

# Emerging Research Themes in Global Information Management

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## ABSTRACT

*Research in the field of global information management (GIM) is an area of information systems research that has grown tremendously in the 1990s. 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 an attempt to better understand the types of research that has been conducted, the research methodologies employed and the emerging research themes being addressed in the field, an in-depth study of the GIM literature was conducted. This paper reports on one aspect of this wider study – emerging GIM research themes. The purpose of this paper is to identify the themes distinct to GIM research that are emerging from the literature with the aim of highlighting potential areas of future research in the field.*

## INTRODUCTION

Global information management has received a great deal of research interest in the last ten years. As information technologies have improved and as organizations have adapted their operations to a global platform, research into how to use and manage these technologies on a global scale has increased in importance. Not only are established IS journals publishing an increasing amount in this area but there are now specific journals devoted to the major issues in the development, use and management of global information systems. Indeed, a ten-fold increase in the number of papers published has occurred between 1990 and 1998 (Gallupe and Tan, 1999).

However, it was somewhat surprising to find that in a survey of the literature in this area 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 integrated and structured approach to knowledge accumulation. These "issues" studies are certainly important and help the field focus on the immediate challenges that practitioners face but 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 appears to be missing at this point is an overall research framework that will help guide future research into GIM and help organize and categorise research previously done. According to Palvia (1998), such a framework has yet to be developed.

In response to the call for a comprehensive GIM research framework, the authors conducted a detailed survey of published GIM research be-

tween from 1990 to 1998. A publication outlining a 3-dimensional framework and a "call-to-action" resulted (Gallupe & Tan, 1999). This research framework builds on an earlier general IS research framework of Ives, Hamilton & Davis (1980). In their survey, Ives et al. (1980) classified general IS research into 5 categories (Type I to V), which employed research methodologies ranging from case and field studies to secondary (ie. non-) data collection strategies. We argue that to better understand the research that has been done in the GIM field, a 3<sup>rd</sup> dimension should be added to the framework allowing GIM researchers to pinpoint the research issues being addressed. This 3-dimensional framework is presented in Figure 1.

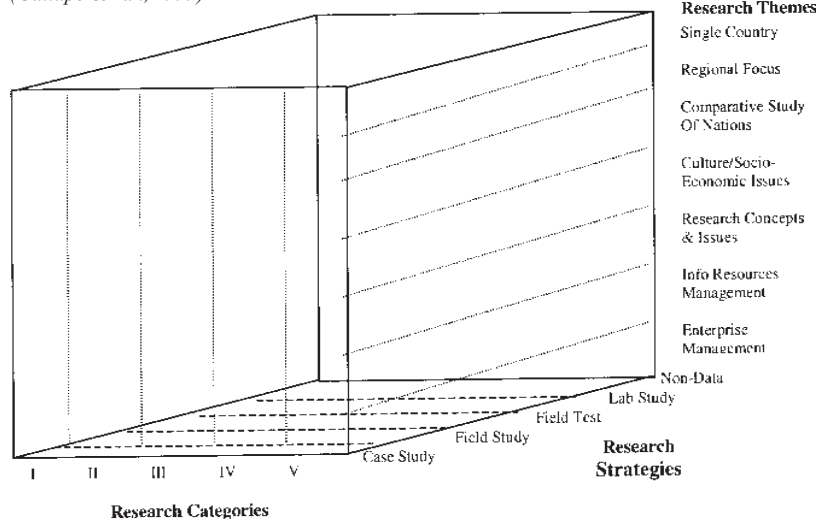
This paper presents a deeper look at this 3<sup>rd</sup> dimension - emerging GIM research themes. The paper proceeds as follows. First, GIM is defined and research themes discussed. The research methodology is then outlined, results presented and discussed. Finally, directions for future GIM research are described based on emerging GIM research themes.

