- IS professionals require collaboration as well as successful individual effort
- IS professionals design and management demand excellent communication skills (oral, written, and listening)
- IS professionals require persistence, curiosity, creativity, risk taking, and a tolerance of these abilities in others

4. IS professionals must design and implement information technology solutions that enhance organizational performance. Students must therefore:
   - Possess skills in understanding and modeling organizational processes and data, defining and implementing technical and process solutions, managing projects, and integrating systems within and across organizations.
   - Be fluent in techniques for acquiring, converting, transmitting, and storing data and information
   - Focus on the application of information technology in helping individuals, groups, and organizations achieve their goals within a competitive global environment.

6. KEY ELEMENTS OF THIS CURRICULUM REVISION

The Information Systems landscape has changed significantly over the past several years. Therefore, the foundations of the curriculum must be evaluated. There are four key elements of the revision:

1. **Reaching beyond the business school.**

There is an ongoing debate regarding the nature and identity of Information Systems as a discipline. At the center of this debate is whether Information Systems is exclusively a business discipline (i.e., exists only within a business domain), or whether Information Systems can exist in a variety of domains, including law, biology, healthcare, and so on. Earlier model curricula have clearly identified business as the domain in which IS was located. As shown in Figure 1 below (excerpted from IS 2002), business was the exclusive domain for prior versions of the model curriculum where domain content was shown as "business fundamentals." Although IS 2002 clearly acknowledges that IS programs could and do exist outside business schools, it also took the position that the primary (exclusive) domain for graduates was business and "technology-enabled business development" (further clarified as systems analysis and design, business process management, systems implementation, and IS project management).

No longer should the Information Systems paradigm be exclusive to the business school context. Even though business will likely continue to be the primary domain for Information Systems, the discipline provides expertise that is critically important for an increasing number of domains.

2. Revising the outcome expectations for IS graduates and proposing subsequent changes to the curriculum topics.

This category includes subsequent changes to the curriculum topics to reflect the changed outcome expectations. This change centers on the radical contextual change both in terms of technology and business discussed above. These actions are a critically important and natural part of the revision process.

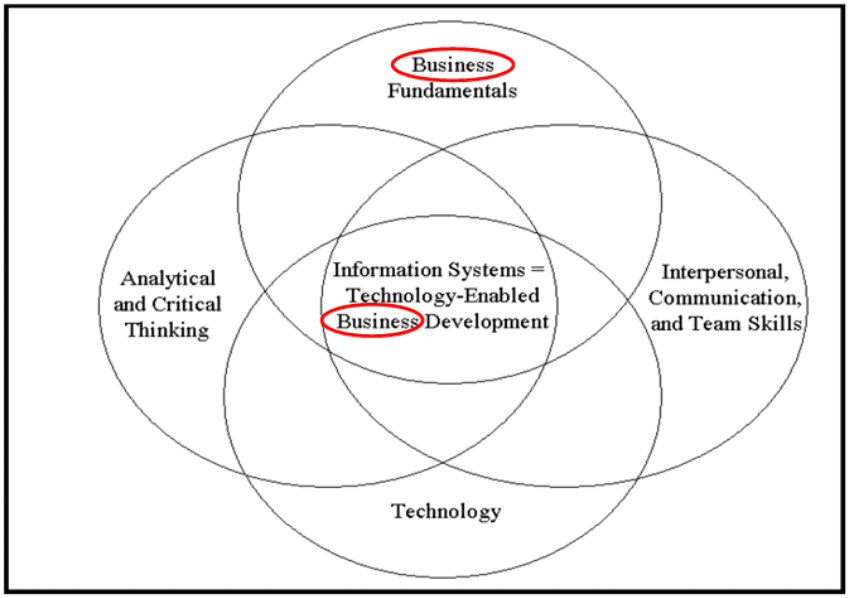

Figure 1: Demonstration of the close linkage between Information Systems and Business in IS2002.

