

## 1 **Implementation of the Key Elements**

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3 In order to meet the goals outlined in the four key elements above, it was noted by the Joint  
4 AIS/ACM Curriculum Task Force early on in the process that the IS 2009 document would have  
5 to include a very different course structure than previous curriculum revisions. Therefore, the task  
6 force started the process of evaluating the target high-level capabilities of an IS graduate. By  
7 doing so, the committee believed that it could draw the knowledge and skills from the high-level  
8 capabilities and further draw the curriculum topic for the knowledge and skills. This process was  
9 very labor intensive and is described in detail in the outcome expectation section below.

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11 This IS 2009 revision process required that we evaluated new ways the curriculum course  
12 structure could be offered. The first option was staying with a standard structure similar to that  
13 presented in IS 2002 and its predecessors. By doing so the task force would offer the IS  
14 committee a very rigid outline that included a basket of courses that could be implemented, in its  
15 entirety or in part, by IS programs. This was problematic for the committee as the rigid structure  
16 would not allow the IS 2009 curriculum to meet the needs of 1) global IS programs and 2)  
17 programs outside business schools. For this reason another approach was needed.

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19 The task force proposed an innovative course structure to address the need of the different global  
20 constituents. By doing so, the revised curriculum could be tailored to the strengths and needs of  
21 any program around the world while also recommending a structured core that would standardize  
22 the foundational knowledge and skills for all IS graduates. This semi-flexible curriculum clearly  
23 met the goal stated in the key elements for IS 2009. For this reason, the task force proceeded to  
24 develop the structure of the core topics while also allowing for specializations in IS. The  
25 following will describe the need for Information Systems as a distinct academic field.

## 26 27 **7. INFORMATION SYSTEMS AS A FIELD OF ACADEMIC** 28 **STUDY**

29  
30 Computer-based information systems continue to be a critical part of the products, services,  
31 operations, and management of organizations. Indeed, information systems and information  
32 technology can be so critical as to disrupt classic business models, threatening traditional revenue  
33 streams and even driving industry sectors to extinction. The print newspaper industry, travel  
34 agencies, real estate agencies, and video rental stores represent industries which have been forced  
35 to change their business models and operations in response to the introduction of new information  
36 technologies and systems. The effective and efficient use of information and communications  
37 technologies is an important element in maintaining or achieving competitive advantage for  
38 business organizations and excellence in service for government and non-profit organizations.  
39 The information technology/information systems strategy is an integral part of organizational  
40 strategy. Information systems support management processes at all levels – operational, tactical,  
41 and strategic management. Information systems are vital to problem identification, analysis, and  
42 decision making. The importance of information technology and information systems to  
43 organizations and the need for well-educated professionals in the field is the basis for a strong  
44 link between educational programs and the professional community of IS practitioners (Bullen et  
45 al. 2009; Dick et al. 2007; Mawhinney et al. 1994; Trauth et al. 1993).

46  
47 Information Systems as a field of academic study began in the 1960s, a few years after the first  
48 use of computers for transaction processing and reporting by organizations. As organizations  
49 extended the use of information processing and communication technology to operational  
50 processes, project management, decision support, and enterprise and industry strategy, the

1 academic field also grew in scope and depth. An IS organization function emerged to manage  
 2 computer and communications technologies and information resources within an organization. In  
 3 the same way that universities have degree programs reflecting important organizational  
 4 functions, such as financial resource management, marketing resource management, and human  
 5 resource management, a degree program emerged for management of information technology and  
 6 information resources. During this nearly half century of growth and change, different names  
 7 have been used and the definition of the field has been enlarged. The simple term Information  
 8 Systems (IS) has become the most commonly accepted, generic term to describe the discipline.  
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## 10 **Differing Names for the Academic Field of Information Systems**

