Preface

Research in Information Systems (IS) is concerned with the development and use of information systems to achieve improved organizational performance including business value. Information systems are mainly based on information and communication technology (ICT) and today they increasingly cross organization boundaries to facilitate the exchange of products and services among the organizations and their stakeholders. Such information systems, traditionally called as Inter-organizational Information Systems (IOIS), are obviously more complex than typical information systems and have thus greater impact on business management of the organizations.

Recent studies indicate that the assimilation of web-based IOIS into the mainstream business is occurring at a much slower than expected pace and its implementation and use have not been smooth with business press reporting a number of failures of IOIS initiatives in public and private sector agencies. While in some cases this may be due to various technology and business process risks, most often the reasons are rooted in social and contextual issues including internal and external business risks. Although technological issues are important and the disruption of IOIS even for a short period of time would cause big problems for business operations and management, most of the research studies in IOIS report concern over the managerial and business issues. It is important for IOIS and business management researchers that such issues are identified and understood, and risks mitigated in order to increase efficiency, effectiveness, and other measures of organizational performance.

As with other disciplines, research projects in the areas of inter-organizational systems and business management always begin with a problem statement or research questions. Whether the questions themselves are worth asking can only be considered against the state of knowledge, as presented in relevant theories in the field at the time (Truex et al., 2006). Theoretical foundations are in fact a prerequisite to critically take stock of developments from various perspectives and understand the fundamentals of a particular problem (Pikot and Baumann, 2009). Weber (2003) argues that the field of Information Systems is significantly dependent on theories borrowed and adapted from other disciplines and thus calls for an increased awareness of the role of theory in our research. Lytinen and King (2004) further argue that intellectual shortcomings are haunting the IS field more than other fields. According to Lytinen and King, a better theory is likely to contribute to stronger results; however, the relative lack of core theories is a key problem in IS research. Truex et al., (2006) highlight the importance of theory. They contend that a researcher always approaches a topic from some theoretical point of view - if it remains an implicit and unstated set of assumptions it may actually hinder the study of the phenomena at hand. In fact, collecting data without theory is not research but observation or reporting (Dubin, 1978). As such, IS researchers need to be aware of the core theories in the field and link the results of their research back to theories in a cumulative manner (Kuhn 1970).
The study of IOIS is multidisciplinary in nature as it draws inspiration from a wide variety of other fields of study and imports theories from other references disciplines. The multidisciplinary nature of IOIS requires that researchers use concepts and perspectives from multiple theories from reference disciplines such as social science, economics, management, and organization science simultaneously as appropriate in order to devise and implement effective solutions. However, although the focus of IOIS is primarily technology, Picot and Baumann (2009) argue that little attention has been paid to theoretical insight from other disciplines. The authors recommend that multiple theories be used to define a set of agreed upon key terms and thus avoid the risk of blindly following a trend and the subsequent haphazard application of technology.

THE CONTEXT AND THE REVIEW PROCESS

The editorial idea for this book was conceived when I was a research student myself about ten years ago. I decided on a research topic in the area of IOIS for my PhD thesis but struggled a lot in search of suitable theories to guide me to study the topic. Even after consulting a number of publications for a particular theory, I would get little idea about the theoretical variables of interest. I had to thus go through hundreds of papers on various theories in the process of developing my research model and coming up with the most relevant variables from different theoretical perspectives. I wished I had been able to read a single book containing all those most influential theories, which would significantly save my time and also guide me through the conceptual model development and operationalization process. Seeing that no significant effort had been made to publish such a book even after ten years, I accepted the invitation from the IGI Global to edit the book.

Against this context, an editorial advisory board was formed and, in mutual agreement with the publisher, the ‘call for chapter proposals’ process was initiated. In the course of that quest, a number of 2-3 page chapter proposals clearly explaining the mission and concerns of proposed chapter were summoned for peer reviewing. The core criteria for inviting the authors to submit a contribution was the adherence with the book theme and the quality of the proposed chapter. The ‘call for chapter’ obviously generated a great interest among the IOIS and Business Management scholars. While over 40 such proposals were accepted, only 28 of them were found to be compliant with the book theme and seemed interesting enough to proceed to the next process step which was the submission of the full chapters.

