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Competitive Analysis of MIS in the MBA Core: Are Trends Putting Pressure on the MIS Course?

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ABSTRACT

In many, if not most, MBA programs, the core has traditionally included a separate course in MIS. During a recent redesign of the MBA curriculum at the University of New Hampshire's Whittemore School of Business and Economics and Suffolk University's Executive MBA Program, core requirements at 42 AACSB schools were reviewed to determine the extent to which this tradition still prevails. The data suggests two very different approaches. In the first, as expected, a stand-alone course remains in the core. In the second, a more unexpected result occurred. When data for U.S.News & World Report's twenty top-rated schools was compared, not one school included a stand-alone MIS in the core. These very different results raise questions about the direction that MIS courses are taking and suggest that current trends may be placing pressure on the role of MIS in the core.

Keywords: MBA curriculum, MIS, Core, Trends

1. CURRICULUM UNDER PRESSURE

In the last 20 years there has been a dramatic rise in the number of MBA programs, with the total number of AACSB (The Association to Advance Collegiate Schools of Business) accredited schools now exceeding 525. More recently, in 2005, the Graduate Management Admission Council reported the third consecutive year in which most schools in their sample experienced a drop in full-time applications. At the same time the value of the degree has been questioned (Connolly, 2003). Pfeffer and Fong (2002) contend that there is little evidence that the knowledge acquired by MBA students enhances their careers. Mintzberg (2004) expresses concern about the ability of MBA graduates to manage and lead organizations, and doubts that the skills really needed by industry can be taught. In response to these criticisms and an increasingly competitive environment, schools have been under pressure to review their programs and reconsider the way they do business (Richards-Wilson, 2002).

Reflecting the pressure imposed by these forces, the University of New Hampshire's Whittemore School of Business and Economics (WSBE) undertook a study to review its full-time MBA program. The study began by reviewing trends in the MIS environment and then addressed the role of MIS in the MBA core. In particular the objective of this phase of the study was to determine if the stand-alone MIS course still maintained a secure position in the MBA core of other 'comparable' institutions.

2. TRENDS

What became clear during this study was that not only were there pressures on the MBA program, but several trends were converging to increase pressure on the MIS course.

- Aftermath of the dot-com bubble.
- Increase in outsourcing and offshoring.
- Disappointing enrollment in MIS specializations and options.
- MIS topics subsumed in other core courses.
- Change in the length of MBA programs.
- Reduction in the number of core courses.

2.1 Aftermath of the Dot-Com Bubble

The 1990's was an important decade for the MIS course. As technology companies, especially start-ups, prospered, enrollment in MIS courses rose. Some schools increased the role of MIS in their MBA core. Graf and Lauer (1992) found that in 1992, twelve of twenty-eight MBA programs at AACSB schools, or forty-three percent, required two MIS courses in the core. Quarstein and Ramakrishna (1994) addressed the issue of how much MIS is necessary in the curriculum. In a survey of non-MIS faculty they concluded that more not less MIS coverage was desirable and recommended additional prerequisites, integration of IT across the curriculum or adding more MIS courses.

As late as 1997, Sauer, Sharma and Potter (1997) argued that one course was not enough. They recommended two core courses with more attention given to issues of information infrastructure and organizational learning. Reflecting the prominence of IT in the organization, Bentley College offered an MBA in Global Information Management (Fedorowicz and Gogan, 2001). During that era students with an emphasis in MIS would also benefit, and enjoyed multiple job offers and signing bonuses upon graduation. Then, on March 10, 2000, as the tech heavy NASDAQ index peaked at 5,084, the dot-com bubble burst. When it was over, company valuations plummeted, jobs disappeared, and interest in MIS courses faltered (Rob, 2003; Patterson, 2005).

2.2 Increases in Outsourcing and Offshoring

In recent years there has been a growing trend for U.S., Japanese, and Western European firms to outsource or offshore knowledge-based work to India, China, and Russia. Outsourcing involves the migration of services to an external or non-company provider. Offshoring involves the migration of services to a company-owned or 'in-house' facility located in another country. The trend started with call centers, but quickly spread to software development, operations and other knowledge-based services. By the year 2015 Forrester Research predicts that 3.4 million jobs will have been moved overseas. While popular perception in the press is that this phenomenon has eliminated many domestic career opportunities, Patterson (2006) contends that no more than 2% - 3% of U.S. based jobs have been lost. Nevertheless, this trend continues to accelerate and may be one factor contributing to falling enrollments and interest in MIS courses.

