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Revisiting Global Information Systems Management Education

Catherine Beise
Salisbury University, cmbeise@salisbury.edu

Rosann Webb Collins
University of South Florida, rcollins@coba.usf.edu

Fred Niederman
St. Louis University, niederfa@slu.edu

Jim J. Quan
Salisbury University, jxquan@salisbury.edu

Janette Moody
The Citadel, Janette.Moody@citadel.edu

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Communications of the Association for Information Systems

REVISITING GLOBAL INFORMATION SYSTEMS MANAGEMENT EDUCATION

Catherine Beise
Salisbury University
cmbeise@salisbury.edu

Rosann Webb Collins
University of South Florida

Fred Niederman
St. Louis University

Jing "Jim" Quan
Salisbury University

Janette Moody
The Citadel

ABSTRACT

Business enterprises continue to globalize, motivated by their search for new markets, greater efficiency in the use of resources, and greater competitiveness. Information systems and technologies serve as one of the critical success factors for making this possible. Some IS curricula supported this development by either integrating more globalization into current courses or by delivering stand-alone courses in Global IS Management as electives or requirements. The purpose of this paper is to review and propose "best practices" for the Global IS Management course, and consider contingencies that can be expected to influence the choice and success of various approaches. The paper provides a categorization of such courses based on differences in education level (graduate/undergraduate) and student population (MIS/InternationalBusiness/ mixed). We discuss experiences with approaches and practices that work across these segments, and activities targeted to each segment. The paper revisits and argues for the need to expand this curriculum, and provides practical details for MIS faculty who seek to integrate it into their own programs.

Editor's Note: This paper evolved from a panel discussion at AMCIS 2004 concerning the content and methods for teaching a course on global information systems in the MIS curriculum.

Keywords: global IS, IS education, IS management, cross-cultural studies

I. INTRODUCTION

Global Information Systems Management (GMIS) is concerned with information systems (IS) used across multiple countries. With the continued expansion of global trade, the constant

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evolution of information and communication technologies (ICTs), and on-going regional and international coordinating bodies' IS-related initiatives, the role of IS in supporting multinational corporations (MNCs) [1] continues to expand [Boudreau et al., 1998]. In an effort to prepare MIS[2] students for a future in which a significant portion of IS development focuses on highly complex global systems, and where workforce, user, and customer communities are increasingly multi-cultural, it is important to include GMIS content into MIS program curricula.

The degree to which each of these topics may be addressed depends on how the course fits within the larger MIS or International Business (IB) curriculum. Some schools previously took on this challenge by creating courses specifically on this topic, although the particular name of the course varies from university to university (e.g., Global Information Management; Global MIS) as do details of course content. The purpose of this paper is to describe and discuss a framework for best practices in this area, through integrating and updating previous related literature together with current observations and experiences of faculty experienced in teaching GMIS.

The paper is organized around the following set of discussion questions, for which the authors have provided some proposed responses:

- What is the definition of GMIS? (Section II)
- Is a separate GMIS course warranted? (Section III)
- What should students be able to do as a result of such a course? That is, what are the appropriate learning outcomes? (Section IV).
- What are the major content areas that should be included in such a course or as part of other courses? (Section V)
- What are some suggested methods of course delivery in order to achieve the learning outcomes? (Section VI)

The paper includes specific examples of how each of the questions is addressed. We provide examples of course delivery in undergraduate and graduate contexts, and in domestic and international contexts. We outline an updated framework for such a course (Section VII) . We conclude with a call for on-going discussion and further development of what we believe continues to be an important dimension of MIS curricula.[3]

Courses in GMIS have been offered since, at least, the 1990s, and are part of an overall increase in attention to globalization in both the business discipline and universities as a whole. Two key factors driving this focus on globalization are:

1. the growth in multinational corporations in number (from around 7,000 in 1970, to 30,000 in 1990, to more than 63,000 in 2000) and size (the corporate revenue of many multinationals is larger than the GDP of many countries) [Gabel and Bruner, 2003]; and

2. the understanding that information and communications technologies are critical enablers of globalization.

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[1] We use "MNC" as a general term encompassing all varieties of global enterprises, rather than the specific type defined by Bartlett and Ghoshal [1987], distinguished from global, international, and transnational organizations.

[2] MIS is used as an umbrella term encompassing all varieties of information systems curricula.

[3] ISWorld sponsors a Global IS Management course website, under construction, which is intended to contain model syllabi, bibliographic materials, and relevant case studies, and which will help to achieve this goal.. The URL for this website is http://www.magal.com/iswn/teaching/ globalis/index.cfm

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To prepare IS faculty to teach in this area, Candace Deans, now of the University of Richmond, offered summer institutes in the 1990s on GMIS at the Thunderbird (The Garvin School of International Management) and the University of South Carolina. Several books published in the past decade (e.g., [Deans and Kane, 1992; Deans and Jurison, 1996; Khosrowpour and Loch, 1993; Roche, 1992]) provided support for classes. Conger [1993] identified specific ways to integrate global content into existing IS courses. All of these seminal contributions address the three aspects of global information systems area shown in Figure 1 in Section II:: information technology, information management, and international business.

