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Development of a Conceptual Critical Success Factors Model for Construction Projects: a Case of Lithuania

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Abstract

This paper aims to develop a conceptual critical success factors model for construction projects in Lithuania. The concept of success of construction projects and literature review of critical success factors is discussed in the first part. Conceptual model adapted to Lithuania is developed and its elements are described in the second part. Grouped decision-making matrix for the multiple criteria analysis of critical success factors of construction projects is presented at the end of paper.

Keywords: construction projects, project success, critical success factors, criteria system.

1. Introduction

Success in construction projects is dependent on the effective organization of multiple, specialized teams, each of which brings its own ability, experience, knowledge and skill towards completing the joint project, but which also bring their own objectives, goals and management styles, which may not be entirely complimentary [1].

According to Lehtiranta *et al.* [2], construction project success depends on the multi-firm project organizations involved working together satisfactorily. Project success, therefore, should be examined from a more holistic perspective than the traditional measures in terms of budget, schedule and specifications.

The success of construction projects is a fundamental issue for most governments, users and communities. In the literature that deals with construction project success and causes of time and cost overruns in the construction industry, there is some literature that highlights the role of the contractors in project success. Construction projects and their success are closely related to contractors [3].

Project success can be achieved through the good performance of project managers in the project. Various researchers have all mentioned that human factors played an important role in determining the success of a project [4–8].

There is considerable debate in project management research practice about what determines project success. While the topic has been discussed for a long period of time, an agreement has not been reached. In addition, when it comes to a definition of project success, there is no single list that is totally comprehensive. However, the concept of critical success factors (CSFs) presents a smarter way to identify certain factors which when present or absent in a project are likely to make the project successful [3].

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Critical Success Factors is known as a tool for measuring performance in an organisation to achieve their mission [9]. In building maintenance, CSF is becoming very important as it could identify the cause of failure as well as improving the system. The success of maintenance management initiatives depends on many factors. The authors categorized critical success factors into five primary categories: leadership, culture, structure, roles and responsibilities, system infrastructure, measurement. These five categories were based on the objective of the organization. According to the researchers, it is also essential to identify the constraint of the critical success factors. In understanding the constraints, critical success factors defense measures can be derived. Knowing the constraints will eliminate predicted work which can bring about greater risks to the company's success. Knowing critical success factors in the operation of the business can strengthen management strategy. Risk management process can be more focused and many issues will be corrected and probability of failure is greatly reduced. Every single activity within the organization will be directed towards achieving the overall success of the company [9].

Chen *et al.* [1] explored success variables in construction partnering. They identified 19 success variables. Research results showed that four successful factors (collaborative team culture, long-term quality perspective, consistent objectives, and resource sharing) have a significant influence on the success of construction partnering. Partnering creates both a win-win situation and more synergy in team work [10]. However, not all projects are successful. The increasing complexity of construction projects has plagued the construction industry substantially. Project partnering (PP), therefore, has become the critical factor in project success. Two parameters should be considered in PP – project management performance (PMP) and participant satisfaction (PS). There are also many possible PP factors that could influence a project's success or failure and these factors should be incorporated during evaluation.

Ng *et al.* [11] and Abdul-Aziz *et al.* [12] explored critical success factors of Public Private Partnerships (PPP) projects. The initial feasibility of a PPP project contributes directly to the overall success of the project. Since PPP is a tripartite partnership which involves three parties of stakeholders including the public sector, private consortium as well as the general community (end-users), the authors identified critical success factors in all parties [11].

Hwang *et al.* [13] in their study identified 18 critical factors affecting schedule performance of public housing projects in Singapore, compared the factors affecting schedule performance of public housing projects and other building projects in Singapore, and provided recommendations to respond to these factors. The analysis results indicated that "site management", "coordination among various parties", "design changes by owner during construction", "availability of laborers on site", "availability of material", and "availability of staff to manage projects" were the six most critical factors that affect schedule performance of public housing projects in Singapore [13].

Alzahrani and Emsley [3] studied the impact of contractors' attributes on project success from a post construction evaluation perspective and identified what critical success factors (CSFs) have greatly impact to the success of project. Authors selected 35 CSFs, which were categorized into nine groups: safety and quality; past performance; environment; management and technical aspects; resource; organization; experience; size/type of pervious projects; finance. Factors such as turnover history, quality policy and adequacy of labor and plant resources, waste disposal and size of past projects completed, and company image are the most significant factors affecting projects success [3].

Lehtiranta *et al.* [2] explored a new dimension of the determinants for construction project success, i.e. the relationship between success and multi-firm project participants' satisfaction with each other. The results showed that correlations can be found between certain project participants' satisfaction with each other's performance and the owner's perception of project success. More specifically, satisfaction with performance factors within the relationships between the owner and any other participant (i.e. the contractor, designer or project consultant), within the relationship between project consultants and designers and within the relationship between project consultants and contractors were reflected in the owner's perception of project success [2].

Tabish and Jha [14] studied success factors for public construction projects. Achieving success in public construction projects is difficult because it requires economy, efficiency, quality, fairness and transparency. Such projects are taken up on the requisition of owners/clients and almost always involve multiple entities and are also accountable to external financial audit and vigilance agencies. Identification of the success factors is considered the key to achieving success in these projects. Authors identified 36 success attributes. Four success factors, viz. 'awareness of and compliance with rules and regulations', 'effective partnering among project participants', 'pre-project planning and clarity in scope', and 'external monitoring and control' were extracted by the application of factor analysis on 36 attributes developed through a synthesis of empirical studies and opinions from industry practitioners on public construction projects. The most important factor for overall performance is found to be 'awareness of and compliance with rules and regulations'.

The above examples demonstrate that there is a plenty of factors with the potential to affect the project success. This paper aims to present a conceptual critical success factors model based on identified comprehensive list of critical success factors of construction projects in Lithuania [15].