GLOBAL INFORMATION MANAGEMENT

Mrs. Arti Tandon,
Assistant Professor,
ASM's Institute of Computer Studies,
Pimpri, Pune, MS, India.

Mrs. Aditi Sood,
Lecturer,
ASM's Institute of Computer Studies,
Pimpri, Pune, MS, India.

ABSTRACT

An important line of research on global information management examines the effects of national culture on information technology (IT) development, operations, management, and use. Structural conditions are physical, social, and economic arrangements that shape e-commerce business models and influence individual and organizational use of the Internet. Examples include geography (which affects the physical distribution of goods purchased online), space (which influences the choice of access technology for e-commerce), and financial infrastructure (which is related to credit card use).

Research in the field of global information management (GIM) is an area of information systems research that has grown tremendously in the 1990s (Palvia, 1998). A large number of research studies have been published that have examined issues relating to the development, use and management of information systems in a global context. In general, most of these studies have either been key issues studies,(where the researcher(s) surveys IS practitioners to determine what they feel are the key issues in this area), or they have been anecdotal studies that have described a particular development

of an information system (Dutta & Doz, 1995; Shore,1996; Neuman & Zviran, 1997). A survey of the literature in this area indicates that no systematic framework is guiding GIM research. It appears that current GIM research is being driven by temporal, "hot" issues in the field and not by a structured approach to knowledge accumulation. In our view, this seems to be leading to research that may have little enduring value, that possibly duplicates itself, and that does not stretch the boundaries of what we know.What is needed is a general framework for research into GIM that aids in categorizing research that has already been done and that helps to identify where important research is still to be done. In a sense, this framework will be a manifesto for research into GIM. A manifesto is defined as a "statement of intentions or views" (Webster's, p. 699). In this case, this manifesto is intended to help guide GIM research and challenge GIM researchers to look at their field from a broad perspective.

Keywords: Global information technology, Management information system issues, Global IT framework; Global IT issues, Global IT model.

Introduction:

In the global information management context, we extend Ives, Hamilton & Davis's model beyond a single system to multiple systems, with diverse users, in a global environment. The external environment consists of the political, economic and social conditions in the countries where the information systems operate. The organizational environment includes the structure, composition, management processes of the organization, or organizations, that the systems function in. The user environment consists of all the different types of users and their characteristics that would interface with the system. The IS development environment includes the characteristics of the hardware and software and people in the locations where the global systems are developed and tested. The IS operations environment consists of the network and computing infrastructures that support a global IT environment. In terms of the global information systems process variable group, the Use process consists of measures of how diverse users use a global system. The Development process includes measures of practices and procedures used to develop information systems in possibly widely dispersed locations. The Operations process consists of measures of network and computing performance for systems that operate in many countries.Finally, the global information systems characteristics variable group lists the functions and features of the specific global system or systems under study. These would include such characteristics as data structure, logic structure, security factors as well as other attributes.
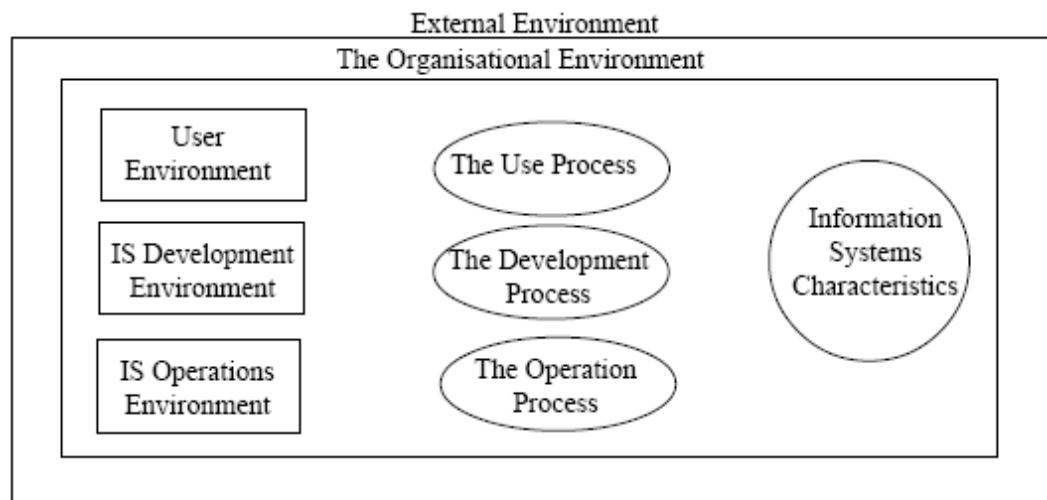
A Model for Information Systems Research (Ives, Hamilton & Davis, 1980)