11 Information Systems as a field of academic study exists under a variety of different names. The  
 12 different labels reflect historical development of the field, different ideas about how to  
 13 characterize it, and different emphases when programs were begun. The names of computer-  
 14 related majors offered in undergraduate institutions accredited by the Association to Advance  
 15 Collegiate Schools of Business (AACSB) in the United States, for example, are represented by  
 16 the following terms) (Pierson et al. 2008):  
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 20  
 21 Management Information Systems, representing 40.5% of programs  
 22 Information Systems, representing 20.6% of programs  
 23 Computer Information Systems, representing 18.0% of programs  
 24

25 The remaining 20.9% of programs are known by names such as:

26  
 27 Information Management  
 28 Information Systems Management  
 29 [Business] Information Systems  
 30 [Business] Computer Systems  
 31 [Business] Computer Information Systems  
 32 [Business] Information Technology Management  
 33 [Business] Informatics  
 34 Information Resources Management  
 35 Information Technology  
 36 Information Technology Systems  
 37 Information Technology Resources Management  
 38 Accounting Information Systems  
 39 Information Science  
 40 Information and Quantitative Science  
 41  
 42  
 43

## 44 **The Scope of Information Systems**

45 Information Systems as a field of academic study encompasses the concepts, principles, and  
 46 processes for two broad areas of activity within organizations: (1) acquisition, deployment,  
 47 management, and strategy for information technology resources and services (the information  
 48 systems function; IS strategy, management, and acquisition; IT infrastructure; enterprise  
 49 architecture; data and information) and (2) packaged system acquisition or system development,  
 50 operation, and evolution of infrastructure and systems for use in organizational processes (project  
 51

1 management, system acquisition, system development, system operation, and system  
2 maintenance). The systems that deliver information and communications services in an  
3 organization combine both technical components and human operators and users. They capture,  
4 store, process, and communicate data, information, and knowledge.

5  
6 The information systems function in an organization has a broad responsibility to plan, develop or  
7 acquire, implement, and manage an infrastructure of information technology (computers and  
8 communications), data (both internal and external), and enterprise-wide information processing  
9 systems. It has the responsibility to track new information technology and assist in incorporating  
10 it into the organization's strategy, planning, and practices. The function also supports  
11 departmental and individual information technology systems. The technology employed may  
12 range from large centralized to mobile distributed systems. The development and management of  
13 the information technology infrastructure and processing systems may involve organizational  
14 employees, consultants, and outsourcing services.

15  
16 The activity of developing or acquiring information technology applications for organizational  
17 and inter-organizational processes involves projects that define creative and productive use of  
18 information technology for transaction processing, data acquisition, communication,  
19 coordination, analysis, and decision support. Design, development or acquisition, and  
20 implementation techniques, technology, and methodologies are employed. Processes for creating  
21 and implementing information systems in organizations incorporate concepts of systems analysis  
22 and process design, innovation, quality, human-machine systems, human-machine interfaces, e-  
23 business design, sociotechnical systems, and change management.

24  
25 Information systems professionals work with information technology and must have sound  
26 technical knowledge of computers, communications, and software. Since they operate within  
27 organizations and with organizational systems, they must also understand organizations and the  
28 functions within organizations (administration, accounting, finance, marketing, operations,  
29 human resources, and so forth). They must understand concepts and processes for achieving  
30 organizational goals with information technology. In addition to sound technical knowledge and  
31 organizational understanding, they must possess systems thinking, the ability to analyze business  
32 problems, communication skills, and teamwork skills (Overby 2006). The academic content of  
33 an Information Systems degree program therefore includes information technology, information  
34 systems strategy and management, information systems development and implementation,  
35 organizational functions, and concepts and processes of organizational management.