Other support for the GMIS curriculum comes from the research in this area. Such research was presented at conferences specific to this domain, such as the 1991 IRMA[4] Conference on "Managing Information Technology in a Global Society" and the ongoing Global Information Technology Management Conference (since 2000), as well as in Global IS tracks at AMCIS and ICIS. GMIS content can also be found in the two journals dedicated to this topic: the *Journal of Global Information Management* (since 1992, a publication of IRMA), the *Journal of Global Information Technology Management* (since 1998). In addition, research on topics relevant to global IS can be found across MIS literature, especially the extensive work on global virtual teams. Some of this literature focuses on the challenges of global IS in specific countries (e.g., [Odedra-Straub, 1996]). A number of cases are available to support GMIS courses, both from traditional case study sources such as Harvard Business School Publishing and as part of books on this topic [e.g., [Deans and Jurison, 1996; Collins and Kirsch, 1999]].

II. DEFINING GLOBAL IS MANAGEMENT

For the purpose of this paper and the proposed coursework, GMIS focuses on:

- information systems that span multiple countries (their planning, development and implementation);
- the global context for information systems management (individuals and IS labor markets, MNCs, and their IS management and deployment);
- national/regional infrastructures and policies that promote or inhibit IS utilization.

Earlier frameworks proposed themes that should be included in GMIS curricula: Technical, People (culture, education), Political/legal, Economic, and Managerial/Strategic [Loch, 1993], and also organized similar dimensions into broader contextual factors (cultural, political, economic) and IS managerial and technical factors [Deans and Goslar, 1993]. Our view of GMIS as the intersection of the studies of MIS and IB, shown in Figure 1, is consistent with these frameworks. It represents the subset of MIS that is concerned with multinational firms, cross-cultural exchanges, and national and regional policies. It represents the subset of IB that is concerned with the role of information systems. This topic fits the image of MIS as overlapping circles of management and technology, in that there is both an IB component and an IS aspect, and the intersection requires management [Niederman et al., 2002].

This intersection specifically includes

- issues of the national/regional infrastructure,
- the variety of information needs for different types of multinational companies, and
- the specific IS knowledge base required to satisfy those needs given the country differences.

[4] Information Resources Management Association, http://www.irma-international.org/

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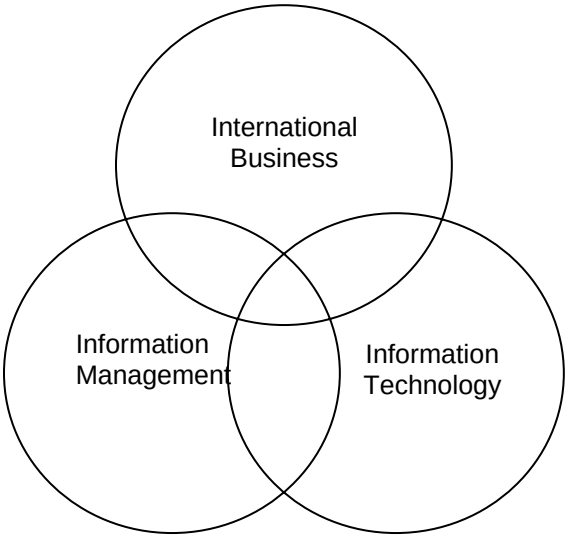

Figure 1. GMIS as A Multidisciplinary Field

The last issue is particularly relevant, given that some proportion of MIS students may have limited international/intercultural experiences, and some proportion of IB students are only modestly familiar with the details of information systems.

A course on GMIS provides a vehicle for understanding the difficulties in developing and managing IS in any specific country thereby building an appreciation for the need for general global IS strategies, such as assembling virtual teams and addressing differences in infrastructure. A key aspect of GMIS lies in their support of business processes that cross borders, and thus require global IS management skills to deal with the development and support of these systems.

Traditional MIS courses focus on:

1. IS infrastructure-related topics such as software, hardware, database, networking, people and procedures, and

2. IS management-related topics such as the fit between IS and organizational structure and business value of IS.

Moreover, their content is largely centered on the U.S. and other developed countries. To add a global dimension to the mix, a global IS management course should link the IT infrastructure and IS management topics to nation-specific factors such as economic development, culture, language, and politics [Conger, 1993]. A perfect fit between IS and an organization in one country may not be so perfect in another [Mann, 2000].

