GLOBAL INFORMATION SYSTEMS: A CURRICULUM CHALLENGE

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ABSTRACT: The international dimension is being integrated into Schools of Business Administration throughout their curriculum. The current status of the international dimension in the Computer Information Systems courses is evaluated and found to be deficient. Alternatives are proposed for the inclusion of global information systems topics in these courses. Specific topics are suggested for the introductory course.

INTRODUCTION

The American Assembly of Collegiate Schools of Business (AACSB) has indicated the need for integration of the international dimension into the business school curriculum [1]. Is the global dimension only for disciplines such as finance and marketing? Or, is it appropriate and desirable to consider the global dimension of information systems? Open up a personal computer and inspect the electronic chips, they read like the United Nations. Does this imply that information systems are inherently international? An instinctive reaction to the international dimension is that computers are global, which might lead to the conclusion that the international perspective requires no special consideration. However, the trend to a more global economy is well established [3]. Money has a global perspective evoking international consideration, and global information systems are an important component of this consideration. Companies such as Dow Chemical have included the development of global information systems on their list of strategic business developments.

The AACSB position on the global dimension is "The purpose of the curriculum shall be to provide for a broad education preparing students for imaginative citizenship and leadership in business and society -- domestic and worldwide. ... There is no intention that any single approach is required to satisfy the worldwide dimension of the Curriculum Standard, but every student should be exposed to the international dimension through one or more elements of the curriculum." [1] A recent report to the AACSB finds that business schools should incorporate a global perspective in all areas of the curriculum. [4] Information systems represent an important curriculum component for considering this dimension.

The effects of globalization should be considered in the common body of knowledge (CBK) course in information systems, as required of all business students, to expose them to this important aspect of the trends in information systems. Although the focus of this article is on the AACSB CBK course, which is similar to the CIS/86-1, Introduction to Computer Information Systems, in the DPMA model curriculum, the emerging globalization of the information systems discipline makes it imperative that students following other degree programs, such as computer science or information engineering, should also have the international dimension considered in their degree programs.

GLOBAL PERSPECTIVE EXAMPLE

An example in systems development helps underscore that the international dimension extends beyond the country of manufacture or use of hardware and software. Desiring a single system for all banks, an American Express banking subsidiary automated operations in more than twenty-five countries. The political risk was greater than the technical design risk. So they shipped the equipment to the banks in countries most critical to the project's success, and gave each country the lead on a part of the total project: financial accounting to Italy, client accounts to Germany, foreign exchange to the United Kingdom, fixed assets to France and so on. Every time another country was brought into the system, they were given a piece to design. Go anywhere in the world and they say, "That's our system. We built this piece." [7]. Students should be exposed to information systems perspectives such as this.

CURRENT COVERAGE

The current content coverage of global or international information systems was evaluated by reviewing 43 textbooks which might be considered for adoption in an AACSB CBK course. This course is often similar to CIS/86-1, Introduction to Computer Information Systems, in the DPMA Model Curriculum. The table of contents and index of each book where analyzed, and each reference was reviewed, for global or international content coverage. When international topics were found in the index or the table of contents, the authors evaluated the scope and nature of the actual discussion in the text. Since inclusion of International Business Machines (IBM) was not considered to be coverage of the global dimension, only three books incorporated any reference to global or international information systems. One text referenced international networks as part of networks and data communication [2]. Another presented global hardware specialization such as Holland's leadership in erasable optical storage technology [6]. The third discussed potential problems and restrictions in moving data between countries [5]. The length of the presentations ranged from a short two sentence paragraph to a one and one-half page section. Considering the limited scope of the international coverage provided in the three texts, it can be concluded that the international dimension is not adequately covered in currently available textbooks.

PROPOSED ALTERNATIVES

Adequate coverage of the international dimension in a text might take one of three approaches:

(1) A separate chapter in an introductory computer or management informations systems (MIS) text.

(2) Integration as sections in several chapters in the introductory computer or MIS text.

(3) A separate chapter in a text on international business.

