Preface

This book provides a socio-technical view of enterprise resource planning (ERP) selection and implementation practices from a global perspective. The emphasis of this book is not on the technology per se but on the selection, implementation strategies, as well as implications of ERP systems towards organizational effectiveness. It covers critical examination of the usefulness of ERP systems' functionality assessment for small-to-medium-sized enterprises (SMEs), effective use of ERP for achieving organizational effectiveness, and ERP for supporting the knowledge management functions in organizations. Case studies together with some empirical investigation of ERP systems utilization in organizations covering countries such as the US, UK, Sweden, Austria, Australia, New Zealand and Philippines are provided.

In particular, this book provides: (i) global coverage highlighting case studies and empirical studies of the ERP practices covering both the developed and developing economies; (ii) interdisciplinary focus to improve understanding of the business benefits and myths of the effectiveness of ERP systems; (iii) coverage of different investigative approaches such as case studies, empirical studies, interpretative studies, action research and ethnographic studies as a paradigm of research towards understanding ERP systems' functionality, selection, implementation and post-implementation issues; (iv) socio-technical view of the utilization of ERP systems in both large and small-to-medium-sized organizations; and (v) materials that can be used for business case studies and teaching.

Chapter 1 provides a historical perspective of the evolution of ERP systems and its overall trend in the industry. The chapter highlights useful ERP concepts such as characteristics and software architecture of ERP systems, major ERP vendor options for extended and Internet-enabled ERP systems, and global ERP trends, opportunities and challenges. It also highlights critical issues related to the management of the ERP life cycle.

Chapter 2 discusses the myth of ERP systems integration. This research examines the implementation process of an Enterprise Resource Planning (ERP) system and shows that implementation cannot be viewed solely in instrumental terms–that is, organizations do not simply select systems based on information requirements so that proper "fit" can be achieved. Instead, this research suggests that the activities of selecting and implementing a new ERP become the medium for (re-) constructing or (re-) constituting the organization's values. Theorists have described such activities as a "mythmaking" process. A case study of an implementation at a large nonprofit organization is presented to demonstrate how mythmaking served to construct an ERP system as an "integrated" system and at the same time served to elaborate existing organizational values. The myth functioned as a vehicle of consensual organizational reality, serving to align the acquisition of an ERP system with the organizational values, thereby garnering widespread support for a complex, expensive and relatively unknown technology.

Chapter 3 addresses the rationale for adoption of ERP systems in universities. This chapter outlines the significance of Enterprise Resource Planning (ERP) systems and analyses the rationale used for their adoption. This study is structured around the theory of motivations for investment in information technology (IT) to support core business operations. The data used for the study are documents published electronically on the Internet by universities. A content analysis was applied to this data. The chapter employs frequent use of quotes from the sources selected to assist the reader to

understand the context and to verify the analysis. The findings are that the main reasons for adopting ERP are the modernization of systems, greater usability and flexibility, integration of data and systems, business process reengineering, an increase in the degree of electronic data interchange including the provision of Web-based interfaces to application systems, reduced maintenance and risk avoidance.

Chapter 4 provides an assessment of ERP systems adoption in the Philippines. Viewed as a valuable resource that can provide various capabilities to companies that use it, ERP can be a source of competitive advantage for a firm. However, the successful adoption of ERP will require culture modification within a firm as it involves revolutionary changes in the way people will be doing things, especially in developing countries like the Philippines. This modification raises some issues that point to the viability of ERP's use in the Philippine context. This chapter presents an overview of ERP adoption in the Philippines by examining four Philippine business enterprises as case studies. These firms are part of global enterprises with parent companies abroad. The chapter investigates the organizational context within which ERP is applied in the Philippine setting. It also looks at the problems and issues raised by the said firms in their use of ERP as a tool to achieve efficiency in the organization.

