Handbook of Research on Global Information Technology Management in the Digital Economy

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Chapter I
Economic Development: Government's Cutting Edge in IT

This chapter explores the interface between information technology (IT) and economic development. The impacts of three IT innovations are assessed in terms of how they contributed to the development of economic development practice: database management systems (DBMS), geographic information systems (GIS), and the evolution of Web sites. With regard to the close relationship between IT and economic development, the chapter primarily focuses on current and future issues in this area. The chapter is organized into the following sections: it begins with an introductory section, a second section delves into the history of economic development and its relationship with IT, a third section introduces the three IT revolutions in economic development. The sections that follow, fourth, fifth, and sixth, each address a key development in economic development/IT relationship: DBMS, GIS, and Web site development, respectively. The chapter concludes by providing a glimpse of what might be expected in the future and some recommendations for future research on this topic.

Chapter II
The Development of National ICT Policy in Kenya: The Influence of Regional Institutions and

The role that information and communication technologies could play in socio-economic development has been recognized by governments worldwide. The most important starting point in most countries is a national ICT policy. In many developing countries, ICT policy development has increasingly become a participatory process. This is largely as a result of implementing policy reforms, with a strong emphasis on governance systems. This chapter is a case study of the development of national information and communication technology policy in Kenya, the influences of regional institutions and their products,

and the role of the private sector and civil society. The chapter is based on a study that was carried out by reviewing existing relevant documents and by interviewing key persons involved in national and regional ICT policy in Kenya. The chapter also presents the challenges, conclusions, recommendations, and future research directions based on the case.

Chapter III

In this chapter, the author seeks to examine this political aperture, in particular, the context through which these changes were realized. The author examines, in particular, the evolution of economic policies in Southeast Asia and how its integration into the global economy ushered in latent and corresponding social changes. Of course, it is not possible to analyze here every country in the region. As such, this study concerns itself primarily with the dominant ASEAN countries—Malaysia, Indonesia, Singapore, and Thailand. The chapter, after providing an overview of Southeast Asian economies, proceeds to provide an analysis of ICT projects in the region, focusing on the Singaporean and Malaysian experiences. It next examines the relationships and dynamics of changes effected through the intersection of economics, politics, and ICTs. I argue, drawing on the examples of Indonesia, Malaysia, and Singapore, that as these forces interact, greater political space is engendered. Similarly, economic change via privatization has a simila,r although unintended, *liberalizing* effect. The chapter further notes that states have responded to this liberalizing thrust by seeking greater control and regulation, but these attempts are unlikely to be successful.

Chapter IV

This chapter looks at a key concept called *communities of practice* that helps to facilitate organizational learning through increased knowledge sharing within global virtual teams. By using Granovetter's (1974) *weak ties* theory, the author suggests that casual acquaintances known as *weak ties* have significant implications for social relationships and context, both of which can benefit virtual organizational team members. Furthermore, based on Hofstede's (1980) cultural dimensions, the author also argues that cultural factors can impact one's willingness to share knowledge. Thus, there are three questions that guide this chapter: (1) How do social relationships and context among global virtual teams' affect the development of communities of practice? (2) How does culture affect the knowledge sharing activities? and (3) What is the impact of ICTs on knowledge sharing and the emergence of communities of practice?

Chapter V

This chapter examines Web sites created by American multinational corporations (MNCs) in the Czech Republic. Utilizing a content analysis technique, the authors scrutinized (1) the type of brand Web site functions, and (2) the similarity ratings between the home (US) sites and Czech sites. Implications are discussed from the Web site standardization versus localization perspective.

Chapter VI

Localization of a document requires tacit knowledge of the target language and culture. Although it is promoted by many software developers and Web designers, localization is becoming increasingly inadequate as a strategy for disseminating information via the World Wide Web. The 21st century already has seen dramatic rises in the numbers of Internet users in nearly every country, making it difficult if not impossible for any translation effort to accommodate all of the 347 languages that claim at least 1 million speakers. The best way to expand the accessibility of Web content is to make it more explicit, not more tacit. This means producing and uploading clear English content that non-native speakers can easily understand. *Global English* is written with simpler sentence structure, less jargon, and no slang—characteristics that make it a viable lingua franca for countless Web users whose native language is not considered important enough to merit a localization effort.

