Overall Significance's Rank of Leadership Factors Amongst Critical Success Factors for Construction Projects

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Abstract Previous studies had identified several construction's critical success factors (CSFs) in their hierarchical order, and one of these factors is leadership. Eleven academic articles were found that produced list of these construction's CSFs in ranking order based on the significance of these factors towards the project success. Thus, this paper presents the average level of significance of leadership factors amongst CSFs. Level of significance for each leadership factor was determined based on formula presented in this paper. It was found that leadership factor was averagely 74.2% significance amongst to the CSFs. This implies the need of strong leadership role in ensuring construction project success which should be emphasized to parties involved in undertaking construction projects.

Keywords Critical success factors (CSFs) · Leadership · Construction project success

1 Introduction

Naturally, construction projects are complex, fragmented, resources-driven [1, 2] and sometimes require large and sophisticated plants for the operation. The need for construction projects is to fulfil the increase of living standard through improvement of infrastructure projects, consumption habit's pattern and naturally with the growth in population [3]. Hence, in the maiden stage of construction, parties involved have to be appointed to execute the project as stipulated in the contract document. Previously, several studies had indicated that many construction projects failed to adhere to main criteria for project success, which are within the contract time and cost, acceptable quality and safety on site [4, 5]. Relating to this issue, there are few aspects to be considered during construction project life cycle such as

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financial, clients, value added and operational which related to construction project success [6]. Each aspect provides idea and direction towards the way to carry out construction project successfully. Consequently, all parties involved should be able to notify and manage the critical success factors (CSFs) well.

Amongst the important factors is leadership in manoeuvring construction's project success. Hence, this paper is intended to determine the degree of significance of leadership towards construction project success.

2 Importance of Leadership in Construction Project Success

Achieving successful construction project completion requires supporting of many parties in managerial position of leadership. Basically, managing construction project requires four basic management functions that comprise planning, organizing, directing and controlling [7]. While handling the project, there are problems and challenges from socioeconomic issues, limited resources, organizational drawback and incapable to deal with critical situations [8] and these can be rendered with construction leader not only good in managing but also smart in tackling these issue from getting worse. Hence, it is important to include leadership elements as a value added to the management function for successful construction project delivery [9].

In the construction industry, leadership is obviously synonym with key project management practitioners who play a vital role to keep construction project on track and driven to project success orientation. Construction leaders have to deal with various peoples, trades and attitudes so as their instructions can be imparted and followed throughout the project life cycle [10]. Moreover, good construction leaders should able to provide direction and motivation to subordinates in the organizational hierarchy and construction labours [11]. A review on previous studies indicates that a good leadership practice has contributed to 76% of projects success [12]. Hence, good leadership requires construction leader to possess a set of distinctive qualities to be applied in different circumstances of project complexity for success actual construction. Amongst principal good leadership attributes are team building, communication, visionary, planning and strategy, and decision-making [13].

3 Leadership Factor in Construction's Critical Success Factors

In this paper, critical success factor (CSF) is a term used to demonstrate inputs to construction project management system which will directly increase the potential of project success [14]. CSFs are important means to speed construction progress

Table 1 Leadership factors in construction's CSFs

References	Numbers of identified CSFs	Numbers of groups for CSFs	Font size and style
[16]	39	4	Competent project manager
[17]	80	8	Leadership and team management
[18]	22	–	Top management support
[19]	15	7	Team leader competent
[20]	57	–	Leadership of management
[21]	39	10	Leadership skills of project manager
[9]	12	–	Leadership and commitment of top management
[22]	46	–	Team leader's competence
[23]	71	7	Experience of project manager
[24]	12	–	Project manager efficiency
[7]	6	–	Leadership skills of the project manager

and guide the organization in facing pitfalls that might slow initiatives to project performance improvement [15]. There are many studies on identifying CSFs in ensuring construction project success and amongst these factors is leadership. The list of leadership factors extracted from 11 academic articles of construction's CSFs are summarizing as Table 1.

Table 1 indicates that there are 11 references that had identified CSFs for construction project. Based on this table, only five articles classified the CSFs in groups which varies between from 4 to 10 groups. It also shows the leadership factors which was highlighted in their identified CSFs to achieve construction project success.

4 Rank of Leadership Factor in CSFs

Besides identifying leadership factors as in Table 1, the articles also identified the hierarchical position of leadership in rank of all CSFs. The level of significance of leadership factor in construction's CSFs was extracted and illustrated as in Table 2. Significant percentage (SP) for leadership factor is calculated by the process of normalization using the following established formula:

$$\text{Significance percentage (SP)} = \left[\frac{(\text{no.of critical success factors - rank of leadership})}{\text{no.of critical success factors}}\right] \times 100$$

Table 2 Significance level of leadership factors in construction's CSFs

Leadership's factor in CSFs	Ranks of leadership factor in CSFs	Significance level of leadership factor (%)
Competent project manager	3rd in 39	92.3
Leadership and team management	30th in 80	62.5
Top management support	4th in 22	81.8
Team leader competent	5th in 15	66.7
Leadership of management	2nd in 57	96.5
Leadership skills of project manager	2nd in 41	95.1
Leadership and commitment of top management	1st in 12	91.7
Team leader's competence	13th in 46	71.7
Experience of project manager	36th in 71	49.3
Project manager efficiency	3rd in 12	75.0
Leadership skills of the project manager	4th in 6	33.3
Mean %		74.2

Table 2 illustrates the degree of significance of leadership in the construction's CSFs extracted from previous articles. Leadership factor in CSFs shows maximum and minimum significance percentage with 96.5 and 33.3%, respectively. The mean value of 74.2% is perceived as high and this indicates quality leadership is important to ensure the success of the construction project.

5 Conclusion

Leadership is seemingly significant to ensure the success of the construction project. It should be emphasized to construction practitioners on the importance of leadership aspect in managing their construction projects. Thus, it needs an outstanding construction leader with strong quality leadership criteria to faced project challenges in minimizing the risk of construction project failure. This study is as an initial step in determining the dominant characteristics of leadership towards construction project success.

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