A Model for Global Information Management Research (adapted Ives, Hamilton and Davis):

Information systems (IS) research interest in the global aspects of IT use is growing, partly due to the efforts of publications like the Journal of Global Information Management (JGIM). A popular type of study examines the effect of national culture on IT development, operations, management, and use (Gallupe & Tan, 1999), where national culture is frequently understood in terms of Hofstede's (1983, 1991) concepts and operationalizations (Davison,1996).

Five Categories of Global Information Management Research
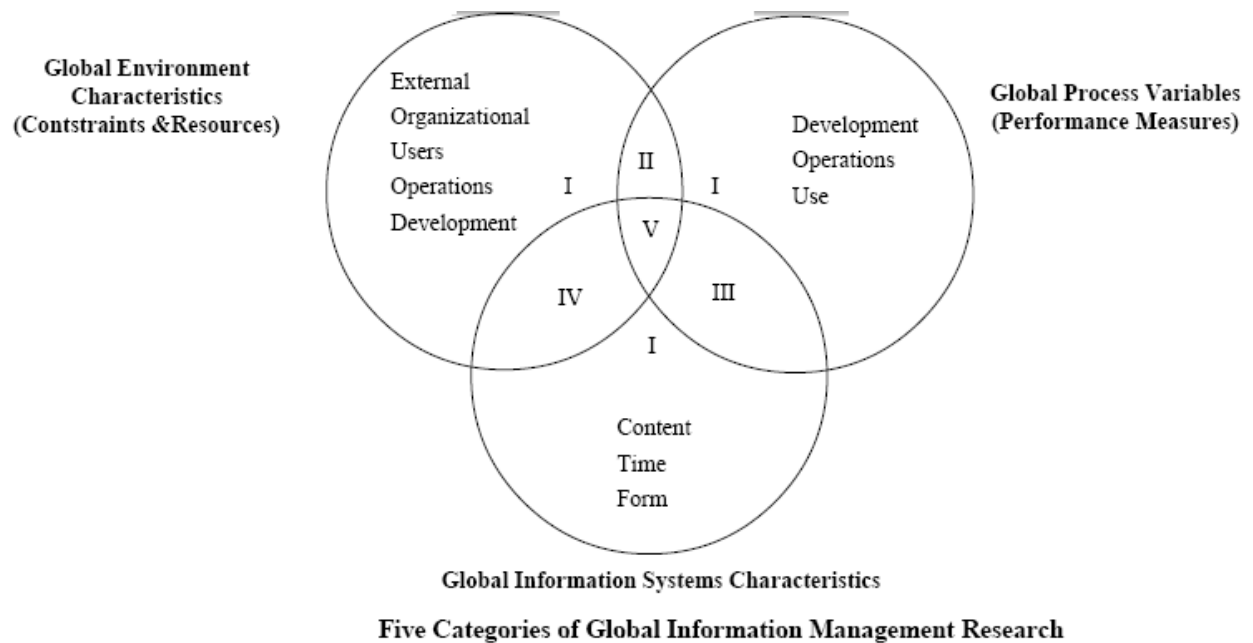
Application of the GIM Research Model:
The application of the GIM literature to the GIM research model can provide for a better understanding of the state of GIM research. An analysis of a representative sample of journal publications relevant to the field was conducted. The main purposes of this analysis are to establish the types of GIM research that have been done in the past and identify the gaps in the field for future work.

Method and Sample:
The following approach was taken. a) A search for relevant GIM publications was the first step. It was felt that conceptual and empirical GIM research is more likely to be found in journals rather than other forms of publication such as books. Conference proceedings were not examined because it was assumed that high quality GIM research papers would be published in journals. As such the following journals were referenced:

* Established IS journals where GIM related research has been consistently published (ie. MIS Quarterly, Information Systems Research, Journal of Management Information Systems, and Information & Management);

* Niche journals which focus on publishing GIM research (ie. the Journal of Global Information Management, International Information Systems, Journal of Strategic InformationSystems, Journal of Global Information Technology Management, and Journal of International Information Management.