The focus of the specific content proposal of this article is on (1) and (2) since this represents coverage in a CBK course and provides a smooth integration of the international dimension with the other topics covered in the course.

Authors of future textbooks for the introductory course need to determine the most appropriate delivery method. As prospective textbooks are reviewed, the reviewers should consider coverage of the international dimension. Until adequate textbook coverage can be developed, alternative sources should be created and used such as instructor developed supplementary materials.

GLOBAL INFORMATION SYSTEM TOPICS

A number of global information system topics can be contemplated for inclusion in the introductory course. The purpose here is not to compile an exhaustive list of potential topics, but to provide an initial set of topics which may be considered and expanded. This list indicates there are a number of potential factors to analyze in the development and application of global systems. These factors go beyond a simple observation of the country of manufacture of the chips in a computer. Suggested global information systems topics include:

- Quality of communication service in other countries, telephone communications is often less reliable and data communications protocols are not universal.

- Power requirements and reliability, power outages may occur frequently; many countries do not use 120 VAC as standard.

- Electronic mail solution to the time-zone problem of international business.

- Multiple sets of books for accounting systems because of currency conversions, tax considerations and so forth.

- Multiple language reporting requirements, providing the same reports in several languages, such as both in English and the local language.

- Dual date formats (MM/DD/YY and DD/MM/YY) in reports and files.

- User interface problems with keyboards and characters sets, these may be more subtle such as the difference between US and UK character sets or more complex such as the differences with the Japanese characters.

- Challenges in providing end-user support when an information center may be located in a different country and several time zones away.

- Alternative language versions of software such as a German version of Lotus.

- Challenges in providing training and developing user procedures in multiple languages.

- Challenges in systems analysis and development when a system is to serve the requirements of business units located on several different continents.

- Challenges in database design for multiple language and multiple reporting requirements.

- Information systems as the "backbone" for international banking.

- Challenges in selling software and hardware; it may be difficult to move software across international borders; the sales of hardware may be restricted.

- Difficulties in moving data across international borders.

Each of these topics could be the basis of student research to broaden their individual horizons and force them to consider the requirements and customs of other cultures. Student projects and assignments might also be adapted to require reports for more than one country,

including changes in currency and report formats.

SUMMARY AND CONCLUSION

Whether or not a curriculum follows the AACSB guidelines, the movement towards a more global economy indicates the need to consider the international dimension in all college and university curricula. The introductory course provides a beginning platform for inclusion of the international dimension of information systems, because it permits the introduction of this course content to large number of students, in general, and to all business students, as a CBK course. Future revisions of the Data Processing Management Association (DPMA) and Association for Computing Machinery (ACM) should consider and include the international dimension of computing and information systems. While authors of future textbooks need to consider the integration of the international dimension, this coverage can be provided now through the use of supplementary materials.

BEYOND THE INTRODUCTORY COURSE

While the primary emphasis of this article is the introductory course, the international dimension should also be considered in other computing and MIS courses. Global informations systems is an obvious topic for data communications

courses, and a number of other topics must also be evaluated. For example, a systems analysis and design course should weigh the effect on the system development procedure when a global information system is being developed. In a database design course, additional requirements for processing international data can be reviewed in the design phase. A programming language course could incorporate a section of the application and use of COBOL, C, Pascal or whatever language is being taught in other countries. A programming language such as COBOL is used world-wide for programming. A COBOL program written in Mexico may use Spanish for all the user-defined names while the reserve words are in English, but it is still a COBOL program. All of these examples are embraced by the "international dimension" concept.

As course content revisions are undertaken for the DPMA and ACM model curricula, the international dimension should be considered and integrated wherever feasible. For example, in the DPMA model curriculum specific courses for which the global perspective should be examined include: CIS/86-5, Systems Development Methodologies; CIS/86-6, Data Files and Databases; CIS/86-7, Information Center Functions; CIS/86-11, Decision Support and Expert Systems; CIS/86-14, Computer Control and Audit; CIS/86-15, Distributed

Intelligence and Communication Systems; and CIS/86–18, Information Resource Planning and Management.

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