

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

Seminar Announcement

*Outsourcing structures and information flow
in a three-tier supply chain*

by

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11:00 – 12:00 noon

Room 2404 (L17/18)

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

### **Abstract**

We analyze and compare two outsourcing structures in a three-stage supply chain consisting of an OEM, a CM and a supplier: Consignment and turnkey. The key difference between the two structures is whether the OEM delegates the procurement function to the CM. Without delegation (consignment), the OEM contracts separately with the CM and with the supplier; with delegation (turnkey), the OEM contracts with the CM, and the CM subcontracts with the supplier. We model the procurement activity as a two-period bargaining game with one-sided offer and one-sided information. In each period, the uninformed party offers a wholesale price to the informed party who has private information about its production cost. The informed party decides to take it or leave it. We consider different situations on players' endowed commitment power and derive the subgame perfect Nash equilibrium for each bargaining game under different situations. We compare the OEM's expected profit in equilibrium across different cases and show that turnkey tends to be preferable when the OEM has less information on the CM's cost and when the OEM has commitment power over the CM but has no commitment power over the supplier.

This is joint work with Jeannette Song and Yulan Wang.

### **Biography**

GUO Pengfei received his PhD degree in Business Administration from Duke University in 2007. He received his B.Eng. in MIS from Xi'an Jiao Tong University in 1993 and M.S. in Management Science and Engineering from Shanghai Jiao Tong University in 1997. He is now an assistant professor with the Faculty of Business, Hong Kong Polytechnic University. His research interests include multiple-tier supply chain management, stochastic processes, and dynamic pricing and capacity management. His research work has appeared on Management Science.