While it is tempting to address GMIS through either adding it to the introductory course, or transforming the introductory course to a global orientation, there are two significant risks:

1. that GMIS is inadequately covered among the wide range of other topics and

2. that in adequately covering GMIS other topics that should be in the course are diluted.

At the very least, an awareness of global IS issues and circumstances should pervade the approach of the introductory course. It will, however, be difficult to balance the inclusion of

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enough GMIS material while still highlighting the wide range of other required content. Representative MIS textbooks typically include a single chapter focused on Global IS, which is unlikely to provide the more extensive coverage of topics that we argue is needed, given the increasingly ubiquitous globalization of business.

III. VALUE OF A SEPARATE GMIS COURSE

The need for a separate GMIS course is based on two main drivers.

1. The unique content about how global (as opposed to domestic-only) information systems need to be structured, developed, and used. This unique content, detailed in Section V and Tables 2 through 5, includes managerial, behavioral, and technical issues in global IS deployment. Some of the content is relevant to any kind of global IS (e.g., the use of virtual teams to develop global IS), and some is specific to a functional business area (e.g., the data standards, networks and systems that enable global financial operations).

2. A separate course on GMIS provides a setting to prepare students generally for work in a global business environment. Specifically, students are introduced to the world economy in which IS labor resides, the scope and scale of global IS projects, and cultural influences on IS development and use. By providing a special focus on global business issues and technologies, we emphasize the importance to students' future success of developing a transnational, rather than provincial, professional perspective.

A separate GMIS course provides advantages for both the university and the student. For example, the university benefits in that a GMIS course provides an opportunity to increase enrollment in MIS classes. The course can be designed so that it fits both the MIS major audience and non-MIS majors, especially IB majors or minors. Some universities allow graduate and undergraduate versions of the GMIS course to count as an elective for MIS majors (BA/BS and MS in IS), IB majors or minors at both undergraduate and graduate levels, and MBA students taking one of the IS tracks. For undergraduate business students, a GMIS course would likely fulfill the AACSB-accreditation requirement for an international component.

Providing one course for such a diverse audience does provide challenges and opportunities. One challenge is that the lack of IS background of non-MIS majors necessitates additional explanations of some technical issues. However, the presence of IB students provides the advantage of more diverse input from students, some of whom possess extensive global experience and a business perspective that reflects the organizational environment within which the MIS major will be working. Furthermore, this course provides an opportunity for study abroad experiences, allowing students to combine travel to one or more other countries while taking this course for credit.

Such a course may be especially valuable to MIS majors in the U.S. because their exposure to work in other countries is limited The size and complexity of the U.S. domestic market means that often U.S. workers did not need to cross international borders for their work, and therefore may not perceive a need for increased awareness of global business nuances. As Conger [1993 p. 314] notes, while the U.S. has "many cultures living and working in relative harmony … we expect people from different parts of the world to conform to our 'Protestant work ethic'." Although European organizations may cross borders more routinely for business purposes and IS development, the inclusion of GMIS in curriculum outside the U.S. is warranted because of an increase in Europe's transoceanic business activities in addition to the transnational activities that occur across contiguous country borders.

In situations where the GMIS course is offered as an elective, it will be important to market the merits of the course as providing students with tools to be successful in a global economy, even if they never leave their country of origin. It is increasingly likely that after graduation, students will find themselves working on face-to-face teams and distributed teams within a country that include

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cultural and technical infrastructure differences. The skills learned in a GMIS course related to communicating across cultures and organizing distributed teams can readily be applied in a domestic information systems context.

IV. LEARNING OBJECTIVES

A widely-accepted approach to developing any curricula is to first determine the learning objectives. What should a student be able to do, as a result of such a course? We propose the following list of learning outcomes, from which instructors could choose, and of course add to, depending upon the nature and context of their particular course. Upon completion of a GMIS course or curriculum, the student should be able to:

- describe the economic, political, cultural, and operational contexts of international business
- explain how and why businesses use IS to operate globally
- compare and contrast the differences in global and local ICT needs and infrastructures between regions of the world
- recommend specific strategies and techniques that IS professionals can use when designing and deploying global information systems
- discuss background, trends, innovations, and management issues of specific IS-related phenomena such global e-business, ERP, and wireless technologies
- design globalized / localized Web sites
- describe technical and social issues facing global virtual teams and offshoring operations

STUDENT AUDIENCES

We propose two dimensions, student background and education level, to guide the appropriate content for GMIS courses, based on the student audience.