Chapter 5 discusses the impact of ERP systems on organizational effectiveness in Sweden. Enterprise Resource Planning (ERP) systems have an organizational impact and are in most cases implemented to improve organizational effectiveness. Shortcomings in current research make it difficult to conclude how an organization may be affected. This paper presents an artifact evaluation of the functionality and perceived benefits of ERP systems. The evaluation is based on the competing values model. The evaluation shows that ERP systems support effectiveness criteria (such as control and productivity) related to internal process and rational goal models. The evaluation also points out weaknesses in ERP systems and especially in areas related to human relations and open systems models. The result of the evaluation is used to discuss the impact of ERP systems on organizations and is presented as a series of hypotheses.

Chapter 6 provides an empirical investigation of the usefulness of ERP and knowledge management (KM) systems for enhancing organizational efficiency and flexibility. The chapter compares the characteristic differences and similarities between the two initiatives and examines how they influence organizational efficiency and flexibility when implemented within a global engineering firm. It is suggested that the two initiatives are conceptually complementary and can only create a synergy when the design of organizational routines and practices fits into the meta-routines imposed by ERP and KM, and the social processes are nurtured within functions and cross-functionally.

Chapter 7 discusses the knowledge management process for enterprise systems. Enterprise Systems are comprehensive and complex applications that form the core business operating system for many companies worldwide and throughout most industries. The selection, implementation, use and continuous change and evolution of enterprise systems (ES) require a great amount of knowledge and experience. Empirical studies show that the management of knowledge is one of the main cost drivers of ES projects. Consequently, organizations have realized the need to better leverage their Knowledge Management for Enterprise Systems. This chapter proposes a framework for structuring knowledge for Enterprise Systems. A three-dimensional framework is derived from meta-case studies and comprehensive literature analysis. It consists of dimensions for the ES life cycle, the Knowledge Management life cycle and the types of knowledge. Preliminary empirical insights show that especially the lack of product-

specific knowledge is a critical success factor that leads to significant consulting costs in ES projects.

Chapter 8 presents a case study of an overview of the efforts of Texas Instrument's (TI's) internal and external ERP implementation, with a focus on linking its ERP system in a global e-commerce setting. It is argued in this chapter that this linkage is especially important since it had been stated in TI's strategic plan as an objective of this project to provide visibility of the ERP system to external environment via Web linkages along with the objective of standardizing internal processes and important IT to support market needs.

Chapter 9 introduces an object-oriented awareness-based methodology for ERP. This chapter introduces a conceptual model for ERP that has an emphasis on the collaborative nature of the ERP process that explicitly addresses the "awareness" and "knowledge-sharing" issues within the ERP process. This conceptual model demonstrates the collaboration requirements of the actors behind individual business processes as well as the relationships among these business processes. This chapter is intended to introduce to the ERP community a relevant piece of work in conceptual modelling from the perspective of computer supported collaborative work (CSCW) with the aim of attracting research collaborators for further investigation in these fields. Like many existing ERP frameworks/models, the proposed framework is also based on a widely accepted assumption that a corporate-wide information system consists of a set of potentially related subsystems. As a result, information flows among these subsystems must be identified and required resources be planned using an appropriate ERP methodology.

Chapter 10 introduces a framework for assessing ERP systems' functionality for the SMEs in Australia. Anticipating the use of the ERP systems among the SMEs to be the future area of growth, ERP vendors such as SAP, Oracle, PeopleSoft, J. D. Edwards and Baan are introducing ERP software that appeals to the market segment of the SMEs. Introduction of the ERP systems for SMEs includes compact packages, flexible pricing policies, new implementation methodologies, and more specialised functionalities. The strengths-weakness-opportunity-threats (SWOT) framework of the ERP software offered by the aforementioned vendors for the SMEs requires in-depth analysis based on real field data. This study attempts to identify the strengths, weaknesses, opportunities, and threats of ERP systems offered by the five leading vendors for the SMEs in Australia. Multiple case study design approach is used here for collecting the primary data from the ERP vendors. A SWOT framework is developed to study the functionality of the ERP systems offered by these vendors. This framework may guide the managers of SMEs in selecting and implementing ERP systems for their organizations.

