

*The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar*

**Information Updates and Transparency in Newsvendor
Supply Chains: Values of Big Data and Blockchain Technologies**

by

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Time: 10:30am - 11:30am
Venue: R501, Shirley Chan Building
The Hong Kong Polytechnic University*

(*The venue is subject to change due to unforeseen circumstances. Please pay attention to our further notice.)

(Conducted in English)

Abstract:

In the big data era, emerging technologies such as blockchain can enhance supply chain operations by updating information to reduce demand uncertainty and information transparency to allow demand information sharing. We conduct a theoretical exploration of the values provided by such technologies in the context of a newsvendor supply chain facing a normally distributed demand with an unknown mean. We use Bayesian learning to reduce demand uncertainty based on the observation data, and obtain the expected value of big data (EVBD) as the number of data becomes large. Further, we obtain the expected value [resp. profit] of perfect information (EVPI [resp. EPPI]), and establish a relationship between EVBD and EVPI. We then define a concept of “asymptotically perfect coordination”, and develop a blockchain technology information sharing (BTIS) scheme to achieve this. We then extend the analysis to highlight the use of blockchain technology in product information disclosures, and show that the newsvendor reveals the same amount of product information to consumers to enhance demand and obtains the same EPPI in two specific demand cases. Finally, for an extended model on supplier selection with smart contracting, we reveal that the expected value of the blockchain technology is higher when a supplier is less reliable in providing good quality products.

Bio:

Prof. Suresh P. Sethi is Eugene McDermott Professor of Operations Management and Director of the Center for Intelligent Supply Networks at The University of Texas at Dallas. He has written 10 books and published over 400 research papers in the fields of manufacturing and operations management, finance and economics, marketing, and optimization theory. He teaches a course on optimal control theory/applications and organizes a seminar series on operations management topics. He initiated and developed the doctoral programs in operations management at both University of Texas at Dallas and University of Toronto. He serves on the editorial boards of several journals including *Production and Operations Management* and *SIAM Journal on Control and Optimization*. He was named a Fellow of The Royal Society of Canada in 1994. Two conferences were organized and two books edited in his honor in 2005-6. Other honors include: IEEE Fellow (2001), INFORMS Fellow (2003), AAAS Fellow (2003), POMS Fellow (2005), IITB Distinguished Alum (2008), SIAM Fellow (2009), POMS President (2012), INFORMS Fellows Selection Committee (2014-16), Alumni Achievement Award, Tepper School of Business, Carnegie Mellon University (2015).

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All are welcome!