Towards A Career Skills Oriented Undergraduate Information Systems Curriculum

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ABSTRACT

The Information Systems (IS) curriculum needs to be updated to be current with the advances in information systems (IS), the technologies that drive IS, and also industry’s skill requirement of IS graduates. This paper is for IS academicians and it describes a career skills oriented approach to enhance the IS curriculum based on current information from recent career skills studies, IS2002 model curriculum recommendations, United States Bureau of Labor Statistics (BLS), the current demand for information security professionals, professional certifications in demand, and the availability of the resources of a School of Management. Employers in industry are in serious need of IS professionals with the specialized skills required to strive in the Internet economy. The career skills oriented approach is an effective method to enhance the IS curriculum to educate and train IS undergraduates to meet the IS skills needs of industry.

Keywords: Career Skills, Industry, Information Systems, Internet Economy, Undergraduate Curriculum

INTRODUCTION

The mission of a typical Information System (IS) program is to develop, publicize and apply knowledge of information system (IS) and the technology that drives IS. (The term Information Technology (IT) is often used to describe this technology). To fulfill this mission, the program will:

1. Educate and train students with the required skills as professionals and prepare them for positions of leadership in industry;

2. Conduct and publicize research in IS to improve the management and application of IS in organizations and to enhance IS pedagogy; and

3. Provide service that responds to the needs of the institution, enterprises, professional societies, governmental agencies, and other organizations that may benefit from the expertise of its faculty and students.

Beginning from the 1980s to the late 1990s, the competitiveness of US business has been eroding. Hayes and Abernathy’s 1980 Harvard Business Review article, “Are We Managing Our Way to Economic Decline?” signaled the growing awareness in the U.S. that effec-
tive management of technological innovation was becoming a high-priority concern of U.S. business. In the early 2000s, Intel’s Chairman Andy Grove predicted that by 2005 only companies that have adopted the Internet as a mission critical technology would survive. His prediction seems to be correct; this means that all companies have to address technology as a critical element in their strategic management. It is of critical importance that organizations manage its resources and keep in pace with the advances so as not to lose its competitive advantage. In accordance with these trends, the IS curriculum needs to be brought up-to-date to reflect current technology trends and industry’s skill requirements of IS graduates; and also to meet accreditation requirements. The Association for Information Systems over the past 2 decades has developed a model undergraduate curriculum based on technology trends and industry’s needs. The latest version of the model undergraduate curriculum is the IS2002 model curriculum. The US Bureau of Labor Statistics has published data for the projected occupation needs of industry from 2006-2016. The occupation (job title) provides the information for the skills in demand. This paper describes a career skills approach based on recent studies on career skills in demand, current data from the Bureau of Labor Statistics (BLS), IS2002 model curriculum recommendation, current demand for information security professionals, professional certification in demand, and the availability of the resources of a School of Management. While the BLS projected occupational data, the current demand for information security professionals, the demand for various professional certifications and recent studies by Luftman (2006) and Prabhakar et al. (2005) provided the basis for determining the career skills required by industry; the IS model curriculum provided the structure that supported the proposed curriculum. This proposal is divided into 4 main sections. We provide an overview of how the proposed curriculum is derived. Then we present the proposed undergraduate curriculum. We next recommend the relevant professional certificate (based on the skill set) that is needed in industry. The final section reviews the current status of the IT skills requirements in industry and assesses some possible future trends.

OVERVIEW

There has been a consistent trend of increasing demand for IT professionals. The “Numeric Change in Total Employment, 2006-2016” projection data from BLS shows annual job openings from 9,000 (Computer and Information Systems Managers), 9,000 (Programmers), 24,000 (Computer Support Specialists), 28,000 (Computer Systems Analysts) to 30,000 (Computer Software Applications Engineer). The “Fastest Growing Occupations, 2006-2016” projection data shows number of job increases from 34,000 (Database Administrators), 140,000 (Network Systems and Data Communications Analysts), 146,000 (Computer Systems Analysts), to 226,000 (Computer Software Applications Engineer) (This data is extracted from the BLS website at http://data.bls.gov). The demand for IT professionals has also resulted in significant salary increases.

A recent paper (Luftman & Kempaiah, 2007) stated that between 2006 and 2012, 1 out of every 4 new jobs will be IT related. Also, as the baby boomers of the dot-com era retire over the next 5 years, the shortage of IT professionals is expected to increase. A 2006 Society of Information Management (SIM) survey (Luftman, 2006) shows the top 10 skills employers are looking for when hiring entry-level employees (Table 1). Entry-level employees often refer to a fresh (without prior working experience) Bachelor of Science in Business Administration (IS) graduate.

According to Lynn McNulty, CISSP, director of government affairs for (ISC)² (news release January 9, 2006):

The initiative represents a commitment by DoD officials to create and maintain a world class IA workforce that can meet the challenges of the digital battlefield and indicates a clear confidence in professional certification as a
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