

# A Model For Teaching Global Dimensions Of Information Technology In MBA Programs

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## Abstract

This paper outlines the structure of a course for teaching the global dimensions of information technology (IT) to Management Information Systems (MIS) majors in MBA programs. It establishes the rationale for offering this course, identifies the important topics to be discussed, and provides a tentative syllabus for a fifteen-week semester. A model, to be discussed in the first week of the course, is included to introduce the global context of information technology to business students. The paper concludes with the notion that in the coming decades, the information infrastructures of multinational corporations will be integrated with the Global Information Infrastructure (GII). A broad understanding of the emerging international issues in IT is, therefore, indispensable for students of MIS as the future information technology leaders in transnational corporations.

**Keywords:** MBA Concept course, Global information technology

## INTRODUCTION

With the growing demand for professionals trained at the intersection of information technology (IT) and business administration in U.S. corporations, many universities are offering specialized programs in IT through colleges of business administration. These programs are either general MBA programs with specialization in information systems, or specialized Master of Science (MS) programs in computer information systems (CIS), information technology, or management information systems (MIS). The proliferation of courses and programs has given rise to numerous questions about the content and pedagogy of these courses [Born, 1993; Chen, 1992; Kleen, 1993]. The need for a balance between the technical issues and the social and organizational issues is becoming increasingly evident. An important intersection between these multidisciplinary programs is the convergence of information technology and international business since

many business enterprises can now easily become transnational corporations by simply having a web page on the Internet. Growing internationalization of business fueled by the information and telecommunications revolution is recognized as the most important trend by both disciplines [Sarkar, 1999; Tapscott, 1995; Carnoy, 1993]. One of the issues that is becoming extremely important for prospective information technology managers is the globalization of information technology as the foundation of the digitally interconnected international economy that is rapidly evolving throughout the world. In many MBA programs, these issues are briefly addressed in the introductory courses in information systems. Introductory courses generally examine the development and application of information technology resources in business organizations, survey the conceptual foundations of information technology, and address the advances in IT relevant to the prevailing management practices. They also analyze contemporary systems development approaches from a managerial

perspective, investigate the technological infrastructure of organizational information systems, and address the issues in the integration of information technology in the social climate of business organizations. Due to a large number of topics to be covered in one course, the emerging global issues of information technology are often ignored in the discussion, even if listed as a formal component of the introductory course. Moreover, students in specialized degree programs are not required to take these courses and, therefore, are deprived of even a rudimentary understanding of the global context of information technology. These shortcomings can be effectively addressed by offering a specialized course in global dimensions of information technology in general or specialized MBA programs.

The primary objective of this paper is to provide an outline of a graduate level course in global information technology for IT majors in colleges of business, to be taught in a typical 15-week semester. The paper also provides a model for the introduction of the global context of information technology in the course. Instructors can use the model in the first week of the session to provide the students a broad understanding of the role of information technology in the rapidly emerging globally- connected digital economy. The model considers the emerging, Global Information Infrastructure (GII) as the foundation of globalization and transnational corporations as primary agents. Similar courses are already being offered at major universities across the country, and there is evidence of the emergence of a sub-discipline in information technology that addresses these issues. The paper also provides concluding issues and recommendations.

The emerging sub-discipline of Global Information Technology (GIT) is also referred to within the Information Systems (IS) discipline as Global Information Technology Management, International Information Systems, or Global Management Information Systems. Development and deployment of computer-based information systems in transnational business or non-business organizations operating in different socio-technical, cultural, political, economic, and legal environments is the primary concern of GIT. It is thus a multidimensional and multidisciplinary concept with political science, economics, law, management, international business, human-computer interface, psychology, telecommunications, and computer science as its underlying disciplines.