The chapters were then sent to peers/reviewers for a blind review. After almost six months of reviewing and enhancing the chapters with the invaluable help of the body of reviewers, a set of 16 long chapters dealing with application/development of theories in IOIS and business management were accepted, while others were rejected upon the recommendation of the reviewers.

OBJECTIVE OF THE BOOK AND TARGET AUDIENCE

This edited book aims to provide relevant theoretical frameworks and the latest empirical research findings in the area. An understanding of IOIS and related organizational theories is important to the work of all business and IT professionals including executive managers who determine the organisation’s strategic direction, information professionals who design and deliver new information services, and business managers who use information systems for change management and business reporting.
Various organizational theories have been developed, which try to explain the relevant behaviors and activities within the organizations adopting or using various information systems. However, only some of the theories have been consistently tested to be valid and influential over time, and as argued by Chatterjee and Ravinchandran (2004), IOIS have been inadequately operationalized in the existing literature. The purpose of this book is to highlight the most influential organizational theories and their applications in IOIS and Business Management. It seeks to guide the research scholars and members of faculty working in this area to get a quick glimpse of the most influential theories and current research issues in IOIS and business management.

The target audience of this edited book is composed of professionals and researchers working in the field of IOIS and business management in various disciplines, e.g. information technology, information and communication sciences, administrative sciences and management, supply chain/logistics management, public procurement, customer relationship management, knowledge management, and e-Business/e-Government. It has been specifically written for research students and their supervisors who are always in search of relevant theories to carry out their research, and for practitioners who want to improve their understanding of information systems and their impact on business performance.

**BOOK STRUCTURE AND CONTRIBUTIONS**

Most chapters of this book provide discussion of particular theoretical framework/s and a few last chapters have been organized to provide the results of empirical application of the theories. While the publication of some later chapters would better the need of a journal, they have been included in the book so as to provide the readers with the theoretical concepts as well the examples of their application in the context of IOIS and business management.

**Introduction**

The introductory chapter argues that while some organizations have benefited significantly by effectively using inter-organizational information systems (IOIS), other organizations with IOIS deployment have struggled to gain expected business value of IOIS, and yet other trading partners have resisted the participation in IOIS. This chapter asserts that academic theories provide means to form meaningful conclusions to understand the underlying causes of these phenomena. Against this background, this chapter presents a research framework to study IOIS and business management related issues. It identifies the key constructs and variables for each research domain of the framework. A brief description of over 30 theories has been provided and the entities named in the theory are expected to predict the outcome of the theory-governed occurrences.

An attempt has been made to link each domain of the IOIS and business management framework to key relevant theories. It is expected that understanding of various antecedents that influence IOIS and its impact on inter-organizational processes and organizational effectiveness in light of these theories can help organize and guide academic research efforts as well as offer insights to research practitioners on IOIS and business management.
Chapter 1

Chapter 1 (Evolution of Inter-Organizational Information Systems on Long Timescales: A Practice Theory Approach), by Kai Reimers, Robert Johnson and Stefan Klein, presents a theory of IOIS in which the on-going use and evolution of IOIS is treated as a practical and socio-material accomplishment of communities through boundary practices and structures. The authors draw on the structure/action reproduction paradigm of Structuration Theory to account for the persistence of these systems, and thus explain their structure, while using the embodiment of action from Practice Theory to treat the material nature of these systems. The authors distinguish three dimensions of structure - material, normative, and ideational - and we also distinguish patterns of actions (along these three dimensions) from constraining and enabling structures.

Chapter 2

Chapter 2 (Assimilation of Inter-Organizational Information Systems: Insight from the Change Resistance Theory in Public Electronic Procurement), by Kishor Vaidya, John Campbell, Jeffrey Soar, and Scott Gardener, is primarily built upon theoretical work in the IOIS diffusion area, and in particular on theories of technology assimilation. Stages of the assimilation process and the aggregation strategy have been explained in the context of public electronic procurement. Resistance theory is also discussed. The authors have argued that understanding both change resistance variables and relevant change management interventions or moderators can be very useful in determining the extent of public e-procurement assimilation.

