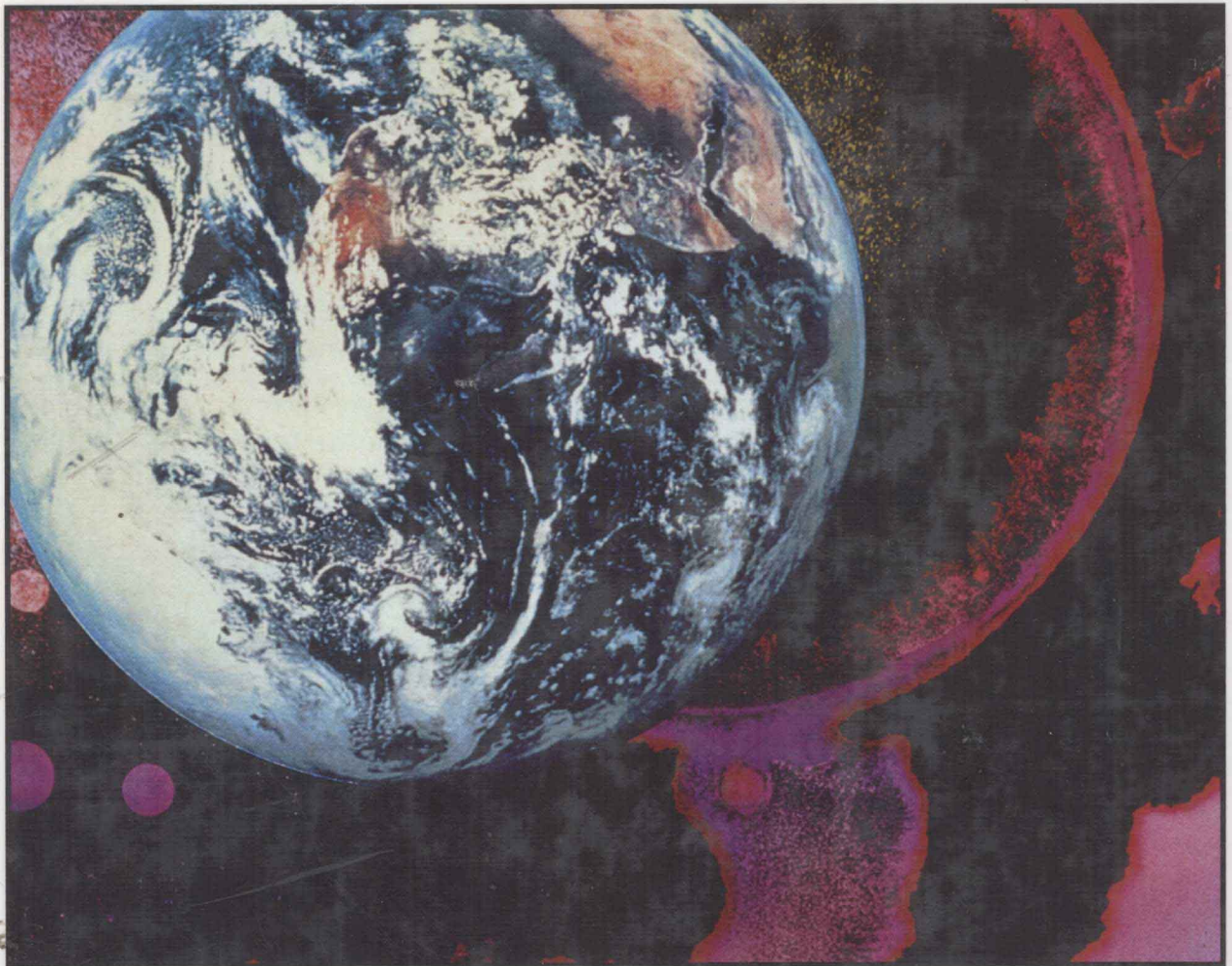


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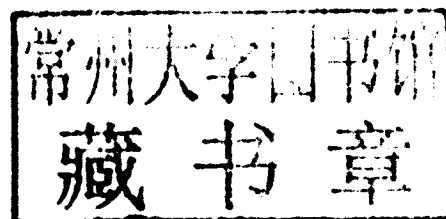


Mehdi Khosrow-Pour

Global, Social, and Organizational Implications of Emerging Information Resources Management: Concepts and Applications

