A MANAGEMENT INFORMATION SYSTEMS MBA-MAJOR

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ABSTRACT: MBA programs have grown over the years to more than 70,000 graduates in 1989, with growth expected to continue in the foreseeable future. The growth is fueled by a number of changes including changes in business, an increasingly competitive world market, and rapid advances in technology. This paper discusses the impact of technology and suggests that MBA information systems programs are an appropriate way to address business computing needs. A program is presented that illustrates a flexible approach to satisfying the computing needs within this changing environment. The discussion addresses three career paths: a technical MIS track, crossover MIS track, and a functional end-user track. In concluding, it is suggested that DPMA continue its leadership in the curriculum area by addressing the difficult area of MBA MIS guidelines.

KEYWORDS: MIS, CIS, MBA, Information Systems, Graduate Education, Curriculum.

INTRODUCTION

Dramatic changes are occurring in business, technology, the use of technology, and the role and responsibility of management information systems (MIS) organizations. Businesses expect universities to provide qualified professionals who are able to operate in this changing environment. This is evidenced by the fact that the number of MBA graduates has increased from 5,000 in 1965 to more than 70,000 in 1989.(1) These graduates are generated from about 900 different institutions.(1)

A review of the last two MISRC/McGraw-Hill faculty directories confirms the prevalence of significant and growing numbers of MBA programs that have IS majors or areas of concentration. Both public and private organizations are turning to the use of information technologies to support their operations, management, and decision making, and to achieve competitive advantage.(1) The shortage of MIS professionals is well known and is expected to increase over the next several years.(2)

SELECTED TECHNOLOGICAL IMPACTS

General Business

Effective use of technology is essential to the productivity and survival of a growing number of firms and industries. No major functional area is exempt. The technology provides decision support, information, and tools that facilitate more informed, timely, improved, and consistent decisions. Businesses of all sizes benefit from the use of technology. Computer systems provide substantial processing capability at relatively low cost, with minimum environmental requirements, in a highly reliable manner.(3)

Technology is available to support nearly any mode of business operation and management style. A firm can be geographically dispersed and operate in a centralized or decentralized manner. The communications, data storage, hardware, and software technologies are in place to facilitate this sharing of information on a timely basis. Modern work areas include workstations which are used for electronic mail, professional support, and operational support. Business professionals are expected to effectively use an increasing array of software, including wordprocessing, spreadsheets, graphics, database, 4GL, and other unique functional and industrial applications.

Traditionally, computer applications used in business were developed, tested, implemented, and maintained by data processing. Hardware and software advances (4GL) are facilitating a shift of application development to end-users. James Martin and others predict that end-users will soon be developing most of their own

computer applications. The estimates indicate that end-users will develop from 50 to 75 percent of all in-house developed computer applications used by businesses by the early 1990s.(4)

There are compelling reasons for businesses to seek computer competent professionals to oversee, guide, assist, and manage end-user computing. First, end-user computing is expensive and can result in the needless waste of money and valuable human resources. Industry surveys indicate that businesses are spending about half as much on end-user computing as they are on mainframes.(3) Second, business databases and computer systems are vital to a business's daily operations, survival, and success. These resources, therefore, must be protected from intentional or accidental alteration or destruction. Finally, end-user computing raises a variety of new management problems and recasts some old problems in a new setting.

THE CHANGING ROLE OF MIS

The increasing importance of MIS to business is supported by a wide range of research. One study is the continuing joint study of MIS key-issues research conducted by the Society for Information Management and the MIS Research Center at the University of Minnesota. The 1986 study was particularly interesting in that it revealed that MIS and corporate executives generally agreed on the top MIS issues (see Figure 1).

The issues identified reflect a dramatically changing role and responsibility for MIS professionals. The joint and other studies support the need for more computer competent managers and the need for MIS professionals to have more business competence. Certainly, MIS MBA programs can address these issues.(2,5,6)

A PROPOSED MBA MIS PROGRAM

Information systems professionals in industry and academia have widely varying views concerning attempts to

Figure 1: The top MIS issues from the joint SIM and Minnesota study.(3)

MIS Rank	GenMgt Rank	Issue
1	1	Strategic Planning
2	2	Competitive Advantage
3	3	Organizational Learning
4	5	IS's Role & Contribution
5	7	Alignment in Organization
6	6	End-User Computing
7	8	Data as a Corporate Resource
8	9	Information Architecture
9	4	Measuring Effectiveness
10	10	Integrating DP, OA, FA, TC

Figure 2: MBA prerequisite requirements.

Subject Area	Sem. Hrs.
Principles of Accountancy	3-6
Principles of Economics	3-6
Business Law	3
Corporation Finance	3
Mathematics (Calculus)	3
Principles of Management	3
Operations Management	3
Principles of Marketing	3
Business Statistics	3
Introduction to Computers	3

Figure 3: MIS prerequisite MBA requirements.