The IS 2002 curriculum had taken a "one size fits all" philosophy, whereby there is no separate core specified within the curriculum. In essence, all courses are required. Unfortunately, this model left little room for local innovation and adaptation in institutions that wanted to adopt the model curriculum in its entirety. For many schools, it was impossible to follow the curriculum guidelines because they had fewer courses in their program than the 10 specified in IS 2002. On the other hand, at other institutions there might be much more room available for IS courses, and again, the fixed-size model curriculum is an obstacle. As a result, many institutions did not find IS 2002 to be responsive to their particular situations. To overcome this limitation of IS 2002, the task force wanted to introduce greater flexibility into the new curriculum. To do so, the task force identified a set of core courses that will be common to all Information Systems programs.

The seven core courses are:

1. Fundamentals of Information Systems
2. Data and Information Management
3. Enterprise Architecture
4. IT Infrastructure
5. IS Project Management
6. Systems Analysis and Design
7. IS Strategy, Management, and Acquisition

It is important to note that these seven courses in the model can be implemented in a specific local context as independent courses or as components within fewer courses if need be. The key point is that the task force strongly believes that there is indeed a core content that should be incorporated in every undergraduate Information Systems program, and that this content is captured in this list of core courses. In essence, the task force is making a strong statement regarding what defines Information Systems at the undergraduate level by specifying the core. The proposed model curriculum acknowledges that not all programs are able to cover all aspects

of the core at the same level of depth, but some level of coverage of these topics is required for a program to be identified as an Information Systems program.

Particularly taking into account the radical contextual change both in terms of technology and business discussed above, these actions are a very important and natural part of the revision process.

3. Evaluating the assumptions underlying the curriculum structure and modifying it accordingly.

Past revisions have ended by providing a basket of classes that were recommended for IS programs. This curriculum revision process hopes to be more inclusive by providing a short list of core topics that are essential pedagogically to Information Systems, allowing programs to customize other topics by creating a list of electives.

This can be done by offering a curriculum that does not specify a single career objective (i.e., technology-enabled business development or career as a systems analyst) but will provide numerous career tracks. These career tracks will integrate a combination of the core courses and some set of career track electives. How the core courses are instantiated depends on the needs of a specific career track (e.g., either briefly or very comprehensively, depending on the needs of the target career track selected by a particular program). Career tracks, obviously, can be associated with one or several domains. For example, a database administrator career track is compatible with business, government, nonprofit, and healthcare domains (and many others).

4. Involving the global IS community

Traditionally, curriculum projects have been largely based on the work of a small task force that has shared its work at a variety of conferences and incorporated the feedback from the sessions to the model curriculum. In addition, written drafts have been shared widely and comments solicited. Also, surveys have been used to gather industry input. This process is driven by a few individuals with little input from the academy as a whole. We are using the wiki environment to allow for global community involvement in the revision process. This is critical if the new undergraduate Model Curriculum is to reflect the perspectives of the global Information Systems discipline.

Engaging the entire IS community will be a metric of success for this task force's work. One of the first tasks in the current curriculum revision project was to establish a feedback mechanism that is globally accessible. For this, the task forced turned to current thinking in system design, expressly Web 2.0 [O'Reilly 2005]. Through the use of Web 2.0 technologies, we created a platform for discussion and harnessing the collective intelligence of the global IS community. The specific Web 2.0 platform selected was MediaWiki, an open source wiki platform originally written for Wikipedia. By using this Web-based platform, the task force believes that it can better engage the broader IS community to assist in developing and maintaining the curriculum. Despite its relative simplicity, ours appears to be a novel approach for developing curricula. It is our hope that the task force's work can help other academic disciplines find ways to improve their curriculum development processes.

The current version of the IS curriculum wiki is available at:
http://blogsandwikis.bentley.edu/iscurriculum .

Implementation of the Key Elements

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

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

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

7. INFORMATION SYSTEMS AS A FIELD OF ACADEMIC STUDY

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

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