First, it is reasonable to differentiate GMIS course content for MIS majors from GMIS course content for general business or IB students. More often than not, the MIS major-oriented course will focus on extending common MIS approaches (such as the systems development lifecycle) to a global setting. Such courses might be more likely to include hands-on development components, as it might be assumed that students entering the course are likely to have some experience with development tools and methods. In contrast, the business-oriented course will aim at broadening appreciation for the role of IS in global commerce. Such courses will be more likely to view hands-on activities from a user perspective emphasizing the appropriate use of already built tools (e.g. electronic communication tools, ERP, web sites.). In many cases, though, a GMIS course is likely to attract a range of student backgrounds and interests, requiring a blend of perspectives.

Second, course content is often necessarily differentiated between graduate and undergraduate levels of study. Generally, graduate students are more likely to be older with a broader array of work and life experience. They include more “adult-learners” wanting to develop their own educational pathway, with better-defined career goals. While returning to some fundamentals is appropriate for such students, quite often these students need motivation (in the sense of linking material to practical application) and challenge. The instructor should acknowledge that global information management is a complex field and invite graduate students to participate in the creation of new knowledge. Undergraduates, in contrast, generally have less “real-world experience” and will need more concrete examples of concepts and the contexts that they apply. An example of both approaches is demonstrated by Carmel and Mann [2003], where graduate

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students create Web sites focused in IT development levels in specific countries, and undergraduates at a different school make use of these resources.

Thus, depending upon the level (graduate or undergraduate) and emphasis (MIS or IB), learning objectives will likely vary in order, emphasis, and the approach to meeting them. Differences in course emphasis based on these dimensions are suggested in Table 4 in Section VII., after our discussions of course content (Section V), and delivery mechanisms.

V. GLOBAL IS MANAGEMENT COURSE CONTENT

The course content for GMIS contains many components of the IS 2002 curriculum model body of knowledge (e.g., international telecommunication standards, staffing and human resource management, security, cultural diversity, privacy law, protection of intellectual property) [Gorgone et al., 2002]. The detailed learning objectives of IS 2002 also identify many specific impacts on IS in the global environment. While global IS are not defined as a specific type of information system in the IS 2002 curriculum body of knowledge, we argue that offering GMIS as a separate course provides an effective means of achieving many of these IS 2002 learning objectives.

More than a decade ago, Conger [1993] categorized and described the following dimensions of curriculum content that should be included in such a course: current information and communication technologies, applications and infrastructures, technology transfer, politics, cultures, and governments. Using this perspective as a foundation, we propose that an overview of the content of a GMIS course can be derived from the following four related yet distinct topics:

- global context of IS and cross-cultural skills and appreciation;
- the information technologies and methods supporting global business activity;
- multinational organizational implementation and investment in IS;
- policies and practices of specific countries and regions pertaining to IS.

Each of these topic areas can be subdivided into more specific areas of study, based upon whether students are undergraduate or graduate, and MIS-focused vs. IB-focused. In general, for MIS students, focusing on specific tools supporting global business will extend and reinforce major MIS lessons, while discussion of policies and practices of countries and regions may introduce consideration of new topics. The reverse is likely true for IB students. Courses with a mixture of MIS and IB students will likely require some experimentation to find the right balance among these different content areas. Each of these four main topic areas is discussed in more detail below.

GLOBAL CONTEXT OF IS AND CROSS-CULTURAL SKILLS

Increasingly the IS workforce consists of individuals from a wide variety of countries of origin. In the U.S., teams will often include U.S.-born individuals and individuals of Indian, Asian, European, and other countries of origin. Skills in understanding and operating within various cultural settings are important for all MIS workers [Luftman, 1996]. Course content would address the cross-cultural communication skills and project organization techniques (distributed, co-located) needed to work across cultures and locations.

Some standard IB models, for example Dunning's eclectic theory [Dunning, 1980] provide useful background to questions such as: What motivates domestic-only companies to expand to international commerce? How do organizations decide in which countries to operate? What investment strategies are most successful when entering a new country market? In MIS we would add: what approaches to information systems are most helpful in expanding multinational enterprises?

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Additional IB models provide important background knowledge for IT workers. Examples include Porter's model of competitive advantage of nations [Porter, 1990] and Bartlett and Ghoshal's global organizational structure model that, among other things, identifies tensions between headquarters and local subsidiaries [Bartlett and Ghoshal, 1987]. Hofstede's [Hofstede and Bond, 1980] studies of national cultural differences have long been relevant to MIS cross-cultural research [Corbitt et al., 2003, Guo and D'Ambra, 2003].

An introduction to international coordinating organizations, such as SWIFT (www.swift.com) in the financial area, and specific IS-related initiatives at regional and international levels, e.g., United Nations, OECD, EU information and Internet policies and standards (e.g., http://www.eurunion.org/legislat/ interweb.htm) is an essential component of a GMIS course.

