

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

**Mitigating Operational Glitches in Complex Manufacturing with Information:
Is an ERP System the Best Solution?**

by

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**Date: 12 July 2017 (Wednesday)
Time: 10:30am-11:30am
Venue: M714, Li Ka Shing Tower
The Hong Kong Polytechnic University**

(Conducted in English)

Abstract:

Business function-specific standalone enterprise applications (SEAs) are displacing functionally integrated enterprise resource planning (ERP) systems, despite strong empirical support for the business benefits of the latter. This study explores the conditions under which it may be more effective to use a set of SEAs instead of a single-suite ERP system, and vice versa. Based on Organizational Information Processing Theory, we expect differences in effectiveness to grow in prominence when the uncertainty of the operating environment increases, that is, when operational glitches in production processes become more frequent. Extending the existing literature, we postulate that high functional differentiation is a precondition for SEAs to be more effective than an ERP system, hypothesizing that the level of functional interdependence ultimately determines which type of software is superior for a given production process. We test our hypotheses using data collected from 163 make-to-order (MTO) production processes nested within 73 manufacturing plants and seven supply chains of complex, high-tech machinery. Results show that when functional interdependence is low, the negative effect of operational glitches on delivery performance is effectively mitigated in MTO production processes wherein process-related information is managed predominantly using SEAs; conversely, when functional interdependence is high, using an ERP system is more effective. Our findings offer practical guidelines as to when to use SEAs versus an ERP system while also integrating and updating the findings of earlier empirical research, in which each has been analyzed separately.

Bio:

M. Johnny Rungtusanatham (Ph.D., University of Minnesota) is Fisher College of Business Distinguished Professor of Management Sciences at The Ohio State University. Prior to this, he held faculty and administrative positions at the Carlson School of Management of the University of Minnesota-Twin Cities, the W.P. Carey School of Business of Arizona State University, and the School of Business of the University of Wisconsin-Madison. He has received numerous awards and recognitions for research (e.g., the 2011 *Citation of Excellence* from Emerald Management Reviews), teaching (e.g., the 2014 *Daniel Westerbeck Undergraduate Teaching Award* from the Fisher College of Business at The Ohio State University), and professional service (e.g., the 2015 *Dennis E. Grawoig Distinguished Service Award* from the Decision Sciences Institute). Rungtusanatham has co-authored more than 50 articles related to quality management, mass customization, and supply chain relationships; two introductory operations management textbooks, and five teaching cases. His research has appeared in *Academy of Management Review*, *Decision Sciences*, *Journal of Business Logistics*, *Journal of Operations Management*, *Journal of Supply Chain Management*, *Production and Operations Management*, among others. His current research focuses on supply chain disruptions – their attributes, triggering events, performance consequences, and mitigation. He is President-Elect of the Decision Sciences Institute and previously served as the Institute's Interim Executive Director. In November 2017, he will be recognized as a Fellow of the Decision Sciences Institute.

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All are welcome!