* Regional IS journals from around the globe (ie. European Journal of Information Systems, Scandinavian Journal of Information Systems, Australian Journal of Information Systems and the Asia Pacific Journal of Information Management).

* Societal / Culture oriented IS journals which publish research dealing primarily with socio-economic issues and cross cultural dimensions of societies across the globe (i.e. Information Technology & People and the Information Society).

Research Themes Distinct to GIM Research
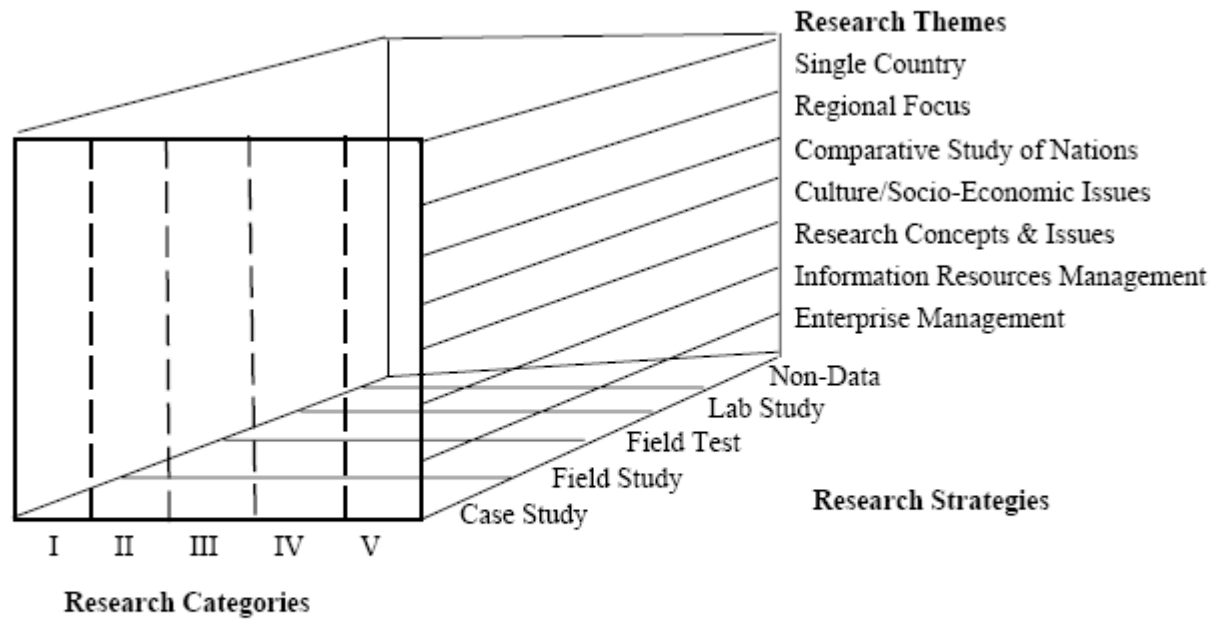
A Global Information Management Research Framework

Structural conditions differ from country to country—and even from location to location within country, but they are not necessarily related to dimensions of natural culture. Therefore, analysis of cultural differences alone is unlikely to provide a satisfactory explanation of global differences in e-commerce activity. Valid explanations of global differences require a careful assessment of relevant structural, as well as cultural, factors.

To make this point, we examine a few of the structural conditions likely to influence ecommerce activity that are significantly different in various parts of Asia than they are in the US. The next two sections of the chapter describe structural conditions related to business to- consumer (B2C) and business-to-business (B2B) electronic commerce activity. The discussion section identifies implications for future research.

BUSINESS-TO-CONSUMER ELECTRONIC COMMERCE:

In this section, we address the adoption of B2C e-commerce by individuals and the development of B2C e-commerce business models by firms.

