



Project procurement management: A structured literature review ☆

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Abstract

Selecting the right supplier for an assignment, as well as evaluating this supplier's performance while the contract is being implemented, plays an important role in ensuring a good project outcome. In this context, this paper presents the results of a systematic literature review of the criteria and the methods used in the phases of selecting and evaluating suppliers in projects, as given in papers published from 1973 to 2015. The papers were classified into categories in accordance with the type of project and the phase of the procurement process, investigating what criteria and methods are the most widely used for selecting suppliers and evaluating the performance of suppliers in projects. The results have revealed that the procurement process may have to consider new perspectives, such as client/supplier relations, due to the importance of having partnerships with suppliers that meet organizational needs.

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1. Introduction

Due to high competitiveness, outsourcing has become a popular business strategy (de Almeida, 2007). The influence that suppliers have on the success or failure of projects is significant since their performance affects the results of the entire business effort (Liu et al., 2014; Zolghadri et al., 2011a). Moreover, selecting an appropriately qualified supplier improves stakeholders' confidence since this is more likely to lead to project goals being achieved (Turkis, 2008).

In this context, excellence in the procurement process is essential in order to achieve good outcomes in any project. Therefore, selecting the right supplier for an assignment, as well as evaluating this supplier's performance while the contract is being implemented, plays an important role in ensuring a good outcome. Thus, managers should pay special attention to two phases of the project procurement process: (1) supplier selection and (2) supplier evaluation.

In this paper, we call supplier selection the stage during which a company chooses adequate suppliers to whom they will contract-out services. Cheng and Li (2004) affirm that this is one of a company's primary activities since it must select appropriate suppliers to ensure that projects are completed successfully. Moreover, according to Zolghadri et al. (2011b), this choice is critical because it has a direct impact on the client's financial health and production capability. Evaluating suppliers is the process in which suppliers who are

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already working with the organization are assessed by observing their performance while a contract is being carried out. Ng et al. (2002) affirm that a supplier's performance should be supervised and controlled on a regular basis so as to identify problems and make repairs without further losses or delays.

Choosing criteria is an important issue when selecting and evaluating suppliers as these influence the entire process (Safa et al., 2014). However, the criteria may be in agreement with the clients' needs and may change in line with a company's or stakeholders' judgments, the industry and the context. Furthermore, Zolghadri et al. (2011a) assert that the selection process must be improved by taking into account high-level selection criteria or long-term possibilities, for instance.

Moreover, another topic that highly influences these processes is what methods are used to select and evaluate suppliers. Lambropoulos (2007) highlights the importance of choosing an appropriate procurement method. This choice depends on various aspects, such as the type of criteria and the quantity of information required. Therefore, Lambropoulos (2007) asserts that a "best overall" award method does not exist, but the most appropriate method depends on the specific conditions for each particular project.

In this context, the project procurement process is an area of vital importance and interest to organizations responsible for delivering project outcomes (Alias et al., 2012). Therefore, this paper aims to investigate procurement processes, considering the following research questions:

- 1) What criteria and methods are the most widely used for selecting suppliers in projects?
- 2) What criteria and methods are the most widely used for evaluating the performance of suppliers in projects?

Therefore, we present the results of a systematic literature review of the criteria and the methods used in the phases of selecting and evaluating suppliers in projects as given in papers published from 1973 to 2015. After analyzing these articles, we also discuss directions for future research.

The paper is structured as follows: Section 2 describes the methodology of the systematic literature review, and undertakes a descriptive analysis of the papers which includes dividing them into categories related to the type of project and the phases of the project procurement process. Section 3 presents the results of evaluating this material while Section 4 engages on discussion. Finally, Section 5 presents the conclusions and indicates future directions of the study.

2. Research method

The systematic literature review has been used so as to offer a critical overview of the current understanding of the research topic under study (Sartor et al., 2014; De Almeida et al., 2016a).

The review builds on the method used by Seuring and Müller (2008), which has four steps: material collection, descriptive analysis, category selection and material evaluation.

The material collection component is described in Section 2.1. Section 2.2 gives a descriptive analysis of the material selected. A discussion of how the categories were selected is offered in Section 2.3, while the material is evaluated in Section 3.

2.1. Material collection

To identify papers related to supplier selection and evaluation in project environments, a structured, keyword search was conducted in five databases: Web of Science, Web of Knowledge, Scopus, SpringerLink and the Wiley Online Library. The searches sought the following combinations of keywords: "Contractor selection AND Project", "Suppl* selection AND Project", "Suppl* evaluation AND Project", "Contractor evaluation AND Project", "Suppl* performance AND Project", "Contractor performance AND Project", "Vendor selection AND Project", "Vendor evaluation AND Project", "Vendor performance AND Project", "Partner selection AND Project", "Partner evaluation AND Project", "Partner performance AND Project", "Contractor choice AND Project", "Suppl* choice AND Project", "Vendor choice AND Project" and "Partner choice AND Project."

Only papers in English that were included in peer-reviewed journals were considered. Initially, the search resulted in 676 articles, excluding duplicates, which were filtered as set out in Fig. 1.

As shown in the flow chart, after the structural keyword search was conducted, the papers went through three filters: title analysis, abstract analysis, and text analysis, which resulted in identifying 119 papers that were related to the theme.

2.2. Descriptive analysis

A descriptive study was undertaken considering the following characteristics of the articles used: the total number of papers; their relevance; and how they were distributed among journals. These data give a general perspective on the methodology used in the review to highlight the most relevant journals on the subject, and to show how the importance of the issue and research methodologies have increased and developed over time. As a result, we indicate the tendencies of this field of study over time.

2.2.1. Number and relevance of papers

One hundred nineteen (119) papers related to selecting and evaluating suppliers in project environments were chosen. The relevance of these articles was measured according to how often they have been cited. The most relevant paper was a literature review written by Holt

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