

SEMINAR SERIES
Department of Quantitative Analysis and Operations Management
College of Business Administration
University of Cincinnati

Optimizing Strategic Safety Stock Placement in Supply Chains

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Refreshments at 12:00 noon, sponsored by the Center for Productivity Improvement
Seminar begins at 12:30 p.m.
214 Lindner Hall

This seminar will cover work done with Eastman Kodak through the Center for Productivity Improvement. CPI is sponsoring this seminar by providing drinks and light snacks starting at 12:00 noon, with the seminar's starting at 12:30. Come early to enjoy the refreshments, meet the speaker, and visit with colleagues.

Manufacturing managers face increasing pressure to reduce inventories across the supply chain. However, in complex supply chains it is not always obvious where to hold safety stock to minimize inventory costs and provide a high level of service to the final customer. In this talk we develop a framework for modeling safety stock in a supply chain that is subject to demand or forecast uncertainty. Key assumptions are that we can model the supply chain as a network, that each stage in the supply chain operates with a periodic-review base-stock policy, that demand is bounded, and that there is a guaranteed service time between every stage and its customers. We develop an optimization algorithm for the placement of strategic safety stock for supply chains that can be modeled as spanning trees.

As a partial validation of the model, we describe its successful application by product flow teams at Eastman Kodak. We discuss how these flow teams have used the model to reduce finished goods inventory, target cycle time reduction efforts and determine component inventories.

The final portion of the talk will discuss the challenges and opportunities that come from working on industry-sponsored research.

Sean Willems is Assistant Professor of Operations Management at the University of Cincinnati's College of Business Administration. His degrees include a B.S.E. from the Wharton School, a M.S. in Operations Research from MIT, and a Ph.D. in Operations Management from MIT. Sean's primary research interest is in developing model-driven supply-chain management tools. Recent projects with Hewlett-Packard and Kodak have optimized inventory levels across the supply chain. More recently, Sean has begun work that incorporates lead-time and inventory cost considerations when developing new products. He has also just finished a project that looks at streamlining the inventory and distribution costs between a medical products supplier and a network of hospitals. Sean is Chief Scientist of SupplyChange Corporation, a MIT 50K semi-finalist that is developing web-based supply-chain design tools.