Mehdi Khosrow-Pour

Information Resources Management Association, USA



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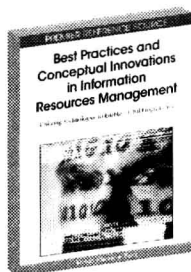
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Best Practices and Conceptual Innovations in Information Resources Management: Utilizing Technologies to Enable Global Progressions

Mehdi Khosrow-Pour, Information Resources Management Association, USA

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Continuous technological innovation amidst the increasing complexity of organizational structures and operations has created the need to achieve a new level of skillful performance and innovative procedures within the information resources management sector. *Best Practices and Conceptual Innovations in Information Resources Management: Utilizing Technologies to Enable Global Progressions* provides authoritative insight into emerging developments in information resources management and how these technologies are shaping the way the world does business, creates policies, and advances organizational practices. With chapters delving into pertinent aspects of such disciplines as knowledge management, open source software, systems engineering, project management, and IT governance, this book offers audiences solutions for improved organizational functioning.



Innovative Technologies for Information Management

Mehdi Khosrow-Pour, Information Resources Management Association, USA

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As information resource management becomes increasingly dependent on emerging technologies to combat its challenges and decipher its effective strategies, the demand builds for a critical mass of research in this area. *Innovative Technologies for Information Resource Management* brings together compelling content related to the continually emerging technologies in areas of information systems such as Web services, electronic commerce, distance learning, healthcare, business process management, and software development. Focusing on the implications innovative technologies have on the managerial and organizational aspects of information resource management, this book provides academicians and practitioners with a requisite and enlightening reference source.

Emerging Information Resources Management Technologies

Mehdi Khosrow-Pour, Information Resources Management Association, USA

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In the time of constant technological and managerial advancement, firms of the 21st century are faced with an ongoing quest for implementing more effective strategies and methodologies to remain at the apex of the information resources management industry. Researchers and pioneers of academia incessantly delve into potential solutions to increase efficacy within technological and information resources management, as well as identify the emerging technologies and trends. *Emerging Information Resources Management and Technologies* supplies the industry leaders, practicing managers, researchers, experts, and educators with the most current findings on undertaking the operation of the latest information technology reforms, developments, and changes. *Emerging Information Resources Management and Technologies* presents the issues facing modern organizations and provides the most recent strategies in overcoming the obstacles of the ever-evolving information management and utilization industry.



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Preface

In today's global society, it has become increasingly important to address the current challenges, obstacles, and solutions encountered by researchers in the field of information resources management. This collection, entitled *Global, Social, and Organizational Implications of Emerging Information Resources Management: Concepts and Applications*, highlights recent trends and advancements as they impact all facets of information resources management in an ever-changing society. Specific submissions focus on the role outsourcing has played in modern business, the development of Web information systems, and social issues such as explorations of age-based salary differences and workplace stress.

Chapter 1, "A Paradigmatic and Methodological Review of Research in Outsourcing" by Vanita Yadav and Rajen K. Gupta addresses the need to do a comprehensive assessment and synthesis of research activities to date and examines the academic literature on information systems outsourcing and business process outsourcing using a paradigmatic and methodological lens. The objective of this chapter is four-fold. Firstly, it examines the status of outsourcing research from 1995 to 2005 in eight leading academic journals, to compare the current research trends with past research directions in terms of methodologies applied. Secondly, it analyzes the research paradigms adopted in these research papers using the Operations Research Paradigm framework. Thirdly, it compares and contrasts the outsourcing research work published in three leading European journals with the work published in three leading American journals. Finally, it uncovers the implications of this study and the directions for future research.

Chapter 2, "Outsourcing in the Healthcare Industry: Information Technology, Intellectual Property, and Allied Aspects" by Amar Gupta, Raj K. Goyal, Keith A. Joiner, and Sanjay Saini discusses the four major ways in which the healthcare industry is being impacted by information technology: first, a broad spectrum of tasks that were previously done manually can now be performed by computers; second, some tasks can be outsourced to other countries using inexpensive communications technology; third, longitudinal and societal healthcare data can now be analyzed in acceptable periods of time; and fourth, the best medical expertise can sometimes be made available without the need to transport the patient to the doctor or vice versa. The healthcare industry will increasingly use a portfolio approach comprised of three closely coordinated components seamlessly interwoven together: healthcare tasks performed by humans on-site; healthcare tasks performed by humans off-site, including tasks performed in other countries; and healthcare tasks performed by computers without direct human involvement. Finally, this chapter deals with intellectual property and legal aspects related to the three-pronged healthcare services paradigm.

