Management Information Systems

MANAGING THE DIGITAL FIRM

Kenneth C. Laudon • Jane P. Laudon

Chapter 1: Information Systems in Global Business Today

Learning Track 2: Information Systems and Your Career

Looking out to 2020, the U.S. economy will create 25 million new jobs, and 28.5 million existing jobs will open up as their occupants retire. More than 95 percent of the new jobs will be created in the service sector. Many of these new jobs and replacement jobs will require a college degree to perform (Statistical Abstract, 2013; U.S. Bureau of Labor Statistics, 2013).

What this means is that U.S. business firms are looking for job candidates who have a broad range of problem-solving skills-the ability to read, write, and present ideas-as well as the technical skills required for specific tasks, including systems analysis and design, software and Web development skills. Regardless of your business school major, or your future occupation, information systems and technologies will play a major and expanding role in your day-to-day work and your career. Your career opportunities, and your compensation, will in part depend on your ability to help business firms use information systems to achieve their objectives.

How Information Systems Will Affect Business Careers

In the following sections, we describe how specific occupations will be affected by information systems and what skills you should be building in order to function effectively in this new, emerging labor market. Let's look at the career opportunities for business school majors.

ACCOUNTING

There are about 1.1 million accountants in the U.S. labor force today, and the field is expected to expand by 16 percent by the year 2020, adding 190,000 new jobs, and a similar number of jobs to replace retirees. This above-average growth in accounting is in part driven by new accounting laws for public companies, greater scrutiny of public and private firms by government tax auditors, and a growing demand for management and operational advice. After the financial meltdown of 2007–2009, there followed an explosion of growth in forensic accounting.

Accountants can be broadly classified as public accountants, management accountants, government accountants, and internal auditors. Accountants provide a broad range of services to business firms including preparing, analyzing, and verifying financial documents; budget analysis; financial planning; information technology consulting; and limited legal services. A new specialty called "forensic accounting" investigates white-collar crimes, such as securities fraud and embezzlement,

bankruptcies and contract disputes, and other possibly criminal financial transactions. Accountants increasingly rely on information systems to summarize transactions, create financial records, organize data, and perform financial analysis. In fact, there is no way that firms today can perform even basic accounting functions without extensive investment in systems. As a result of new public laws, accountants are beginning to perform more technical duties, such as implementing, controlling, and auditing systems and networks, and developing technology plans and budgets.

What kinds of information system skills are really important for accounting majors given these changes in the accounting profession? Here is a short list:

◆   Knowledge of current and likely future changes in information technology, including hardware, software, and telecommunications, which will be used by public and private firms, government agencies, and financial advisors as they perform auditing and accounting functions. Also essential is an understanding of accounting and financial applications and design factors to ensure firms are able to maintain accounting records and perform auditing functions, and an understanding of system and network security issues, which are vital to protect the integrity of accounting systems.

◆   Understanding of enterprise systems capabilities for corporate-wide financial reporting on a global and national scale. Because so many transactions are occurring over the Internet, accountants need to understand online transaction and reporting systems, and how systems are used to achieve management accounting functions in an online, wireless, and mobile business environment.

FINANCE

Finance majors perform a wide variety of jobs in the U.S. economy. Financial managers develop financial reports, direct investment activities, and implement cash management strategies. The financial manager occupation includes many sub-titles such as financial analysts, financial examiners, budget analysts, and appraisers, There are about 400,000 financial managers in the U.S. labor force with several different occupational titles such as financial analyst, examiners, budget analysts, personal financial managers, stock brokers, investment bankers, and appraisers. The number of financial managers is expected to grow by about 15%, adding 80,000 new jobs by 2020. The growth in finance employment has clearly slowed from previous years prior to the recession of 2007–2009.

Financial managers require strong system skills and play important roles in planning, organizing, and implementing information system strategies for their firms. Financial managers work directly with a firm's board of directors and senior management to ensure investments in information systems help achieve corporate goals and achieve high returns. The relationship between information systems and the practice of modern financial management and services is so strong that many advise finance majors to also co-major in information systems (and vice versa).

What kinds of information system skills should finance majors develop? Following is a brief list:

◆   An understanding of likely future changes in information technology, including hardware, software, and telecommunications, that will be used by financial managers and financial service firms. This includes an understanding of financial applications and design factors to ensure firms are able to manage their investments, cash, and risks; new kinds of mobile and wireless applications to manage financial reporting; and development of online systems for financial transactions.

As new trading systems emerge, financial service firms and managers will need to understand how these systems work and how they will change their firm's business.

◆ Knowledge of the new role played by enterprise-wide financial reporting systems on a global and national scale. As more and more transactions move online, finance majors need to understand online transaction reporting systems and management of online system investments.

MARKETING

No field has undergone more technology-driven change in the past five years than marketing and advertising. The explosion in e-commerce activity described earlier in this chapter means that eyeballs are moving rapidly to the Internet. As a result, Internet advertising is the fastest-growing form of advertising, expanding at more than 30 percent annually and reaching $37 billion in 2013. (Other forms of marketing communications are growing at a much slower 5 percent rate.) All this means that branding products and communicating with customers are moving online at a fast pace.

There are about 900,000 marketing, public relations, sales, and advertising managers in the U.S. labor force. This field is growing faster than average and is expected to add more than 200,000 jobs by 2020. There is a much larger group of 2.6 million nonmanagerial employees in marketing-related occupations (art, design, entertainment, sports, and media) and more than 15.9 million employees in sales. These occupations together are expected to create an additional 1.8 million jobs by 2020.