TECHNOLOGIES SUPPORTING GLOBAL BUSINESS ACTIVITY

Many of the important technologies for global commerce are essentially the same as those used domestically (e.g., data warehouses, routers, web servers). Two important issues that emerge in a global context are:

1. scale – what happens when such technologies must be deployed in a vast number of highly varied settings? and

2. user interface – what happens when such technologies will be used by a wide range of people with varied skills, cultural background, and incentives?

Other emerging technologies take on a critical role for global commerce. These currently include

- wireless communications and the applications built on them
- mixed mobile and fixed operations;
- data formatting standards, such as UNICODE and from the ITU (International Telecommunications Union - http://www.itu.int/home/) that are essential in a global context;
- ERP systems that many MNCs are implementing to integrate their global operations; and
- virtual team and project support technologies that enable the coordination and control of activities with non co-located participants.

MULTINATIONAL ORGANIZATIONAL GMIS IMPLEMENTATION

Organizations are faced with issues in the design of information systems for transaction processing and management of global activities. How do they best go about the planning, development, implementation and maintenance of such systems [Collins and Kirsch, 1999]? Various functional areas such as accounting, marketing, and human resource management provide special opportunities and challenges for global organization's information management programs.

Students can also be introduced to the challenges of defining and building global databases that result from differences in the meaning of key terms [Niederman, 1999] and to what is considered good information from a database in high context versus low context cultures [Hall, 1989]. In addition, the issues of the impact of cultural values on conceptualizations that influence the use of systems within a national context (e.g. the Egyptian Cabinet's experiences with DSS implementation [El-Sherif and El-Sawy, 1988]) is of great importance in GMIS.

Outsourcing

Another current and relevant issue is the distribution of work among various firms (outsourcing) and in particular outsourcing to firms operating in different countries (offshoring) [Carmel and

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Agarwal, 2002; Rottman and Lacity, 2004]. MIS staff work increasingly with global teams and individuals from a variety of locations. Skills, knowledge, and understanding of many global differences in areas such as currencies, work patterns, time zones, accounting systems, etc. are increasingly important for MIS workers. It is also important to understand offshoring in terms of its overall work and political and economic impacts.

COUNTRY/REGION SPECIFIC IS POLICIES AND PRACTICES

Several models of successful development of IS industries are used around the world [Ein-Dor et al., 1997, Oriain, 1997]. Students need to understand that differences exist in national and regional contexts within which information systems support firms in their production of goods and services. These differences affect choices in location of production, distribution, and use of information technologies particularly by MNCs. For example, students in developed countries may expect that developing nations lack the infrastructure level enjoyed in their own countries. This assumption may be correct or incorrect depending on the particular technologies and particular countries/regions. Information about the historical and political roots provide a deeper understanding of current information systems inadequacies of particular nations/regions [Peha, 1999, Petrazzini, 1999]. This information also provides clues regarding how individuals and companies might best introduce new opportunities for use of information technology. At the same time, it is beneficial for students to study the context within which countries with advanced infrastructures (e.g., Finland's telecommunications infrastructure) developed.

VI. COURSE ACTIVITIES

Many of the activities in a course on GMIS will be typical for any university course: lectures, discussions, case study analyses and discussions, and tests. In addition, three course activities are adapted to GMIS to convey country/region studies, multicultural experiences within the course, and a hands-on course component with software localization.

COUNTRY/REGION STUDIES

This type of study requires groups of students to research a country or region other than their own. The objective is for students to understand the information systems environment for business and what specific businesses are doing about IS in that country/region. The instructor selects the countries and regions to ensure maximum contrast.[5] The students write reports, but more importantly share their new knowledge in formal presentations to the class and in cross country/region discussion of key differences and recurring themes. This "trip around the world" is an easy way to get everyone up-to-date on at least a few countries or regions, and see both the variety and commonalities in how IS is developed and used. One resource for these students can be found on the Web, where, at another university, graduate students have created and posted Web sites on country-specific IT infrastructure, where they are available on a permanent basis for anyone to take advantage of [Carmel and Mann, 2003].

A MULTICULTURAL EXPERIENCE

Certainly many multicultural experiences are possibly in a GMIS course**.** Some institutions may offer opportunities for travel abroad. For example, at one business school, each winter term business majors can get one course credit for a three-week IB course that takes place in another country. One of the authors participated in this course and taught an IS component. The experience is offered in conjunction with a host institution and includes lectures on topics such as cross-cultural communication and international finance by local faculty, as well as field trips to

[5] This part of the assignment is based on a syllabus by Sirkka Jarvenpaa at the University of Texas at Austin.

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local companies. The experience of living in the international environment that they are studying makes a powerful, visceral impact on the students' learning.

