

# Preface

Information technology continues to revolutionize the way commercial enterprises, government, and individuals conduct business. Sustained success in value creation in today's networked economies depends in part on how organizations are effective in attracting, developing, and retaining talented IS professionals. Firms with more effective strategies for managing IS professionals will consistently outperform their peers. Studies have shown that the IS profession is now characterized by staff skill shortages, high turnover rates, job stress, and burnout. Other important issues such as lack of workforce alignment, lack of diversity, unwillingness to train older workers, and reluctance to report reality in troubled technology projects have come up. This book explores the challenges faced by organizations as they develop strategies for recruiting, training, retraining, and retaining IT information workers.

## FOCUS AND CONTRIBUTIONS

The central theme of this book is that success in IT management is people dependent. The magnitude of the challenges that face organizations in managing IS professionals demands clearer and more cohesive strategies than currently exist. This is a national problem that spans across all industries and civil agencies. Organizations, academic institutions, and training institutions must come up with policies that govern the training and education of IS professionals at all skill levels of an information system life cycle: acquire, evaluate, design, develop, integrate, manage, and retire. Strategies for recruiting, training, retraining, and retaining the "best and the brightest" must be designed, implemented, and monitored.

## OVERVIEW OF THE CHAPTERS

The book is divided into five sections: (1) Staffing the IS Department, (2) Factors and Challenges Affecting Job Transition of Young and Incumbent IS Personnel, (3) Diversity in the IS Department, (4) International Challenges for Managing IS Personnel, and (5) Focused Research Topics with Implications for IS Personnel Management. Staffing issues are contained in Chapters 1, 2, 3, and 4. Chapters 5 and 6 cover the factors and challenges of IS personnel transition. Diversity issues are covered in Chapters 7 and 8, while international issues are covered in Chapters 9 and 10. The rest of the book—Chapters 11, 12, 13, and 14—cover more focused research topics.

In Chapter 1, *Peopleware: The Hiring and Retention of IT Personnel*, Nelson and Todd discuss issues related to the ongoing challenge of managing IS/IT personnel. The chapter reports on the findings of a series of in-depth case studies they conducted with focus groups at 10 companies representing a broad spectrum of industries, business sizes, approaches to IT, and geographic locations. The participating companies were requested to provide information on: (a) the challenges they were facing in managing their IS/IT personnel, and (b) the lessons they had learned along the way. They found that the hiring, developing, compensating, and retention of IT personnel remain top priorities for managers because of the direct influence that IT human capital has on an organization's ability to solve virtually every other IT-related challenge. Some of the best practices that emerged from the study include: (1) the need for organizations to develop an overall IT personnel strategy that defines the type and number of IT personnel required to achieve the goals and objectives of the business, (2) IT management should focus on getting quality IS/IT applicants rather than worrying about quantity, (3) that recruiters should consider aptitudes, traits, and competencies of the applicants rather than just technical skills, and make sure this philosophy permeates the entire recruiting and hiring process, (4) the IS department should establish a partnership with the HR department, and (5) compensation programs should consider both monetary and non-monetary benefits whose impact can be measured.

In Chapter 2, *Strategies for Staffing the Information Systems Department*, Igbaria and Shayo examine the major factors that have contributed to the IS staff shortage. The major factors identified are: (1) lack of understanding of the career orientations of IS personnel, (2) high IS staff turnover, (3) lack of diversity in the IS profession, (4) the IS profession as a young discipline, and (5) unwillingness by employers to train older IT employees. They discuss each factor and provide managerial implications and specific recommendations for action.

In Chapter 3, *Strategies for Managing IS Personnel: IT Skills Staffing*, Schwarzkopf, Saunders, Jasperson, and Croes use the IT staffing cycle of forecasting, acquiring, training, and retaining to investigate how companies ensure that their IT staffs possess a skill base adequate to respond effectively to rapidly changing and uncertain technological environments. In their study, the authors surveyed 30 senior-level managers (i.e., CIOs, IT planners, and Human Resources managers) from 15 companies representing five different industries: energy, high-tech, financial, transportation, and distribution. The main findings were: (1) organizations lack formal mechanisms for linking business plans with IT plans for the purpose of forecasting IT skills, (2) long-term skill needs were not managed, but are treated as a source of uncertainty, (3) the organizations' strategies tended to focus on reducing uncertainty, and (4) the IT group was seen as a self-contained unit that operates separately from Human Resources when acquiring employees with needed IT skills from the external market. Some of the recommendations provided by the authors include: (1) the need for organizations to adopt more formalized approaches to IT skills identification, (2) establishment of a formal inventory system that summarizes the current and future levels of IT skills within the company, and that serves as a tool for empowering employees to seek skills designed both to benefit their career development and their company's skill needs, and (3) closer alignment of HR departments with IT departments will help IS managers appreciate HR issues and how HR managers can make a contribution.