Chapter 3

Chapter 3 (Theoretical Foundations of Inter-Organizational Information Systems: Towards a Framework Grounded on Seven Theories), by Maria Madlberger, analyses and compares seven theories. This chapter argues that research on inter-organizational information systems (IOIS) provided many insights, which, however, are very fragmented in terms of applied theories. This results in a quite isolated understanding of single aspects of IOIS rather than a comprising approach to the research subject. To address these shortcomings, the chapter investigates seven theories in respect of their explanation of IOIS adoption and use, its drivers, IOIS-based collaboration between firms, and benefits and costs of IOIS. The applied theories are social exchange theory and embeddedness theory (organization theories), transaction cost theory and agency theory (economics-related theories), the resource-based view of the firm and network theory (strategic management approaches), and game theory. The findings and the resulting framework imply that all these theories lead to recommendations on the use of IOIS although they have very diverse assumptions and lines of argumentation. The chapter stresses that the investigated theories supplement rather than contradict each other.

Chapter 4

Chapter 4 (Transaction Costs in Inter-Organizational Systems: Theory and Selected Examples in Supply Management), by Michael Essig and Raphael Boerner, suggests that the transaction costs which occur both in companies and when crossing the company’s border to exchange with other market partners, make
it an ideal approach for inter-organizational information systems. As a microeconomics-based approach, the authors further suggest that such inter-organizational approach can be used to manage supply management activities by using the perspective of a company using (and buying) outside resources. The authors argue that it should be then possible to combine the rigor instruments of microeconomic analysis with the practical relevance of incomplete markets. Instead of playing “relevance versus rigor,” the authors suggest that Transaction Cost Economics can offer the chance to combine both aspects in the sense of scientific research, which combines a sound theoretical basis with concrete implications for management.

Chapter 5

Chapter 5 (Trust and Transaction Cost in Supply Chain Cost Optimization: An Exploratory Study), by Ik-Whan G. Kwon, John H. Hamilton, and Seock-Jin Hong, suggests that the foundation of efficient and effective supply chain management rests on collaborative efforts by all parties involved in executing the supply chain optimization process. Because of complexities in global supply chain networks coupled with ever increasing use of just-in-time techniques, lean applications, and global outsourcing, the authors warn that the threat of supply chain disruptions always exists in operations. Based on this argument, the authors conclude that there is no single management theory/tool that resolves such complex issues; however, trust and communication can be central tenets of supply chains in cost reduction efforts. As such, this chapter describes the relationship between trust and transaction cost in supply chain operations. Empirical findings from several research studies on trust and transaction cost in supply chain operations are presented in this chapter in support of the argument for managing transaction cost in supply chain management.

Chapter 6

Chapter 6 (Using Actor-Network Theory to Research the Adoption of Inter-Organizational Information Systems), by Jim Underwood and Bruce McCabe, argues that Inter-organizational information systems depend for their success at least as much on collaboration across organizational cultures as on the development of technical infrastructure. The authors suggest Actor-network theory (ANT) as a useful approach for bringing together social and technical considerations. They then discuss key features of ANT and show how it might be applied to a particular case of IOIS adoption. This chapter also compares the ANT approach to co-evolutionary theory which was originally applied to this case. Some possible extensions to ANT are contemplated in this chapter, and the authors offer advice to those attempting ANT-based research. They also offer advice, based on ANT, to those undertaking IOIS development.

Chapter 7

Chapter 7 (Organisational Change and Acceptance: Perspectives of the Technology Acceptance Model), by Marilyn Wells, reports on the development of the technology acceptance model from 1986 when Davis investigated technology acceptance from an individual’s view as to the ease of use and perceived usefulness of a system. The author suggests that many variations have been presented in attempts to explain how and what influences a computer system user’s uptake of new technology within an organization since then. The author argues that whilst all variations were developed explicitly to predict users’ acceptance or rejection of new technology, these variations are in essence predictors of acceptance or
rejection of change. According to the author, factors such as the organisational change environment and informal communication (rumours), together with social influence as exercised by colleagues should be considered major contributors to the perceptions of new technology and therefore acceptance. This chapter then extends the original model to include the variations and proposes that rather than looking at technology acceptance in isolation, acceptance of new technology should be viewed as acceptance of change. Based on these proposals, the author proposes the model Social Influence and Change Acceptance (SICAM) to reflect the inclusion of TAM’s variations in an organizational change context.

