



The Relationship between Procurement Officers, Project Management Success and Procurement Procedure in Ict Public Outsourcing: a Systematic Literature Review

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Abstract

Obviously the use of Information Communication Technology (ICT) by organizations is increasing over the years, whether in government or the private sector. The use of ICT can be seen to increase efficiency and effectiveness of the services or products offered. To meet the demand of stakeholders today, ICT projects need to be developed through outsourcing. However the method of outsourcing has some issues that can affect the success of the development of ICT projects as has been much debated by previous studies. Yet, the discussion on project management success (PMS) factors that concentrate on the competency measurement for the department's officers who are managing the procurement process has not been sufficiently clarified. The aim of this Systematic Literature Review (SLR) is to identify the common attributes that influence project management success through the procurement procedure carried out by the procurement officer (PO). The outcome of the review explained the important relationship pattern between the identified attributes which will be applied in the future empirical and exploratory survey that will be carried out. Addition to this, the competency measurement model of ICT procurement officer to be developed.

Keywords: Project Management Success, Outsourcing, Procurement, Procurement Officer, Contract Management, ICT Project Management

1. Introduction

According to [1] Information Technology (IT) expenditure was projected to reach a total of \$ 3.8 trillion in 2014, a 3.1 percent increase from 2013 expenditure of \$ 3.7 trillion. IT outsourcing has gained its popularity and trending to reach 67% of the whole global outsourcing contract deals [2]. It was predicted by [3] that, both of the IT and business process outsourcing markets will progress to rise in global markets (for example, China's market is contrived to grow at 38% per year). Therefore, it may affect the direction of ICT utilization in Malaysia that put Malaysia in the 3rd position, behind China and India, as an attractive investment destination for outsourcing

For instance, the recent development of ICT projects in the Public Sector agencies to transform and improve the effectiveness and efficiency of services to public, as reported by [4], has reached approximately 77% of Public Sector services are already offered online.

Nevertheless, implementing ICT projects through outsourcing method has risks that may affect a project success. The level of satisfaction with the ICT outsourcing projects reported only at 33% compared to other project types [5]. A survey from [6], showed that only 70 out of 160 ICT outsourced projects have completed while the rest either switching their current vendors or reverting to in-house development. Among the causes of the

problems are deterioration of vendor services, delay in data delivery, the vendor's inability to manage changes in user requirements [7], the lack of vendor commitment [8], the vendor ineffectiveness [9], slow implementations, and the loss of control over its assets [10,11]. Referring to the factors specified, the vendor is apparently a dominant influence in project success.

In Malaysia Public Sector, the conveyor between the vendor and the project is procurement procedure that administered by procurement officer (PO) as specified by Treasury Circular (TC)[12]. The most important role of PO is carrying out evaluation of vendor's proposals that value is enormous. So that, according to [13] the officers should acquire themselves with special knowledge, skills and reasoning in carrying out their tasks, as well as acquired the appropriate personality trait such as individual's cognitive, functional, social ability and ethics. The study of [14] also shared the same sentiment.

Furthermore, it is shown that the procurement management, as mentioned in PMBOK [15], is one of the success factors in project management that should be given more attention. However, many studies in the academic world today are giving more focus on the project success in general without any specification on a project management success. As suggested by [16], project management success along with product success are the two (2) subset element of the project success.

Therefore, this review is keen to focus on the relationship of project management success attributes related to the procurement procedure that carried out by procurement officers. The systematic literature review (SLR) results are discussed to understand the relationship between the commonly identified attributes that are related to the subject matter mentioned above. This paper will proceed to the section describing the SLR method and followed by the section highlighting the SLR's findings. The subsequent section discusses the SLR's findings based on the data synthesis before wrapping up with a conclusion.

2. Methodology

The literature review will follow the systematic literature review method as described by [17,18]. SLR method consists of three (3) main phases:

- SLR Planning - Research need identification by forming the research questions.
- SLR Conducting - Resource databases identification, searching and selection strategy, quality assessment, data synthesis and data extraction.
- SLR Reporting - Finding, discussion and conclusion

2.1 Systematic Literature Review's Research Questions

[19] has suggested five (5) criteria i) Population, ii) Intervention, iii) Comparison, iv) Outcome, and v) Context (PICOC) to formulate the research questions. Table 1 below defines the scope based on the respective criteria of the research question.

Table 1: Criteria and scope of research question

| Criteria | Scope |
|--------------|---|
| Population | Public Servants involved in the ICT procurement procedure |
| Intervention | The attributes of the Procurement Officers, Procurement Procedure, and Project Management Success |
| Comparison | Other attributes that have influences on Project Management Success |
| Outcome | Relationship between the identified attributes |
| Context | Review on any study concerning the Procurement Officer, Procurement Procedure and Project Management Success and other related issues |

Based on the details stated in Table 1 above, the formulated research questions are:

- RQ1 What are the attributes of procurement officers?
- RQ2 What are the attributes of project management success?
- RQ3 What are the attributes of procurement procedure?
- RQ4 What relationship can be drawn among those identified attributes?