#### **WHY A COURSE IN GLOBAL INFORMATION TECHNOLOGY**

Although there is disagreement among economists, government officials, and leaders of business and industry about the efficacy of the globalization of business for the U.S. economy, the importance of information technology in the process of globalization is now almost universally recognized [Greider, 1997]. One

of the most prestigious journals dealing with the contemporary issues in international affairs, Foreign Policy, recently declared that "globalization" is not a transient phenomenon relevant only to international financial managers, news networks, Internet surfers, or intellectually curious academicians in colleges of business administration. It represents a "profound redefinition of roles, possibilities, and risks around the world..." Globalization is also creating a "surging demand for ideas and information" and information technology - digital networks, converging media, and proliferating processors - is playing a pivotal role in the process of globalization [Naim, 1997]. A complete understanding of this phenomenon has become a "competitive necessity" for business organizations operating in a rapidly changing information technology environment. A need for constant redeployment of resources and rethinking of management practices is becoming an indispensable condition of organizational survival, and the business organizations that are most profoundly affected by these fundamental changes are multinational, transnational, or global corporations.

In many research studies recently conducted by information systems professionals, international dimensions of information technology (IT) have been recognized as extremely important by IT managers in multinational corporations [Ives and Jarvenpaa, 1991; Saraswat, 1997]. Traditionally, only large corporations have been concerned with the international issues. However, with the growth of information technology and digital networks, a large number of small- and medium- size companies are now internationalizing their operations [Liesch, 1999]. These issues are, therefore, acquiring a wider significance for business and industry. Detailed interviews conducted with IT managers across a range of industries reveal a growing recognition of the need for a formal introduction of these global issues into academic programs. Four categories of issues are identified by IT professionals as extremely relevant to academic investigation. These categories are:

- (1) Harmonization of a multinational corporation's global information technology strategy with its global business strategy;
- (2) Deployment of appropriate technical platforms for global IT applications;
- (3) Concerns about trans-border data flow and information sharing across disparate political and administrative boundaries; and
- (4) Suitable developmental approaches for information technology projects spanning diverse, cultural, political, and social boundaries.

In order to meet this growing need, a number of nationally recognized colleges of business are now offering either full-fledged MBA concentrations or a selection of courses in global information technology. Some of the examples of these universities are American University, The University of Memphis, University of

California (Los Angeles), University of Texas, University of Baltimore, Florida International University, MIT, Wake Forest University, University of Pittsburgh, and Carnegie Mellon University. Many other colleges of business are also trying to become “business schools for the information age.” A course in Global IT can support this strategy by enhancing the repertoire of courses available to students and making them more marketable to large corporations in the U.S. and abroad.

### SUGGESTED OUTLINE OF THE COURSE

From the information available about global IT courses on the World Wide Web, copies of syllabi obtained from my colleagues at other universities, and conversations with experts on these issues at professional conferences, a suggested 15-week course outline is presented below. This outline lists the topics to be covered in the semester on a week-by-week basis. A list of possible text or supplementary books for the course is provided at the end of the paper. An effective and comprehensive introduction to the course is a real challenge in teaching global issues of IT to graduate students. Since most IT students have only a minimal interest in issues outside their own concentration, a global context of important IT issues has to be established at the beginning of the course to generate sufficient enthusiasm among students. Therefore, a model for this context is suggested in the paper. This model contains an inherent assumption that the worldwide evolution of the information society is now the primary motivation for the deployment of information technology, and that the global information infrastructure is the primary enabler of this transformation. Students are thus challenged to examine the larger causes behind the evolution of systems and technologies and fundamental assumptions behind its deployment.

The outline of the course given in Table 1 includes a mid-term examination and two weeks of student presentations at the end. These presentations can be individual or group exercises, depending on the size of

the class. The instructor has the flexibility of deciding the content and format of presentations. Presentations also allow students to select a relevant topic of their interest and investigate it in more detail than the instructor can provide in the classroom. Some topics in the outline are broad and require two weeks to be covered in sufficient detail. Emergence of Global Information Infrastructure (GII) is an example of these broad topics.