Here are some of the general information systems skills on which marketing majors should focus:

◆ An ability to understand Internet and marketing database systems, and how they impact traditional marketing activities, such as brand development, production promotion, and sales. This would include an understanding of design factors to ensure firms are able to market their products, develop reports on product performance, retrieve feedback from customers, and manage product development.

◆ An understanding of how enterprise wide-systems for product management, sales force management, and customer relationship management are used to develop products that consumers want, to manage the customer relationship, and to manage an increasingly mobile sales force.

OPERATIONS MANAGEMENT SERVICES AND MANUFACTURING

The growing size and complexity of modern industrial production and the emergence of huge global service companies have created a growing demand for employees who can coordinate and optimize the resources required to produce goods and services. Operations management as a discipline is directly relevant to three occupational categories: industrial production managers, administrative service managers, and operations analysts.

Production managers, administrative service managers and operations analysts will be employing information systems and technologies every day to accomplish their jobs, with extensive use of database and analytical software. Here are the general information systems skills on which operations management majors should focus:

◆ Knowledge of the changing hardware and software platforms that will be used in operations management. This would include an understanding of the role that databases, modeling tools, and business analytical software play in production and services management.

◆ An in-depth understanding of how enterprise-wide information systems for production management, supplier management, sales force management, and customer relationship management are used to achieve efficient operations and meet other firm objectives.

MANAGEMENT

Management is the largest single group in the U.S. business labor force with more than 51 million members, not including an additional 547,000 management consultants. Overall, the management corps in the United States is expected to expand faster than other occupational groups, adding about 3.8 million new jobs by 2020, growing at around 15% for the forecast period. This is slower than average for all occupations. There are more than 20 different types of managers tracked by the Bureau of Labor Statistics, all the way from chief executive officer, to human resource managers, production managers, project managers, lodging managers, medical managers, and community service managers.

The job of management has been transformed by information systems, and, arguably, it would be impossible to manage business firms today without the extensive use of information systems, even very small firms. Nearly all of the 51 million managers in the United States use information systems and technologies everyday to accomplish their jobs, from desktop productivity tools to applications coordinating the entire enterprise. Here are the general information systems skills on which management majors should focus:

◆ Knowledge of new hardware and software that can make management more efficient and effective, enhance leadership and coordination capabilities, and improve the achievement of corporate business objectives in the broadest sense. This would include an understanding of the role that databases play in managing information resources of the firm, and the role of new communication and collaboration technologies, such as wikis, blogs, and wireless and cellular computing.

◆ An in-depth understanding of how enterprise-wide information systems for production management, supplier management, sales force management, and customer relationship management are used to achieve efficient operations and help managers make better decisions for improving firm performance.

INFORMATION SYSTEMS

The information systems field is arguably one of the most fast changing and dynamic of all the business professions because information technologies are among the most important tools for achieving business firms' key objectives. The explosive growth of business information systems has generated a growing demand for information systems employees and managers who work with other business professionals to design and develop new hardware and software systems to serve the needs of business. Of the top 20 fastest-growing occupations through 2012, five are information systems occupations.

There are about 308,000 information system managers in the United States, with an estimated growth rate of 18 percent through 2020, expanding the number of new jobs by more than 55,000 new positions, with an additional 50,000 new hires required for replacements. As businesses and government agencies increasingly rely on the Internet for communication and computing resources, system and network security management positions are growing very rapidly.

Outsourcing and Offshoring The Internet has created new opportunities for outsourcing many information systems jobs, along with many other service sector and manufacturing jobs. Offshore outsourcing to low-wage countries has been controversial because U.S. workers fear it will reduce demand for U.S. information systems employment. However, this fear is overblown given the large demand for new information system hires in the United States through 2020. In fact, reducing the cost of providing information technology services to U.S. corporations by offshoring labor-intensive and lower-level jobs may increase the demand for U.S.-based information system workers as firms find the price of investing in information technology falls relative to other investments while its power to increase revenues and profits grows.

There are two kinds of outsourcing: outsourcing to domestic U.S. firms and offshore outsourcing to low-wage countries, such as India and eastern European countries. Even this distinction becomes problematic as domestic service providers, such as IBM, develop global outsourcing centers in India.

The impact of domestic outsourcing on the overall demand for information technology employment through 2020 is most likely quite small. Service provider firms, such as Hewlett-Packard and Accenture, add domestic IT employees as they expand their domestic IT services, while domestic information systems departments lose some employees or donot hire new employees.

The impact of offshore outsourcing on U.S. domestic IT jobs is more problematic because, ostensibly, jobs that move offshore decrease demand for workers in the United States. The most common and successful offshore outsourcing projects involve production programming and system maintenance programming work, along with call center work related to customer relationship management systems. Hence, the largest impact of offshore outsourcing will mostly likely be on technical positions in information systems and less on managerial positions.

Inflation in Indian wages for technology work, coupled with the additional management costs incurred in outsourcing projects, is leading to a counter movement of jobs back to the United States. Moreover, while technical IS jobs can be outsourced easily, all those management and organizational tasks required in systems development—including business process design, customer interface, and supply chain management—often remain in the United States. The net result is that offshore outsourcing will increase demand in the United States for managerial IS positions, while negatively impacting lower-level technical jobs.

Given all these factors in the IT labor market, on what kinds of skills should information system majors focus? Following is a list of general skills we believe will optimize employment opportunities:

◆ An in-depth knowledge of how new and emerging hardware and software can be used by business firms to make them more efficient and effective, enhance customer and supplier intimacy, improve decision making, achieve competitive advantage, and ensure firm survival. This includes an in-depth understanding of databases, database design, implementation, and management.

◆ An ability to take a leadership role in the design and implementation of new information systems, work with other business professionals to ensure systems meet business objectives, and work with software packages providing new system solutions.