

The Move It Forward Theory (MIFT) offers a better method to manage major machine failure in a serial flow line

William Edward, Ph.D. Student

ISE Department
Oakland University
Rochester, Michigan, USA

Sankar Sengupta, Ph.D.

Professor, ISE Department
Oakland University
Rochester, Michigan, USA

Abstract

The paper presents the research findings on a problem that may help the decision makers to manage a major breakdown in the Trim, Chasis and Final (TCF) area in an automotive assembly plant with lower loss of production. We propose the name of the operating procedure as MIFT (Move It Forward Theory). The problem was discovered by one of the presenters during his association with a local automotive manufacturer. The proposed method recommends keeping the line moving both upstream and downstream of the failed machine while the failed machine is under repair. The current practice is to stop the line completely until the failed machine is repaired. The entire system resumes operation simultaneously following the repair. The research findings are based on study of a scaled down abstraction of the TCF area. The results show that use of MIFT operating procedure leads to recovery from a major machine failure with lower loss of production compared to the current practice. The results also show that improvement in performance under MIFT procedure depends significantly on the location of the failed machine in relation to the pay point and capacity of the buffers. The paper includes rationale for success of MIFT as well as future extensions.