In the first week of GII (see weeks 2 & 3 of Table 1), the dimensions of GII, such as digital networks, strategically dispersed information bases, policy framework for GII, and education/training requirements can be explained. In the second week of GII, important projects under way in selected countries to implement their National Information Infrastructure (NII) can be discussed. Some examples of representative countries are the United States, Ireland, Germany, Russia, India, China, and Brazil. The representative countries can be selected on the basis of geographical regions or the level of information technology development in a country.

Similarly, “Informatics in the Multinational Enterprise” and “Trans-border Data Flow” are sufficiently broad topics to require two weeks of discussion. Issues to be addressed in the first week (see week 8 of Table 1) under “Informatics in the Multinational Enterprise” include corporate computer networks and IT platforms used by selected multinational corporations, information technology for competitive advantage in global markets, and systems development practices in the multinational environment. In the second week of the discussion, global information systems of Citibank, General Electric, and IBM can be compared with the networks of leading corporations with headquarters outside the United States. In Trans-border Data Flow (TBDF), the first week can be devoted to the common TBDF issues such as security, privacy, standards, restrictive regulations, and non-tariff barriers. In the second week of TBDF (see week 9 of Table 1), new challenges posed by the growth of the Internet to the flow of information across national boundaries can be discussed.

**Table 1: Course Outline**

| WEEK #  | TOPICS TO BE DISCUSSED  |
|---------|---|
| 1       | Course introduction – Role and importance of information technology in globalization of business; identification of emerging global issues in information technology; the global context of information technology (a model).   |
| 2 and 3 | Global Information Infrastructure (GII) – Dimensions of GII (processing technology, digital networks, education and training in information technology, policy framework for GII); important projects under way in selected countries to implement their national information infrastructure (NII). Representative countries are the United States, Ireland, Germany, Russia, India, China, and Brazil. |
| 4       | U.S. National Information Infrastructure (NII) and its role in the emerging Global Information Infrastructure (GII); National Education and Research Network (NREN) and related NII projects in the U.S. and abroad.  |

|           |  |
|-----------|--|
| 5         | Systems development and implementation practices of selected countries and multinational corporations.   |
| 6         | Outsourcing of information technology projects - evolving issues cultural dimensions, diversity impact, and ethical considerations.  |
| 7         | <b>Mid term examination</b>  |
| 8 and 9   | Informatics in the multinational enterprise – global networks and IT platforms used by selected multinational corporations, information technology for competitive advantage in global markets, system development practices for IT implementation in multinational environment. Global information systems of Citibank, General Electric, and IBM can be compared with similar leading non-US corporations. |
| 10 and 11 | Trans-border data flow – individual, corporate, and national sovereignty concerns in Trans-border data flow, intellectual property rights, security issues, and emerging standards for global exchange of digital information.   |
| 12        | Telecommunications policies for GII – this section will examine a comparative evolution of telecommunications policies of selected countries and determine their impact on the globalization of information technology.  |
| 13        | A multi-cultural perspective on the development of software: software development practices of selected countries will be examined and the impact of cultural differences on these practices studied.  |
| 14        | Student presentations – term projects  |
| 15        | Student presentations – term projects  |

#### **A MODEL FOR THE GLOBAL CONTEXT OF INFORMATION TECHNOLOGY**

It is extremely important to establish a coherent framework for the topics to be covered in a course with “top-down” approach, at the beginning. The model depicted in Figure 1, titled “The Emerging Architecture of Business and Industry in the New Economic Order,” accomplishes this purpose. By placing the global information infrastructure at its center, this model brings the organizational issues of IT to the forefront and delineates clearer boundaries for the discussion of interrelated issues. As a classroom exercise, the instructor can ask the students to verify different constructs of the model with examples from personal experiences or published literature. The five major constructs of the model are Information Society, Global Information Infrastructure, Transnational Corporation, International Markets, and Organizational Information Infrastructure. Information technology, information architecture, and organizational architecture are the support mechanism to achieve the larger goals of corporations within this broad context. The following section explains the meaning of these constructs and their interrelationships.