2.2 Research Resources

Six (6) electronic databases available online by university's library were used to primarily extract the data for synchronizations in this research. These include IEEEExplore, ACM Digital Library, ScienceDirect, Emerald, SAGE Journals, Scopus and Google Scholar.

The selection of online databases was based on own knowledge of databases that indexed "Project Success" or "Procurement" or "ICT Project Management" or "Outsourcing" or "Competency" studies. Title, abstract and index terms were used to conduct

searches for published journal papers, conference proceedings, workshops, symposiums and book chapters.

2.3 Search Strategy

The initial search strings were Procurement Officer, ICT Project Management, Project Success, Outsourcing, Competency, Model, and Implementation. The search string composed based on major term of research questions follow with identification of synonyms and keywords in relevant articles, and using the Boolean OR and AND for variants of each keyword.

2.4 Review Selection

This step ranks the source of papers from highest to lowest priority: journals, papers, conference proceedings, workshops, symposiums and book chapters. The review selection was accomplished by searching using the composed search strings for publications of selected journals with full-text articles subscribed by university's library. The journals were published from 2008 to 2016. The review also considered the journal that published prior of the range, especially to get better understanding on the principle knowledge of the whole study. The selection was then exploring the title, abstract and keywords of identified articles and selection based eligibility criteria.

2.5 Inclusion and Exclusion Criteria

The inclusion criteria were considered the peer reviewed articles that discuss about the attributes of competency measurement model and any related issues that have an inclination on project management success and procurement procedure which published in the stated research resources. Only articles in English were included. Any articles were not match the inclusion criteria were excluded.

2.6 Quality Assessment of Selected Studies

To ensure the quality of data extraction, the quality assessment of the articles should meet the quality checklist. The quality checklist could refer to some of the questions as proposed in the literature by [20].

There is option of two (2) or three (3) possible answers for each of the questions that carried out the value according to the code assigned: Yes = 1 point, No = 0 point and Partially = 0.5 point. The sum of the points is considered as the quality score for each of the articles. The range of the score is between 0 (very poor) and 5 (very good).

3. Finding

Based on the journal searching by using the search keywords defined, there were 426 articles recognized. However, only 74 articles were relevant and selected based on the content screening framework as stated in the selection of subject area. The selected articles were then synthesized after being filtered by the inclusion and exclusion criteria. Duplicated and similar articles of the framework were excluded as well. Therefore, only 55 of the articles were taken into account to be analysed by SLR and believed to be qualified of providing solutions to the research questions.

Quality checklist for all identified articles is summarized in Table 3. The report shows that 31 articles (56 percent) and 12 articles (22 percent) were classified as very good and good quality respectively. The analysis considered the rest of the articles as fair quality. None of the articles was classified as ‘poor or ‘very poor’ quality. Thus, all 53 selected articles were included for further analysis.

Table 3: Article Quality Score

| Quality Scale | Very Poor (<1) | Poor (2 - <3) | Fair (3 - <4) | Good (4 - <5) | Very Good (5) | Total |
|------------------|----------------|---------------|---------------|---------------|---------------|-------|
| Num. of articles | 0 | 0 | 12 | 12 | 31 | 55 |
| Percentage (%) | 0 | 0 | 22 | 22 | 56 | 100 |

4. Discussion

The discussion is outlined based on the formulated research questions for this review. The issue being presented is synthesized based on the SLR with the intention according to the main purpose of this review.

4.1 What Are the Attributes of Procurement Officers? (RQ1)

According to articles, there are numbers of factors in project management that influence project outcomes. One of them is the personal attributes. There is a lot of research attempted to discover the impact of personal’s attributes like behaviours and traits on project performance. As a human, personal come with behaviours, traits, beliefs, values and skills. The lack of all the characteristics could affect the performance of the project [22]. Therefore, the understanding of the personal’s attributes will provide a critical advantage to ensure the project success. Based on the SLR, the finding considered as procurement officer’s attributes are listed in Table 4. To simplify the finding, the review has adopted the attribute’s clusters as applied by [23] and discussed by [24].

Table 4: Attributes of Procurement Officer (PO)

| Attribute’s Clusters | Authors |
|--|--------------------------|
| People Cluster (Engaging People) | [24][25][26][27][28][29] |
| Strategic Cluster (Setting Direction) | [24][25][26][27][28][30] |
| Civil Service Value | [24][26][27][28][29][30] |
| Performance Cluster (Delivering Results) | [24][26][28][29][30] |

4.2 What Are the Attributes of Project Management Success? (RQ2)

According to the SLR conducted, there are many researches concerning the project management success. Each of the attributes is considered as important to ensure the successful performance of the task assigned. Table 5 below lists out all the attributes extracted from the selected articles reviewed.