Chapter 11 describes the implementation process of an ERP system at Alimentos Peru. It discusses the organization's major concerns during the mid-1990s, including increasing competition, inefficiency of business processes, and lack of timely and accurate information. The study explains the criteria used to evaluate and select the system, as well as the main issues and problems that arose during the implementation process. In particular, this case focuses upon a set of implementation factors, such as top management support, user participation, and project management.

Chapter 12 provides a framework for the selection of ERP packages for small- to-medium and large organizations. The focus here is on the early stage of evaluating and selecting an ERP system prior to implementation. Only a part of the decision making for ERP systems can be handled by a definite or accepted procedure such as standard

investment calculations. There are many other intangible decision-making criteria needed to be judged and evaluated by the decision makers. There is no agreed-upon and formal procedure for this important task. Therefore it seems necessary to investigate decision-making practices to increase the understanding of this complex and important task. The chapter also focuses on the decision-making situation faced by small and medium-sized enterprises (SMEs). This is of particular importance because SMEs are more and more experiencing the need for integration, especially for interorganizational integration, and expecting ERP software to fulfill these needs. The availability of relatively inexpensive hardware is fostering this situation. In general, decision making in SMEs features much greater constraints on the ability to gather information in order to reduce uncertainty about their investment. Considering ERP software decisions with its complex and far-reaching implications, poor decision making by SMEs can result in disastrous situations. The framework outlined in this chapter and the investigated research hypotheses represent a further step towards understanding the decision-making process for ERP investments and differences made by SMEs and large organizations.

Chapter 13 provides an exploratory investigation of the Enterprise Resource Planning (ERP) software selection process in New Zealand. A brief background together with the main features of ERP is provided. It is conferred in this study that the selection and implementation of ERP deserve equal importance. Findings of exploratory case studies on the ERP selection process in New Zealand (NZ) suggest that the selection of ERP guides the implementation process. It is also evident from findings of the study that most New Zealand organizations select their consultants and let them guide the ERP selection, implementation, as well as post-implementation process.

Chapter 14 shows how cost benefit analysis can be applied to large-scale ERP projects, and that these methods can incorporate the intangible benefits, e.g., user satisfaction. Detailed information on the business case utilized by a large computer manufacturer in their decision to implement the SAP system R/3 is also presented here.

Chapter 15 addresses the issues associated with the use of external expertise in enterprise systems. It looks at the ES implementation life cycle and identifies where in the implementation process external experts are utilized and what roles they fulfill in the implementation project. The paper concludes with a New Zealand case experience illustrating the use of external experts in a major enterprise systems implementation.

Acknowledgments

The editors would like to acknowledge the help of all involved in the collation and review process of the book, without whose support the project could not have been satisfactorily completed. A further special note of thanks goes also to all the staff at Idea Group Publishing, whose contributions throughout the whole process from inception of the initial idea to final publication have been invaluable.

Most of the authors of chapters included in this also book served as referees for articles written by other authors. Thanks go to all those who provided constructive and comprehensive reviews. Support of the Basser Department of Computer Science of the University of Sydney and the Institute of Information and Mathematical Sciences of Massey University of New Zealand operations is acknowledged.

Special thanks also go to the publishing team at Idea Group Publishing. In particular to Jan Travers, who continuously prodded via e-mail for keeping the project on schedule

and to Mehdi Khosrowpour, whose enthusiasm motivated me to initially accept his invitation for taking on this project.

In closing, I wish to thank all of the authors for their insights and excellent contributions to this book. I also want to thank all of the people who assisted me in the reviewing process. In addition, this book would not have been possible without the ongoing professional support from Mehdi Khosrowpour and Jan Travers at Idea Group Publishing.

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November 2001