## A THEMATIC APPROACH TO GIM RESEARCH

A review of the IS literature could find no formal definition of global information management. Deans and Ricks (1991) refer to issues at the "interface of MIS and international business (p. 58)". Palvia (1997) refers to "global IT research" and describes a model to "assess the strategic impact of IT on a global organization engaged in international business (p. 230)". In our study, we define global information management as the development, use and management of information systems in a global/international context. By "global" we mean those information systems that have impacts beyond a single country or country of origin. The term "global" is used in a general sense since no firm or information system is found in every country in the world. Global information management deals with technological, management and cultural issues such as IS development in different cultures, differing national communications infrastructures, differing IS quality standards, and many others. GIM research is the rigorous and systematic study of the development, use, and operations/management of a global information system(s) in a multi-country organizational environment. At the same time, traditional GIM research includes numerous single country studies focusing on the management of the information resource in a domestic context. According to Palvia (1998), these "first generation" studies have laid the foundation and helped define global IT. This paper has therefore included single country studies in the definition.

Much of the GIM literature that provides some kind of guide to research in the field has concentrated on identifying the "key issues" in the global management of information resources (Badri, 1992; Deans & Ricks, 1991; Ives & Jarvenpaa, 1991; Watson et al., 1997; Palvia,

Figure 1: Global Information Management Research Framework (Gallupe & Tan, 1999)



1998). These publications survey various stakeholders involved in the research and practice of GIM and are useful in that they attempt to capture what these people think are the critical issues in the field at that time. For instance, in a survey of IS educators, Palvia (1998) identified and ranked in importance several GIM research topics such as country and environment, and regional issues. This paper builds on the work of Palvia (1998). It is different however, in that it takes a broader perspective of GIM research by analysing published GIM research and categorizing this research into emerging GIM research themes.

Although clear research topics have been identified in the literature, little has been said about the gaps in GIM research themes. So far, very little guidance is afforded to GIM researchers worldwide. This paper therefore presents the findings of a survey of relevant published GIM research in journals that focus on the management of global information resources. The purpose of this paper is to identify the emerging themes distinct to GIM research with the aim of highlighting potential areas of future research in the field.

## METHODOLOGY

The following approach was taken in this research.

- 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 Information Systems, Journal of Global Information Technology Management, and Journal of Inter-

national 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 (ie. Information Technology & People and The Information Society).

An examination of these journals is expected to provide a representative sample of the research done in the field. The period covered in the analysis is 1990-1998.

- b) Based on the full text of the paper (and sometimes on the abstract if the study was clearly described), the authors independently identified distinct GIM research themes and categorised each article accordingly. If a paper could fit in more than one thematic area, the authors independently assigned the paper to one theme based on the key ideas in the paper.
- c) Disagreements between the authors were discussed and a classification was agreed upon.

## RESULTS

Although the field of GIM has a number of similarities with the general study of IS, there are a number of distinct themes which differentiate emerging GIM research from the traditional scope of IS investigations. The search process identified 314 GIM related articles. A content analysis of the 314 publications sampled reveal six distinct GIM research themes. Table 1 presents these themes and their description.

As part of the study, the 314 GIM publications surveyed are categorised into these themes. Table 2 presents the results of this analysis.

## DISCUSSION

Single country 'domestic' type studies dominates GIM research. Of the 314 publications analysed, 145 (46.2%) can be considered single country studies. All of these studies focus on different aspects of managing information resources in a domestic context. Most of these studies use the case study or secondary research strategies. For instance, Kautz & McMaster (1994) presented a case study of an attempt to take a structured development method into use in the IT unit of a UK public sector organization. Wan & Lu (1997) provided an overview of computer crime and related legislation in the People's Republic of China using a secondary research strategy.