1. The demand for the deployment of information technology in business organizations is being driven by the inescapable fact that most of the industrialized countries in the world have become "information societies". Other countries in the world are rapidly

moving in this direction. IT managers have to understand this fact for appropriate IT planning.

2. The markets for products and services are becoming international, and business organizations have to consider the needs of global markets in their production and distribution strategies, which, in turn, affects the information technology requirements in organizations. In these markets, customers are demanding products that are customized to individual needs. As larger numbers of global customers require more customized products, the need for mass customization of products is becoming evident. This need generates additional pressure for rapid development and change of IT resources in organizations. Markets are also experiencing the phenomenon of reverse marketing where the consumers are telling the suppliers what they should produce-- instead of the suppliers deciding what the consumers should purchase.

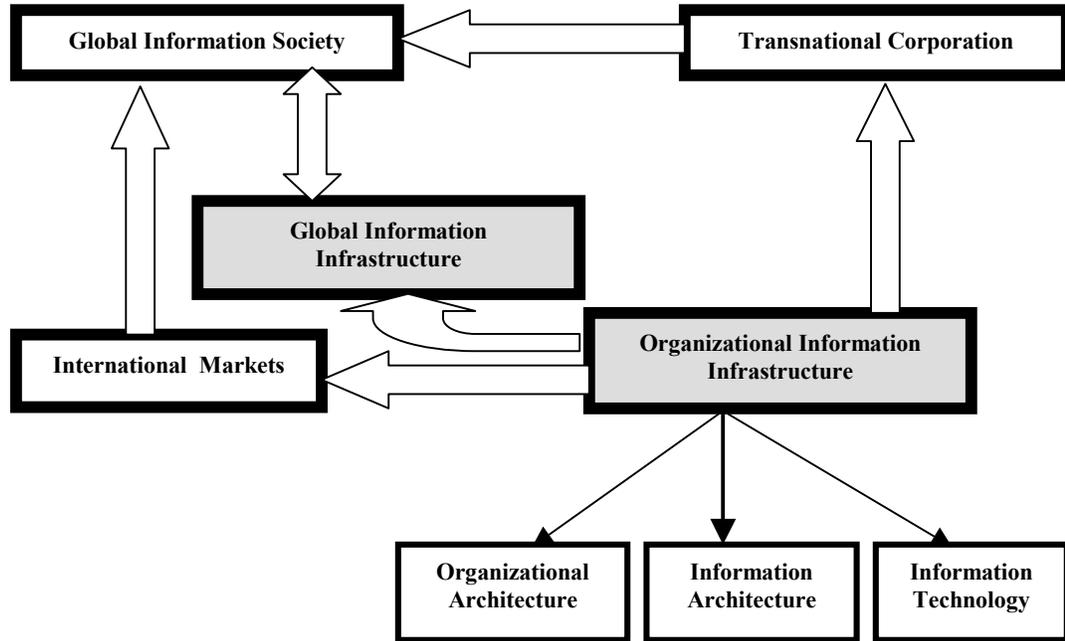
3. The needs of the global marketplace are being met increasingly by multinational or transnational corporations, and more businesses are becoming multinational by putting their home pages on the World Wide Web. Flexible production, adaptable organization, computer-based coordination, and intellectual capital characterize the production and distribution processes of these corporations.

4. To address the information requirements of MNCs and their constituents, an information infrastructure is evolving that includes computer technology and information bases interconnected by high-speed digital networks. This infrastructure is identified as the Global

Information Infrastructure (GII). Information technology infrastructures of individual countries, called National Information Infrastructure (NII), are becoming an integral part of the GII.

