

Book Review: ***Modern Construction - Lean Project Delivery and Integrated Practices by Lincoln H. Forbes and Syed M. Ahmed***

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The preface states that “this book was written to address a pressing need for performance improvement in the construction industry.”

Aimed at providing tools and techniques designed to enhance the project management process, the book starts by creating a basic vocabulary and list of concepts, theories and practices from which to elaborate the use of lean construction tools and techniques. In the process it does that and much more... the unintended consequence is a book that treats in sufficient detail neither the topic of Modern Construction nor the topic of Lean Project Delivery and Integrated Practices.

Background

Chapter 1 provides an overview of the construction industry and the relationship of its participants. Critique: This fundamental topic is included in most lean construction books.

Chapter 2 describes productivity measurements in construction theories and practices. Critique: The authors use good examples of productivity and performance measurement methods.

Chapter 3 explains lean theories and how they apply to construction--a chronicle of major contributors in the lean movement. Critique: This represents a recasting of the history of the Toyota System, principles of reducing waste and creating value in manufacturing.

Chapter 4 builds on the history by describing the Lean Project Delivery System™ (LPDS). It offers a good explanation of the Last Planner® System (LPS) and its application, not only to construction but also to design. Critique: The authors bring together productivity measurement and lean theory by applying LPDS and LPS.

Chapter 5 explains lean process measurements, such as Percent Plan Complete (PPC), charting of reasons for non-compliance (RNC), five-why analysis

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(5W), rolled PPC and plus/delta analysis, and other tools common in practice, such as value stream mapping, Kaizen methodology, 5S and A3 reports. Critique: More examples of the uses of each tool in practice would have helped better illustrate their value.

Chapter 6 explains how to create an environment that is conducive to lean construction. Changing the culture of an organization and thereby changing the culture of regional practice is the subject of this chapter. Critique: This topic is much more complicated and critical to the industry than can be adequately addressed in a single chapter. This chapter should be removed and dealt with by a separate book or else the reader should be warned and the topic presented with more abstraction.

Chapter 7 devotes considerable detail to the deployment of lean techniques in construction projects. Case studies are detailed and well presented. Critique: The case studies could be condensed, extracting the lesson objectives and perhaps presented using an A3 format. At the same time, more case studies from other sectors of the industry besides building, such as horizontal and industrial, could help drive the point. Integrated Project Delivery System could be treated as a separate topic.

Chapter 8 describes information technology applications to management of the design and construction process for benefits similar to those experienced in the manufacturing and service industries. Critique: This chapter falls short of expectations--the topic is vast and has been taken up by entire books on the BIM topic in design and construction. Since BIM is a relatively new experiment in the information management revolution, a visionary treatment of the topic would be more appropriate.

Chapter 9 addresses quality improvement initiatives in construction such as continuous improvement and Six Sigma. Critique: Again, more condensed examples through case studies in an A3 format would have been an improvement and a showcase of how to use A3 itself.

Chapter 10 first presents sustainability and then commissioning. Critique: The authors, in this chapter, leave the lean focus and cast the net into topics that are much more complex than can be treated in one chapter. These topics should only be mentioned in passing and reference made to other, more comprehensive books.

Chapter 11 makes available a variety of industrial engineering-related performance improvement tools and techniques. Critique: This chapter is light on Industrial Engineering but worth reading.

Chapter 12 addresses construction safety issues. Critique: Again, the authors leave the lean focus and attempt to cover vast topics that would be better treated in other books. Of course, everything in construction is related, but the book is weighed down by extraneous topics that are not central to the lean focus, thereby weakening the overall book.

Chapter 13 presents several topics that relate to human performance in the work environment, such as motivation, diversity and ergonomics. Critique: By now, the authors have lost my interest in this lean book that is beginning to read like an encyclopedia of everything in construction.

Chapter 14 explains the application of systems integration to design and construction projects through three cases presented by industrial engineers in the construction industry. Critique: It is difficult to return to lean after the detours of quality improvement, sustainability, commissioning, industrial engineering, safety and miscellaneous topics.

Chapter 15 describes the application of post-occupancy evaluation to construction projects. Critique: A better ending for a book purported to be on lean could be conceived.

Conclusions

Modern Construction - Lean Project Delivery and Integrated Practices does not challenge the current paradigm of project management. The book has two focuses: Modern Construction is the first focus and therefore includes most of the topics found in modern construction and the second, Lean Project Delivery and Integrated Practices, comes across as an appendix added at the beginning or vice versa. It seems that the effort began as a book on modern construction, but when the lean movement took off, the authors decided to make lean a central part, while leaving the work done on modern construction intact, albeit with some adaptation. My suggestion is to recast the book as one or the other. Both topics are needed but not in one book.