Chapter 3, "Evolving Relationship between Law, Offshoring of Professional Services, Intellectual Property, and International Organizations" by Amar Gupta, David A. Gantz, Devin Sreecharana, and Jeremy Kreyling covers four issues. First, it examines evolving international conventions to determine

whether countries, especially developed countries, can take any steps to inhibit offshoring with the objective of protecting jobs in their respective countries. Second, it looks at statistics from independent sources to see if outsourcing exceeds insourcing, or vice versa, in the case of the U.S. Third, it looks at trends in outsourcing in the legal arena. Fourth, it looks at the intellectual property aspects of outsourcing and presents a long-term vision on how this ticklish issue is likely to be addressed in the long-term.

Chapter 4, “Ensuring Correctness, Completeness, and Freshness for Outsourced Tree-Indexed Data” by Tran Khanh Dang, proposes a vanguard solution to provide query assurance for outsourced tree-indexed data on untrusted servers with high query assurance and at reasonable costs. Experimental results with real datasets confirm the efficiency of the approach and theoretical analyses.

Chapter 5, “The Post-Offshoring IS Organizations” by William R. King suggests a framework that may be judgmentally applied to IS activities in order to determine if they should be considered for offshoring/outsourcing. The results of applying the framework will be unique to each firm that uses it. However, in using that approach in more than 25 firms, the author has found that most firms will wish to retain a number of functions in-house. Fourteen such activities are discussed in three broad categories: “activities related to external relations,” “activities related to the development, customization, and implementation of systems” and “business and IS strategic activities.”

Chapter 6, “Is Information Systems (IS) Offshoring an Extension of IS Outsourcing?: Concept, Definition and Determinants” by Shirish C. Srivastava, Thompson S. H. Teo, and Partha S. Mohapatra, examines the role of business related firm level variables in determining the offshoring intensity of firms. The four business related variables that are analyzed in this study are: business size, business cost, business financial leverage, and business performance. The results indicate a significant relationship between business size and offshoring intensity, and also between business financial leverage and offshoring intensity. Based on the results, the authors analyze similarities and differences between traditional onshore IS outsourcing and IS offshoring. Implications and contributions arising out of this study are also discussed.

Chapter 7, “Hybrid Offshoring: Composite Personae and Evolving Collaboration Technologies” by Nathan Denny, Shivram Mani, Ravi Sheshu Nadella, Manish Swaminathan, and Jamie Samdal, discusses the benefits of applying the 24-Hour Knowledge Factory to software development. The authors also present a representative scenario highlighting the problems of asynchronous communication in current offshore software development practices. Further, this chapter introduces the notion of composite persona as a potential collaboration model within the 24-Hour Knowledge Factory and explain its ability to mitigate problems arising from communicating across cultures, languages, and time zones. Finally, the authors present a suite of new collaboration tools and techniques that are being developed specifically for use by composite personae in the 24-Hour Knowledge Factory.

Chapter 8, “Exploratory Study on Effective Control Structure in Global Business Process Sourcing” by Gyeung-min Kim and Saem-Yi Kim, explores the effective control structure for knowledge transfer in IT-intensive global BPS project. The research methods used in this study are a case study and survey. First, a generic framework on the control structure for knowledge transfer is derived from extant literature. This framework is applied to a case analysis of a service provider in Mauritius. As a result of the case analysis, a model for control structure facilitating knowledge transfer in global BPS is derived. The model includes a social control mechanism, communication mechanism, project control mechanism as independent variables, and governance mechanism as a moderator variable. The degree of knowledge transfer and success of global BPS are used as dependent variables. The propositions describing the relationships between the variables are formulated. A total of 19 survey items were generated for these

variables. As results of the survey, the model is revised and a set of more refined propositions are generated in the conclusion. Both service providers and clients can benefit from this study by focusing on control mechanisms that affect the knowledge transfer and BPS success.

Chapter 9, “An Outsourcing Acceptance Model: An Application of TAM to Application Development Outsourcing Decisions” by John “Skip” Benamati and T.M. Rajkumar empirically tests a model of application development outsourcing acceptance based on the technology acceptance model (TAM). TAM suggested perceived usefulness and ease of use mediate the effects of other variables on users’ attitudes towards a technology. The model tested in this study suggests perceived usefulness and ease of use of outsourcing mediate the effects of the external environment, prior outsourcing relationships, and risks on decision-makers’ attitude toward application development outsourcing. One hundred and sixty respondents to a survey sent to 3000 IT decision makers provided data to confirm the applicability of TAM and the influences of these external variables. Support for applying TAM in this alternative context was found. Three sub-dimensions of risk, project management, relationship, and employee risk emerged. Project management and employee risks along with prior relationships were found to significantly influence decision maker perceptions about application development outsourcing.