Chapter VII

This chapter attempts to explore the possibility of building social capital in VC by first introducing the phenomenon, its problems and context, types of VCs and the significance of knowledge sharing. The author presents the process of social capital from a sociological standpoint where two main theories will be used—*elementary theory of social structure* and *social exchange theory* as the backbone of the arguments. By integrating both theories, the author provides a conceptual framework that includes six antecedents to develop social capital. Subsequently, the propositions are expressed in terms of implications to the sociological approach of VC and some conclusions are made by including some future research agenda.

Chapter VIII

This chapter explores the theory and practice of business & IT alignment in multinational companies. In the first part of the chapter an overview of the theory is presented. In this part, the familiar frameworks for business & IT alignment are put in perspective in an *alignment development model*. The second part of the chapter presents the practical issues that are experienced in aligning IT to business in multinational companies. These issues and considerations resulted from a focused group discussion with IT managers and CIOs of medium-sized and large organizations in The Netherlands.

Chapter IX

Intercultural collaboration is a necessity for many ICT workers since the ICT sector has become highly globalized. In the context of international market entries, mergers, network production, as well as near- and offshoring, three modes of intercultural collaboration take place: collaboration in multicultural teams, in dispersed teams, and in the context of foreign assignment. If persons with different cultural backgrounds work together, challenges occur due to different value systems, work and communication styles. They join the general difficulties of internationalization and industrialization in the ICT sector,

and thus are often overlooked, but may hold risks and provoke hidden costs. This chapter describes the challenges of intercultural collaboration and methods to control the risk of intercultural friction focusing on the particular modes of collaboration. Companies should include results of intercultural research into their selection of personnel strategies. Additionally a systematic intercultural personnel development by cross-cultural trainings and coaching helps the collaborators to handle culture differences and to establish a productive collaboration.

Chapter X

Over the past two decades computer mediated communication (CMC) has become a vital form of communication for education, business, and industry, as well as simply another form of social interaction. Past authors have suggested that building online communities with the various CMC tools provides for a more egalitarian social network. However, others have suggested that this may not be the case as there are communication style differences that could impeed equity or social interactions. This chapter provides a discussion of the issues, recommendations, and trends that the future might hold for CMC, both in terms of technical advances and social implications.

Chapter XI

The scope of interests in the area of information systems (IS) has focused mainly on technological aspects so far. If the human component were taken into account, it has been analyzed from the level of an individual, so have all new concepts of rationality. This chapter argues that collective behavior, which is a basic determinant of the Global IS dynamics, does not proceed in a planned manner, but rather is adaptive and follows certain patterns found in nature. It follows that this behavior can be expressed in a model form, which enables to structure it. A model exemplification of a global information system is a modern, electronic, stock exchange. The identification of quantitative attributes of a social subsystem can provide substantial theoretical and methodological premises for the extension of the optimizing and individualistic notion of rationality by the social and adaptive aspects.

Chapter XII

Networked communication is proliferating our world. The fact that global information communication technologies (ICTs) are becoming increasingly available is facilitating human computer interaction, which permeates the use of computer-mediated communication (CMC) in various organizations, groups, and interpersonal contexts. As a result, the issue facing today's organizations is not whether to use global information technologies (GITs) in networked communication, but rather how to use them for effective functioning and as efficient coordination tools, especially how to incorporate GITs into the decision-making process. Consequently, this chapter examines the issues in designing CMC into group interactions and decision-making processes.

