

CAREER MANAGEMENT FOR TECHNICAL PROFESSIONALS: THE MASTERS DEGREE: MANAGEMENT OR TECHNICAL

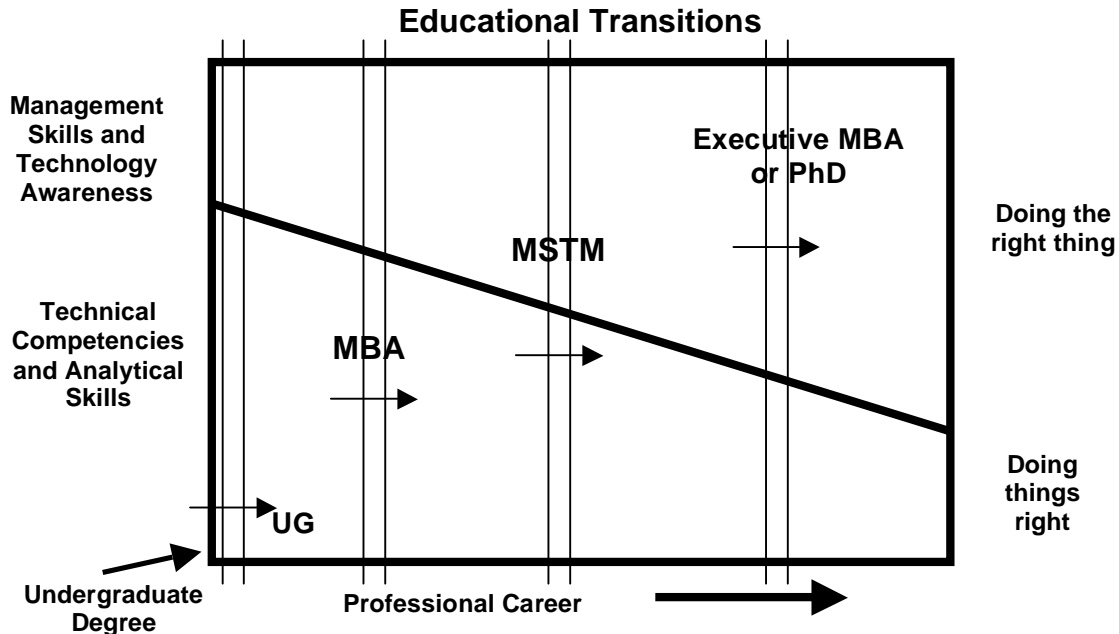
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Organizations tend to use college educated professionals in two ways. At the start of their careers, new employees are put to work in the firm’s operations. They are hired and perform tasks and have responsibilities directly related to their technical abilities and education. They assist the firm with what Peter Drucker has termed “doing things right.”

As time progresses on the continuum of their careers, the professional begins assuming “doing the right thing” dictum. This requires managerial skills and greater business acumen. The chart below exemplifies this progression and a symbolic 80/20 sliding split between technical and managerial responsibilities during the trajectory of a career.



In the professional life of a technical person there comes a time when he/she may decide to move from the technical ladder to the managerial ladder in their pursuit of career advancement. The baccalaureate and first graduate degree of a technical professional is often highly technical. This allows the individual to add value to the firm as a technical professional. This training very seldom builds managerial skills or business acumen. The technical professional is left to pick up these skills and knowledge through on-the-job training, or company sponsored short training courses. This education is often undertaken as part-time graduate management education and yields the added benefit of a master degree, a widely recognized credential.



Four types of degrees are generally available to give the technical professional formal management education.

1. **The Technology Management Master degree** – an emerging form of management education for the technical professional. It emphasizes management applied to technical subjects. It is shorter than the MBA, typically 30 to 36 credit hours, and thus more desirable to the working professional. The pure technology/pure management content varies from program to program. It could be as little as 50 percent technology/50 percent management to a full 100% management focus. In any case this degree is perceived by the professional's manager as a technical degree and would more likely fund the employee attending this course of study than an MBA. The business acumen and management skills learned enhance the technical professional's self-image and self-esteem since it deepens the knowledge of the industry and produces added competency commensurate with the added managerial responsibilities. This degree is often a second professional degree to complement a more technical master degree taken earlier in a professional's career.
2. **The MBA degree** – the traditional path to obtaining management skills after a bachelor's degree. It is a broader degree and very much sought after (over 100,000 people graduate with an MBA every year in the US). It is considered a terminal degree. Quality accredited programs require up to three years of part-time study to complete because the minimum credit requirements is 48 credit hours (50% more than the typical master degrees that have a 30 credit minimum).

Many technical professionals opt to get this degree mid-career to move into management. They find that their companies are reluctant to pay for tuition for an MBA because they recognize they will probably lose the employee when they

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graduate. The MBA is also a very general degree that often does not emphasize technology and is not directly applicable to a professional wishing to rise as a technology executive. The MBA is good for career change into other forms of management like finance and marketing. Most schools use the MBA as a platform to give deeper training in a business discipline such as finance, marketing or accounting. This degree produces technicians of business and are focused on the education of professionals five to seven years after their bachelor's degree and meant for workers who are still being viewed by industry as technical workers.

