organisations who can affect or is affected by the project.

#### **Stakeholders Categories**

PMBOK (2018), categorized stakeholders into two categories as (i) Internal project stakeholders generally include the project sponsor, project team, support staff, and internal customers for the project. Other internal stakeholders include top management, other functional managers, and other project managers because organizations have limited resources. (ii) External project stakeholders include the project's customers (if they are external to the organization), competitors, suppliers, and other external groups that are potentially involved in the project or affected by it, such as government officials and concerned citizens. Other categorizations in the literature are based on stakeholders' involvement in the project and the character of their relationship with the project, the nature of stakeholders' claim and their attitude towards the project, their role in the project, and their degree of anticipating behavior (Aaltonen 2010; Cova et al. 2002 and Moodley et al. 2008).

The primary stakeholder groups are those who are considered as a base to the presence of the organization, and often most of them have some formal contract with the organization as owners, employees, customers, and suppliers. Secondary stakeholders are the group that plays an essential part in giving credibility and acceptance to the organization for its activities and include, communities, governments, and competition (Ayuso et al. 2006; Podnar et al. 2006). Wheeler and Sillanpaa (1997) classified stakeholders into two additional dimensions of social and non-social. Stakeholders are commonly classified by a broad range of attributes, such as interest, attitude, impact, influence, power,

urgency, risk, and satisfaction (Mitchell et al. 1997; McElroy and Mills 2003). Miller and Olleros (2001) stated that successful projects display exceptional SM and maybe follow the process of stakeholder identification, classification, analysis, and management strategy formularization.

## 2.2 CRITICAL SUCCESS FACTORS (CSFs) COMPILATION

Numerous researchers have applied the CSFs as means to enhance the performance of the management process (Jefferies 2002; Yu 2007; Yang et al. 2009b). CSFs can be defined as “areas, where outcomes if they are satisfying, will ensure strong competitive achievement for the organization” (Rockart 1979 cited in Yang et al. 2009). CSFs are identified from studies on SM, in general, or “the works of those who have discussed a special factor in detail” (Wong and Aspinwall 2005). Based on an extensive literature review, six groups, comprising 31 factors contributing to the success of SM, were identified and proposed as follows:

### Group 1: Project Type

Project characteristics are significant to project success (Songer and Molenaar 1997).

- *Industrial*: Industrial projects are characterized by a high level of complexity (Anderson et al. 2016). While numerous researches evaluate project complexity, little integrated studies present a proper approach for successfully managing the project complexity (Liu et al. 2017). Therefore, there is a significant need for an applicable approach that can simplify the assessment process to manage the project effectively.
- *Infrastructure*
- *Buildings*: Building construction suffers from the isolation of construction responsibility from design stages. Grilo et al. (2007) supported these issues and mentioned that the reason is the contractors' exclusion from the design process.

### Group 2: Contract type.

The organization must have a comprehensive construction contract, and the contract must realize an efficient collaborative environment with a balance between vendor and client.

- *Lump Sum*
- *Measurement*
- *Cost Reimbursable*
- *Design-Build (EPC)*: Design-build (D-B) is a project procurement process where one entity or consortium is contractually liable for design and construction (Songer et al. 1997). D-B is illustrated to be an efficient delivery method and has become common in the world in the current years (Xia and Chan 2010). In D-B projects, the pre-qualification of potential tenders is essential to gain an initial evaluation of interested parties' suitability to undertake the project (Lam et al. 2004). Furthermore, conditions, regulations, and laws of contract documentation must be complete about parties' rights and duties to provide sufficient information for the responsibilities at various stages of design and construction (Nguyen et al. 2004).

### Group 3: Decision making.

Whereas not broadly cited, this group deserves specific consideration. Moreover, this concept indicates the need for the team to be enabled to make crucial decisions in proper time, to allow effective timing for the implementation (Shanks and Parr 2000; Chen 2001; Gupta 2000).

- *Transparent Evaluation of the alternative solution based on stakeholder concern*: The clear evaluation of alternative solutions for the development of a construction industry based on the concerns of stakeholders would assist project managers to establish the basis of trust needed for an adequate SM process (Olander and Landin 2008). Moreover, the involvement is considered as it is the first start in including stakeholders input in the decision-making process as it comprises the development of alternative solutions based on stakeholders input, analysis of these different solutions concerning design criteria and stakeholders view, evaluation of

the solutions, and finally, the selection of favored solutions and increase of preliminary mitigating measures (El Gohary et al. 2006).