In Chapter 4, *Important CIO Features for Successfully Managing IS Subfunctions*, Tagliavini, Moro, Ravarini, and Guimaraes present the findings of a study of 158 chief information officers (CIOs) that focused on the desirable competencies needed for CIOs, and the impact such competencies have on the management performance of the IS department. The research findings lead the authors into recommending that CIOs should: (1) improve their ability to effectively relate and communicate with internal as well as external people (suppliers, vendors, consultants, etc.), (2) improve their leadership ability to define objectives and to lead people to their achievement, (3) acquire knowledge of business management models, the company's internal processes (internal business knowledge), as well as the competitive context in which it works (external business knowledge), (4) seek a better estimation of organizational and economic impacts on business processes, functions, and roles, as well as the ability to plan the IS development, and (5) seek better ICT technical knowledge and expertise which could lead to improvements. Finally the chapter provides areas for further research.

In Chapter 5, *Identifying the Enablers and Barriers of IT Personnel Transition*, Darais, Nelson, Rice, and Buche present the findings of a re-

search study that evaluated the factors that cause IT personnel to transition during their professional career, and how organizations can best support and retain IT workers through these transitions. The chapter presents the interpretation of enablers and barriers of IT personnel transition through revealed causal maps. The driving question was: How do the characteristics of IT personnel influence their ability to transition? The findings of their study reveal that: (1) personal outcomes (e.g., having job-related, transferable skills, organizational commitment, job satisfaction, recognition, and appreciation) and continuous personal learning were the main enablers of successful transition, (2) a person's attitude toward acceptance of change and new technology, and their perception regarding communication with management, were the main inhibitors of successful transition, (3) a good general business environment, job environment, and corporate support and direction were the key ingredients in supporting positive personal outcomes and influenced a person's attitude. The chapter provides the implications of the study for managers and researchers.

In Chapter 6, *Organizational Entry and Transition from Academic Study: Examining a Critical Step in the Professional Development of Young IS Workers*, Lee conducts an exploratory study that examines the challenges faced by young IS workers as they transition from academic studies and industrial work. The chapter draws upon previous research on the organizational socialization and information-seeking behaviors of newcomers in organizations, and develops a process model. The process model is then used to examine how a group of young IS workers made adjustments at the workplace to meet the challenging demands of their work. Some of the findings of the study include that: (1) young IS workers must go through an organizational assimilation process just as people in other types of professional work, (2) they need to become more independent and self-motivated learners, (3) they need to interact closely and build relationship with other colleagues, and (4) as the young IS workers' careers progress and they take on more responsibilities, they must learn to deal with deadlines, time pressure, and stress that are characteristics of IS work.

In Chapter 7, *Is There a Retention Gap for Women and Minorities? The Case for Moving In Versus Moving Up*, Tapia, Kvasny, and Trauth examine the "retention gap" between the espoused goals of gender and racial diversity in the workplace and the management behaviors that affect retention of individuals in those groups. The study included women, African Americans, Hispanic Americans, and Native Americans. They provide in-depth examination of factors affecting attraction, development, and especially retention of minorities and women in IS. They recommend the following: (1) at the indi-

vidual level, minorities and women working in the IS field should be provided with informal mentoring, on-going training opportunities, retention and employee referral bonuses; (2) at the institutional level, organizations should stop their denial and silence and create a more accepting, nurturing environment that values gender/race and ethnic differences; and (3) eradication of institutional practices that marginalize women and minorities.

In Chapter 8, *Women in Information Technology*, Woszczynski, Myers, and Beise conducted a comprehensive literature review on issues related to why there is a dearth of women working in the technology sector. The authors indicate areas where research still needs to be done. For example, why are the numbers of women in IT education programs declining? What strategies for recruitment and retention of women really work? Under what circumstances do they work? They also provide IT managers, CEOs, and HR managers with the factors that influence recruitment and retention of female IT workers so that they can develop appropriate strategies. Some of the recommendations given for practitioners include: (1) use initiatives that work to recruit and retain women in IT education, (2) devise practical educational programs that support time management and work-family concerns, and (3) get involved in post-secondary education to identify, attract, support, and develop well-qualified women for IT positions.

In Chapter 9, *Challenges of Managing the Global IS/IT Workforce*, Collins and Birkin explore the challenges for managing IS/IT personnel operating in a global setting. The chapter focuses on how to: (1) configure global software development teams, (2) prepare employees for inter-cultural work assignments and culture shocks, (3) ameliorate the impact of immigration policies and laws on a global IT workforce, (4) manage and control offshore software development, and (5) manage the collaboration between different global vendors to facilitate development of quality global applications. They conclude that IT managers need to understand the differences in the global environment and develop strategies for managing a far-flung workforce and negotiating with vendors from different countries. They also recommend that IT managers engage in ongoing efforts to attract, train, and support existing IS/IT professionals, as well as the future, global IS/IT workforce. Table 1 at the end of their chapter provides a good summary of the challenges and issues as well as recommended strategies.