Although some schools waive foundation classes in their MBA programs for adequately prepared students, this often requires a business undergraduate degree, which most technical professionals with engineering and computer science bachelor's do not possess. So although the possibility of a 30 credit hour MBA exists, technical professionals, are seldom in a position to qualify and must take the full 48 or more credits.

3. **The Executive MBA degree** – This degree is a modification of the MBA with the characteristics that it focuses on firm strategy, governance and executive roles. The subject matter is often the same as the MBA but is taught from an executive perspective. This degree was created with the needs of professionals with twelve to fifteen years experience in mind and who need a management credential to advance to executive rank. The programs are designed to be completed in two years and are often much more expensive than the MBA degree. Again, the technical professionals may not find the degree as valuable if they choose to remain in technical positions. For the younger professionals it may be too broad or the executive level focus too high to meet their immediate needs.
4. **The Information Systems Masters degree** – Some schools offer master degrees that have managerial content (such as a few or many MBA foundation classes) and still teach a great deal of technology. Classes in databases, networks, systems design and information security, even programming classes, figure prominently in such programs. This program as a first professional degree for those technical people who know they will eventually become managers. It suffers from being too light in technology to really deepen the technical person's technology skills and too light in management to achieve a managerial position after obtaining the credential. It does help the "administrator" type of technical person, such as database administrators, systems administrators and network administrators, who often have to lead technical teams and work within the management structure of a firm. It could also be an ideal degree for non-technical professionals who have assumed technical managerial roles. The program of study can assist them in obtaining additional management skills and some technical know-how they need in their current position. The technically trained person who is contemplating a switch from the technical ladder to the management ladder has sufficient depth in technology and seldom needs such a degree. They often opt for the more management and business focused technology management masters degree as more appropriate.

THE IT MANAGEMENT PROFESSIONAL: CHARACTERISTIC OF THE TYPICAL EMPLOYEE, EDUCATION, JOB OUTLOOK AND NATURE OF THE WORK

From the US Department of Labor Bureau Of Labor Statistics 2007 Occupational Outlook Handbook.

Nature of the Work

“How and when companies and organizations use technology are critical to remaining competitive. Computer and information systems managers play a vital role in the technological direction of their organizations. They do everything from constructing the business plan to overseeing network security to directing Internet operations.

”Computer and information systems managers plan, coordinate, and direct research and facilitate the computer-related activities of firms. They help determine both technical and business goals in consultation with top management and make detailed plans for the accomplishment of these goals. For example, working with their staff, they may develop the overall concepts and requirements of a new product or service, or may identify how an organization’s computing capabilities can effectively aid project management.

“Computer and information systems managers direct the work of systems analysts, computer programmers, support specialists, and other computer-related workers. These managers plan and coordinate activities such as installation and upgrading of hardware and software, programming and systems design, development of computer networks, and implementation of Internet and intranet sites. They are increasingly involved with the upkeep, maintenance, and security of networks. They analyze the computer and information needs of their organizations from an operational and strategic perspective and determine immediate and long-range personnel and equipment requirements. They assign and review the work of their subordinates and stay abreast of the latest technology to ensure the organization does not lag behind competitors.

“The duties of computer and information systems managers vary with their specific titles. *Chief technology officers*, for example, evaluate the newest and most innovative technologies and determine how these can help their organizations. The chief technology officer, who often reports to the organization’s chief information officer, manages and plans technical standards and tends to the daily information technology issues of the firm. Because of the rapid pace of technological change, chief technology officers must constantly be on the lookout for developments that could benefit their organizations. They are responsible for demonstrating to a company how information technology can be

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used as a competitive tool that not only cuts costs, but also increases revenue and maintains or increases competitive advantage.”

“*Management information systems (MIS) directors* manage information systems and computing resources for their organizations. They also may work under the chief information officer and plan and direct the work of subordinate information technology employees. These managers oversee a variety of user services such as an organization’s help desk, which employees can call with questions or problems. MIS directors also may make hardware and software upgrade recommendations based on their experience with an organization’s technology. Helping ensure the availability, continuity, and security of data and information technology services is the primary responsibility of these workers.

“*Project managers* develop requirements, budgets, and schedules for their firms’ information technology projects. They coordinate such projects from development through implementation, working with internal and external clients, vendors, consultants, and computer specialists. These managers are increasingly involved in projects that upgrade the information security of an organization.

LAN/WAN (local area network/wide area network) *managers* provide a variety of services, from design to administration of the local area network, which connects staff within an organization. These managers direct the network and its computing environment, including hardware, systems software, applications software, and all other computer-related configurations.

“Computer and information systems managers need strong communication skills. They coordinate the activities of their unit with those of other units or organizations. They confer with top executives; financial, production, marketing, and other managers; and contractors and equipment and materials suppliers.

