

Achieving Lean Design Using Design Interface Management Tool

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ABSTRACT

The design and construction on infrastructure projects were earlier done in sequence. However, the rapid rise in the infrastructure requirements and accelerated project schedules produced tremendous pressure on the construction organizations to adopt concurrent and fast-track techniques. This resulted in suboptimal utilization of resources and increased wastes to meet the schedule in the construction and design phases. Lean principles are used to plan the wastes reduction in the construction phase which was a common demand in the past. Research studies show that the design phase has more impact on the overall project planning and wastes reduction than the subsequent phases. Many methods have been devised to plan the design phases. Of these, the Design Structure Matrix (DSM) has shown a lot of application potential. This paper discusses a server based DSM tool called 'diMs' implemented on a design project to achieve lean design through managing the processes. The paper also discusses the waste reduction using 'diMs' tool compared with the conventional design practices with an example case study.

KEY WORDS

Lean design, DDSM, diMs, design interface management.

INTRODUCTION

Recently, many construction contracts are based on the EPC (Engineering Procurement and Construction) model which gives the contractor the sole responsibility for the EPC phases. This facilitates the use of innovative approaches such as fast track and lean principles in design and construction. The application of lean principles in the construction phase was a common demand in the past. The design phase was given low priority in the overall planning of a construction project until recently. But in reality, design has greater influence on the overall success of the project as the decisions made in the design phase would impact the later stages of the construction (Austin et. al., 1999).

Lean design encourages the Elimination of wastes & Non- value adding activities in design process (Javier and Alacorn 2002). There are seven/eight wastes identified

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