5. Business organizations have to deploy information

technology at selected strategic points in the organization to address the needs of GII, NII and their internal constituencies. This is identified as the Organizational Information Infrastructure (OII).



**Figure 1:**  
**Emerging Architecture of Business and Industry in the New Economic Order**

**CONCLUDING ISSUES AND RECOMMENDATIONS**

Global Information Technology is an evolving and dynamic discipline. Therefore, any suggested outline for a course in GIT can raise numerous questions about its pedagogy and content. This section of the paper identifies some of these questions and issues and makes recommendations about their investigation in more detail. One area for further investigation is the enhancement of the scope of the course to include the needs of computer science students. A proposed course outline can contain only broad categories of topics. Instructors have the primary responsibility of providing details, sets of readings, and other materials for the course. The selection of the categories, therefore, must meet the essential criterion of consistency and comprehensiveness. The proposed outline can be examined for its content and suggestions made to enhance or modify it for students in social sciences, computer science, or general business disciplines. A list of selected readings and other teaching material can be compiled for each topic and disseminated among the academic community. Would a lecture- and discussion-

based approach be more appropriate, or is a case- and demonstration-based approach more suitable for this course? This question can be investigated in detail about the pedagogy of the course.

In addition, the model proposed for the introduction of the course can be validated as a formal study. As a suggested approach for validation, groups of students can be asked to obtain information on each of the five constructs of the model to establish that these developments are indeed taking place. The primary benefit of the model appears to be that it provides IT and business students a multi-disciplinary perspective on information technology. Should this course, in its current form, be restricted to IT majors or open to all graduate level business students? Which department in the college should teach this course? Is the information systems faculty properly qualified to teach this course? Should the faculty in non-technical business departments such as management and international business teach this course? Can a team of instructors from different business and IT related departments teach the course more effectively? These are some other relevant questions to be investigated in more detail.

Integration of the information infrastructure of organizations with national and global information infrastructure is a paradigmatic change occurring in the world. The pace of this transition is likely to increase in the coming decade. Consequently, information technology managers in business, political, and social organizations will have to think about the implications of IT in a much broader context. This change will affect information technology decision making in large corporations as well as small enterprises. Therefore, a broad understanding of the emerging international issues in IT is indispensable for business students as the future leaders of information technology industry. A complete course in global information technology appears to be a correct step in the direction of providing comprehensive training for these leaders.

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### POSSIBLE TEXT BOOKS FOR THE COURSE

Global Information Technology and Systems Management (Information Technology series) by Prashant C. Palvia (Editor), Shailendra C. Palvia, Edward M. Roche, Published by Ivy League Publishing Ltd, 1996, ISBN: 0964838206

Global Expansion in the Information Age : Big Planet, Small World by Thomas J. Howard, published by John Wiley & Sons, 1995, ISBN: 0442019327

Global Networks: Computers and International Communication by Linda M. Harasim (Editor), published by MIT Press, 1993, ISBN: 0262082225

Globalization, Technology, and Competition : The Fusion of Computers and Telecommunications in the 1990s by Stephen P. Bradley, Jerry A. Hausman, Richard L. Nolan (Editor), published by Harvard Business School Press, 1993, ISBN: 0875843387

The Global Issues of Information Technology Management Edited by Shailendra Palvia, Prashant Palvia-University of Memphis & Ronald Zigli -The Citadel , ISBN 1-878289-10-1.

Information Modeling : An International Perspective by Donal J. Flynn, Olivia Fragoso Diaz, Olivia Fragoso Diaz, published by Prentice Hall, 1996, ISBN: 0132346915

Global Information Infrastructure: The Birth, Vision and Architecture, by Andrew Targowski, Western Michigan University, 1996, ISBN 1-878289-32-2.

Global Information Technology Education: Issues and Trends, edited by Mehdi Khosrowpour, Penn State University & Karen D. Loch, Georgia State University, 1993, ISBN 1-878289-14-4.