Table 5: Attributes of Project Management Success (PMS)

| Attributes | Authors |
|--------------------------|----------------------------------|
| Stakeholder Relationship | [31][32][33][34][35][36][37][38] |
| Project Specification | [31][33][34][35][36][37][39][40] |
| Project Schedule | [31][32][33][34][39][41][42] |
| Project Cost | [31][32][33][34][39][41][42] |

| | |
|------------------------------|------------------------------|
| Communication | [32][34][35][36][37][38][40] |
| Project Management | [31][33][34][35][36][37][40] |
| Quality | [32][33][35][39][41][42] |
| Competences of Key Personnel | [34][35][36][39][40][42] |
| Leadership | [31][34][35][36][37] |
| Top Management Support | [31][34][35][36][40] |

4.3 What Are the Attributes of Procurement Procedure? (RQ3)

The review has found articles discussing the procurement procedure from a varying focus of angles. The focus that related to this review is about the vendor selection procedure with regards to vendor selection criteria (VSC). VSC is considered as vital and influential factor concerning the role of the PO in procurement management. Table 6 below lists out the identified criteria.

Table 6: Vendor Selection Criteria (VSC)

| Attributes | Authors |
|--------------------------|----------------------------------|
| Price | [43][44][45][46][47][48][49][50] |
| Project Management | [43][44][45][46][47][51][52] |
| Track Record | [43][44][45][51][48][49][53] |
| Capability | [43][45][51][52][48][49][53] |
| Resources | [44][46][47][49][50] |
| Quality | [44][45][46][49][50] |
| Schedule | [44][45][47][49][50] |
| Communication | [44][51][49][50] |
| Stakeholder Relationship | [50][54] |
| Competency of Personnel | [43][44] |

4.4 What Relationship between Those Identified Attributes? (RQ4)

Based on the identified attributes for each of the previous questions, the synthesizing process has been conducted to determine the relationship among identified attributes by examining the similarity and differences, description, definition, discussion, emphasis and levels of aggregation of attributes discovered that focus on the relationship between PO and PMS with the influence of the procurement procedure through VSC. The relationship is being simplified in Table 7.

Table 7: Relationship of Identified Attributes

| Research Variable (RV) | | |
|--|--|---|
| PO | VSC | PMS |
| People Cluster (Engaging People) | i) Stakeholder Relationship ii) Communication | |
| Strategic Cluster (Setting Direction) | i) Project Management ii) Competencies of Key Personnel | i) Project Management ii) Competencies of Key Personnel iii) Leadership iv) Top Management Support |
| Civil Service Value | | i) Communication |
| Performance Cluster (Delivering Results) | i) Price ii) Track Record iii) Capability iv) Resources v) Quality vi) Schedule | i) Project Specification ii) Project Schedule iii) Project Cost iv) Quality |

Apparently, it can be concluded that the interdependent relationship exists among the identified attributes for each of the RV. This relationship, up to this point, is based on the

synthesizing process to look for common definitions of the discussions that have been elaborated by the gathered articles.

Stakeholder relationship and communication are very significant as they are placed in two (2) different clusters and variables. This interprets that the value of efficient communication is one of the most influential attributes across the findings. Nowadays, the clients or stakeholders are in the best position to influence the project success based on the efficient communication. It is described by [55], in this recent years, the 'iron triangle (time, cost, quality) is no longer the only influential attributes to measure project success. By having good communication, together with the right attributes for project success, it will facilitate a good project specification development and project management. Communication also reveals the leadership characteristics along with other supporting characteristics towards the implementation of the successful project.

The competency of the personnel is positioned at the Strategic Cluster attributes of those identified variables. This indicates that the success of the project requires the competent personnel to see the big picture of the project, make effective decisions, and lead the changes and improvements to yield a successful project. Contrary to expectations, most of the previous articles that focus on the project management do not consider the competency attributes of the officer involved in procurement management.

5. Conclusion

In this ongoing study, research articles on specified attributes are reviewed. The analysis was based on the formulated research questions. The articles have contributed towards the outcome of this review in addressing the issues to identify the relationship between the attributes of both procurement officer and project management success with the influence of procurement procedure through vendor selection criteria.

The finding also revealed the number of research on the competency of procurement officers especially in the ICT procurement management is very limited. Thus, it opens a room for future studies to explore further in the research area. Especially in contributing to the development a set of conceptual criteria as a fundamental for PO competency measurement model in Public Sector.

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