Chapter 8

Chapter 8 (Business Case Development Risks in On and Offshore IT Outsourcing: Unpacking the Theories), by Anne C. Rouse, observes that outsourcing of IT-supported business processes (systems development; IT service delivery; customer relationship management; helpdesk, etc.) has become increasingly common in western economies since the late 1980s. The author argues that such outsourcing is totally dependent on the provision of inter-organizational information systems (IOSs), which act as the “glue” to link vendor(s) and client(s). The author makes the point that it is critical to understand the importance of IOIS to ensure that outsourcing arrangements are successful. This chapter, therefore, unpacks the theory behind outsourcing and alerts the readers to aspects of IOIS that raise the risks of outsourcing if they are not well thought through. This chapter concludes by offering advice to decision makers to explicitly include the notion of risk in their outsourcing business cases, including those risks associated with the IOSs that support outsourcing arrangements.

Chapter 9

Chapter 9 (The Theory of Constraints: A Management Philosophy), by Shams Rahman, explains the philosophy behind the theory of constrains (TOC). The author suggests that TOC has two major components: a philosophy which underpins the working principle of on-going improvement and a generic approach for investigating, analysing and creating solutions to problems, called the ‘thinking process’ (TP). While several books, numerous articles, and a few journal special issues have been published on TOC, this chapter provides a comprehensive review of TOC concepts, philosophy, and working principles.

Chapter 10

Chapter 10 (The Effect of Merger and Acquisitions on the IS Function: An Overview and a Potential Agent-Based Approach), by Andrea Genovese, Sebastian Titz, Khole Gwebu, Barry Shore, Jing Wang, and Venky Venkatachalam, discusses various strategic and operational objectives of merger and acquisition (M&A) activity. The authors of this chapter note that the objective of developing common and efficient information systems that can be the source of creating significant cost savings for the joined companies in the inter-organizational setting can be especially challenging. The authors caution the readers that in combining the IS divisions of the acquiring firm with that of the acquired firm there are many hurdles when the technical and social system are to be integrated. The authors then note that exactly how this process evolves and exactly what results can be achieved is hard to determine. To help address this challenge, this chapter identifies some of the major factors associated with the integration process and proposes Agent Based Simulation as a possible methodology to study this phenomenon.
Chapter 11

Chapter 11 (Information Management for Public Budget Decision Making: Insights from Organization and Budget Theories), by Yaotai Lu and Khi V. Thai, makes the point that budget agencies are faced with a great number of uncertainties and constraints because of bounded rationality and uncontrollable factors in the environment. The authors of this chapter suggest that information management intends to reduce these uncertainties and risks in the budgetary process so that budget decision making will be more rational; thus public resources are expended efficiently, effectively, and equitably. The authors argue that organization theories and budget theories together produce considerable impacts on practice of public budgetary decision making and relevant information management. This chapter attaches importance to appropriate combination of theoretic function and budget formats and goals in the budget process in the inter-organizational context.

Chapter 12

Chapter 12 (The Value of Sociotechnical Theories for Implementation of Clinical Information Systems), by Joanne Callen, Andrew Georgiou, Julie Li, and Johanna Westbrook, provides an overview of sociotechnical theories which can be used to understand, design, implement, and evaluate clinical information systems in health care settings. The authors suggest that the sociotechnical approach is one which seeks to identify the dynamics between technology and the social, professional, and cultural environment in which it is used. Theories and models covered in the chapter include: the technology and information technology acceptance models; a multi-level integration framework approach; social cognition theory; theories which propose a fit between individuals, tasks, and the technology; diffusion of innovation theory, and a contextual implementation model. The authors conclude that the frameworks presented in this chapter may not be exhaustive but most relevant to the complexity of information and communication technology use in inter-organisational health care settings.