- *Ensuring effective communication between the project and its stakeholder:* Project success is connected with effectively communicate and manage relationships with the different stakeholders of the project. Therefore, to ensure the project's success, much information needs to be communicated on a steady basis to all major stakeholders, including expectations, goals, needs. In contrast, communications comprise the processes needed to ensure timely and proper generation, collection, distribution, storage, and retrieval of project information. Furthermore, Effective communication builds a bridge between different stakeholders involved in a project, connecting many cultural and organizational backgrounds, various levels of expertise, and many views and interests in the project fulfilling or outcome (Čulo and Skendrović 2010; Jergeas et al. 2000).
- *Formulate appreciate strategy to deal with stakeholder:* SM strategy is the attitude of how the project management team addresses various stakeholders needs (Karlsen 2002). Thus, many researchers repeated the urgency to address the implementation strategy by a gradual approach (Mandal and Gunasekaran 2003; Scott and Vessey 2000; Cliffe 1999; Robey et al. 2002; Gupta 2000; Motwani et al. 2002). Additionally, 'Stakeholders' reactions to the strategies' is a vital factor when project managers make decisions regarding the strategies to deal with stakeholders (Freeman et al. 2007). Therefore, the project team must predict stakeholders behavior in fulfilling strategy (Cleland and Ireland 2002), where an effective project management strategy is that ensures project success (Smith and Wilkins 1996). Besides, it was determined and described five different types, ranging from negative to active approaches used by the construction industry companies. SM strategies are: adaptation, compromising, avoidance, dismissal, and influence (Hammad 2013).

#### **Group 4: The best manages stakeholder team.**

The challenges of stakeholder perspectives of unreasonable and wrongly concentrated about a project and its expected outcomes may lead to problems in project implementation (Olander 2007; Jha and Iyer 2006). Most of project stakeholders' research on managerial behavior focused on the conceptual development of various managerial frameworks, tools, and processes to identify, categorize and manage project stakeholders and studying the role and value of SM process (Bourne and Walker 2005; Cleland 1986; Cleland 1995; Cleland 1998; Olander and Landin 2005).

- *Client Team:* There is a necessity for communication and consultation with various key stakeholders, though, in particular with the Owner (Al-Mashari et al. 2003; Al Mudimigh et al. 2001). Organizations necessitate keeping their owners informed of their projects to avoid errors (Al-Mudimigh et al. 2001; Holland and Light 1999; Mandal and Gunasekaran 2003).
- *Formulate Project Management Team:* It has declared throughout the literature that there is a significant need to build a strong and powerful team that comprises the organization's best and brightest employees. These employees must have established credit (Cliffe 1999), and there should be a pledge to release the employees to the implemented project on a full-time basis (Shanks and Parr 2000; Siriginidi 2000b). The team needs to hold the necessary skills to investigate details when conducting the planning phase (Soh et al. 2000). Once the team has been established, it might then be primary to train the employees (Bajwa et al. 2004).
- *Supervision Consultant Team:* Many researchers have advocated the necessity to include a consultant as part of the execution team (Trimmer et al. 2002; Bajwa et al. 2004; Kalling 2003;

Motwani et al. 2002). Still, as part of this relationship, it is essential to arrange for knowledge transfer from the consultant to the firm (Al-Mashari et al. 2003; Skok and Legge, 2002).

- *External Party team:* It is remarked that if a construction authority does not be in complex mega-projects, a third-party consultant will hold the role of the construction authority or a project management company expert in such projects type (Adrem et al. 2006). This concept is observed in several airport projects, such as the Doha Airport Expansion project where construction authority control is needed to obtain a balance between stakeholders interests.
- *Contractor Team:* Designers could gain from the early involvement of contractors who usually are not engaged in the tender stage previously in traditional procurement and design management systems (Pocock et al. 1997). Subsequently, the contractor's involvement at the design stage has a vital influence on having right-first-time design and will have a positive influence on the efficiency, constructability, quality, and speed of the project construction (Cooper et al. 2005). Also, when contractors become involved, they have minimal freedom because most all design elements are already determined (Adrem et al. 2006).

### **Group 5: Stakeholders' Categories in the Project stages**

Most of the researchers investigating SM have mentioned the vital significance of identifying stakeholders (Karlsen 2002; Olander 2006; Walker et al. 2008; Jepsen and Eskerod 2008). Although the project stakeholders can be divided into many types according to various criteria, the question of “who are the stakeholders?” must be answered earlier (Pinto et al. 2009). Project stakeholders influence the project management procedure (Olander 2007). Therefore, realizing the stakeholders’ impact is significant for planning and implementing enough strict SM processes (Olander and Landin 2005). Accordingly, if an external SM process conducted properly, it represents an opportunity for project improvement (Oalnder, 2006).

- *Initiation stage:* Numerous researchers indicated that project performance, in terms of time, schedule, scope, quality, and safety, will be enhanced by implementing SM at the early project stages (Caglar and Connolly 2007; Chen et al. 2007; Shokri et al. 2012). Moreover, the project management team should classify project stakeholders in the early project stages to ensure the project success. It is crucial to identify the project stakeholders and to get the stakeholders’ engagement process for integrating them into the design and construction activates and to determine the interference among them and the SM problems to improve it (Nesreen et al. 2014a). Clear and appropriate stakeholder definition is considered as one of the most significant contributors to project success, and it is a product of the initiation phase of project development. Therefore, success throughout the next phases would be highly dependent on the level of the effort spent during this phase. A specific mega-project execution approach is selected at this vital stage in a project’s life span (Gabriel 2015).
- *Planning stage:* The project works could be ensured in excellent condition by efficient overall management actions in planning, leading, organizing, and controlling (Nguyen et al. 2004; Mandal and Gunasekaran 2003). The planning method should be thoughtful of tasks to be fulfilled (Mandal and Gunasekaran 2003), and subsequently, the planning should include internal and external best practices for implementation (Al-Mudimigh et al. 2001). In mega-projects, there is a sequence of phases through which a project develops to its conclusion. In each succeeding phase of a project, new and different activities are developed, with the outcome of one phase becoming an input to the next phase. Different studies have shown that greater efforts in project planning and SM lead to improved project performance (Gabriel 2015). This stage develops the design through a logical sequence aiming to get approval on proceeding to the construction stage. It is usually developed after approving the project financing and producing an appropriate design solution that meets the client's needs (Wahab

2011). The Planning stage aims to secure complete financial power to proceed to the construction stage, and after concluding the owner is aware of the works' extent, and likely risks can be understood (Cooper et al. 2005).