2.3 Disappointing Enrollment in MIS Specializations and Options

The breaking of the dot-com bubble, the end of signing bonuses, the significant reduction in job opportunities, and the offshoring of IT functions have all contributed to the decline in MIS majors at most schools (Rob, 2003). While it is reasonable to speculate that these factors may not directly affect the role of MIS in the MBA core, they may affect the prominence of this course in the curriculum. Saving a place for a required MIS course in the MBA core may be more difficult now than it was ten years ago.

2.4 Topics Subsumed in Other Core Courses

When the transition from data processing to MIS occurred in the 1980's, the focus moved to a blend that included operational, tactical and strategic topics. In the 1990s the trend toward a more conceptual course accelerated (Graf and Lauer, 1992). During that period, courses in strategy, marketing, finance, accounting and operations, began to reflect the strategic role of IT in the organization. They began to cover what had been the domain of MIS courses including such topics as: MIS in achieving competitive advantage; MIS in managing operations; data driven decision-making; database marketing; MIS in supply chain management; and the role of information systems in business ethics.

The shift toward integration continues today. Peslak (2005) criticizes ACM's widely referenced IS2000 Model Curriculum (Gorgone et al., 2002) and proposes "Incorporating Business Processes and Functions: Addressing the Missing Element in IS Education".

Enterprise Resource Planning, a topic whose coverage was originally limited to the MIS course is now considered to be an effective vehicle for multidisciplinary curriculum-wide integration (Cannon et al., 2004). Antonnuci et al. (2004) describes a five stage model ranging from a silo approach, in which ERP is covered only in the MIS course, to one emphasizing the complete integration of ERP concepts with other functional courses. Fedorowicz et al. (2004) suggest "Twelve Tips for Successfully Integrating Enterprise Systems Across the Curriculum."

2.5 Change in the Length of MBA Programs

In what promises to be the most dramatic change in MBA education in over four decades, programs are becoming shorter. Bradshaw (2006) in a Financial Times article suggests that the two-year model in U.S. business schools is under pressure and challenged by the one-year model already adopted at many European business schools. In that article, Dean Carol Stephenson, University of Western Ontario, is quoted as saying that the one-year model "is the way forward." At present, these programs are increasing in the United States, as students, especially those with work experience, are increasingly reluctant to take two years out of their lives to earn the degree. While some schools only offer the one-year MBA to those students who have completed prerequisite business foundation courses or who have earned an undergraduate degree in business administration, there is a growing list of schools that have reduced the prerequisites for the one-year degree. These include Simmons, University of Rhode Island, and University of Florida at Gainesville.

2.6 Reduction in Number of Core Courses

For several years the MIT Sloan School was perhaps the only school that compressed the required core into the first semester of a two-year program. Then in May 2006, Stanford Business School announced a major restructuring that reduced the core to the first quarter of a two-year program. In both cases the purpose of the compressed core was to provide students with a greater opportunity to design their own MBA through a range of elective options.

While it is premature to conclude that the programs at these two schools represent a trend, it is a change, nonetheless, worth monitoring. Further, these changes are in contrast to other schools, like Babson, emphasizing an integrated first year curriculum.

These trends, from the aftermath of the dot-com bubble to the pressure on the length of MBA programs suggested that a reaffirmation of the role of the MIS course in the MBA program at WSBE was necessary. While it can be argued that for many reasons a course covering MIS topics is still essential to understanding the role of information systems in managing organizations, the collection of data summarizing the practices of other schools still needed to be undertaken, and the results presented to the faculty.

3. METHODOLOGY

In the past the MIS course at WSBE was justified primarily on informal data collection and faculty experience. But for this curriculum design effort it was decided to undertake a more formal analysis. Data were collected, a database was built, reports were generated and the results presented at a full faculty meeting.

