Differential Diffusion of Information Systems Technology in Multinational Enterprises: A Research Model

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Recorded evidence suggests that information systems technology (IST) can be harnessed at least at a national level to create favorable market asymmetries leading to competitive advantage for the firm. Diffusion of IST over worldwide divisions of a multinational enterprise (MNE) and its ramifications, however, pose a more complex scenario. Economic analyses have been shown to be insufficient to explain why and how diffusion of technology occurs in MNEs. Cultural and political factors at both the organizational and societal (national/regional) levels also influence the diffusion process. Is IST a viable competitive weapon in a worldwide market setting? How diverse are the IST needs of the units of an MNE? Is uniform diffusion of IST across the board a necessary condition for the smooth operation and success of an MNE? How does IST diffuse within an MNE? What are the contingent factors that contribute to the differential rate of diffusion of IST across the units of an MNE? This paper proposes a research model to address these questions.

United States - 1989: A multinational oil company (MNO) employs state of the art information systems technology (IST) (e.g., multi-tier multi-vendor database management systems to support transaction processing and decision support activities simultaneously; 4GL-based information centers for end-user computing support; knowledge systems technology solving real problems; telecommunication for distributed data; distributed processing; and management/office information exchange via electronic mail) to support/integrate various corporate functions. The functional managers, especially at the tactical and operational levels, are not only computer literate but also ‘Technology-enabled.’

Singapore - 1989: As a small nation in Southeast Asia with a vibrant global economic climate, Singapore is regarded as a leader in the adoption and adaptation of state of the art technology in the region. The Singapore division of the MNO described above has an international workforce under the administrative umbrella of the world corporate headquarters and staffed by managers and executives trained and experienced in the United States. It serves the vast territory of Southeast Asia supported by IST (especially software) of the 1970s (e.g., conventional file management systems rather than database technology, little or no end-user computing activities, predominantly transaction processing ori-
The focus of this research is at the confluence of three elements: Information Systems Technology (IST), Multinational Enterprises (MNEs), and Diffusion. These elements are discussed in the following sections, respectively.

**Information Systems Technology**

The thrust of this research is on information systems. This includes computing hardware/software configurations, teleprocessing (e.g., local area networks and distributed processing), database technologies, systems design and development approaches— that is, methods (e.g., structured techniques, prototyping), tools (e.g., CASE tools and 4GLs), and management. Basic data processing (transaction processing systems and information reporting systems), decision support (management and strategic/executive support systems), expert systems and neural network applications, end-user computing, and electronic mail are also included under this umbrella of IST. The term information systems technology (IST) is used instead of information technology (IT), because broader technologies that are used for information gathering and dissemination (e.g., teleconferencing, FAX, voice-mail, imaging, and multimedia) are not part of this research. In short, the scope of the
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