
Preface

The Chinese construction industry has witnessed many remarkable achievements over the past years. Yet it still suffers from many problems, including low product quality, low working efficiency, projects finishing over budget, huge construction wastes and others. As very little past studies have shed light on the Chinese construction industry in the context of implementing lean or Toyota Way practices, this study addresses this research gap with the aim of generating useful insights that may better guide large Chinese construction firms in embarking on a lean transformation exercise by means of deploying the Toyota Way principles.

The Toyota Way was historically the first domain, where the practices and principles of lean production or lean construction were formulated and developed. It can be easily seen that lean construction has already borrowed some principles and techniques of the lean concept or Toyota Way and has become an established theme in the construction domain. The aim of this study is to establish the implementation framework of the Toyota Way model for large construction firms in China. It begins with an extensive literature review of the lean concept, the Toyota Way and the relevant frameworks of lean construction. A theoretical framework for the Toyota Way model within the construction context has been developed and is accompanied by a list of Toyota Way-styled attributes, which fit into the construction context. It is worth highlighting that the focus has been put on the Toyota Way model, over other existing frameworks of lean construction, because of the comprehensiveness of the Toyota Way model, which contains four layers—the philosophy model, the process model, the people and partners model, and the problem-solving model. Most importantly, it has addressed the technical and social aspects of the lean concept.

In order to assess Toyota Way practices within large Chinese construction firms, a mixed research method was adopted at different stages of the study. For a start, a structured questionnaire based on the identified Toyota Way-styled attributes was developed, and data was collected from building professionals with large construction firms in China. The quantitative data outlines the status quo of the Toyota Way-styled practices implemented in the Chinese construction industry, as well as the extent to which these attributes were perceived. The results showed that all the actionable attributes derived from the Toyota Way model were appreciated by the respondents, but some attributes fall short of implementation. To further investigate why implementation was uneven, and also to understand how these Toyota Way

practices could be implemented in real-life projects, interviews and case studies were carried out as part of the investigation. At this stage, from the interview findings, the evaluations of the case study projects and the comparisons with the theoretical model of the Toyota Way, the findings have enhanced the understanding of Toyota Way practices in the Chinese construction context. Furthermore, the results highlighted that the gap between actual practice and Toyota Way-styled practices is enormous, and implementation faces considerable challenges. Based on all the findings, this study then employs the SWOT analysis to present a picture that addresses the strengths, weaknesses, opportunities and threats to the implementation of the Toyota Way in China. It is also confirmed that the Toyota Way model presented in this book is considered appropriate for use in Chinese construction firms and may additionally be used as a holistic assessment tool for measuring the maturity of firms in terms of their Toyota Way implementation. Management would then be in a better position to develop plans for Toyota Way implementation by focusing on weak areas, and thus increasing the likelihood of success in the implementation of the Toyota Way.

Keywords: Toyota Way model; Lean construction; Large Chinese construction firms; SWOT

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