Studies comparing two or more nations prove to be another fruitful area of work. Forty-nine (15.6%) can be classified into this group. Several of these studies have compared the US to countries from Europe, Asia and the Middle East. For example, Abdul-Gader & Kozar (1995) examined the impact of computer alienation on IT investment decisions between the US and Saudi Arabia. Straub, Keil & Brenner (1997) tested the Technology Acceptance Model across three countries – Japan, Switzerland and the US. Others have compared two or more countries in the same region. For instance, Simon & Middleton (1998) analysed human resource management best practices in IS departments in Singapore, Hong Kong, Malaysia and the People's Republic of China. Tam (1998) examined the impact of IT investments on firm performance and evaluation in four newly industrialised economies in Asia. In all of these instances, field study (questionnaire survey and interviews) research strategy was used.

The "global information resources management" research theme accounts for 53 (16.9%) of the sample surveyed. Research in this category considers the development, operations, management and use of IT in a

Table 1: Emerging Research Themes Distinct to GIM Research

Emerging Research Themes In GIM Research	Description
Single Country Studies	The development, operations, management and use of IT in a domestic context. Does not include the management of information resources in a global context. For example, the adoption of IT in rural China.
Comparative Study of Nations	The comparison of IT development, operations, management and use between two or more countries. Culture is not a variable in these studies. For example, comparing the skills of systems analyst in Canada, New Zealand and Singapore.
Culture / Socio-economic Issues	The effect of national culture on IT development, operations, management and use. These are regarded as "pure" cross-cultural studies as opposed to those merely comparing nations. For example, exploring the effect of complex cultural dimensions on the level of IT transfer in Arab and East European nations. Also includes socio-economic issues relating to IT like government policy, legislation and economic factors.
Research Frameworks and Issues	Conceptual research offering frameworks, theory and research agendas on various aspects of global information management. Key issues studies in IS management from around the globe are included.
Global Information Resources Management	The development, operations, management and use of IT in a global context. Includes the management of information resources in a regional but not domestic context. For example, managing global IT outsourcing; motivating global IT development teams; and managing the introduction of telecommunications technology in Latin America.
Global Enterprise Management	Functional management of enterprises across national boundaries using IT. Includes the management of multinational and trans-national corporations. For example, the impact of IT on global supply chains, global distribution or global marketing.

Table 2: Emerging Research Themes Distinct to GIM Research

Emerging Research Themes Distinct to GIM	Research Themes Count	Research Themes Percent
Single Country	145	46.2
Comparative Study of Nations	49	15.6
Culture / Socio-economic Issues	29	9.2
Research Concepts & Issues	23	7.3
Global Information Resources Management	53	16.9
Global Enterprise Management	15	4.8
Total GIM Publications	314	100

global context. It includes the management of information resources in a regional but not domestic context. Most of the research employ either case study, field study or secondary research strategies. Examples of these are: Ramanujan & Lou (1997) who conducted a field study on the issues involved in selective outsourcing of maintenance operations from an off-shore location; Gibson & McGuire (1996) who discussed quality control for global software development using secondary research strategy; and Trauth & Thomas (1993) who called for a global standards policy for EDI. The articles focusing on regions primarily employ secondary research strategy. These articles describe IT related issues in a given region or prescribe guidelines for IT diffusion and transfer in developing countries. These publications are not studies comparing countries within the region. For example, a paper by Gibson (1998) identifies important developmental factors in the relationship between IT diffusion and economic development in Latin America. Loh, Marshall & Meadows (1998) discuss the ethical appropriateness of information and communication technologies for developing nations.

The "culture / socio-economic issues" research theme account for 9.2% of the 314 articles surveyed. What was surprising though is that a only 15 (3.7%) of the total sample surveyed are what we considered "pure" cross-cultural research as opposed to studies merely comparing two or more nations, but label themselves as multi-cultural studies. Field study is the predominant research strategy used in all of these publications. These 15 articles deal with and address the cultural dimensions and elements, which are inherent in the countries studied. For instance, Hill et al. (1998) focuses on the complex sociocultural constructs (beliefs and values) which can influence the level of IT transfer in Arab nations. Straub (1994) investigated the effect of culture on the use of email and fax technologies in Japan and the US. Harvey (1997) conducted an ethnographic study of national culture differences in IT theory and practice between Germany and the US using Hofstede's (1980) framework. Most of the publications dealing with the socio-economic issues primarily employ secondary research strategy.