Chapter 10, “Testing for the Applicability of the TAM Model in the Arabic Context: Exploring an Extended TAM with Three Moderating Factors” by Said S. Al-Gahtani attempts to investigate the applicability of the TAM model in the Arab context and to extend TAM with three moderating/interacting human factors. Using a survey sample collected from 722 knowledge workers using desktop computer applications on a voluntary basis in Saudi Arabia, this study sought empirical support for testing the basic structure of TAM. Toward that, the study was successful as the structure of TAM holds well in the Saudi settings. This study also empirically examined an extended TAM by incorporating gender, age and educational level as moderators of the model’s core relationships. The author’s findings emphasize that most of the key relationships in the model are moderated. Specifically, age moderates all the influences of computers usefulness and ease of use on attitudes and intention to use. However, gender and educational level only moderate the influence of ease of use on attitudes. Implications for management and practice of these findings are discussed.

Chapter 11, “Factors Influencing the Use of Decision Support Tools of Enterprise Resource Planning Systems” by Emad M. Kamhawi uses the technology acceptance model (TAM) to evaluate the impact of a set of individual differences (demographics, computer self efficacy, and knowledge of the system), system characteristics (relevance, terminology and screen design), and perceived benefits of the system, on the intentions to use ERP systems for decision support. A field study was used to collect data from managers working in Bahraini enterprises that use ERP systems.

Chapter 12, “Software Quality Management: Measurement and Research Directions” by Padmal Vitharana and Mark A. Mone synthesizes existing literature bases in CMM, ISO 9000, TQM, among others, to identify six critical factors of Software Quality Management (SQM) and then develops an instrument that can be used to measure critical factors of SQM. Validity and reliability are established by reviewing existing literature, testing a preliminary version of the instrument among a group of researchers and industry experts, and empirically testing a revised version of the instrument among a group of IS professionals. The authors conclude by addressing quality management research issues in the emerging open source software (OSS) paradigm.

Chapter 13, “Is “Usefulness” or “Use” the Superior Metric When Assessing Web-Based Information System Success?” by Hollis T. Landrum, Victor R. Prybutok, David Strutton, and Xiaoni Zhang confronts the question of how to convey electronic information to e-commerce users in a manner that

permits individuals to resolve information search related problems more easily. Information service quality and the associated performance outcomes are challenging to manage during Web-based interactions, primarily because such settings involve several features (i.e., less tangible contact, more uncertainty, differing feedback loops between business and consumers) not found in more traditional exchanges. To capture a broader view of the quality of information offerings in ecommerce settings, the model tested in this study compares the DeLone and McLean (2003) framework, one that includes use as an outcome measure, with a model suggested by Landrum and Prybutok (2004), one that features usefulness as its outcome measure. A random sample of Army Corp of Engineers library customers was performed at two library sites with the Corps. Theoretical and applied implications are developed and discussed.

Chapter 14, “Identification of Critical Success Factors (CSF) and their Relative Importance for Web-Based Information Systems Development” by Kyootai Lee, Kailash Joshi, and Mueun Bae identifies the relative importance of factors related to the development of Web-based information systems. To accomplish this, critical success factors (CSFs) for the development of Web-based applications were identified from the literature, and organized into two main dimensions and sub-dimensions. The relative importance of the dimensions was assessed through an analytical hierarchy process (AHP) method. Data were obtained in Korea from 33 experienced IT professionals representing six organizations from three different industry sectors. Respondents provided information about the relative importance of dimensions in pair-wise comparisons. As a result of the AHP analysis, information properties were found to be more important than risk control. Within information properties dimension, integrity of information was found to be the most important sub-dimension. The authors’ analysis also revealed that there is an industry effect on the relative importance of the dimensions. The results appeared to be reasonable for each industry sector given its business characteristics and nature of customer interactions, contingent on industry sectors. Based on these results, a series of research questions are suggested for future studies.

Chapter 15, “Media Richness in Online Consumer Interactions: An Exploratory Study of Consumer-Opinion Web Sites” by Irene Pollach investigates how consumer-opinion Web sites could provide richer and more useful exchanges to both consumers and companies. The results suggest that consumer-opinion Web sites can provide richer exchanges when they separate the tasks of information exchange and social interaction and support them with appropriate levels of richness.