Cross-cultural activities need not always involve foreign travel. For example, working on virtual teams with students from other countries is a valuable, and probably more feasible, opportunity for many IS students and courses. At another author's university, GMIS undergraduate students recently were given the opportunity to participate in a virtual team activity with students in New Zealand and Sweden. Some of the lessons learned from this experience include:

- Learning occurs at two levels – the instructors must engage in active and challenging discussions to create the learning environment within which students gain the opportunity to experience cross-cultural information systems related activities.
- The details of applying the collaborative technology are critical for enabling (and inadvertently constraining) student activities. Students can be frustrated with the limits of collaborative technology relative to the ease of emerging technologies such as instant messaging that they take for granted.
- The details of the task are critical for linking the student experiences to the course objectives. Interpersonal issues, such as personal communication being more awkward in a group discussion than in a set of dyads, can affect both the task outcomes and student satisfaction.
- It is important to debrief the activity.
- An essay where students reflect on the cross-cultural, information technology, and task experience is extremely helpful.

A third variation is represented by one of the authors who taught a two-week GMIS course as a visiting faculty member at a Chinese institution. Realizing the disparity in IS between developed and developing countries, the author made repeated efforts to emphasize the strategic value of IS and conditions under which such value may or may not be realized. This author purposely introduced the debates in the US on business value of IS such as "IT Productivity Paradox" [Brynjolfsson and Hitt, 1996] and "IT Doesn't Matter" [Carr, 2003] to illustrate the point. Differences in the students' backgrounds and perceptions of IS generated vivid discussions and offered new perspectives on the debates.

HANDS-ON TECHNICAL EXPERIENCE

Undergraduate MIS majors are accustomed to a hands-on component in most or all of their MIS courses. However, introducing such an activity is complicated when some or all of the students are not MIS majors, and therefore are limited in their ability to do the object analysis, for example.

One solution is an activity that does not require much technical skill but still reinforces basic systems analysis and design concepts. Such an activity has been used successfully for several years at one university. Based on the country/region research described above, a team of students applies its knowledge to a web site for globalization/localization analysis [Collins, 2002, Langhorn, 2001, Rutherford, 2000]. Each group selects a web site that is not currently localized to a country, and the instructor selects three pages within the site for analysis. The group must identify any overall design changes that need to be made (e.g., if the country's main language is read right to left, then the design of the page needs to reflect that different orientation), as well as identify each presentation object on the pages. Each object is analyzed for any needed changes (different language, currency, data format, content) and then required processing and databases changes are identified. The part of the project that makes it real to students is the amount of work it takes to make a non-global system appropriate for just one other country. This assignment also reinforces the importance of proper program structure to making these changes easier to make.

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VII. UPDATED MODEL CURRICULUM

Given the need for, and the challenges inherent in, offering a GMIS course, the following framework provides guidance in adapting the content topics to the student audiences identified earlier. Over a decade ago, Deans and Goslar (D&G) offered a course outline for a global IS course [Deans and Goslar, 1993]. We map the course content discussed in this paper into four main topic areas: (1) International Business Context, which roughly encompasses D&G's Topics I and IIa. We included many of their subtopics, which are still relevant, but reorganized them into: (2) General IS Management, (3) Specific IS Topics, and (4) Functional Area-Specific Topics.

The first topic area (Table 1) is background on global business environments. This area includes discussions of what drives global business operations, key enablers of global business operations (e.g., free trade agreements, faster and cheaper transportation), and key differences between countries and regions. The differences between countries include both non-IS related factors (economic, political, cultural, legal, educational) and IS-specific differences (e.g., the Global Digital Divide [James, 2001]).

Table 1. Updated Syllabus - IB Background and Context

Background	Drivers for global business operations, e.g., economies of scale, access to lower cost labor or specialized expertise
	Enablers for global business operations, e.g., transportation and communications
	Types of business structures, e.g., multinational, global, transnational - Bartlett & Ghoshal's [1987] organizational structures
IT Issues Between Countries	Global Digital Divide [James, 2001] in IT and communications infrastructure
	Legal differences, especially in data privacy and intellectual property rights and protection; differences in software piracy rates is a good example; Safe Harbor http://www.export.gov/safeharbor/ is presented as a multinational coordination mechanism for data privacy
	Cultural differences [Hofstede and Bond, 1980] high context/low context [Hall, 1989]; global business etiquette
	Educational differences and their impact on literacy rates, number of IS professionals
	Economic differences and their impact on productivity from IT use [Dewan and Kraemer, 2000]
	Differences in development level of countries, and their impact on use of IT. For example, in China, national IT infrastructure is still in the build-out stage. At the most, some aspects of transactional processing systems are being explored at certain firms. In newly-industrialized countries, managerial and control systems are the focus. In highly developed countries (U.S., Japan, in Europe), most IT applications focus primarily on gaining strategic advantage.
	Political differences in government support and initiatives; use e.g., Singapore TradeNet [Konsynski and King, 1990] as a case example

The second area (Table 2) focuses on management and implementation of IS in a global context, and includes a definition of global information systems, technologies that enable and that present challenges, how to localize/internationalize global software, how global IS applications should be structured, global systems development challenges.