Employment

“Computer and information systems managers held about 280,000 jobs in 2004. About 9 in 10 computer managers worked in service-providing industries, mainly in computer systems design and related services. This industry provides services related to the commercial use of computers on a contract basis, including custom computer programming services; computer systems integration design services; computer facilities management services, including computer systems or data-processing facilities support services; and other computer-related services, such as disaster recovery services and software installation. Other large employers include insurance and financial firms, government agencies, and manufacturers.

“Employment of computer and information systems managers is expected to **grow faster than the average** (increase of 27 percent or more from 2007-2014) for all occupations through the year 2014. Technological advancements will boost the employment of computer-related workers; as a result, the demand for managers to direct these workers also will increase. In addition, job openings will

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result from the need to replace managers who retire or move into other occupations. Opportunities for obtaining a management position will be best for those with computer-related work experience; an MBA with technology as a core component, or a management information systems degree; and strong communication and administrative skills.

Despite the downturn in the technology sector in the early part of the decade, the outlook for computer and information systems managers remains strong. To remain competitive, firms will continue to install sophisticated computer networks and set up more complex Internet and intranet sites. Keeping a computer network running smoothly is essential to almost every organization. Firms will be more willing to hire managers who can accomplish that.

“Similarly, the security of computer networks will continue to increase in importance as more business is conducted over the Internet. The security of the Nation’s entire electronic infrastructure has come under renewed scrutiny in light of recent threats. Organizations need to understand how their systems are vulnerable and how to protect their infrastructure and Internet sites from hackers, viruses, and other acts of cyberterrorism. The emergence of cybersecurity as a key issue facing most organizations should lead to strong growth for computer managers. Firms will increasingly hire cybersecurity experts to fill key leadership roles in their information technology departments because the integrity of their computing environments is of utmost concern. As a result, there will be a high demand for managers proficient in computer security issues.

“With the explosive growth of electronic commerce and the capacity of the Internet to create new relationships with customers, the role of computer and information systems managers will continue to evolve. Persons in these jobs will become increasingly vital to their companies. The expansion of the wireless Internet will spur the need for computer and information systems managers with both business savvy and technical proficiency.”

Training, Other Qualifications, and Advancement

“Advanced technical knowledge is essential for computer and information systems managers, who must understand and guide the work of their subordinates yet also explain the work in nontechnical terms to senior managers and potential customers. Therefore, many computer and information systems managers have experience in a computer occupation such as systems analyst; other managers may have worked as a computer support specialist, programmer, or other information technology professional.

“A bachelor’s degree usually is required for management positions, although employers often prefer a graduate degree, especially an MBA with technology as a core component. This degree differs from a traditional MBA in that there is a heavy emphasis on information technology in addition to the standard business

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curriculum. This preparation is becoming important because more computer and information systems managers are making important technology decisions as well as business decisions for their organizations. Some universities specialize in offering degrees in management information systems, which blend technical core subjects with business, accounting, and communications courses. A few computer and information systems managers attain their positions with only an associate degree, but they must have sufficient experience and must have acquired additional skills on the job. To aid their professional advancement, though, many managers with an associate degree eventually earn a bachelor's or master's degree while working.

“Computer and information systems managers need a broad range of skills. Employers want managers who have experience with the specific software or technology used on the job, as well as a background in either consulting or business management. The expansion of electronic commerce has elevated the importance of business insight; many computer and information systems managers are called on to make important business decisions. Managers need a keen understanding of people, management processes, and customers’ needs. Computer and information systems managers must possess strong interpersonal, communication, and leadership skills because they are required to interact not only with their staff, but also with other people inside and outside their organizations. They also must possess team skills to work on group projects and other collaborative efforts. Computer and information systems managers increasingly interact with persons outside their organizations, reflecting their emerging role as vital parts of their firms’ executive teams.

“Computer and information systems managers may advance to progressively higher leadership positions in their field. Some may become managers in nontechnical areas such as marketing, human resources, or sales. In high-technology firms, managers in nontechnical areas often must possess the same specialized knowledge as do managers in technical areas.”

Earnings

“Earnings for computer and information systems managers vary by specialty and level of responsibility. Median annual earnings of these managers in May 2004 were \$92,570. The middle 50 percent earned between \$71,650 and \$118,330. Median annual earnings in the industries employing the largest numbers of computer and information systems managers in May 2004 were as follows:

Software publishers	\$107,870
Computer systems design and related services	103,850
Management of companies and enterprises	99,880
Insurance carriers	97,900
Depository credit intermediation	86,450

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“According to Robert Half International, a professional staffing and consulting services firm, average starting salaries in 2005 for high-level information technology managers ranged from \$80,250 to \$112,250. According to a 2005 survey by the National Association of Colleges and Employers, starting salary offers for those with an MBA, a technical undergraduate degree, and 1 year or less of experience averaged \$52,300; for those with a master’s degree in management information systems/business data processing, the starting salary averaged \$56,909.

“In addition, computer and information systems managers, especially those at higher levels, often receive more employment-related benefits—such as expense accounts, stock option plans, and bonuses—than do non-managerial workers in their organizations.