Chapter 16, “Revisiting the Impact of Information Technology Investments on Productivity: An Empirical Investigation Using Multivariate Adaptive Regression Splines (MARS)” by Myung Ko, Jan Guynes Clark, and Daijin Ko revisits the relationship between IT and productivity, and investigates the impact on information technology (IT) investments. Using the MARS techniques, the authors show that although IT Stock is the greatest predictor variable for productivity (Value Added), it is only significant as an interaction variable, combined with Non-IT Capital, Non-IT Labor, Industry, or Size.

Chapter 17, “Building the IT Workforce of the Future: The Demand for More Complex, Abstract, and Strategic Knowledge” by Deborah J. Armstrong, H. James Nelson, Kay M. Nelson, and V.K. Narayanan uses revealed causal mapping techniques to examine the change in mindset that occurs across the procedural to OO development transition, and lays the foundation for future studies of the OO/ pattern cognitive transition. The results indicate that there is not only increasing complexity in the cognitive maps of the OO developers, but also that there is a need for the developer to shift from routine, assembly line coding to more abstract thought processes.

Chapter 18, “Perception Gaps about Skills Requirement for Entry-Level IS Professionals between Recruiters and Students: An Exploratory Study” by Sooun Lee and Xiang Fang explains that dramatic changes in the U.S. economic situations and offshore outsourcing trends in the IT (Information Tech-

nology) industry have affected the IS (Information Systems) job market and recruiters with regard to IS knowledge/skills that their new hires should possess. Keeping pace with these changes presents a challenge for IS recruiters and students. There is an urgent need for a study that investigates the perception gaps between IS recruiters and students about the knowledge/skill sets required for a new entry-level IS hire. This study reports the findings from a survey of IS recruiters and IS students in the U.S., detailing the differences of their understanding about the knowledge/skills requirement.

Chapter 19, “The Relationship between the Fulfillment of the IT Professional’s Psychological Contract and their Organizational Citizenship and Innovative Work Behaviors” by Sandra K. Newton, Linda I. Nowak, and J. Ellis Blanton proposes to answer the research question: What is the relationship between the level of fulfillment of the IT professionals’ psychological contract and their organizational citizenship and innovative work behaviors? Survey data were collected from 209 IT professionals using group-administered paper and on-line surveys. Results show positive relationships with the level of fulfillment of the IT professional’s psychological contract and their innovative work behavior, as well as four of their organizational citizenship behaviors, specifically loyalty, advocacy participation, obedience, and functional participation. Extending the body of knowledge, the dimensional approach of the psychological contract was used resulting in the scope, focus, and tangibility dimensions being the most significant predictors of the organizational behaviors.

Chapter 20, “Inter-Team Negotiation Support, Coalition Formation, and Negotiation Outcomes: An Empirical Study” by Xiaojia Guo, John Lim, and Fei Wang investigates the role of negotiation support systems (NSS) in supporting inter-team negotiations, which have become commonplace for today’s business negotiations. Inter-team negotiations differ from simple dyadic negotiations, and are associated with enormous complexity introduced by the negotiating team dynamics. When there are three or more members in a negotiating team, coalition formation by team members stands out as an intriguing phenomenon, of which cultural diversity is a primary antecedent. NSS through altering coalition formation dynamics have important impacts on various negotiation outcomes. An experiment was conducted to test the authors’ research model and hypotheses. A content analysis was undertaken to measure the extent of coalition formation. Besides the quantitative approach, a qualitative analysis was also conducted to further enhance the authors’ exploratory efforts in examining the phenomenon. The results provide initial evidence of the usefulness of NSS in supporting inter-team negotiations, and have both theoretical and practical implications.

Chapter 21, “Impact of Age on Information Technology Salaries” by Jing Quan, Ronald Dattero, and Stuart D. Galup examines the treatment of information technology professionals using the Human Capital Model. The model results suggest that age treatment discrimination exists but varies across industries and job functions. The authors present explorative theories to explain why such variations exist and draw managerial implications based on the results.

