

THE NATIONAL UNIVERSITY of SINGAPORE
Department of Industrial & Systems Engineering,
Design Technology Institute, Singapore,
&
IEEE Engineering Management Society, Singapore Chapter

JOINT SEMINAR
On

Technological Modularity:
Implications for product life cycle, patterns of innovation, product
development and competitive organizational capabilities

Speaker: Professor Oscar Hauptman, Singapore Management University

Discussant: Professor Neil Jones, INSEAD

Date: 21 January, 2003 (Tuesday)

Time: 3:00 p.m. to 4:30 p.m.

Venue: EA-06-02, Faculty of Engineering, NUS

Abstract: Recent research on modularization of technology challenges the accepted product lifecycle and innovation theories, which assume that product lifecycle theory assumes that technological innovation is propelled and stabilized by increasing synergistic specificity between organizations, technologies, and markets. Presently, modules in modular products are flexibly reconfigurable or synergistically non-specific, and, consequently, progressive modularization of products undermines product lifecycle theory. Instead, the product lifecycle is replaced by the interactions among lifecycles of architectures and modules.

In this presentation we outline the implications that the resultant mesh of S-curves has for patterns of product and process innovation, the nature of the product lifecycle, product development process, and competitive organizational capabilities. Questions are raised about the implications of modularization for radical product innovations and intellectual property rights and plans for future research are outlined. Given the increasing domination of modular product architectures in the software, telecommunication, computer, and automotive industries, this argument has broad implications.

Biography: **Oscar Hauptman's** research interest over the years include High-technology entrepreneurship; Technology planning, strategy and forecasting; Management of Research and Development (R&D); Management of product development; Concurrent Engineering; Management of software development; Introduction of new process technology; Management of organizational knowledge. He has published in these areas in international journals such *Management Science*, *Organization Science*, *Research Policy*, *IEEE Transactions on Engineering Management*, *R&D Management*, *Technological Forecasting and Social Change*, *Journal of Product Innovation Management*, *Prism* (Arthur D. Little in-house journal); *Journal of Engineering and Technology Management*, and *Communication Research*.

In addition to several book chapters on R&D Management and Technology Management topics, he wrote more than 20 cases and teaching notes at Harvard Business School. Currently, he is Visiting Professor of Technology and Operations Management at the Business School of the Singapore Management University. Formerly, he was on the faculty of Melbourne Business School, Australia, Carleton University, Canada, and Harvard Business School, USA. He is currently serving on the editorial board of *IEEE Transactions on Engineering Management*, and is the Associate Editor Asia-Pacific for *Technological Forecasting and Social Change*. He is member of INFORMS and ex-chair of the Technology and Innovation Management Division of the Academy of Management.

Neil R. Jones holds a doctorate in Technology Management from the Harvard Business School, a Masters of Public and Private Management from Yale University, and a BSc (Physics) from Memorial University of Newfoundland in his native Canada. His teaching and research interests are in the areas of technology strategy, technology management, product development and operations management and concentrated on the issue of radical technological change. His work has appeared in the *International Journal of Technology Management* and the *Harvard Business Review* and the *Proceedings of the Academy of Management*. A recent paper for the 2002 Strategic Management Society meeting received the McKinsey/Strategic Management Society Finalist Award for best paper. In 1999, his submission won the best paper award from the Technology and Innovation Management Division of the Academy of Management and was nominated for an All-Academy award. Professor Jones is a member of the Academy of Management, INFORMS and the Strategic Management Society. He joined INSEAD in the Fall of 2000 and holds a joint appointment in the Strategy and Technology Management areas.

Prior to joining INSEAD Professor Jones held positions at The Wharton School in The University of Pennsylvania and The Richard Ivey school of Business at The University of Western Ontario in Canada. His more practical experience includes McKinsey and Company in New York where he was a manager of consulting teams working a variety of technology strategy and general management issues and for Amoco Petroleum Company where he was a geophysicist.

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