- *Execution stage:* During the execution phase, almost all SM areas have to be considered. This phase consists of two stages: (1) project construction and (2) Monitor and Control on-site. The project team must be familiar with the environmental conditions, local weather, and the geotechnical conditions have to be checked and studied carefully (Cooper et al. 2005; Nesreen, et al., 2014a). During this stage, the organization generates alternatives and chooses the preferred alternative. The significance of scope definition and data reliability is higher than in the previous phase. Also, the project manager and crucial project resources are assigned at this stage (Hussain 2015). Also, information, data, and feedback are regularly gathered and made available to concerned stakeholders on time (Gabriel 2015).
- *Monitoring and Controlling stage:* Through this stage, the project has been completely funded, a detailed schedule is in place, and the executive team engagement is high for executing the project according to the project schedule and budget. Where the performance of the project team is measured through the project execution phase adds progress and performance reports go to the client's side, executives, and all project stakeholders (Hussain 2015). Also, throughout the monitor and controlling process, performance information is gathered, analyzed, and distributed in periodical reports (Gabriel 2015).
- *Closing stage:* The closing stage includes the owner's operations teams; all the project teams and contractors are released from the project (Hussain 2015). However, the project handing over is a long process, and especially when there are complicated activities. So, this stage ensures smooth handing over the process. Therefore, as-built designs are documented and handed over to the client representative, whereas training workshop will carry out to ensure that the end-users' teams are qualified for operation and maintenance works (Hussain 2015).
- *Maintenance stage:* The object of this stage is to monitor the maintenance needs of the completed project. Where it is very significant to the involvement of the facility management in early design stages, which will make the maintenance stage less problematic. Also, Recording the project's legacy archive duly will result in eliminating the necessity for surveys of the completed property (Cooper et al. 2005).

#### **Group 6: Management support.**

Top management support is crucial for effective SM (Yang et al. 2009b). Therefore, for guaranteeing successful SM, individuals should be ready to participate in power and resource that would help the overall organization's aim (Brooke and Litwing 1997). Moreover, the commitment and support of senior management were one of the most widely mentioned CSFs. Also, this concept indicated the need to have obliged leadership at the senior management level. Besides, it is referred to the necessity for management to expect any weakness that might be faced (Motwani et al., 2002) and the requirement for top management who would be involved in the strategic planning, but who are likewise technically orientated (Yusuf et al., 2004). Reliable and committed leadership at the top management level is essential to the success of project achievement (Sarker and Lee, 2003).

- *Managing Stakeholders with corporate responsibilities:* Project management indicates the continuous management of the implementation plan. Accordingly, it includes not only the planning stages but also the distributing of responsibilities to many players, definition of milestones, critical paths, training, and planning of human resources, and finally, the determination of measures of success (Nah et al. 2001). Additionally, there is a need to

institute a steering committee comprised of top management from various corporate functions, senior project management reps, and end-users (Somers and Nelson 2001 2004).

The construction industry performs a significant role in the social and economic development in both developing and developed countries (Othman and Abdellatif 2011). Also, it assists government efforts by obtaining strategic development objectives, increasing gross national product, and offering job opportunities. Othman and Abdellatif (2011) and Yang et al. (2009b) considered that SM with economic, legal, environmental, ethical, and cultural responsibilities as the primary step for SM. Moreover, environmental foremost has been given considerable attention by numerous scholars (AlWaer et al. 2008; Prager and Freese 2009). Therefore, the project managers should manage stakeholders considering whole kinds of these social responsibilities to ensure that project aims are achieved (Yang et al. 2011a).

- *Flexible project organization*: Flexible project organization is needed to overcome the complexity and doubts of construction (Li et al. 2011), which is confirmed by Olander and Landin (2008), who come to the influence of the flexibility administration of the project to recruit employees to realize the objectives of the project. As one objective of SM is to obtain acceptance from stakeholders on the implementation of the project, and this will be accomplished if an organization is established to contain sufficient resources for communication and interaction with stakeholders.
- *Project manager Competence / Skills*: The project managers should own high and strong leadership skills, technical, business, and managerial competencies (Mandal and Gunasekaran 2003; Kraemmergaard and Rose 2002). In most conditions, stakeholders' relationship is managed by projects' managers; therefore, the outcomes of SM are dependent on the PMs' experience, relationships, power, and capability (Karlson 2002). Also, PMs should be skilled negotiators and communicators to be capable of managing different stakeholder expectations and building a positive culture change within the overall organization (Olander and Landin 2008). Therefore, the PMs role should comprise not only simply an understanding of the technical realities at hand but also of the connections between technology, environment, community, and people in it. Moreover, The PMs should gain knowledge about the project place and engage the local society when planning of the construction project. Consequently, if an external SM process conducted properly, it should be seen as describing an opportunity for the project improving (Oalnder 2006). In project management, effective PMs need keen analytical and intuitive skills to the identification of stakeholders and work with them to get their needs and expectations and impact upon project success. These expedite the managing process that maximizes positive stakeholder input and reduces any possible harmful impact (Bourne and Walker 2005). It was clarified that PMs should be develop a stakeholder involvement plan to engage the various demands of several stakeholder sets, and to enhance the effectiveness and efficiency of the decisions which are taken during the project lifecycle (Saghatforoush et al. 2010).

