

PRODUCTION LOGISTICS SYSTEM BASED ON A HYBRID PUSH/PULL CONTROL STRATEGY IN MAKE-TO-ORDER ENVIRONMENTS

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ABSTRACT. *One of the toughest challenges for production management and logistics control for Chinese manufacture is how to remove the information gap between planning and manufacturing control/execution, which may cause order commit delay or too much inventory. The objective of the research is to design the production logistics system by integrating Manufacturing Resource Planning (MRP-II)/PUSH and Just in Time (JIT)/PULL control strategy in a Chinese automobile accessory manufacturing system. Firstly, the business process of the production logistics is reengineered and the Bill of Material (BOM) is designed based on the analysis of automobile accessory production characteristics. Then a hybrid PUSH/PULL control strategy based on BOM is put forward to design the production logistics system, where its overall architecture are given out. Thirdly, three layers framework of a production logistics system is designed and implemented with the computer technology. The implementation of this system at a Chinese automobile accessory manufacture shows that, it can simplify the production plan; balance the shop floor production and Work-in-Process (WIP), so as to raise the production logistics management level.*

Keywords: Production logistics, PUSH/PULL control strategy, MRP (Manufacture Resource Planning), JIT (Just-in-Time), BOM (Bill of Material)

1. Introduction. With the globalization of economy and order, the automobile accessory enterprises in Make-To-Order (MTO) environments face the new competition [1], such as eyeless of if accepting an order, whose reason is that the sales clerks and the factory management don't know the status of the inventory and production condition, which means that sometimes more orders without enough parts and materials. This will cause the delay of the commit and the declining of the credit of the enterprise. On the contrary, sometimes overfull parts and materials without enough orders, which will cause the block of the current fund and the unsmooth production logistics. For example, the ordered materials not in time arriving; the semi-manufactured parts lost for the disordered depot management. The competitive ability of the enterprise would be decreased by the above problems. Researchers try many efforts to solve the above problems. For example, Takahiro etc. [2] proposed a novel distributed optimization method with cut generation to solve the simultaneous production scheduling and routing problem in semiconductor