

# **The Impact of Adopting Project Management Standards on Project Success: Evidence from the Construction Industry of the United Arab Emirates**

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## **Abstract**

Several formal standards for project management (PM) have been created with the intention to boost the chances of project success. Nonetheless, research addressing this issue remains limited and has generated mixed results. Enriching the literature, this current research investigates this issue in the context of the construction sector in the United Arab Emirates. Data that were required for this study were collected from 99 project managers in different contracting organizations, and the results showed that an association was present between the adoption of PM standards and success measured with respect to meeting cost goals and technical specifications and attaining both client satisfaction and business objectives. In addition to providing practitioners with empirical evidence of the importance of adopting PM standards, the results of this study support the attempts of professional organizations to encourage the usage of such standards.

## **Keywords**

Project, construction, standard, success

## **1. Introduction**

Project management (PM) practices have been developed over time to codify observations from research in academia and industry practices, but they have ultimately evolved to become different standards (Cimil and Hodgson 2006). The knowledge contained in such standards from recognized, effective PM practices has also grown. The development of standards from different practices evolved until they eventually became a recognized formal document that defined the established methods, tools, and techniques used, in addition to the norms, processes, and practices followed. Such knowledge evolved from well-known practices that met the needs of PM practitioners and allowed them to execute their tasks. A regional comparative study of the Strascheg Institute & German Association for Project Management (GPM 2010) found that the most practiced, standardized global PM practices were as follows:

- The Project Management Body of Knowledge (PMBOK) Guide of the Project Management Institute (PMI),

- Project IN Controlled Environments (PRINCE2) of the Office of Government Commerce in the United Kingdom, and
- The Competence Baseline (ICB) of the International Project Management Association.

Among these standards, the PMBOK Guide has been identified as the most practiced standard in Latin America, Sub-Saharan, Japan, and the Arab/Islamic world (GPM 2010). The American National Standard Institute guide has approved this guide as an American National Standard, and the Institute of Electrical and Electronics Engineers has recognized it as an IEEE standard (IEEE 2011). The steady rise in the adoption of PM standards has drawn the attention of many researchers to conduct various empirical studies addressing several issues, including the impact of adopting a PM standard on project success. However, the findings of these studies were contradictory because most of these studies used heterogeneous data, ignoring the fact that the adoption of a PM standard and project success could be contextual; it depends on many variables, including project size, type, sector, and geographic location, among others. This paper presents the results of an empirical investigation to overcome these limitations aimed at providing an answer to the following question: Does the adoption of PM standards have an impact on project success? To address this question, the following null hypothesis was formulated:

$H_0$ : The adoption of PM standards has no significant impact on project success measured in terms of measure  $j, j = 1, 2, \dots, m$ , where  $m$  is the number of considered success measures.

Unlike most of the previous research, this study used data collected from one type of project (construction) carried out in a specific country, namely, the United Arab Emirates.

## **2. Literature Review**

The extant literature suggests that no academic consensus appears to be present on a widely accepted definition of “project success” (Bashir et al. 2019; Lei et al. 2017; Ojiako et al. 2008; Ojiako et al. 2019). In past research, success was mainly measured in terms of the triple constraints, time, cost, and quality. Nonetheless, several studies have demonstrated that the concept of the “triple constraint” is limited and presents a method for judging the success of projects that is unrealistic (Barclay and Osei-Bryson 2010; Shenhar et al. 1997; Toor and Ogunlana 2010). In spite of such criticisms, these three metrics of project success still dictate the practice of project management, as Barclay and Osei-Bryson (2010) have pointed out. Recognizing the unrealistic and constrained characteristics of the triple constraint metrics, more current research has searched for ways to increase the ways in which project success is measured. Because of the growing recognition that the success of projects is multi-dimensional (Barclay and Osei-Bryson 2010; Shenhar et al. 2001), more current project success measures have looked to integrate more comprehensive and stakeholder-driven metrics (Davis 2014; Ojiako et al. 2015; Toor and Ogunlana 2010).

As summarized in Table 1, several studies have investigated the association between adopting standards and success. However, these studies provided contradictory conclusions relating to the association between adopting PM standards and success. For instance, Crawford (2005), Crawford and Pollack (2007) found that the adoption of these standards does not make a noteworthy impact on success. In contrast, Papke-Shields et al. (2010) and PMI (2016) found that the adoption of PM standards has a positive influence on project success.