Structural Factors in Individual B2C E-Commerce Adoption:

One structural factor likely to affect IT adoption and e-readiness is the urban-rural distribution of a country's population. People in rural districts generally have lower levels of access to the IT infrastructure necessary to sustain ordering over the Web; long distances may make "delivery to order" difficult, if not

impossible. In North America, urban dwellers comprise 77% of the population; in Asia as a whole the figure is 37% (United Nations Population Division, 1998). But within Asia, there are huge differences.

B2C E-COMMERCE BUSINESS MODELS:

Successful Asian B2C e-commerce business models look very different than that of Amazon.com. For example, Japan's Internet bookstore, e-Shopping!Books allows people to pick up their online purchases at 7-Eleven stores, and some 75% of them do (7-Eleven Japan, 2000). 7Dream.com — 7-Eleven Japan's own e-commerce venture — involves Internet-based ordering from in-store multimedia terminals that are capable of producing custom music MiniDiscs, printed digital photos, and concert tickets (Williams, 2000). As another example, the Bank of East Asia (BEA), a Hong Kong-based leader in consumer electronic banking, found it necessary to develop seven different technology platforms—in addition to traditional ATMs—to address the structural conditions found in Hong Kong and China (Hui, 2000):

• **Cyberbanking.** Cyberbanking is an online banking service, accessible by PCs and an Internet connection.
• **Telephone banking.** Telephone banking has been widely accepted in Hong Kong since it was first Introduced in1989. BEA's fully automated voice response system is integrated with its call center.
• **Mobile phone banking.** With one of the highest mobile phone penetration rates in the world, mobile banking is a promising service, and BEA offers access through two major telecommunications operators (PCCW and Hutchison Telecom).
• **In-bank kiosks.** BEA was the first bank in Hong Kong to launch kiosks for banking transactions; the touch-screen device is located in branches and other high traffic locations.
• **PowerPhones.** PowerPhones are multimedia payphones located in subway and train stations, at the airport, and in shopping malls. In addition to payphone service, they provide free access to the Bank's websites and electronic banking services.
• **"Web TV" banking.** iCare Internet-on-TV requires a set-top box for home access to e-banking services.
• **Cyber Active Transaction Stations.** These Internet-enabled kiosks, which provide direct access to the Bank's websites, are being pilot tested in two 24-hour convenience stores.

INFORMATION SYSTEMS RESEARCH AND NATIONAL CULTURE:

In this first section we provide a brief review of the IS literature on national culture. Here we show that many IS researchers have taken the concept of national culture for granted. In a recent survey of global IT research, Gallupe and Tan (1999) found that a wide variety of IS issues have been studied from a national culture perspective. In short, as is the case with B2C e-commerce, structural conditions in Asia lead to significantly different B2B e-commerce business models and patterns of e-commerce activity than can be found in the US. Cultural factors certainly play a role in these outcomes, but they cannot provide as satisfactory an explanation alone as they can in combination with structural conditions.

Recently, there have been an increasing number of studies and articles that have identified and ranked global information technology (IT) issues in various parts of the world. The objective of this article is to aggregate the results of these studies and explore the possibility of linkage of these key IT issues to environmental and organizational factors. An organizing framework for global IT issues is developed and one of the factors in the framework, the level of economic development of the country, is analyzed to

observe its impact on the ranking of key IT issues. Cluster analysis on a sample of ranked IT issues from 16 different regions indicates a linkage between the level of economic development of a region and the ranking of various types of IT issues. The analysis provides stronger support for the three-way classification of regions into developed, developing, and under-developed rather than the more recent four-way classification of developed, newly industrialized, developing, and under-developed.

DISCUSSION AND CONCLUSION:

The examples presented above suggest that global e-commerce activity is strongly shaped by structural conditions — physical, social, and economic factors — in addition to the dimensions of national culture. Examples of key structural conditions are:
• Financial infrastructure (e.g., electronic payment systems, credit financing);
• Legal and regulatory infrastructures (e.g., consumer protection legislation, taxation);
• National policies about promoting or regulating Internet usage and e-commerce;
• Space and logistics (e.g., home size, distance to shopping, transportation, warehousing);
• Telecommunications infrastructure and prices, IT penetration, types of IT used
(e.g., PC versus mobile);
• Local business practices (e.g., purchasing, payment, financing);
• Language and education;
• Firm size, structure, and control systems; and
• Industry concentration.

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