WSBE had recently identified peer (P), competitive (C), and aspirant (A) groups, as part of its AACSB reaccredidation process. Peer schools are defined as those schools whose mission is similar and schools that "match key characteristics such as student populations served, size, degree levels, and primary funding source." Competitive schools "compete in a clear and compelling way for students, faculty or resources." Aspirant schools place the "vision and strategy of the applicant in context" providing a development goal. (http://www.aacsb.edu/accreditation/process/accreditation-guidelines.asp).

Faculty maintained that these peer, competitive, and aspirant schools, had already been identified as benchmark institutions, and should be included in the study. Suffolk University's Sawyer Business School had used a very similar list with several overlaps for both their reaccredidation process and periodic comparison of faculty salaries. In addition, all AACSB schools in the WSBE geographically competitive region were added to the database. They were given the (CR) designation (See Table 1).

The number of MIS courses in the required core was determined for each school in the database. To provide a basis for comparison, the skills/tools courses including statistics, quantitative methods and accounting were also included in the database. Our interest was in the comparison of the way in which these courses were represented in the required core. In addition, we included the operations management course. While it is a functional course, it shares some common topics with the MIS course, is included in the same department as MIS at WSBE and at Suffolk, and provides a comparison with a related functional course.

Data were collected in 2006 from catalogs and web sites. When necessary, telephone calls were made to clarify ambiguous data or collect missing data. While the actual titles of the courses were recorded in the database, a determination was made as to which category—management information systems, decision sciences, accounting or operations management—the courses could be assigned. For example, statistics, quantitative methods, and decision analysis courses were placed in the decision sciences category. Financial and managerial accounting courses were placed in the accounting category. Operations management and supply chain courses were placed in the operations management category.

Determining which courses to include as part of the required core can be difficult at times because some schools permit students with an undergraduate degree in business to move directly into accelerated programs and avoid foundation courses. For purposes of this study all courses including those that can be waived and including foundation courses were considered as part of the core.

Collecting data for three schools in Table 1 presented a problem because their curricula is integrated and traditional courses and course descriptions did not exist. They included Babson, Boston College, and Miami University of Ohio. In all three cases the curriculum was evaluated to determine if the equivalent of a stand-alone course was a required part of the core. It was concluded that Babson did not include such a course but that Boston College and Miami University of Ohio did. Data collection for the remaining 23 programs was relatively straightforward.

3.1 Study Data

The results are shown in Table 1. For example, Simmons College has one course in decision sciences and operations management, two courses in accounting, but no course in management information systems. On the other hand Bentley—a school advertising an Information Age MBA—requires two management information systems courses, as do five other schools.

What becomes apparent from Table 1 is that not all schools require a stand-alone MIS course in the core. Of the 26 schools in the database, 21, or 80 percent, require at least one course. Only, five schools, or 20 percent, do not require the course. One school does not require a course in the decision sciences, one school does not require a course in operations management, but all require a core course in accounting. These results are summarized in Table 2.

A study undertaken almost fifteen years ago suggests an interesting change. Graf and Lauer (1992) found that 45 percent of the schools in their sample required two courses in MIS. In this study only 6 of 26 or 23 percent required two courses. Both studies, of course, are difficult to compare, but they suggest a trend toward fewer MIS courses in the core.

With 80 percent of the schools requiring a stand-alone MIS course it seems reasonable to conclude that this course is secure in the core, at least for those schools represented in the database. However, a question was raised about the ranked schools in the region. If we looked separately at the curricula of schools that ranked within the first, second or third tier of the Business Week rankings would a different pattern emerge?

Accordingly, data was compared for Business Week ranked schools in the Boston area. The results are summarized in Table 3.

The results suggest that the conclusions drawn from Tables 1 and 2 may not tell the whole story. In the Boston market, only two ranked schools required an MIS course, while four required decision science, operations management and accounting courses. There were even some surprises. The MIT Sloan School ranked in 2006 as the number one program in information systems and in operations management by U.S.News & World Report, required neither in its core.