Chapter 22, “An Empirical Investigation of Stress Factors in Information Technology Professionals” by Vijay V. Raghavan, Toru Sakaguchi, and Robert C. Mahaney explores whether organizations can employ job design strategies to relieve organizational stress for information technology (IT) professionals. The effect of flexible work schedule, employee support and training, and telecommuting as potential coping resources to relieve stress were studied. Perceived workload, role ambiguity, work facilitation, and decision latitude were drawn from previous studies as potential stressors of IT professionals. Perceived stress was measured by two commonly used measures: work exhaustion and depressed mood. The results suggest that removing role ambiguity and improving work-facilitation ease work-related stress. Allowing employees to have flexible work schedules was also found to ease their perceptions of

workload. Employee support and training strategies were found to influence decision latitude and role ambiguity. Telecommuting did not have any effect on the stressors. Results also indicate that the association between work exhaustion and depressed mood was stronger for males than females.

Chapter 23, “Information Technology Portfolio Management: Literature Review, Framework, and Research Issues” by Ram Kumar, Haya Ajjan, and Yuan Niu compares IT portfolio management (ITPM) with other types of portfolio management, and develops an improved understanding of IT assets and their characteristics. It presents a process-oriented framework for identifying critical ITPM decision stages. The proposed framework can be used by managers as well as researchers.

Global, Social, and Organizational Implications of Emerging Information Resources Management: Concepts and Applications contains current findings relating to trends and developments in information resources management in the face of constant technological innovation and adaptation. The ways in which technology has shaped our economic and social fabrics is evident in these selections, which remark on issues, trends, and advancements in the modern-day global business.

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Rajen K. Gupta, Management Development Institute, India

Due to the growing academic and practitioner interest in the field of outsourcing, there is a need to do a comprehensive assessment and synthesis of research activities to date. This chapter addresses this need and examines the academic literature on information systems outsourcing and business process outsourcing using a paradigmatic and methodological lens. The objective of this chapter is fourfold. Firstly, it examines the status of outsourcing research from 1995 to 2005 in eight leading academic journals, to compare the current research trends with past research directions in terms of methodologies applied. Secondly, it analyzes the research paradigms adopted in these research papers using the Operations Research Paradigm framework. Thirdly, it compares and contrasts the outsourcing research work published in three leading European journals with the work published in three leading American journals. Finally, it uncovers the implications of this study and the directions for future research.

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The healthcare industry is being impacted by advances in information technology in four major ways: first, a broad spectrum of tasks that were previously done manually can now be performed by computers; second, some tasks can be outsourced to other countries using inexpensive communications technology; third, longitudinal and societal healthcare data can now be analyzed in acceptable periods of time; and fourth, the best medical expertise can sometimes be made available without the need to transport the patient to the doctor or vice versa. The healthcare industry will increasingly use a portfolio approach

comprised of three closely coordinated components seamlessly interwoven together: healthcare tasks performed by humans on-site; healthcare tasks performed by humans off-site, including tasks performed in other countries; and healthcare tasks performed by computers without direct human involvement. Finally, this chapter deals with intellectual property and legal aspects related to the three-pronged healthcare services paradigm.

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This chapter covers four issues. First, it examines evolving international conventions to determine whether countries, especially developed countries, can take any steps to inhibit offshoring with the objective of protecting jobs in their respective countries. Second, it looks at statistics from independent sources to see if outsourcing exceeds insourcing, or vice versa, in the case of the U.S. Third, it looks at trends in outsourcing in the legal arena. Fourth, it looks at the intellectual property aspects of outsourcing and presents a long-term vision on how this ticklish issue is likely to be addressed in the long-term.

Chapter 4

Ensuring Correctness, Completeness, and Freshness for Outsourced Tree-Indexed Data 69

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In an outsourced database service model, query assurance takes an important role among well-known security issues. To the best of the author's knowledge, however, none of the existing research work has dealt with ensuring the query assurance for outsourced tree-indexed data. To address this issue, the system must prove authenticity and data integrity, completeness, and freshness guarantees for the result set. These objectives imply that data in the result set is originated from the actual data owner and has not been tampered with; the server did not omit any tuples matching the query conditions; and the result set was generated with respect to the most recent snapshot of the database. In this chapter, the author proposes a vanguard solution to provide query assurance for outsourced tree-indexed data on untrusted servers with high query assurance and at reasonable costs. Experimental results with real datasets confirm the efficiency of the approach and theoretical analyses.

Chapter 5

The Post-Offshoring IS Organization 88

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In the age in which many traditional IS functions will be taken over by offshore vendors or otherwise outsourced, attention needs to be paid to those functions that will increase in importance and/or need to be developed by IS departments if they are to be effective in this new environment. This chapter suggests a framework that may be judgmentally applied to IS activities in order to determine if they should