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Table 2. Updated Syllabus – IS-Specific Content

Technologies as enabler and as challenges	Definition of global information systems
	UNICODE (www.unicode.org) Internet and VANs
	Special difficulties in global communications networks [Lai and Chung, 2002]
Global Systems Development and Implementation Challenges	Physical, cultural, technical and structural boundaries that inhibit global IS development
	How to populate and structure teams so that global information requirements can be determined and global IS expertise leveraged, but still enable communication and coordination with the development team; issues of co-location and virtual settings
	How to localize and internationalize global systems
	Optimal structure of global IS for development and maintenance

The third area (Table 3) includes current and relevant IS topics such as e-business, ERPs as key global applications, global supply chain management, and knowledge management. Outsourcing, particularly offshore, plays a significantly expanding role in many firms' strategic global sourcing options. This topic could serve as a capstone that integrates many dimensions, including cross-cultural, time-zone, language, virtual teamwork, contract management, global human resource management, and economic factors. It is also likely to engage the interest of many students concerned about its impact on their domestic IT industry.

Table 3. Updated Syllabus - Specific IS Topics

Global Supply Chain Management	This topic is increasingly important in today's business environment. Coverage of this topic should place emphasis on introducing nation specific factors to SCM (Software, IT infrastructure, e-supply chain, and supply chain flows) because participants in the entire chain may involve many different countries across cultural and political boundaries. E.g., [Magretta, 1998]
ERPs	ERP as key global applications, including multilingual, multicurrency features
E-Business	Coverage of this topic probably depends on how much it is covered elsewhere in a particular curriculum. E-Business can be used as a vehicle to raise a variety of the other issues in this list such as multi-cultural issues, currencies, infrastructure, and digital divide.
Global Websites	Multicultural design – globalization vs. localization
Knowledge Management	Language, legal (data privacy and transborder data flow), cultural and structural difficulties in building knowledge management systems
Offshore Sourcing	Global Human Resource management, virtual and cross-cultural teams, strategic global sourcing, contract management with external partners.

The fourth topic area (Table 4) includes functional area-specific information on global shipping, accounting, finance, manufacturing, human resources, and knowledge management.

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Table 4. Updated Syllabus – Functional-Area Specific Content

Logistics/Shipping	Challenges to global shipping, such as customs processing, limited knowledge of carriers
	Data standards such as HTS (Harmonized Tariff System) for coding shipments globally and the standard for messages about shipments: UN/EDIFACT (http://www.unece.org/trade/untdid/texts/unredi.htm) and ANSI X12 (http://www.disa.org)
	Security issues and new programs such as C-TPAT
Accounting	Impact on financial reporting of differences between countries in accounting rules
	Impact on global IS of new global accounting rules in 2005 [BDO et al., 2002]
Finance	SWIFT as an important global financial data standard and network (www.swift.com)
	Global payment systems such as *letters of credit* and *Just-In-Time financing*
	Global stock exchanges (e.g., Euronext); global stock exchange systems (Clearing® 21); global investment firms and partnerships (e.g., Jiway)
Manufacturing	Systems requirements to support global manufacturing processes and supply chains; need for bolt-ons for manufacturing systems
Human Resources	Offshoring: comparisons of cost for IS personnel in various locations; nature of offshoring hot spots like Bangalore; stakeholders in offshoring
	Special needs for global human resource information systems
	Impact of immigration and visa laws
	Preparation for intercultural work assignments and repatriation

Finally, Table 5 maps these content areas onto the potential student audiences described earlier, to indicate the relative emphasis that might be required of various topics.

Table 5. Content Emphasis Based on Student Audiences

		MIS Majors		Non-MIS Majors	
		UG	GR	UG	GR
International Business Context	General IB knowledge	H	H	M	M
	Country Differences	M	M	H	H
IS Management	Nature of global systems	H	H	H	H
	Enablers of global IS	H	M	M	L
	Global systems development and implementation	H	H	M	M
IS Topics	Supply chain management	M	M	M	H
	ERP	M	H	M	M
	E-Business	H	H	M	M
	Knowledge management	L	H	M	H
Functional Area Specific		M	L	M	H

Content Emphasis Based on Student Audience
H=High, M=Medium; L=Low; UG=Undergraduate; GR= Graduate

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Many other topics could be appropriate for a GMIS course. One example is the issue of "anti-globalization" arguments. Globalization involves costs as well as benefits, and the topic presents an opportunity for students to encounter multiple sides of social/ethical issues. Although pros and cons of globalization do not relate directly to Information Systems, these issues are part of the global business context which IS supports. Globalization is also relevant in that technology is one of the significant dimensions in measuring the extent of comparative globalization among countries [Anonymous, 2004].

