Linking Organizational Culture to Lean Implementation in the Malaysian Construction Industry: A Conceptual Framework

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ABSTRACT

This paper examines the relationship and role of organizational culture in the implementation of Lean Construction. Being a conceptual paper, it provides a framework to identify relevant organizational culture attributes that have the potential to impact lean implementation in the construction industry. It is expected that through this framework, a step forward could be made towards culture as a useful explanatory concept in lean research. The framework is expected to be tested empirically using data from CIDB G7 contractors in the Malaysian Construction Industry. This paper contributes to the theories about the role of culture in lean implementation by developing a framework to investigate a more comprehensive but relevant set of cultural attributes, that would help achieve greater success in lean transformation initiative.

INTRODUCTION

In Malaysia, the construction industry plays a pivotal role in the national economy and contributes significantly to the Gross Domestic Product (GDP) of the country. According to the Malaysian Department of Statistics, a total of 974,488 persons were involved in the construction industry with a gross output value of RM91.3 billion in 2010. This accounts for 3.3% of Malaysia’s GDP. The construction industry indeed has wide ranging effects and impacts a country's economic activity, provides employment for trained workers, creates investment benefits that contributes to the government revenue [1].

The construction sector’s contribution to nation-building is immensely significant. Major infrastructure projects such as the Sungai Buloh - Kajang MY Rapid Transit (MRT), LRT Line Extension, Langat 2 Water Treatment Plant, Kuala Lumpur International Financial District (KLIFD) and Pengerang Integrated Petroleum Complex (PIPC) continue to drive the growth of the construction sector. Major government residential projects such as Program Perumahan 1Malaysia (PR1MA) and People’s Housing Programme (PHP) provide opportunity for low and middle income families to own decent housing. Clearly the construction industry remains as an essential sector in the Malaysian economy where it supports the social development of the country while providing the foundation and capability to numerous economic sectors to flourish.

In the quest to raise productivity and achieve higher operational effectiveness and organizational performance, construction firms require new approaches to enhance operational performance and boost efficiency. Many researchers consider lean as a vital concept or approach that needs to be adopted within the construction industry to enhance the sector's productivity level by eliminating waste in the construction process.

Historically, the lean concept began on the shop floor of Toyota Motor Manufacturing in the 1990s. The lean approach was responsible for Toyota's phenomenal growth from a small company to one of the world’s leading car manufacturer. Although wages was relatively higher for Japanese workers, Toyota gained attention by producing more reliable cars faster and at more competitive costs [2]. Its focus on producing high quality products in the most efficient and economical manner while incorporating less human effort, less inventory, less time to develop products, and less space to become highly responsive to customer demands have gained wide acceptance from a myriad range of industries. All the positive benefits derived are the direct result of a set of management tools and practices put in place to establish operational excellence.
Literature Review:
Globalisation raises the stakes and results in a wide host of challenges, such as economic uncertainties, increasing competition and the impact of higher and more complex demands from clients, customer and society [3, 4]. The intense global competition forces construction firms to examine their current construction processes with the aim of enhancing productivity, quality, and efficiency [5]. As such in order for Malaysian Construction companies to survive the challenging twenty-first century, they must strive to continuously improve productivity, ensure operations are value-added and enhance product quality [6]. Ironically in spite of its large contribution to the economy, the construction industry in Malaysia is plagued with inefficiencies and low levels of productivity when compared to other economic sectors. As a result Malaysian construction companies with low productivity and performance will be on the losing end as efficiency and cost advantage is crucial in the local and international market.

According to the Egan Report, for the construction industry to realize its full potential, significant changes in its culture is required to support improvements [7]. In order to attain a culture that places priority on efficiency and quality in construction, The Egan Report points out that it is crucial to replace current concept where project processes are viewed as a sequential cycle of separate operations carried out by individual contractors and suppliers who have no stake or commitment to the outcome of the project. The Egan report observed that In order to achieve the ambition of a modern construction industry, considerable changes in the culture and structure is imminent. Elaborating further, the Task Force stresses quality will not improve and costs will not reduce unless a culture of teamwork is adopted coupled with educating and training the workforce with required skills. In the quest to enhance efficiency and quality in construction, the Egan Taskforce believes that technology on its own is not the answer. The lesson learnt from the manufacturing industry is change should be approached by first distinguishing the culture, then evaluating and improving work processes and finally applying technology as a tool to facilitate cultural and process improvements. Construction companies with the right set of culture notably one that emphasizes radical and sustained performance improvements deserve to flourish and be successful. In hindsight, the Egan Taskforce believes the way forward for the deeply conservative construction industry must not merely involve a series of mechanistic activities but a holistic spirit of change in terms of style, culture and process.

