

Analyzing Tradeoffs between Working Capital
and Production Capacity for Multi-Stage Manufacturing Processes

by

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Abstract

Large pharmaceutical companies struggle to find innovative ways to reduce work-in-process inventory in their production facilities. In our research, we focus on the tradeoff between inventory and production capacity through investing in new facilities and equipment. This tradeoff will depend on the company's objectives and what it is willing to give up in return for reducing inventory. We found that increasing capacity to reduce work-in-process inventory by investing in new facilities is not always the most favorable approach in terms of net present value. However, for flexibility or lead-time improvements, it may make sense to proceed with the investment. We developed multiple scenarios considering the company's future plans to reduce inventory or grow. These scenarios provide insights into the factors that improve the attractiveness of the investments and those that do not. Our financial analysis along with the guidelines and procedures that we have developed help the sponsor company most effectively reach its goal to reduce its work in process inventory.

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