This chapter provides information technology (IT) project leaders, call center management, researchers and educators with an analytical tool to examine current concerns and anticipate future trends related to globalization and information technology. The authors propose to use a *multi-lens* analysis as a framework for evaluating outsourcing opportunities. This approach offers a valuable and effective *full-circle* methodology for assessing technological, political, organizational, economic, legal, educational, and cultural considerations that encourage a fuller understanding of the issues, problems, and opportunities that globalization and technological innovation creates. An understanding of these factors related to outsourcing and other technical collaborative projects can avoid costly miscalculations, reduce misunderstandings, and promote mutually beneficial results. Outsourcing is part of a larger socio-political and cultural process, and extends beyond the narrow parameters of economic and technological considerations. The discussion of the various lenses is supported by relevant material from case studies and qualitative interview data collected by the authors in Germany and India from IT experts, call center managers, and call center agents.

Enterprises within and outside the IT industry have long used offshore development and outsourcing to reduce information systems development and maintenance costs, and as a source of specialized, low-wage workers. In the last decade, there has been a spur of activities in offshore outsourcing, which is driven by the e-business revolution and a worldwide demand for IT skills. This contributed to the growth of IT-related industries in countries such as Ireland and India. Meanwhile, vendors from the Philippines, Russia, Hungary, China, Taiwan, Mexico, and other countries entered the market, and in some cases, adapting business models established by Indian firms that have dominated the services sector in the past decade. The emergence of new offshore centers has been marked by new approaches and skill sets, adding to the services and value propositions that define the offshore sector today. In this chapter, we identify the main risk factors and best practices in global IT outsourcing. In addition, we delve into some important issues on IT outsourcing, particularly the challenges along with benefits. Finally we present case studies of two Global 200 organizations and validate some of the claims made by previous researchers on IT outsourcing. This study will help the management to identify the risk factors and take the necessary remedial steps.

Quality standardization contributes to the internationalization process of the ICT industry. At the policy level institutional aspects related to the definition, acknowledgement and implementation of quality standards constitute the focus of research. From an organizational point of view the influence of quality standards on working practices and outputs are related to the implementation of quality management systems. This chapter gives an overview about the quality standardization patterns at the policy level and discusses the influence of the implementation of quality management systems in off- and nearshore practices.

Off- and nearshoring in the European ICT sector represents a relative new practice that has significantly increased since the beginning of the new millenium. Cost reduction, perceived cultural and historical nearness, and institutional and legal advantages influence the decision for host country destinations, whereas hidden and transaction costs represent some of the main related risks and can lead to a repatriation of off- and nearshore projects. This chapter overviews off- and nearshoring trends in Europe and discusses the main related challenges and development chances.

This chapter outlines and maps the field of IT consulting in global information technology. In providing an overview of recent market developments, main characteristics of the field are highlighted and linked to the research on consultancy and organization development. In order to examine the role of IT consultants in modern organizations and to cover various aspects of the field, a conceptual framework is offered, which may be used for further analytical investigation of the field.

This chapter investigates the role of IT consultants in cases where the implementation of IT systems results in changes within the organization. Given the ever-present relevance of power relations within organizations and the fact that an actor's authority is dependent on his or her access to resources and the rules of the organization, IT systems can be said to be objects of micro-political negotiations. Power relations between IT consultants and members of the client organization, for instance, between the project manager and his employees, are analysed on a micro level to illustrate the strategies actors use. Teamwork and collaboration between consultants and employees are analysed, and proposals for further research are suggested.

Current knowledge is produced, disseminated, and stored in digital format. This data will not be preserved by benign neglect; digital information will be preserved only through active management. This chapter will provide a theoretical foundation for digital preservation, an overview of current best practice for digital preservation, and a research agenda as well as a proscriptive framework by which to design digital preservation into a system.

GIT and GIS have a significant impact on the undergraduate and postgraduate programs offered in universities in Australia. Further, how to teach IT and IS to international students has been becoming

a significant issue for IT and IS programs offered in Australia, in particular in the context of a fiercely competitive market of international students, and in the context of GIT and GIS. However, these topics have not drawn the attention of academic researchers so far. This chapter will fill this gap by examining the impact of global information technology (GIT) on universities in Australia in such areas as curriculum development, textbooks, and teaching, and by looking at some issues in teaching information technology (IT) and information systems (IS) to international students from different countries with different IT and IS backgrounds based on the author's working and teaching experience in three different universities in Australia. This chapter also makes a daring prediction for the impact of GIT on international education in Australia and proposes a few viable strategies for resolving some issues facing international education for IT and IS in Australia. The proposed approach is very useful for research and development of GIT and GIS, as well as for IT/IS programs in Australian universities.