Exploring the cultural connection, it was discovered that construction firms lacking an organizational culture supporting teamwork are bound to face major obstacles in adopting lean construction concepts [8, 9, 10]. The major problem covers key aspects such as attitude, internal relationships and co-operation. The findings is in agreement with earlier work that proved human attitude as a major factor during the physical implementation stage that impedes the deployment of lean concepts in the building industry [11]. Along the same lines, attitude has been identified as one of the hurdles in the efforts to inculcate lean concepts in construction projects [12]. Similarly the attitude of various stake holders in construction projects is a sensitive determinant that heavily influences the success of implementing lean construction concepts [13]. Attitude which influences the capability to work as a team, encompasses virtues such as intent, commitment and co-operation between respective parties. A strong sense of commitment and the willingness to co-operate to work together as a team within the firm and between the networks of all concerned parties is crucial to successfully implement lean construction.

Conceptual Framework:
One of the important tenets in lean construction is elimination of waste. In this regard, we posit that, the ideologies, beliefs and values that affect the behaviours and practices of the employees in a particular cultural setting is of utmost importance towards lean implementation. Therefore, our proposed conceptual framework will encompass six important dimensions of organizational culture attributes that can play a decisive role in the implementation of Lean Construction. The six dimensions adopted from Organisational Culture Assessment Instrument (OCAI), are dominant characteristics, organisational leadership, management of employees, organisation glue, strategic emphases, and criteria of success [14]. As the dimensions covered a wide range of cultural intricacies in an organization, the proposed conceptual framework provides a holistic and comprehensive set of cultural attributes to investigate the influence of culture in the implementation of lean construction.

This study attempts to investigate the practice of lean construction with the involvement of organisational culture in Malaysian construction industry. An empirical investigation will be conducted to determine the relationship between lean construction and project performance with organisational culture as a moderator in Malaysian construction companies. There is no known study that has attempted to investigate the relationship between lean construction and project performance with the role of organisational culture as a moderator, especially from the perspective of construction organisations. Without any doubt, a holistic approach is integral and necessary to provide solutions needed to resolve the problems faced by the construction sector in Malaysia.
Methodology:

A survey approach will be conducted to test the conceptual framework stated above. Organizations for the study will be selected from the Malaysian Construction Industry Development Board (CIDB) directory of Grade Seven (G7) companies. G7 construction companies are chosen because these companies have the greatest need for lean construction and have already adopted efficiency and productivity improvement practices. In terms of capital, G7 construction companies have paid-up capital of not less than RM 750,000 with unlimited tendering capacity. Thus such companies can be categorised as big enterprises. Survey respondents will cover a wide range of different work positions, ranging from construction site supervisors, engineers to senior managers such as CEOs and Directors who know the organization's Lean Construction adoption and implementation scheme well. The wide range in terms of respondent background is vital to obtain an overall and unbiased perspective of the cultural dimensions, values and beliefs that exist within the organization, and assess the crucial link with Lean Construction implementation.

The questionnaire will be prepared based on several established assessment instruments such as the Organization Culture Assessment Instrument (OCAI), Lean Maturity Assessment Toolkit (HALMAT) by United Kingdom's Highway Agency and Lean Construction maturity matrices from industry policy makers such as the European Construction Institute (ECI) [14, 15, 16].

Summary:

The lean journey is undoubtedly not an easy one. Many organizations who merely go as far as putting in place the various lean components have failed. We believe that the missing piece of the puzzle is to possess a corporate culture that promotes a smooth and effective deployment of Lean Construction principles. Therefore, it is of utmost importance to understand what type of culture (e.g., which particular attributes of culture) promotes lean success.

This paper has delved into proposing a framework comprising various organizational culture attributes that can assist organizations attain an effective and fruitful lean implementation. A clear and concise understanding of the interaction and influence of these organizational culture attributes are crucial, to ensure success for corporations embarking on their 'lean' journey. The proposed framework will be tested in our future research. The results of the study are expected to be of value to researchers by enhancing the knowledge and theory of culture in the implementation of lean construction.

REFERENCES