### **3 RESEARCH METHODOLOGY**

The comprehensive literature review has involved extensive note-taking that has highlighted all possible references to SM, through adopting a conceptual analysis approach. CSF can be defined as a reference to any condition or element that was considered essential for the SM implementation to occur successfully. Those papers comprising a reference to CSFs of SM implementations were then analyzed to code the specified constructs. Consequently, all CSFs, regardless of the description, was noted with the understanding that the sorting phase would begin to place CSFs in like categories. Since the aim of the paper was to gain a deep understanding of SM issues and different CSFs that already identified by other researchers. Therefore, content analysis was a proper analysis approach. It is the most common method when analyzing texts (Silverman 2000).

## 4 ANALYSIS OF SM LITERATURE

Researchers have much often concentrated on only a specific aspect of the implementation process or a specific SM. Consequently, there is little research documented that includes all significant SM considerations. Regardless of methodology, all the studies mentioned above have been narrowly focused, providing readers a constricted yet detailed view of a particular success factor. The relatively small degree of stakeholder consultation and the shortage of reporting of their individual opinions, as evidenced in the preceding citations, is a significant gap in the current literature base, and it illustrates the prime weakness of the CSF approach. Further, there is too little offered in the literature that attempts to identify or explain the specific tactics required to manage and implement these SM activities successfully. As expressed by the above references, the views on stakeholder management and precisely what stakeholder management involves vary greatly. These required to be further explored so that these ideas can be better presented in a manner that makes it possible for the project manager to implement and control effectively. Moreover, although there is no doubt that SM is a necessary consideration, it is less clear exactly how it should be handled.

Table 1 Title of CSFs in literature

| CSFs | CSF category   | Group No | Group description                 |  |
|------|--|----------|-----------------------------------|--|
| C1   | Industrial Project   | 1        | Project Type                      |  |
| C2   | Infrastructure Project   | 1        |                                   |  |
| C3   | Buildings Project  | 1        |                                   |  |
| C4   | Others Project   | 1        |                                   |  |
| C5   | Lump Sum   | 2        | Contract Type                     |  |
| C6   | Measurement  | 2        |                                   |  |
| C7   | Cost Reimbursable  | 2        |                                   |  |
| C8   | Design-Build (EPC) Project   | 2        |                                   |  |
| C9   | Transparent Evaluation of the alternative solution based on stakeholder concern. | 3        | Decision making                   |  |
| C10  | Ensuring effective communication between the project and its stakeholder.        | 3        |                                   |  |
| C11  | Formulate appreciate strategy to deal with stakeholder.                          | 3        |                                   |  |
| C12  | Client Team  | 4        | The best manages stakeholder team |  |
| C13  | “Project Management team” P.M Team   | 4        |                                   |  |
| C14  | S.C Team   | 4        |                                   |  |
| C15  | Ex.3 <sup>rd</sup> Party team  | 4        |                                   |  |
| C16  | Contractor Team  | 4        |                                   |  |
| C17  | Initiation stage for; a- Internal stakeholder                                    | 5        | 4a- Internal stakeholder          | Stakeholders' Categories in the Project stages |
| C18  | Planning stage for; a- Internal stakeholder                                      | 5        |                                   |  |
| C19  | Execution stage for; a- Internal stakeholder                                     | 5        |                                   |  |
| C20  | Monitoring & Controlling for; a- Internal stakeholder                            | 5        |                                   |  |
| C21  | Closing stage for; a- Internal stakeholder                                       | 5        |                                   |  |
| C22  | Maintenance stage for; a-Internal stakeholder                                    | 5        |                                   |  |
| C23  | Initiation stage for; b- External stakeholder                                    | 5        | 4b-External stakeholder           |  |
| C24  | Planning stage for; b- External stakeholder                                      | 5        |                                   |  |
| C25  | Execution stage for; b- External stakeholder                                     | 5        |                                   |  |
| C26  | Monitoring & Controlling for; b- External stakeholder                            | 5        |                                   |  |
| C27  | Closing stage for; b- External stakeholder                                       | 5        |                                   |  |
| C28  | Maintenance stage for; b- External stakeholder                                   | 5        |                                   |  |
| C29  | Managing Stakeholders with corporate responsibilities                            | 6        | Management support                |  |
| C30  | Flexible project organization  | 6        |                                   |  |
| C31  | Project manager Competence / Skills  | 6        |                                   |  |

Based on the extensive literature review of SM, 31 critical success factors are identified in construction projects, and these factors were collected and classified into six groups, as presented in Table 1. Such compilation are based on the range of CSFs/SM citations. Nevertheless, there was further analysis conducted that attempted to uncover any apparent gaps in the literature to date. As a

result, the most apparent from this review is the very lack of in-depth coverage of CSFs. Moreover, another important observation was the lack of BIM based-stakeholder management cited in the literature. Finally, the concept of management support, one of the most widely cited success factors, and the range of activities encompassed by management support are varied.

