

JUST IN TIME IN CONSTRUCTION: DESCRIPTION AND IMPLEMENTATION INSIGHTS

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Abstract: The construction industry has long been plagued with productivity and waste management issues on construction sites, unmet deadlines, and client dissatisfaction over the quality of the construction delivered. Having greatly aided the manufacturing industry, this paper investigates how the JIT philosophy could help with these difficulties. The paper illustrates four scenarios of JIT implementation in construction according to the level of coordination required, on-site management, and information sharing. The methodology which consists of a systematic literature review on JIT in construction confirms the need to adapt this philosophy for an adequate deployment in this industry. It also confirms the close ties between JIT, lean construction, and prefabrication for successful construction project management.

Keywords: Just in time in construction, lean construction, prefabrication, systematic literature review.

1 INTRODUCTION

Several authors address the fact that productivity in the construction industry has improved significantly but is still lagging behind other industries (Pheng and Chuan 2001; Asri et al. 2016). A way to address this issue is to embrace the just in time (JIT) philosophy which consists of providing the right materials, in the right quantities and quality when it is needed in order to reduce waste and to provide maximum value (Tommelein and Li 1999; Tommelein and Weissenberger 1999; Vokurka and Davis 1996). More research indicates that JIT in construction consists of producing smaller batches of each component and sending them on site at the required installation time in order to reduce waste, diminish on-site storage space, and meet the deadlines and high standards of the construction industry (Cossio and Cossio 2012). The goal of the paper is to show how JIT may reduce costs, waste, and quality problems encountered in a construction project. To achieve this goal, different scenarios of JIT implementation are proposed determined by the level of coordination required, construction site management, and information sharing. The paper contributes to scholars by identifying elements that influence JIT implementation in construction and to practitioners by presenting requirements for its successful implementation. The paper contains six parts. An introduction, a systematic literature review (SLR), a discussion of results, a conclusion, references, and an appendix.

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