VIII. CONCLUSIONS AND FUTURE RESEARCH

This paper presented arguments for the continuing importance of curriculum coverage of Global IS Management. We provided background, updated course content, course structure, and course activity suggestions. We intend for the paper to serve as a practical guide for faculty interested in enhancing global IS content in existing courses or a separate course. We provided approaches to justify offering a standalone course by making it accessible to other business majors, International Business in particular, as well as useful for MIS majors. The critical role of IT in globalization makes GMIS topics important for all business majors. Although most IS faculty would likely agree that GMIS topics should be integrated into existing MIS curricula, as suggested a decade ago [Goslar and Deans, 1994], as well as more broadly across business curricula, we question the extent to which this actually happens. A separate course would ensure more extensive coverage of increasingly important GMIS issues.

We hope that the paper will stimulate further discussion and research fostering continuing improvement and expanded integration of the course concepts into formal IS curriculum models.

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APPENDIX: SELECTED RESOURCES

CIO Magazine Globalization Research Center http://www.cio.com/research/ global/business.html
Doing Business Internationally http://www.executiveplanet.com
International Business Information on the Web http://www.infotoday.com/ ibidirectory.htm
E-Business Forumhttp://www.ebusinessforum.com/
European Union IT Law and Politicshttp://www.eurunion.org/legislat/interweb.htm
Global Edge http://globaledge.msu.edu/ibrd/ibrd.asp
Global Reach (internet & other statistics) http://www.glreach.com/globstats/

DATA STANDARDS

ANSI X12 (http://www.disa.org)
ITU (International Telecommunications Union - http://www.itu.int/home/)
SWIFT (www.swift.com)
UN/EDIFACT (http://www.unece.org/trade/untdid/texts/unredi.htm)

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LIST OF ACRONYMS

ERP	Enterprise Resource Planning System	ITU	International Telecommunications Union
IB	International Business	MIS	Management of Information Systems. Umbrella term that encompasses a range of Information Systems curricula.
GMIS	Global Management of Information Systems, Global Information Systems Management	MNC	Multinational Corporation
ICT	Information and Communication Technologies	OECD	Organisation for Economic Co-operation and Development
IS	Information Systems	UNI-CODE	The universal character encoding, maintained by the Unicode Consortium (http://www.unicode.org/).
IT	Information Technology		

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ABOUT THE AUTHORS

Catherine Beise is Associate Professor of Information and Decision Sciences in the Perdue School of Business at Salisbury University on the Eastern Shore of Maryland. In addition to numerous contributions as an IS educator and researcher, she previously worked in industry and government as a programmer, analyst, and consultant, and in technology transfer of group support systems. Current interests focus on global virtual project team management.

Rosann Webb Collins is Associate Professor of Information Systems and Decision Sciences at the University of South Florida. Her current research focuses on global information systems and cognitive issues in systems development. Her publications include a book, *Crossing Boundaries: The Deployment of Global IT Solutions*, and research articles in *MIS Quarterly*, *Information Systems Research*, *IEEE Transactions on Software Engineering*, *The Information Society*, the *Journal of the American Society for Information Science*, and other MIS and information science journals. Dr. Collins has consulted with numerous businesses, community organizations, libraries, and educational organizations on information technology use and issues.

JANETTE MOODY is Professor of Information Systems and Accounting at The Citadel. Her doctorate and MBA are from the University of South Florida. She is a CPA in Florida. Dr. Moody teaches graduate and undergraduate courses, in MIS, Project Management, Accounting, and Accounting Information Systems. Prior to joining the faculty, Dr. Moody worked for Price Waterhouse CPAs, GTE Corp., Eastern Airlines, and Jack Eckerd Corp. Her research interests are in the behavioral aspects of systems development and the managerial aspects of IS personnel.

Fred Niederman is the Shaughnessy Endowed Professor of MIS at Saint Louis University. He has been at SLU since Fall of 1999. His primary research areas are global IT, IT personnel, and using IT to support teams and groups. Most recently he has been investigating the role of UML in development project success and management of ecommerce projects. His 30 refereed journal articles appear in such journals as *MIS Quarterly, Communications of the ACM*, and *Decision Sciences*. He is an associate editor of the *Journal of Global Information Systems*.

Jing "Jim" Quan is Assistant Professor of Information & Decision Sciences in the Perdue School of Business at Salisbury University. He holds a Ph.D. from the University of Florida. His research interests include Information technology (IT) and organizations, IT human resource management, and e-commerce. His work appeared in *Journal of MIS*, *Communications of the ACM, Communications of the AIS, Information Resources Management Journal, International Journal of Information Management, Journal of Information Technology and Information Management, and Journal of CIS* among others.

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