## **3. The Study**

This study is a part of a research project investigating the association between adopting PM standards and project success in addition to other issues that are not reported in this paper. For the data collection purpose, a questionnaire consisting of four sections was designed.

- Section A: This section contained questions relating to each respondent, such as job title, name of the organization (optional), name (optional), email (optional), number of projects managed in the past 5 years, and whether he or she holds a PM professional certificate.
- Section B: This section contained a combination of multiple choice and fill in the blank questions, asking for information about the number of employees, as a measure of organization size (Hyväri 2006; Bani Ali et al. 2008), average annual number of projects carried out, and type of organization ownership. In addition, this section requested information regarding the adopted PM standards, if any.
- Section C: This section targeted information regarding the profile of the projects carried out by the organization. It contained a combination of multiple-choice and fill in the blank questions, asking for information regarding the past 5 years, in terms of the mean number of employees working on the projects, the mean value of the projects, and their mean duration in terms of months. Additionally, in this section, the respondents were asked to note how often cost, business objective, client satisfaction, quality requirement, time, and technical specifications goals were met during the preceding 5 years, utilizing this scale: 1 = never, 2 = seldom, 3 = sometimes, 4 = frequently,

and 5 = always. Meeting cost goals, quality requirements, technical specifications, and time goals are measures of PM success, whereas realizing business objectives and client satisfaction are measures of project success. These six measures were selected because they are related to short- and mid-term success (Papke-Shields et al. 2010; Shenhar et al. 1997).

- Section D: This section was included to address issues that are irrelevant to the issue addressed in this paper.

The survey was distributed to a random sample of 150 project managers working in different construction organizations in the UAE. Several means were utilized to contact the firms, including emails and hand-delivered hard copies. Of the 150 organizations to which surveys were distributed, a total of 99 responded, which was a response rate of 66. The sample size was satisfactory because the margin of error for this sample at a confidence level of 95% was 9%.

Table 1. Summary of previous relevant research

Research	Sample Size and Targeted Population	Main Findings
Crawford (2005)	208 project personnel and supervisors from Australia, the UK, and the US	There is no association between adopting PMBOK and project performance
Crawford and Pollack (2007)	308 project managers who were based in Australia, the US, and the UK	Adoption of PM standards has no significant positive impact on success
PricewaterhouseCoopers (2007)	213 respondents from organizations of different sizes and different industries in 26 countries	Organizations that do not adopt a PM standard are associated with lower-performing projects
Papke-Shields et al. (2010)	142 project management practitioners from different industries in the US	There is a significant relationship between adopting PMBOK and success
Attakora-Amaniampong (2016)	Top managers of 44 construction firms in Ghana	PMBOK-related knowledge and practices, namely cost management, project risk management, and project quality management emerged as the most important to the success of a project
Demirkesen and Ozorhon (2017)	121 members of Turkish associations in the construction industry	PMBOK-related knowledge and practices, namely scope and time management have indirect positive impacts on performance; whereas integration, communications, safety, risk, human resources, financial, and cost management have direct positive impacts on performance

#### 4. Results and Discussions

The 99 construction organizations that responded represented a variety of organizations of different sizes and with different types of ownership. A total of 43% of organizations had >500 employees, while 27% of organizations had 101–500 employees, and 30% of organizations had <100 employees. With regard to the classifications of ownership types, 59% of the organizations were owned by local private entities, 31% were owned by international private entities, and 10% were joint ventures. With regard to the adoption of PM standards, 43% of the organizations did not adopt any standards, whereas 57% of the organizations adopted local or international standards (42% adopted local standards provided by UAE regulation entities and/or their own standards developed through their experience in the construction industry, 11% of the organizations adopted the PMBOK standard, and 4% of the organizations adopted the ICB standard.