School	MIS	DS	Account -ing	Opera -tions
Babson (C)	0	1	1	1
Bentley (C)	2	1	1	2
Boston College (C)	1	1	1	1
Boston University (C)	1	1	1	1
Bowling Green (P)	1	2	2	1
Clark (CR)	1	2	1	1
Kansas State (A)	0	1	1	1
Miami University of Ohio (A)	1	1	1	1
New Mexico State (P)	1	1	1	1
North Carolina State (A)	0	1	1	1
Northeastern University (CR)	2	1	1	1
Oklahoma State University (A)	1	1	2	0
Oregon State (P)	2	2	1	2
Simmons (CR)	0	1	2	1
Suffolk University (CR)	1	1	1	1
UMass Amherst (C)	1	1	2	1
UMass Boston (CR)	1	1	1	1
UMass Dartmouth (CR)	1	1	1	1
UMass Lowell (CR)	2	1	2	2
University of Arizona (A)	1	1	2	1
University of Connecticut (C)	1	1	2	1
University of New Hampshire	1	1	1	1
University of Rhode Island (P)	0	1	1	1
University of Southern Maine (CR)	2	2	2	1
University of Vermont (CR)	1	0	1	2
University of Wyoming (P)	2	2	1	2

TABLE 1: Number of Courses by Discipline in the MBA Core for Selected MBA Programs

Number of Schools	MIS	DS	Accounting	Operations
26	21	25	25	26

Table 2: Number of Schools Requiring Selected Courses in the MBA Core Table

Does this begin to suggest that top-rated schools are less likely to include a stand-alone MIS course in the core? To answer this question, data was collected for Business Weeks' top 20 MBA programs in the United States. U.S.News and World Report also publishes a list of top 20. While both lists include most of the same schools they are ranked differently. Only one school in the Business Week top 20, University of Texas - Austin, does not appear in the U.S. News and World Report's list; it is replaced by Yale. The results for Business Week's list are summarized in Table 4.

The results were dramatic. Not one of the Business Week 'Top Twenty' programs required an MIS course in the core (while the U.S. News and World Report's list includes Yale, it also does not require an MIS course in the core).

School	MIS	DS	Accounting	Operations
Babson	0	1	0	1
Boston College	1	1	1	1
Boston University	1	1	1	1
Harvard	0	0	1	1
MIT	0	1	1	0

Table 3: Boston AACSB MBA Programs Ranked by Business Week 2004. Core Courses Only as Indicated.

School	MIS	DS	Account-ing	Operat-ions
Northwestern	0	1	1	1
Chicago	0	1	1	0
Pennsylvania	0	2	2	1
Stanford	0	1	2	1
Harvard	0	0	1	1
Michigan	0	1	2	1
Cornell	0	1	1	1
Columbia	0	1	1	1
MIT	0	1	1	0
Dartmouth	0	2	1	1
Duke	0	2	1	1
Virginia	0	1	1	1
NYU	0	1	1	1
UCLA	0	1	1	1
Carnegie Mellon	0	2	2	1
UNC Chapel-Hill	0	1	2	1
UC Berkeley	0	1	1	1
Indiana	0	1	1	1
Texas-Austin	0	1	1	1
Emory	0	1	2	1

Table 4. Top Twenty Schools Requiring MIS, DS, Operations and Accounting.

What is critical in interpreting Table 4 is that the only conclusions that can be drawn from the data is that a stand-alone course at the top twenty schools does not exist in the core. The data does not suggest that the material is not covered.

There is another ranking of business schools programs that provided additional insight into the role of the MIS course in the core. U.S.News & World Report ranks schools by specialized area, for example, they publish the best schools in Finance, Management, Marketing, Operations, and Information Systems. The rankings of the top 20 schools in information systems were compared to the top twenty-ranked MBA programs. Nine schools in the list of top-twenty information systems were also included in the list of top twenty MBA programs. Those nine schools include MIT, Carnegie Mellon, University of Texas-Austin, Stanford, NYU, Pennsylvania, Indiana, Michigan, and UC Berkeley. The surprise is that even a top-ranked reputation in MIS does not translate into a stand-alone MIS course in the core.

