Simulation and Analysis of an Automative Assembly Operation at Mercedes-Benz

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The main objective of this study is to simulate the design and operational policies of the assembly shop of an automotive plant for planning purposes and to find posible improvements.   The simulation study was used to answer the following questions:

How does the sequence affect the daily throughput?
What are the bottlenecks to the assembly lines in a given scenario?

A simulation model was developed in accordance with the objective of this study.   The model incorporates detailed workstation logic to accurately model downtime results through the use of a pull cord system.   It is written with SIMAN.   The discrete event feature of SIMAN does not adequately model the conveyor systems of the asembly shop.   As a result, a few subroutines were added to the SIMAN modeling structures to mimic the operations of the assembly shop.

Use of the model uncovered attractive improvement opportunities, such as a tremendous gain in annual volume if four additional spaces were added to a between-line buffer.