36  
37 In recent years, Information Technology has emerged as a new academic discipline under the  
38 broad umbrella of computing. Its role has been recognized in two recent documents produced by  
39 the computing education community. CC 2005 Overview Report, a broad survey of five  
40 established computing disciplines (Computer Engineering, Computer Science, Information  
41 Systems, Information Technology, and Software Engineering) was the first published work to  
42 identify the formal role of Information Technology as a computing discipline (Shackelford et al.  
43 2005). Based on published and draft curriculum documents, the overview report compares and  
44 contrasts computing disciplines, and it clearly positions Information Systems and Information  
45 Technology as disciplines that on one hand operate in the same space (focusing on organizational  
46 needs) but on the other hand address a very different set of questions. The document presents the  
47 contrast as follows:

48  
49 *Professionals in the [Information Systems] discipline are primarily concerned with the*  
50 *information that computer systems can provide to aid an enterprise in defining and*  
51 *achieving its goals, and the processes that an enterprise can implement or improve using*

1 *information technology. ... Information Systems focuses on the information aspects of*  
 2 *information technology. Information Technology is the complement of that perspective:*  
 3 *its emphasis is on the technology itself more than on the information it conveys. IT*  
 4 *programs exist to produce graduates who possess the right combination of knowledge*  
 5 *and practical, hands-on expertise to take care of both an organization's information*  
 6 *technology infrastructure and the people who use it. (CC 2005, p. 14).*  
 7

8 The other recently published document that specifies the Information Technology discipline is the  
 9 IT model curriculum, IT 2008. This document, approved in late 2008, defines the Information  
 10 Technology Body of Knowledge and an undergraduate curriculum for the IT discipline. In  
 11 comparing the curriculum specified in IT 2008 and the core of this IS curriculum, we can clearly  
 12 see that the disciplines share areas of interest, such as Data and Information Management, IT  
 13 Infrastructure, and Human Computer Interaction, but that there are also specific areas of  
 14 distinction. Particularly important is the IS emphasis on Systems Analysis and Design (including  
 15 Business Analysis and Business Process Design and Management), IT Strategy, Management,  
 16 and Acquisition, and Enterprise Architecture. It is very likely that the discussion regarding the  
 17 identities of the IT and IS disciplines will continue actively during the next several years.  
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## 20 **8. RELATIONSHIP BETWEEN THE FUNDAMENTALS OF** 21 **IS COURSE, THE MINOR, AND THE MAJOR**

22  
 23 **Prerequisite Technology Skills:** The prerequisite skills level provides a personal capability for  
 24 student use of information technology. Several applications useful to students and graduates are  
 25 covered, including: word processing, Web browsing, electronic mail, spreadsheet processing,  
 26 database management, presentation graphics, and external database retrieval. Although word  
 27 processing is included here, it is typically acquired prior to formal courses. Some institutions  
 28 provide the prerequisite IS skills level via a course required of all students. Other institutions  
 29 enable students to acquire this competency through laboratories with computer-based tutorial  
 30 modules. Others assume a proficiency gained at high school or based on personal experience.  
 31 Competency tests may be used to ensure adequacy of prior knowledge. The Information Systems  
 32 faculty may also have major responsibilities for remedial work relative to the prerequisite skills.  
 33

34 **All Students:** The Fundamentals of Information Systems course provides all students with an  
 35 introduction to the purposes, uses, and value of information systems and information resources in  
 36 organizations. It introduces concepts and methods by which IT professionals design and  
 37 implement systems and explains the technologies and processes for providing information and  
 38 communications resources. The course illustrates opportunities for business professionals to  
 39 employ technology resources. Students can build on their prerequisite understanding to  
 40 investigate useful concepts, functions, and capabilities provided by information systems.  
 41 Exercises will assist students in understanding system development processes, effective use of  
 42 information systems, and quality concepts in providing inputs and using outputs from systems.  
 43

44 Exercises may enable students majoring in functional areas to gain additional IS skills and system  
 45 understanding through use of application packages in their major fields of study, such as  
 46 accounting, finance or marketing. Team projects with actual clients demonstrate applied learning.  
 47

48 **IS Minors:** In addition to the courses all students take, an IS minor consists of a subset of the  
 49 major courses that form a cohesive set of knowledge complementary to the student's major field  
 50 of study. Individuals with a minor in IS often act as technology liaisons and as functional area  
 51 representatives on teams to develop and enhance major applications. A minor may be tailored to