Chapter 13

Chapter 13 (Diffusion of Innovation Theory and the Problem of Context for Inter-Organisational Information Systems: The Example of Feral Information Systems), by Luke Houghton and Don Kerr, argues that diffusion theory models like the technology acceptance model (TAM) need to be rethought in light of contextual factors that are becoming increasingly important in modern inter-organisational settings. This is due to the growing complexity of organizations with respect to different organisational types, contexts, and political structures that have been shown in research literature to hinder information systems acceptance. The chapter looks at possible contextual factors that are ignored by TAM by critiquing its parent diffusion theory (diffusion of innovations). The authors suggest that such approach can be considered as the best as there are many variations of TAM, but the diffusion of innovations (DOI) theory underlies all these variations. The chapter also recommends a way forward for research into inter-organisational information systems by examining an example situation of Feral Information Systems (FIS) to illustrate the problem. The chapter concludes with a discussion about future research directions.
Chapter 14

Chapter 14 (Public E-Procurement Implementation: Insights from the Structuration Theory), by José Rodrigues Filho and Flavio Perazzo Babosa Mota, argues that although public e-procurement has similarities with the private sector, it also has some special characteristics that make it different. As it is not clear to which extent recent decisions on public e-procurement have been optimal, the author attempts to show how qualitative research traditions like structuration theory (specifically from the perspective of “dialectic of control”) and qualitative research analysis can be used in the analysis of e-procurement in Brazil, leading to results that differ substantially from the mainstream positivist research that does not always touch the barriers and challenges that can constrain the adoption and implementation of public e-procurement projects in the specific country context.

Chapter 15

Chapter 15 (The Technology Acceptance Model: A ‘Localized’ Version to Predict Purchasing Behavior in Internet Shopping) by Kanokwan Atchariyachanvanich, Hitoshi Okada, and Shiro Uesugi examines the factors affecting consumer purchasing behavior in Internet shopping. Multiple group analysis and structural equation modeling are applied in this chapter to investigate whether the existing model of Consumer Acceptance of Virtual Stores is able to identify those factors in Japan and South Korea. The authors report that the results of online questionnaires filled out by 1,111 Japanese online customers and by 998 Korean online customers revealed that the model failed to do so. Therefore, the localized models for Japan and South Korea were conducted by the authors. According to the localized model, perceived trust is the most important factor affecting purchasing behavior of Japanese customers. In South Korea, purchasing behavior is highly related to perceived usefulness and perceived service quality. The authors hope that the differences between online customer nationalities regarding their perceptions of purchasing through the Internet offers insights that can help e-commerce vendors increase the number of customers in different world market segments.

Chapter 16

Chapter 16 (Perceived Benefits from a Local Government Public Procurement Initiative: A Diffusion of Innovation Perspective), by Md Mahbubur Rahim and Adarsh P. Bantwal, notes that much of the attention of the existing e-Procurement literature is on understanding adoption decisions of e-Procurement systems from the perspective of senior management, and little research efforts have been made to examine how employees who actually use these systems perceive the benefits arising from these systems. According to the authors, although the role of demographic characteristics of users is recognised in the innovation adoption and broader IS/IT adoption literatures, it is not clearly known how the demographic characteristics of employees (who interact with such systems) may influence their perceptions about e-Procurement benefits. To address this gap in the literature, this chapter analyses the views captured from sixty employees working in three large city councils located in the state of Victoria, Australia. The findings indicate that the outcomes of e-Procurement systems adoption were largely seen in a positive light as the employees reported favourably about the attainment of benefits from their use of these systems. However, except user type, popular demographic characteristics of employees (e.g. gender, job role, working experience at councils) were not related to their perceptions of e-Procurement benefits.
Based on the results of this study, the chapter discusses the implications of these findings and proposes future directions of research.

**CONCLUDING REMARKS**

The theoretical approaches presented in above chapters are by no means exhaustive and prescriptive, but rather they provide examples of various frameworks and derived theoretical variables in a given context to guide a researcher. Obviously, the more knowledge researchers have of multiple theories, the greater will be their capacity to choose appropriate theory to study IOIS phenomena of interest. The chapters in this book are thus intended as an invitation to further exploration of relevant theories to study IOIS and business management.

While each of the theories discussed above has individually received attention in prior innovation/IOIS literature, they have not yet been collectively brought together into a single book. We believe that each of the chapters in this book offers its own focus and explanation, predictive power, and frameworks for the study of IOIS from multiple perspectives. Furthermore, a set of these theories when integrated and adapted in a given context can provide a systematic frame of reference for investigating the assimilation of IOIS.

**REFERENCES**