Chapter XXI
Sampling Approaches on Collecting Internet Statistics in the Digital Economy /

In this chapter, we have proposed the importance sampling approaches to track the prevalence and growth of Web service, where an improved importance sampling scheme is introduced. We present a thorough analysis of the sampling approaches. Based on the periodic measurement of the number of active Web servers conducted over the past five years, an exponential growth of the Web is observed and modeled. Also discussed in this chapter is the increasing security concerns on Web servers.

Chapter XXII
Natural Language Processing Agents and Document Clustering in Knowledge Management:

While HTML provides the Web with a standard format for information *presentation,* XML has been made a standard for information *structuring* on the Web. The mission of the Semantic Web now is to provide *meaning* to the Web. Apart from building on the existing Web technologies, we need other tools from other areas of science to do that. This chapter shows how natural language processing methods and technologies, together with ontologies and a neural algorithm, can be used to help in the task of adding meaning to the Web, thus making the Web a better platform for knowledge management in general.

Chapter XXIII
Integrating Mobile Technologies in Enterprise Architecture with a Focus on Global Supply

This chapter investigates opportunities to integrate mobile technologies within an organization's enterprise architecture, with an emphasis on supply chain management (SCM) systems. These SCM systems exist within the overall enterprise architecture (EA) of the business. SCM systems are further influenced by the increasing modern-day need of information and communications technologies (ICT) within a business, to bring together all their disparate applications. The resultant enterprise application integration (EAI) also stands to benefit immensely by the incorporation of mobile technologies within it. Traditionally, supply chain management systems have involved management of the flows of material, information, and finance in a complex web of networks that include suppliers, manufacturers, distributors, retailers, and customers. Thus, these traditional supply chain management systems have a great need for integration under the umbrella of "EAI." Mobile technologies can provide *time and location* independence to these

EAIs in terms of information in the supply chain systems, creating the possibilities of multiple business processes that traverse diverse geographical regions. This chapter, based on the research conducted by the authors at the University of Western Sydney, discusses the opportunities that arise in supply chain management systems due to the time and location independence offered by mobility, and the resultant advantages and limitations of such integration to the business.

Organizations are globalising their businesses primarily due to the communications capabilities offered by the Internet technologies. As a result, there are global business processes that span across multiple geographical locations and time zones. The influence of mobility on these global business processes does not appear to have been studied in sufficient detail. Furthermore, mobile technology goes far beyond its ubiquitous use as a mobile phone for voice communication or for the exchange of messages. This chapter discusses and recommends a model for transition and integration of mobility into global business processes. Furthermore, the authors also envisage the accommodation of mobile Web services in mobile transformations enabling business applications to collaborate regardless of their technological platforms.

This exploratory research project set out to investigate the architecture and design principles of international information systems. Analysing six case vignettes in a modified grounded theory approach, a two-dimensional topology for international information systems—postulated from previous research as a seed concept—was confirmed as a useful architecture paradigm. In its terms, international information systems are configured from two elements: 'Core' systems (common for the whole enterprise) on the one hand and 'Local' systems (specific only for each site) on the other. The interface between the two is a third component. The cases showed that achieving the 'correct' balance between Core and Local can be a difficult political process and requires careful organisational engineering to be successful. One case vignette in particular highlights the logical and organisational difficulties in defining these systems elements. Object orientation as the fundamental design principle is investigated as an approach to provide a solution for this problem. Because it enables implementation differentiation and flexibility for future functional changes, it is conjectured that object technology is an optimal – technical - development strategy for international information systems. Directions for further research are outlined.