This paper would help interested professionals to have more information about the potential and the most critical success factors for SM. Where, this information may minimize conflict among different project stakeholders involved in construction projects, which may positively impact project performance. As mentioned above, and based on the review of the literature, the importance for more study about SM and considerations of the possible positive influence of SM in MCPs are highlighted. Also, the perspective on SM that identifies, examines and evaluates this issue is missing in the literature. In order to bridge this gap, this research concentrates on exploring and evaluating SM as the primary step for achieving better outputs.

Nevertheless, further investigations are still needed to improve SM during the different stages of project execution. Also, it is necessary to evaluate and analyze SM and their impact, for managing the stakeholder in MCPs, and the effect of internal and external stakeholders in the construction industry. Furthermore, translating the theoretical findings into an empirical study and show the impact of using the SM on the overall cost and productivity of a project.

## 5 ONCLUSIONS

Research on SM implementation and CSFs is a valuable step toward enhancing the chances of project success. A review of the SM and CSFs/implementation reveals that, in many cases, CSFs are presented based on a review of the already published literature or limited case studies. As a result, one fundamental limitation of this research is the occurrence of duplication in the frequency analysis of the success factors. Moreover, in situations when previous researchers have attempted to identify CSFs through their empirical research, they have very often concentrated on only a specific aspect of the implementation or a particular kind of CSF. Whereas, past approaches in studying CSFs have been very similar in manner to the fragmented approach.

Also, it has been revealed that there has been no research conducted to date that has considered the significant CSFs during SM implementation by adopting BIM. That is a significant finding. While management support emerges as one of the two most widely cited success factors, there still appears to be much variance for what exactly is encompassed. Because of the limitations of the literature mentioned above and based on the recommendations from other studies, there is a necessity to focus future research efforts on the study of BIM-based stakeholder management, especially in mega projects. Furthermore, to ensure that this stakeholder approach is also comprehensive in its coverage of CSFs. Finally, there is a need to conduct more in-depth research on the concept of SM and what it entails. All of the success factors are important on their own. Therefore, the necessity to approach the SM implementation from a perspective is central to the success of any project. The gap in this aspect of the literature needs to be explored in more detail. Expressly, there is a need to identify the strategies to be employed and the explicit tactics to be used to manage stakeholders for successful implementation of mega projects.

## REFERENCES

- A. Smith, B.Wilkins, "Team relationship and related critical factors in the successful procurement of health care facilities", *Journal of Construction Procurement*, vol. 2, no. 1, pp. 30-40, 1996.
- A.D.Songer, K.R.Molenaar, "Project characteristics for successful public-sector design-build", *Journal of Construction Engineering and Management*, vol. 123, no. 1, pp. 34-40, 1997.
- A.D.Songer, K.R.Molenaar, "Project characteristics for successful public-sector design-build", *Journal of Construction Engineering and Management*, vol. 123, no. 1, pp. 34-40, 1997.
- Aaltonen, (2010) stakeholder management in international projects. PhD thesis, Aalto University, Espoo, Finland.