Subject Area	Sem. Hrs.
Introduction to Computers (same as Fig. 2)	3
COBOL Programming	3
Advanced COBOL or Second Language	3
Management Information Systems (Must include systems development.)	3

provide IS education within the context of an MBA program. The difficulties of adequately addressing the business and MIS bodies of knowledge within a one or two year MBA program are challenging at best. It is recognized that specific programs implemented by a university will vary based on their educational philosophy, established programs, market, ability to attract qualified faculty, organization, and mode of operation.(6,7) However, all MIS programs need to address the business body of knowledge, relevant technologies, and major developments within the MIS and end-user computing areas.

Business and MIS Prerequisites

In many MBA programs, students must satisfy a number of prerequisite business classes prior to starting their

MBA program. This prerequisite business knowledge is essential to form the basis for graduate study in business. The new AACSB guidelines normally require a minimum of 18 semester hours if taken at the graduate level.(8) Figure 2 provides a set of requirements that is similar to those used in a number of MBA programs.

Additional prerequisites may be required for programs that have areas of specialization. For example, the MIS major requires the prerequisites identified in Figure 3. These prerequisites provide a common base of knowledge and allow the MIS core to build reasonable technical depth at the graduate level.

MBA BUSINESS CORE

MBA business core requirements are required of all MBA students. The

courses are designed to provide competence in the major business functional areas and to satisfy the body of knowledge requirements for accreditation by the American Assembly of Collegiate Schools of Business (AACSB). The courses are listed in Figure 4.

MIS Career Paths

A major problem in developing an MIS major within an MBA program is the substantial disparity in the computer knowledge of incoming students and a lack of clear career paths.(2) Our experience reveals a wide range of job opportunities for MIS graduates such as:

1. Computer resource positions in functional areas. These graduates often:

   A. serve as sources of computer expertise for other professionals in the functional area.

   B. provide liaison between DP and the user area.

   C. develop and maintain end-user applications (4GL).

2. Information center management positions.

3. Project management positions.

4. DP managers for smaller businesses or operating locations.

5. Lower level management positions within larger MIS organizations.

6. Entry level MIS positions (graduates making career changes).

7. MIS instructional and support staff positions.

MIS Program Core

The present program was developed after studying a number of MBA MIS programs, analyzing the type of students the program attracts, and consulting with major employers. The MIS core courses are listed in Figure 5. The MIS course in the business core with the three MIS core

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Figure 4: MBA Business Core Requirements.	
Subject Area	Sem. Hrs.
Financial & Managerial Accounting	3
Management Information Systems	3
Operations Research	3
Statistical Modeling	3
Micro or Macro Economic Theory	3
Financial Management	3
Administration	3
Operations Management	3
Administrative Policy & Management	3
Marketing Decisions	3
International Business	3

Figure 5: MIS required core courses	
Subject Area	Sem. Hrs.
DBMS	3
Systems Development (4GL)	3
Advanced Topics	3

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courses meet the 12 hours required by the AACSB for specialized masters programs.(8)

The MIS program can be tailored within limits to accept students with a wide range of entry computer knowledge and diverse career goals. The program attracts three different groups of students in terms of their immediate career goals. The first group has technical computer backgrounds with majors in MIS or computer science who intend to continue their MIS careers. The second group has little or no computer background and come from business and other fields to cross over to MIS careers. The third group consists of a wide range of majors who plan to continue in their non-MIS careers. Many of the latter students complete two MBA majors.

Technical Career Track: Students in the technical track average about three years of business experience and usually enter the program to move into MIS management positions. Their objective is to gain a better business background and management perspective of technology. The MBA and MIS cores usually meet their needs. It is sometimes necessary to modify the MIS core to complement their undergraduate study and experience. Businesses are eager to hire these graduates and they receive very favorable salaries.

The Crossover Career Track: The crossover track includes students who have worked in a non-MIS career field for about six years and are changing to MIS careers. They are usually required to take the MIS prerequisites, the MIS core, and three of the extended study courses. With exceptions, their starting salaries are lower than the other two tracks. Discussions with employers indicate that the difficulty lies in the fact that their experience and MBA degree requires a higher salary than the initial position they qualify for warrants. This appears to be less of a problem for companies who have previously hired these students. Our limited experience with these students show that the salary differential is nearly eliminated after a few years.

The Functional Career Track: Students in the functional track usually have five to six years of business experience and see the MBA degree and knowledge of technology as important to their future advancement. They normally must take the MIS prerequisite and core courses. It is not unusual for these students to take one or more of the extended study courses. The MIS core appears to provide a reasonable technical background for their non-MIS career objectives. The employment record of these graduates has been impressive. Employers like the combination of a specialty coupled with

a knowledge of technology. Students have pursued careers in such diverse areas as finance, accounting, marketing, hospital administration, and chemistry.

Extended Study Courses:

As mentioned earlier, students with a strong computer background often need substitute courses for one or more MIS core courses to complement their undergraduate study and work experience. Students crossing over to traditional MIS career tracks need extended study to provide adequate technical depth. Extended study courses are also in demand by students pursuing non-MIS careers. The extended study courses were designed to satisfy these needs plus the need for an elective in the MIS core (see Figure 6).