In Chapter 10, *Offshore Software Development: An Alternative Solution for Information Technology Staffing*, Hawk and Kaiser describe the evolution, rationale, and models used for offshore and near offshore software development. Reasons given for offshore software development include: cost reduction, access to global pool of IT talent, 24/7 productivity, and high-

quality code. The key players in the offshore software industry include India, the Philippines, Ireland, Israel, and Russia. Others include Canada, Mexico, and Brazil. Newcomers include Eastern Europe, China, South Africa, the Caribbean, Vietnam, and Cyprus. The critical success factors for offshore software development mentioned in the chapter are: need for quality certification at least at CMM Level 3, close communication and interaction with the outsourcer, adhering to sound principles for managing project teams at a global level, trust and confidence from both parties, and a peaceful political climate. Others include proper risk management, highly competent workforce, cultural awareness, and integration. At the end of the chapter, the authors provide direction for further research.

Chapter 11, *Managing Limited-Perspective Bias in IT*, Moore and Burke examine why limited perspective bias—the human tendency to overestimate the completeness of what we know and to act on our own (limited) perspective of what is important—is seen as a major inhibitor to the proper management of IS/IT personnel. They contend that the nature of IT work—characterized by interdependence, deadlines, uncertainty, ambiguity, and role incompatibility—make IS/IT personnel more prone to LPB. Moore and Burke proceed to report on a study that examined the occurrence of LPB within two IT contexts—technology implementation projects and retention of IT professionals. Then they provide strategies for managing LPB in IS/IT professionals. Some of the strategies include: (1) focus should not be on who is right, but what is right, (2) ask what is best for the company first, rather than what is best for me, (3) seek a fuller understanding of and appreciation for other stakeholders' perspectives, and (4) routinely share justifications for their decisions and actions.

In Chapter 12, *The Relationship Between Role Variables and Turnover Intentions Among IT Professionals: An Examination of Moderating Effects*, Lee argues that hitherto fore, the real causes of IS personnel turnover remain elusive, i.e., some studies have found that role conflict and role ambiguity are the main culprits for IS personnel turnover, but replication studies have failed to find such a link. The author conducts a study that explores the relationship between role variables and turnover intentions in order to find possible competing explanations for the inconclusive research findings. He found that two variables, namely, achievement need strength and organizational tenure, moderated the relationship between the role variables and IS employee turnover intentions. Some of his recommendations include: (1) employers should seek to reduce role ambiguity and role conflict, particularly among those with high achievement need strength and those who are newly hired, (2) employers should gather regular feedback from their employees and try to resolve role issues promptly, and (3) since role ambiguity and role



conflict are sometimes inevitable in the rapidly developing IT industry, employers should consider hiring staff with high tolerance for role ambiguity and role conflict.

In Chapter 13, *Reluctance to Report Reality in Troubled Technology Projects*, Moore and Burke deal with the important topic of why managers of IT projects find it difficult to engage in reality reporting in troubled technology projects. They extend Mischel's classical organizational behavioral framework to make it useful and applicable to IT project management situations. The chapter provides strategies IT management should use to make sure that project managers engage in reality status reporting behaviors when their IT projects run into trouble. Moore and Burke recommend that IT managers need to understand that behavior is driven by a combination of situational cues and personality tendencies, and that personality tendencies come more into play when IT management has not developed a culture that underscores the importance of proper communication and monitoring of projects. IT management should avoid recruiting or placing project managers with disruptive personalities in charge of tracking and status reporting on crucial projects. The project management office should develop clear project tracking and status reporting policies, where project managers are rewarded for their good decision making and candid reporting rather than the outcome of the projects they manage.

In Chapter 14, *Important Human Factors for Systems Development Success: A User Focus*, Guimaraes, Staples, and McKeen discuss important end user factors that IS managers need know in order to ensure successful development and use of information systems. They argue that although most research evidence finds user participation/involvement correlated with various measures of system success, the literature has often presented conflicting results—some studies have shown user participation to be positively correlated with system success, negatively correlated with system success, and sometimes non-significantly correlated with system success. System success is measured by surveying user satisfaction with the system. A survey of 288 project managers found that user training, user previous experience with computer technology, and the systems development process were directly related to user satisfaction, user participation, and user/developer communication. The authors provide managerial implications of the findings for both top management and IS managers.

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