Chapter 9

Engineers’ Perceptions of Contract Types’ Performances for Highway Construction Projects

Fani Antoniou
Aristotle University of Thessaloniki, Greece

Georgios N. Aretoulis
Aristotle University of Thessaloniki, Greece

Dimitrios K. Konstantinidis
Alexander Technological Educational Institute, Greece

Glykeria P. Kalfakakou
Aristotle University of Thessaloniki, Greece

ABSTRACT

Research focuses on the perceptions of engineers towards highway projects contract types’ (CTs) performance and their respective selection criteria (SC). A questionnaire survey evaluated the CTs against the selected criteria. The SPSS database’s sample consisted of 91 engineers from Greece and abroad. Factor analysis identified groups of selection criteria representing the performance of each CT and reflecting the engineers’ perceptions. Patterns of changes in engineers’ assessment of the contract types’ performance were noted and justified. Apart from the total sample, analysis considered participants’ subgroups, such as Greek and foreign engineers, and experienced engineers in the private and public sector. Nationality and experience of participants influence the factors’ content. Moreover, a number of criteria tend to cluster together irrespective of CT and engineers’ profile. These pairs of criteria include all uncertainties’ criteria, Scope and Process Uncertainty, Contractual Difficulties and Claims, and finally Value for Money and Criticality of Schedule.

DOI: 10.4018/978-1-5225-1826-6.ch009
INTRODUCTION

The construction industry is mostly concerned with one-of-a-kind projects. This, naturally, creates difficulties for effective management control (Aretoulis et al., 2006). Construction projects shape the built environment in which people live and work (Rose & Manley, 2011). According to Baccarini (1996) the construction process may be considered the most complex undertaking in any industry. Indeed, construction is a product-oriented activity that has many dimensions. One of these dimensions is the business side of construction. The business aspects of construction require the establishment of contractual relationships with a wide range of parties. The central role played by contracts is reflected by the fact that construction firms are referred to as “contractors” (Halpin & Senior, 2011).

Since the late 1980’s early 1990’s the importance of choosing the most appropriate CT has been evident in the construction industry (Veld & Peeters, 1989; Ward & Chapman, 1995). It is a fact that the construction professional must not only be able, technically, to build the building, but must be able to get it built amid all sorts of adverse forces that have a power today that they have never had before. In some cases, the power is legislated and in some cases it is not, but in all cases it is capable of slowing or halting the project (Lancaster, 2001).

Highway construction projects are multidisciplinary projects. The project stakeholders are people with very different background and objectives. Ojo et al. (2011), highlighted the complexity of construction projects because they bring together professionals within the building industry to form an organizational team to acquire the building.

The procurement process of any major infrastructure project includes the design phase, tender phase and construction phase. In the design phase the Owner determines the need for the realization of the project, carries out a feasibility study and completes the required designs either through an internal design team or through outsourcing. In the tender phase the project budget and tender documents are prepared by the Owner based on the definitive design and a construction tender procedure is carried out according to the relevant legislation and the chosen Project Procurement System (PPS). Finally, during the construction phase the project is constructed according to the contractual documents and supervision is achieved on behalf of the Owner in-house or by outsourcing to a Construction Manager (CM). The major participants in the above procedure are the Owner, also known as the Client, the Design Consultant, Contractor and Construction Manager (CM). The PPS chosen defines the number and types of contracts drawn up between the major participants. The number and type of contractual relationships between the major participants are crucial in terms of time, cost and quality achievement of the resulting project.

Badenfelt (2011) suggested that: “Tensions are frequent and serious in interorganizational projects in which the contracting parties share uncertainty about many important changes that occur after the contract is signed and production begins”. Therefore, it was anticipated that a whole body of law has grown up around the many facets of contractual relationships. Because these issues remain constant for most construction situations, contract language in the construction industry has been normalized over many years and a variety of standard contract forms have developed (Halpin & Senior, 2011).

Selection of the most suitable CT may partly define project’s success. Research has focused on available CTs and their characteristics, SC to consider during the process of identifying the best performing CT, and even multicriteria decision making applications to facilitate the selection process. SC along with their weights define the dominant CT. Other SC have equal significance and other are assigned lower weights during the decision making process. This fact leads to the creation of latent groups of SC based on the assessment and evaluation of the criteria’s significance. Therefore, this paper examines the
Related Content

**Effective Applications of Optimization Methods in the Manufacturing Environment in Turkey**
Omer Faruk Yilmaz and Hikmet Erbiyik (2016). *Comparative Economics and Regional Development in Turkey* (pp. 319-335).

**Financial Infrastructure and Economic Growth**
[www.igi-global.com/chapter/financial-infrastructure-and-economic-growth/181148?camid=4v1a](www.igi-global.com/chapter/financial-infrastructure-and-economic-growth/181148?camid=4v1a)

**Impact of Microfinance on Female Empowerment: A Review of the Empirical Literature**
[www.igi-global.com/chapter/impact-of-microfinance-on-female-empowerment/134129?camid=4v1a](www.igi-global.com/chapter/impact-of-microfinance-on-female-empowerment/134129?camid=4v1a)

**The Oil and Gas Sectors, Renewable Energy, and Environmental Performance in the Arab World**