

REDESIGNING THE PRODUCTION SYSTEM TO INCREASE FLEXIBILITY IN HOUSE BUILDING PROJECTS

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ABSTRACT

New market requirements have demanded from industrial companies innovations in their production strategies. Mass customization is one of those innovative strategies. It combines low unit costs of mass production and product flexibility. The ability of giving to the customer the possibility to choose among several product options has also been used as a competitive advantage in the housing building sector. However, despite the growing demand for customized homes, construction companies have faced difficulties to meet clients' needs with efficiency. One of the main causes lies in the fact that most companies do not change the way project production systems are designed to cope with the customization process, leading to an increase in site rework and waste. This paper presents a research study carried out in a housing building company, which has decided to introduce a customization strategy. The production system was redesigned based on lean principles to support that strategy. This article discusses briefly different approaches for customization, as well as the implications for the design of production systems. Also, the process of redesigning production systems based on lean principles is described. Key decisions and difficulties of this process are also highlighted. The results show that the consideration of lean principles in the production system has enabled not only the delivery of a more flexible product to customers, but also has improved the way production was managed due to an increase in transparency and predictability.

KEY WORDS

Production system design; flexibility; repetitive projects.

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