- Adrem, A., Schneiderbauer, D., Meyer, E. & Majdalani F. (2006), *Managing airports construction projects*, [Accessed 4 August 2010] Available at: [www.Boozallen.com](http://www.Boozallen.com).
- Al-Mashari, M. (2002), "Enterprise resource planning (ERP) systems: a research agenda", *Industrial Management & Data Systems*, Vol. 102, pp. 165-70.
- Al-Mashari, M., Al-Mudimigh, A. and Zairi, M. (2003), "Enterprise resource planning: a taxonomy of critical factors", *European Journal of Operational Research*, Vol. 146, pp. 352-64.
- Al-Mashari, M., Al-Mudimigh, A. and Zairi, M. (2003), "Enterprise resource planning: a taxonomy of critical factors", *European Journal of Operational Research*, Vol. 146, pp. 352-64.
- Al-Mudimigh, A., Zairi, M. and Al-Mashari, M. (2001), "ERP software implementation: an integrative framework", *European Journal of Information Systems*, Vol. 10, p. 216.
- AlWaer, H., Sibley, M. and Lewis, J. (2008) Different stakeholder perceptions of sustainability assessment. *Architectural Science Review*, 51 (1), pp. 48-59.
- Anderson, S., Vahdat, A., Dao, B., Kermanshachi, S., Shane, J., & Hare, E. (2016). Measuring project complexity and its impact. Austin, TX: Construction Industry Institute. <https://www.construction-institute.org/resources/knowledgebase/knowledge-areas/measuring-project-complexityandits-impact/topics/rt-305>
- Ayuso, S., Rodriguez, M. A., & Ricart, J. E. (2006). Responsible competitiveness at the "micro" level of the firm: Using stakeholder dialogue as a source for new ideas: a dynamic capability underlying sustainable innovation. *Corporate Governance*, 6 (4), 475-490.
- B.Xia, A.P.C. Chan, "Key competences of design-build clients in China", *Journal of Facilities Management*, vol. 8, no. 2, pp. 114-129, 2010.
- Bajwa, D.S., Garcia, J.E. and Mooney, T. (2004), "An integrative framework for the assimilation of enterprise resource planning systems: phases, antecedents, and outcomes", *Journal of Computer Information Systems*, Vol. 44, pp. 81-90.
- Bourne, L., Walker, D.H.T., 2005. Visualizing and mapping stakeholder influence. *Management Decision*, 43(5), 649-660.
- Brooke, K. and Litwin, G. (1997) Mobilizing the partnering process. *Journal of Management in Engineering*, 13 (4), pp. 42-48.
- Carley, K. (1992), "Coding choices for textual analysis: a comparison of content analysis and map analysis", unpublished working paper.
- Chen, I.J. (2001), "Planning for ERP systems: analysis and future trend", *Business Process Management Journal*, Vol. 7, p. 374.
- Cleland, D.I. and Ireland, R.L. (2007) *Project Management: Strategic Design and Implementation*, New York, McGraw-Hill.
- Cleland, D.I., 1986. Project stakeholder management. *Project Management Journal*, 17(4), 36-39
- Cleland, D.I., 1995. Leadership and the project management body of knowledge. *International Journal of Project Management*, 13(2), 82-88.
- Cleland, D.I., 1998. Stakeholder management. In: Pinto J., (Ed.), *Project Management Handbook*, San Francisco, Jossey-Bass, Project Management Institute, 55-72.
- Cliffe, S. (1999), "ERP implementation", *Harvard Business Review*, Vol. 77, p. 16.
- Cooper, R.G. & Kleinschmidt, E.J. (1994). Determinants of Timeliness in Product Development. *Journal of Product Innovation Management*, vol.11(5), pp.381-396.
- Cooper, R., Aouad, G., Lee, A., Wu, S., Fleming, A. & Kagioglou, M. (2005). *Process Management in Design and Construction*, Blackwell Publishing.
- Cova B., Salle R., 2005. Six key points to merge project marketing into project management. *International Journal of Project Management*, 23(5), 354-359.
- Čulo, K. and Skendrović V. (2010) Communication management is critical for project success. *Informatologia*. 43 (3), pp. 228-235.
- E.W.M. Lam, A.P.C. Chan, D.W.M. Chan, "Benchmarking design-build procurement systems in construction", *Benchmarking: An International Journal*, vol. 11, no. 3, pp. 287-302, 2004.
- El-Gohary, N. M., Osman, H. and Ei-Diraby, T.E. (2006) Stakeholder management for public private partnerships, *International Journal of Project Management*, 24 (7), pp. 595-604.
- Ettlie, J. E. & Stoll, H. W. (1990). *Managing the Design-Manufacturing Process*. New York: McGraw-Hill.
- Freeman, R. E. 1984. *Strategic Management: A Stakeholder Approach*, Pitman, Boston.