Figure 1 presents the computed medians for the success measures across the two categories (organizations adopting and those not adopting PM standards). This figure indicates that organizations adopting PM standards were more successful than those not adopting PM standards in terms of four measures, namely, meeting cost objectives, meeting technical specifications, achieving business objectives, and achieving client satisfaction. For comparison at the population level, the Kruskal-Wallis test was performed at a significance level of 0.01 to test the null hypothesis that the adoption of PM standards had no significant impact on success. As shown in Table 2, the results suggest that there was sufficient evidence of an association between the adoption of PM standards and success in terms of the above-mentioned four measures. However, the null hypothesis that the adoption of a PM standard would have no significant

impact on success cannot be rejected with regard to two measures: meeting time goals and quality requirements. This finding was consistent with the results of Papke-Shields et al. (2010), PMI (2016), and PricewaterhouseCoopers (2007), but it contradicted the findings of Crawford and Pollack (2007).

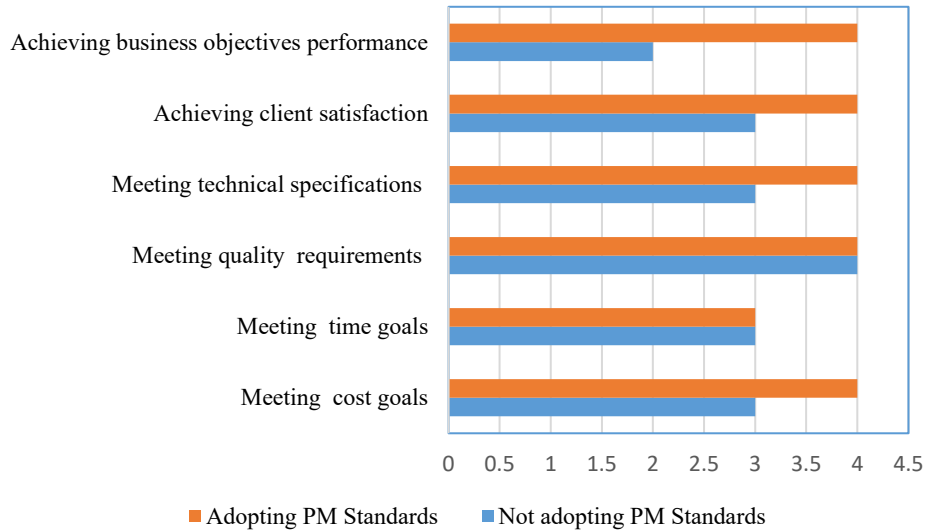


Figure 1. Adopting and not adopting project management standards versus success measures

Table 2. Kruskal-Wallis test results

Success Measure	P-value
Meeting cost goals	0
Meeting time goals	0.835
Meeting quality requirements	0.867
Meeting technical specifications	0
Achieving client satisfaction	0
Achieving business objectives performance	0.002

## 5. Conclusion and Recommendations for Future Research

The primary objective of the present study was to investigate the association between adopting standards and project success. Using a survey questionnaire, data were collected from a random sample of project managers employed in 99 different contracting organizations in the construction industry of the UAE. The results showed that 57% of the organizations adopted either local or international standards, and there was an association between the adoption of standards and success measured in terms of meeting cost goals and technical specifications and achieving client satisfaction and business objectives. However, no association was found between the adoption of PM standards and success measured in terms of meeting time goals and quality requirements. The main limitation of this study was that the sample size was relatively small. However, it compared favorably with those reported in earlier relevant studies. Moreover, unlike most previous studies, this study used a homogeneous sample (all the data were collected from one industry, namely, the construction industry). This study could be built in several ways. For example, it could be extended to investigate the linkages between adopting PM standards and project success in other types of industries. A future study could also investigate the absence of relationships between the adoption of PM standards and meeting time goals and quality requirements.

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## **Biographies**

**Majid Touqan** is a PhD Candidate in Civil and Environmental Engineering at Western University, Canada. He is a graduate of the University of Sharjah with an MSc in Engineering Management (Project Management). Mr. Touqan was previously at the American University of Sharjah where he graduated with an MSc in Civil Engineering (Geotechnical Engineering) after completing his Bachelor's in Civil Engineering. He has been involved in academic research for the past six years and is currently working in the industry as a Quality Control Engineer at Lafarge Canada. He has corporate experience in ready-mix design, quality control and project management. As part of his research work at Western Engineering, he has experience in experimental design, geotechnical field instrumentation, and physical modelling.

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