The remaining two themes – 'research frameworks & issues' and 'global enterprise management' – together account for less than 13% of the research surveyed. Conceptual research offering frameworks, theory and research agendas on various aspects of GIM are categorised into the former group. For example, Nelson & Clark (1994) propose a research framework for cross-cultural issues in IS research. Martinsons & Westwood (1997) developed an explanatory theory of MIS in Chinese business culture. Deans & Ricks (1993) suggest an agenda for research linking IS and international business. Studies of key issues in GIM practice and research are also included in this grouping (Watson et al., 1997; Mata & Fuerst, 1997; Yang, 1996; Burn & Ma, 1993).

The 'global enterprise management' grouping focuses on research dealing with the management of different aspects of the enterprise across national boundaries using IT. The published research surveyed used both field and case study methodologies. The bulk of the research, which falls in this grouping, is publications on multinational companies. For instance, Chidambaram & Chismar (1994) examined the use and investment patterns in U.S. multinational corporations. Cummings & Guynes (1994) compared the IS activities in U.S. and non-U.S. subsidiaries of transnational corporations. There is, however, a dearth of studies dealing with IT and global supply chain, human resource, marketing, manufacturing and distribution management. Exceptions are studies by Niederman (1993) and Sankar & Liu (1998).

A comparison between Palvia's (1998) research topics and this paper's research themes reveals two significant differences. First, one of the key thematic areas identified in this paper is "comparative study of nations." This is an important for on going GIM research as it offers the potential to highlight "best IT practices" in varying countries. A second difference is that in this paper "Technology" is not a major thematic area as it is in the Research Topics paper. The reason for this is that information technology is subsumed in all the major themes identified in this paper. It is the perspective of this paper that the technology is intended to support the management of global information, not the other way around.

## FUTURE RESEARCH DIRECTIONS

Single country "domestic" studies have been the predominant theme researched in the GIM field. This type of research tends to be descriptive and exploratory. According to Palvia (1998), these "first generation" stud-

ies are important especially during the early years of GIM research. "They have been useful in defining the global IT field ... (and have) ... given us a reasonably good grasp of global IT" (p. 7). We believe that single country studies are as important today as they have been in the early years of GIM research, provided these studies include some insights for GIM practice and research. For instance, a study of the influence of government policy on the adoption of global neural networks in Latvia is only useful if it includes discussion on the implications of the study findings to GIM practice (ie. to international companies planning to do business in the country) and research.

Opportunities also abound for research on themes relating to national culture and global enterprise management. Surprisingly, there is comparatively little published research in journals examining national culture. It is generally accepted that differences in national culture may explain variations in IS in different cultures (Deans & Ricks, 1991; Ein-Dor et al., 1993; Shore & Venkatachalam, 1995 & 1996). We therefore think that more research could explore how national culture can impact on global IS development, management and use as well as to better understand the characteristics of IS developed and used in various cultural settings. There is also very little published research into aspects of global enterprise management. Organisations, which span national boundaries, are required to operate rather differently from those in a domestic context. How can IT be used to best support and enhance the international competitiveness of these enterprises?

We urge our GIM research colleagues to embark on more investigations into the impact of IT on the global supply chain, human resource, marketing, manufacturing and distribution management. This aspect of GIM research may not be within the traditional scope of IS research, but we believe is equally compelling as organizations grapple with the management of their functional operations as they establish and compete globally. To this end, the Journal of Global Information Management recently published a special issue on global management of IT human resources (volume 7, number 2) and is working on another issue on IT support for global sourcing and procurement.

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