- Freeman, R.E., Harrison, J.S. and Wicks, A.C. (2007) *Managing for Stakeholders –Survival, Reputation, and Success*, Louis Stern Memorial Fund, US.
- Gabril, Emile (2015). The human factor effect on projects' success. A Thesis Submitted to The Faculty of Graduate Studies in Partial Fulfilment of The Requirements For The Degree of Doctor Of Philosophy, Department of Civil Engineering, Calgary, Alberta.
- Grilo,L., Melhado,S., Silva,S., Edward,P. & Hardcastle,C. (2007). International Building Design Management and Project Performance; Case Study in Sao Paulo, Brazil, *Architectural Engineering And Design Management*, vol.3, pp.5-16.
- Grilo,L., Melhado,S., Silva,S., Edward,P. & Hardcastle,C. (2007). International Building Design Management and Project Performance; Case Study in Sao Paulo, Brazil, *Architectural Engineering And Design Management*, vol.3, pp.5-16.
- Gupta, A. (2000), "Enterprise resource planning: the emerging organizational value systems", *Industrial Management & Data Systems*, Vol. 100, pp. 114-8.
- Gupta, A. (2000), "Enterprise resource planning: the emerging organizational value systems", *Industrial Management & Data Systems*, Vol. 100, pp. 114-8.
- Holland, C. and Light, B. (1999), "A critical success factors model for ERP implementation", *IEEE Software*, Vol. 16, p. 30.
- Hong, K-K. and Kim, Y-G. (2002), "The critical success factors for ERP implementation: an organizational fit perspective", *Information & Management*, Vol. 40, p. 25.
- Hussain, Tariq (2015). A Model for Project Governance in Delivery of Oil and Gas Projects in Alberta. A Thesis Submitted to The Faculty of Graduate Studies in Partial Fulfilment of the Requirements for The Degree of Doctor Of Philosophy, Department of Civil Engineering, Calgary, Alberta.
- Jefferies, M., Gameson, R. and Rowlinson, S. (2002) Critical success factors of the BOOT procurement system: reflections from the Stadium Australia case study. *Engineering, Construction and Architectural Management*, 9 (4), pp. 352-361.
- Jepsen A. L. and Eskerod, P. (2009) Stakeholder analysis in projects: Challenges in using current guidelines in the real world. *International Journal of Project Management*, 27(4), pp. 335–343.
- Jergeas, G.F., Eng, P., Williamson, E., Skulmoski, G.J. and Thomas, J.L. (2000) Stakeholder management on construction projects, *2000 AACE International Transaction*, 12.1-12.6.
- Jha, K. N. and K. C. Iyer. 2006. Critical factors affecting quality per-formance in construction projects. *Total Quality Management* 17 (9):1155-1170.
- Kalling, T. (2003), "ERP systems and the strategic management processes that lead to competitive advantage", *Information Resources Management Journal*, Vol. 16, p. 46.
- Karlsen, J.T. (2002) Project stakeholder management, *Engineering Management Journal*, 14 (4), pp. 19-24.
- Kraemmergaard, P. and Rose, J. (2002), "Managerial competences for ERP journeys", *Information Systems Frontiers*, Vol. 4, p. 199.
- Leung, M.-y., J. Yu and Q. Liang. 2013. Improving Public Engage-ment in Construction Development Projects from a Stakeholder Per-spective. *Journal of Construction Engineering and Management*.
- Li, Y., Lu, Y. and Peng, Y. (2011) Hierarchical structuring success factors of project stakeholder management in the construction organization. *African Journal of Business Management*, 5 (22), pp. 9705-9713.
- Liu, H., Jazayeri, E., & Dadi, G. B. (2017). Establishing the influence of owner practices on construction safety in an operational excellence model. *Journal of Construction Engineering and Management*, 143(6), 04017005. doi:10.1061/(ASCE)CO.1943-7862.0001292
- Mandal, P. and Gunasekaran, A. (2003), "Issues in implementing ERP: a case study", *European Journal of Operational Research*, Vol. 146, pp. 274-83.
- McElroy, B., Mills, C., 2003. Managing Stakeholders. In: Turner, R.J. (Ed.). *People in Project Management*, Aldershot, Gower, 99–118.
- Miller, R., Lessard, D., 2001. Understanding and managing risks in large engineering projects. *International Journal of Project Manage-ment*, 19(8), 437-443.
- Mitchell, R. K., Agle, B.R., Wood, D.J., 1997. Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review* 22 (4), 853-886.
- Moodley, K., Smith, N., Preece, C.N., 2008. Stakeholder matrix for ethical relationships in the construction industry. *Construction Man-agement and Economics*, 26 (6), 625-632.

- Motwani, J., Mirchandani, D., Madan, M. and Gunasekaran, A. (2002), "Successful implementation of ERP projects: evidence from two case studies", *International Journal of Production Economics*, Vol. 75, p. 83.
- N.D.Nguyen, S.O. Ogunlana, Đ.T.X.Lan, "A study on project success factors in large construction projects in Vietnam", *Engineering, Construction and Architectural Management*, vol. 11, no. 6, pp. 404-413, 2004.
- Nah, F.F-H., Lau, J.L-S. and Kuang, J. (2001), "Critical factors for successful implementation of enterprise systems", *Business Process Management Journal*, Vol. 7, p. 285.
- Nguyen, N.H., Skitmore, M. and Wong, J. K. W. (2009) Stakeholder impact analysis of infrastructure project management in developing countries: a study of perception of project managers in state-owned engineering firms in Vietnam. *Construction Management and Economics*, 27 (11), pp. 1129-1140.
- Olander S., Landin, A., 2005. Evaluation of stakeholder influence in the implementation of construction projects. *International Journal of Project Management*, 23(4), 321-328.
- Olander, S. (2006) *External stakeholder management*. PhD thesis, Lund University, UK.
- Olander, S. (2007) Stakeholder impact analysis in construction project management. *Construction Management and Economics*, 25 (3), pp. 277-287.
- Olander, S. and Landin, A. (2008) A comparative study of factors affecting the external stakeholder management process. *Construction Management and Economics*, 26 (6), pp. 553-561.
- Othman, A. and Abdellatif, M. (2011) Partnership for integrating the corporate social responsibility of project stakeholders towards affordable housing development: A South African perspective. *Journal of Engineering Design and Technology*, 9 (3), pp. 273 – 295.
- Pinto, J. K., D. Slevin, B. (2009) Trust in Projects: An empirical assessment of owner/contractor relationships. *International Journal of Project Management*, 27 (6), pp. 638-648.
- PMI (Project Management Institute) (2018) *A Guide to the Project Management Body of Knowledge*, Fourth version, Newtown Square, Pa.
- Pocock, J.B., Hyun, C.T., Liu, L.Y. & Kim, M.K. (1997), Relationship between project interaction and performance indicators, *Journal of Construction Engineering and Management*, vol.122(2), pp.165–176.
- Podnar, K., & Jancic, Z. (2006). Towards a categorization of stake-holder groups: An empirical verification of a three-level model. *Journal of Marketing Communications*, 12 (4), 297-308. pp. 167–175.
- Prager, K. and Freese, J. (2009) Stakeholder involvement in agri-environmental policy making – Learning from a local- and a state-level approach in Germany. *Journal of Environmental Management*, 90 (2), pp. 1154-1167.
- Ribbers, P.M.A. and Schoo, K-C. (2002), "Program management and complexity of ERP implementations", *Engineering Management Journal*, Vol. 14, p. 45.
- Robey, D., Ross, J.W. and Boudreau, M-C. (2002), "Learning to implement enterprise systems: an exploratory study of the dialectics of change", *Journal of Management Information Systems*, Vol. 19, p. 17.
- Saghatforoush, E., B. Trigunarsyah, E. Too and A. HeraviTorbati. 2010. Effectiveness of constructability concept in the provision of in-frastructure assets. In eddBE 2011 Conference Queensland University of Technology, Brisbane, Australia, April 2011.
- Salah Hammad, 2013, Investigating the Stakeholder Management in Construction Projects in the Gaza Strip, P 7.
- Sarker, S. and Lee, A.S. (2003), "Using a case study to test the role of three key social enablers in ERP implementation", *Information & Management*, Vol. 40, p. 813.
- Scott, J.E. and Vessey, I. (2000), "Implementing enterprise resource planning systems: the role of learning from failure", *Information Systems Frontiers*, Vol. 2, p. 213.
- Shanks, G. and Parr, A. (2000), "A model of ERP project implementation", *Journal of Information Technology*, Vol. 15, pp. 289-303.
- Shanks, G. and Parr, A. (2000), "A model of ERP project implementation", *Journal of Information Technology*, Vol. 15, pp. 289-303.
- Silverman, D. (2000), *Doing Qualitative Research: A Practical Handbook*, Sage, Thousand Oaks, CA.
- Siriginidi, S.R. (2000b), "Enterprise resource planning in reengineering business", *Business Process Management Journal*, Vol. 6, p. 376.
- Skok, W. and Legge, M. (2002), "Evaluating enterprise resource planning (ERP) systems using an interpretive approach", *Knowledge and Process Management*, Vol. 9, p. 72.
- Soh, C., Kien, S.S. and Tay-Yap, J. (2000), "Cultural fits and misfits: is ERP a universal solution?", *Association for Computing Machinery. Communications of the ACM*, Vol. 43, p. 47.

