

Department of Information and Systems Management
School of Business and Management
The Hong Kong University of Science and Technology

Seminar Announcement

*Improving Supply Chain Performance:
Real-Time Demand Information and Responsive Deliveries*

by

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**24 October 2007 (Wednesday)
4:00 – 5:00 pm
Room 4379, ISMT Conference Room (L17/18)**

~~~~~ All interested are welcome ~~~~~

**Abstract**

This paper investigates how to improve the performance of a supply chain, in which each location has only local information and replenishes its inventory in fixed time intervals. To model such a supply chain, we consider a serial inventory system with local (s,T) policies. Two strategies are considered: 1) expanding the information flow by acquiring real-time demand information; and 2) accelerating the material flow via responsive deliveries. We show that comparing costs in these scenarios is equivalent to comparing costs between the local (s,T) policy and two other well-studied inventory policies, namely, the echelon (s,T) and the continuous-review local (r,Q) policies.

To perform this comparison, we analyze the local (s,T) policy. In particular, we show how to evaluate a local (s,T) policy and obtain the optimal local base-stock levels. A numerical study suggests that increasing the responsiveness of deliveries lowers costs more than does expanding information flow. We then use the analysis to identify the conditions under which acquiring demand information is most beneficial and those under which increasing delivery responsiveness is most beneficial. We find that the ratio of the fixed shipping cost to the holding cost at the most downstream stage and the system leadtimes are key drivers that determine the effectiveness of these improvement strategies.

**Biography**

Sean Zhou received his B.S. in Electrical Engineering from Zhejiang University, China in 2001 and his Master and Ph.D. in Operations Research from North Carolina State University in 2002 and 2006, respectively. He joined the Department of Systems Engineering and Engineering Management at the Chinese University of Hong Kong as an assistant professor in July 2006. His main research area is supply chain management, more specifically, inventory theory, production planning, game theoretic applications.