4. ANALYSIS

A comparison of Tables 1 and 4 suggests that MIS coverage in the core can be placed into one of three categories.

- No Stand-alone course. No formal coverage.
- Stand-alone course.
- Integration of MIS in the core.

In the first, no stand-alone MIS course is offered and there is no formal effort to include MIS topics in the core. An example would be the new Stanford program whose core includes only five courses including Teams and Organizational Behavior, Strategic Leadership, Managerial Finance, The Global Context of Management, and Critical Analytical Thinking. In the second, a stand-alone course is offered in the core, but little or no formal integration occurs with other core courses. The course at WSBE would be an example. In the third, no stand-alone course is offered, but MIS topics are integrated in the core. When this strategy is followed, integration can range from a very informal understanding that these topics will be covered to a formal approach in which MIS faculty are involved in delivering the MIS topics. The program at Babson is an example.

Of all the trends affecting the MIS course in the core, the one that appears to have had the most influence on the top 20 schools is integration. One reason that integration may be more common at top schools is that they have the resources to support a strategy that often requires team teaching, release time, and reduced teaching loads (Cohen, 2003). Finally, top-rated schools may also be more successful in establishing an administrative structure that supports the type of collaborative faculty processes required to achieve an integrated curriculum (Cohen, 2003).

Integration alone may not explain why it is the MIS course and not the other skill-based courses that is missing from the core of top-twenty programs. Course content may hold some answers. Consider the topics that dominated the core course over a decade ago. They included hardware, software, telecommunications, database, and systems design. Because they were primarily technical topics, they were unlikely to be integrated into other core courses. Today, topics include management of IT, competitive advantage, business process integration, enterprise integration, knowledge management, business intelligence, security, and ethics. These topics lend themselves to integration and are topics that other courses may claim as their own.

Other reasons may make the course vulnerable. MIS topics may be too important to be limited to a single course, and are covered as integrated applications in other functional courses. With shorter programs or fewer core courses, the MIS course, a more recent addition to the core, may be sacrificed.

5. CONCLUSIONS

The objective of this study was to explore the consequences of recent pressures on the MIS course in the MBA core and determine if its place in this core was still relatively secure.

Based on an initial sample of 26 schools, eighty percent required a stand-alone course in the core. While this cannot be considered a representative sample of all AACSB schools, and was selected to reflect schools comparable to WSBE, care must therefore be taken when making generalizations beyond this group of schools. However, when data were collected for the top-twenty ranked schools the results were very different. Not a single school required a stand-alone course in the core. While it would be inappropriate to conclude that the MIS material is not covered in these top-rated programs, a stand-alone course, nonetheless, does not exist. Either the material is now covered in other courses or it has been eliminated from the required core altogether.

This study, with its dramatic results, raises many questions when comparing schools comparable to WSBE with the top twenty schools. Does this comparison suggest a trend? Would a different group of schools, or a random sample of AACSB schools below the top twenty, yield the same results?

If, indeed, there is a trend toward integrating MIS in the core, many other questions are raised. To what extent is MIS faculty involved in those courses? Which MIS topics are covered and which ones are omitted? How is, or should, functional integration be achieved through case studies, field projects, simulation exercises?

Finally, it may be reasonable to suggest that the character of top rated schools may be sufficiently different from other schools and that different approaches to the role of MIS in the MBA core may be appropriate.

From the student's point-of view, it may not matter whether a stand-alone course is included or whether the material is covered in an integrated curriculum. What matters most is that they get the material. If they don't get it, then we need to address the consequences of this to future managers.

From an MIS faculty point-of-view, it does matter how the students get the material. If they get it from an integrated curriculum and a stand-alone course is eliminated, there are implications for the role that MIS faculty must play in designing curricula. There are also implications for the way in which we would be expected to interact and collaborate with faculty who teach other courses in the core, and there could be significant implications for our profession.

The dramatic results of this study, then, raise some very basic questions and suggest a need to initiate further research

to help us better understand the forces of change and the most appropriate way in which we should respond to these forces.

Since MBA programs are found throughout the world, and since these programs, especially in the EU, are beginning to complete with U.S. programs, further research also needs to explore how those programs have responded to these forces.

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