- Somers, T.M. and Nelson, K. (2001), “The impact of critical success factors across the stages of enterprise resource planning implementations”, *Proceeding of the 34th Hawaii International Conference on System Sciences*, Hawaii.
- Somers, T.M. and Nelson, K.G. (2004), “A taxonomy of players and activities across the ERP project life cycle”, *Information & Management*, Vol. 41, pp. 257-78.
- Trimmer, K.J., Pumphrey, L.D. and Wiggins, C. (2002), “ERP implementation in rural health care”, *Journal of Management in Medicine*, Vol. 16, p. 113.
- Wahab, Hasan (2011). *Design Process and Stakeholder Management in Airport Construction*. Dissertation submitted in partial fulfillment of MSc Project Management, Faculty of Business, The British University in Dubai.
- Walker, D.H.T. Bourne, L.M. and Shelley, A. (2008) Influence, stakeholder mapping and visualization. *Construction Management & Economics*, 26 (6), pp. 645-658.
- Weshah, N., El-Ghandour, W., Cowe Falls, L., & Jergeas, G. (2014a). A New Approach for Evaluating and Analysing the Impact of Interface Management (IM) on Project Performance during Engineering / Design Phase using Monte Carlo Simulation. In *Proceedings of the Canadian Society for Civil Engineering Conference Halifax, Nova Scotia, Canada, May 28th -31st, 2014*. (pp. GEN-128-1-10).
- Wheeler, D., & Sillanpaa, M. (1997). *The stakeholder corporation: A blueprint for maximising stakeholder value*. London: Pitman Pub-lishing. © University of Pretoria 128
- Wong, K. Y.; Aspinwall, E. 2005. An empirical study of the important factors for knowledge-management adoption in the SME sector, *Journal of Knowledge Management* 9(3): 64–82. doi:10.1108/13673270510602773
- Xu, H., Nord, J.H., Brown, N. and Nord, G.D. (2002), “Data quality issues in implementing an ERP”, *Industrial Management & Data Systems*, Vol. 102, p. 47.
- Yang, J., Shen, Q.P. and Ho, M.F. (2009a) An overview of previous studies in stakeholder management & its implications for construction industry, *Journal of Facilities Management*, 7 (2), pp. 159-175.
- Yang, J., Shen, Q.P., Ho, M.F., Drew, S.D. and Chan, A.P.C. (2009b) Exploring critical success factors for stakeholder management in construction projects. *Journal of Civil Engineering and Management*, 15 (4), pp. 337-348.
- Yu, T.W., Shen, Q.P., Kelly, J. and Hunter, K. (2007) An empirical study of the variables affecting construction project briefing/architectural programming. *International Journal of Project Management*, 25 (2), pp. 198-212.
- Yusuf, Y., Gunasekaran, A. and Abthorpe, M.S. (2004), “Enterprise information systems project implementation: a case study of ERP in Rolls-Royce”, *International Journal of Production Economics*, Vol. 87, pp. 251-66.