MIS Program Structure

The program addresses the disparity of entry computer knowledge and different career tracks through MIS prerequisites, the MIS core, an extended study sequence, and assigned research projects. The MIS prerequisite courses provide a technology baseline for the MIS core. The MIS core provides moderate depth in the major technology areas. The extended course sequence accommodates career diversity by providing depth in selected technology areas. Finally, research and computer projects are required in all MIS courses. The nature of this research and project work is assigned in consultation with the students. Every attempt is made to tailor the work to their career path, consistent with the course objectives and rigor required in graduate study. Figure 7 illustrates the general course sequence and Figure 8 illustrates how the program length can vary with the business background, computer background, and career tracks.

CONCLUSION

MBA programs are well established and produce thousands of graduates each year. This article has presented a flexible model or framework that can be adapted to meet the diverse MIS needs of different

Figure 6: The MIS extended study courses.

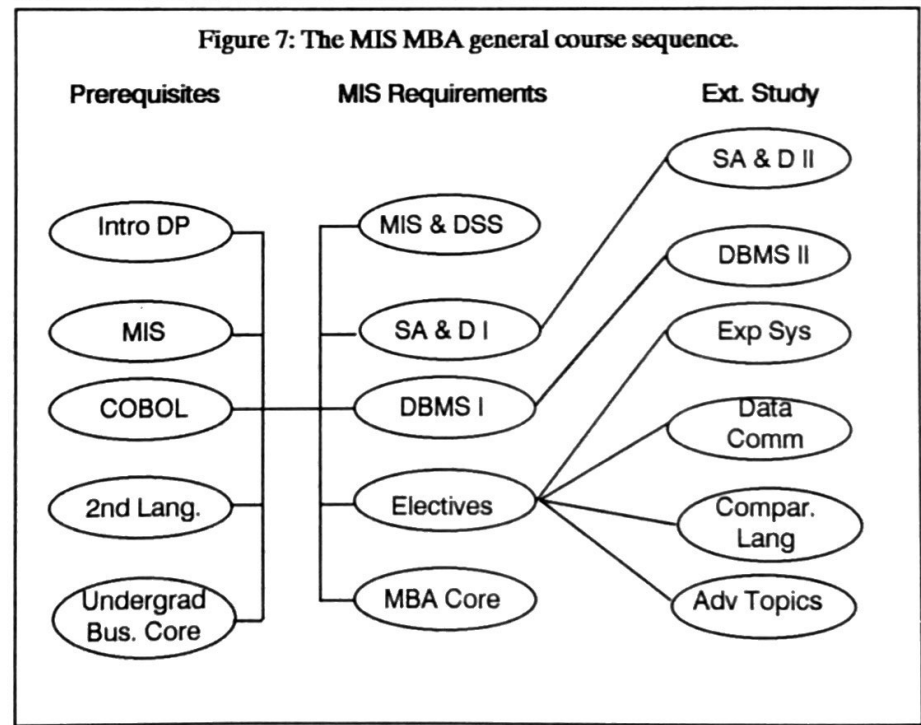| Subject Area	Sem. Hrs.
Adv Sys Development & Project Mgt.	3
Expert Systems	3
Comparative Languages	3
Advanced Topics (can take 9 hours)	3
Independent Study (faculty supervised)	3
Data Communications	3

Figure 7: The MIS MBA general course sequence.

Figure 8: Program profiles for different backgrounds and career tracks

Business Background	No	No	Yes	Yes	No	No	Yes	Yes
Computer Background	No	Yes	No	Yes	No	Yes	No	Yes
Career: IS/End-User(EU)	IS	IS	IS	IS	EU	EU	EU	EU
MBA Prerequisite Courses	33	33			33	33		
MIS Prerequisite Courses	12		12		12		12	
MBA Core Courses	33	33	33	33	33	33	33	33
MIS Core Courses	9	9	9	9	9	9	9	9
MIS Extended Study Courses	12		12					
Maximum Total Hour Profiles:	99	75	66	42	87	75	54	42

students and businesses. MIS prerequisites establish a knowledge baseline to overcome the diversity of computer knowledge among incoming students. The MIS core provides competence in the major technology areas. The extended study courses provides areas of specialization to accommodate the wide diversity of career tracks that MIS graduates pursue. We, along with schools nationally, continue to look for ways to improve the program.

MIS MBA programs play an important role in the profession and need professional oversight on a continuing basis. DPMA should take the leadership role in developing curriculum guidelines for MBA MIS programs. The timing is right since DPMA is in the final stages of the revision to the four-year guideline and expects to complete the revision to the two-year guideline within the next year. MBA programs are the next logical step.

MBA MIS guidelines would be very useful. Schools which have or are planning MBA MIS programs would find guidelines helpful in establishing and keeping their programs up to date. Guidelines also serve the purpose of providing added credibility to programs and their content. The diversity of MBA programs and career tracks would certainly dictate flexible guidelines that address educational missions, bodies of knowledge, and sample courses. Our experience indicates that guidelines would be useful in the areas of MIS prerequisites, MIS core, and the extended study sequence area.

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