Preface

Advances in computing and communication technologies have profoundly accelerated the development and deployment of complex Enterprise Systems (ES) in small, medium, and large enterprises seeking organizational improvements and business benefits. These systems are helping organizations reduce working capital requirements such as cash and inventory, and improve customer service by reducing cycle time and increasing service levels thus increasing companies' operational effectiveness. In fact, Enterprise Systems have evolved to become the information backbones of the organizations. This backbone has been further expanded to supply chain optimization, customer relationship management, data warehousing, and many other management intelligence systems. The implementation of such complex information systems in industries and organizations is considered as one of the most important developments in corporate use of information technology.

Enterprise Resource Planning (ERP) is now being hailed as a foundation for the integration of organization-wide information systems. ERP systems link together entire organization's operations such as accounting, finance, human resources, manufacturing, distribution, and so forth. Moreover, they also connect the organization to its customers and suppliers through the different stages of the product or the process life cycle. ERP is a part of the larger set of technology and operations driven systems, called Enterprise Systems that aim at integrating the entire enterprise and even a set of enterprises. The literature on ERP success and/or failure is inconclusive. While some analysts report positive impacts and outcomes of ERP application, others have revealed ERP failures. One of the reasons behind these different views lies in the multidimensionality of the concept of success and the difficulty of developing a single success/failure measurement.

This *Handbook of Research on Enterprise Systems* aims to encompass the most comprehensive source of coverage related to the past, present, and emerging directions of Enterprise Systems in their broadest scope and role in the organizations. Topics included in this handbook provide a broad basis for understanding the issues, technologies, theories, applications, opportunities, and challenges being faced by researchers and organizations today, in their quest for Enterprise Systems development, implementation, management, and vision for the future.

To create such a handbook of research on Enterprise Systems, we decided to launch this project where researchers from all over the world were invited to contribute. The primary objective of this project was to assemble as much research coverage related to the Enterprise Systems as possible. The idea behind this project was to gather the latest information on Enterprise Systems from researchers worldwide. Therefore, in order to provide the best balanced coverage of concepts and issues related to the selected topics of this handbook, researchers from around the world were asked to submit proposals describing their proposed coverage and the contribution of such coverage to the handbook. All proposals were carefully reviewed by the editors in light of their suitability as well as the researchers' record of similar work in the area of the proposed topics.

The goal was to assemble the best minds in the Enterprise Systems field to contribute to the handbook. Upon the receipt of full chapter submissions, each submission was forwarded to expert external reviewers on a double-blind, peer review basis. Only submissions with strong and favourable reviews were chosen as chapters for this handbook. In many cases, submissions were sent back for several revisions prior to final acceptance. As a result, this handbook includes 27 chapters highlighting concepts, issues, emerging technologies, and applications of enterprise systems. All entries are written by knowledgeable, distinguished scholars from well-known academia and prominent research institutions around the world. The authors who have contributed to this book are well known Enterprise Systems experts who have been doing research on various aspects of Enterprise Systems for several years and have tried to present their work in most lucid and simple words. It is hoped that readers will find it easy to understand and implement some of suggested approached.

This handbook is organized into five broad sections for cohesive and comprehensive presentation of a variety of topics related to the Enterprise Systems. A brief description of each section, followed by coverage of the various chapters in each section, is provided below.

Section I, Enterprise Systems: Technologies, Solutions, and Strategic Perspectives, begins with the growing importance of increasing "enterprise agility" in the organization with the understanding of the technologies available to develop and deploy Enterprise Systems (ES) in organizations. In the current global and competitive business environment, it is essential to be flexible and agile simultaneously. The six chapters in this section discuss the technologies, solutions, and strategic perspective of implementing and using enterprise systems and the tools available to analyze and evaluate proposed solutions. These research-based discussions include topics such as the means for researchers to explore enterprise agility in a systematic way and identify a number of important issues regarding the attainment of such capability, the concepts behind SAP Business Blueprint as an integrated environment that simplifies the enterprise design process, the key aspects of Free/Open Source Enterprise Resources Planning systems (FOS-ERP), Business Process Modeling (BPM) concepts and evolving modelling standards and technologies for enterprise systems' integration, how information technology, and ERP together facilitate in aligning the business and the role and place of executive information systems in the evolution of enterprise systems.

Section II, Enterprise Systems: Risks, Performance, and Business Value, discusses risk and performance issues related to enterprise systems. Business operations are composed of a collection of business processes. An enterprise system is an approach to integrate business processes, people, applications, and systems; in essence integrating the business, for business transformation and business value creation. Studies have proven that integration is not only a key reason for the adoption of Service Oriented Architecture (SOA) but also for improving business value. However, such a wider scope and holistic view of enterprise systems creates high level of complexity which leads to increased levels of risk and issues concerning their performance and business value. Therefore, it is important to assess the risk of implementing enterprise systems and the performance gains that can be achieved. Further, it is important to consider integration in a wider concept, including the entire supply chain and the customer relationships. The six chapters in this section are devoted to the discussion of relevant topics to enable the readers to understand the relationship between risks, performance, and business value while developing, implementing, and deploying integrated enterprise systems. The chapters in this section discuss the alignment of enterprise systems with business strategy and its impact on the business value that enterprise systems generate, the potential of integrating SCM and CRM, ERP investment and achievement of improved business performance, the potential impact of the consideration of enterprise information systems' administrative and execution context as a component of the application software development process.

Section III, Enterprise Systems: Small, Medium, and Large Organizations, is devoted to the ERP implementations in small, medium, and large organizations. The initial developments in enterprise systems in the form of enterprise resource planning (ERP) systems concentrated on their deployment in large business firms. However, in the modern competitive landscape, the ERP solutions have received favourable response from corporate as well as small and medium enterprises (SMEs). Many SMEs are implementing ERP initiatives for enhancing their inventory management, cash management and thereby trigger the overall efficiency of the enterprise. ERP requirements, investments and challenges for small and medium enterprises (SMEs) are different from large organizations. Sceptics argue that heavy investments in ERP implementation in SMEs may not bear the same fruits as large organizations. It is felt that SMEs may take a great deal of time, money and effort for them to understand the business processes restructuring and technology and may never effectively customize enterprise systems due to nature of its small and medium size. The first three chapters in this section discuss the issues related to the development, implementation, and use of enterprise systems in SMEs. The final chapter in this section explores the impact of organization size on the benefits of enterprise systems.

Section IV, Enterprise Systems: Implementation and Applications, deals with the approaches, frameworks, methods, tools, and technologies that are used in ES implementation and applications. Usually, companies have silos of information making retrieving and exchanging disparate corporate data often a complex and time consuming process. ERP systems are used to consolidate the desperate resources into an integrated database for seamless exchange and retrieval of information. Integrated information helps in enhancing enterprise performance and increase business value. However, lack of understanding of the issues involved in successful application development and implementation of enterprise systems is responsible for many enterprise system failures in practice. Utilizing appropriate implementation and application development methodologies, tools, and techniques can significantly increase the chances of success in beneficial use of enterprise systems. Six chapters in this section discuss the issues involved and the possible approaches that can be taken for application development and successful implementation of enterprise systems in various industrial sectors.

Section V of this handbook deals with the topic of **ERP and Beyond**. The boundaries of the enterprise have shifted and now extend to customers and suppliers who are outside the organization. The next generation enterprise applications will focus on supply chain management, customer relationship management for collaborative decision-making, all while encompassing more domains of business and other public organizations. Also, the drivers for future enterprises would be applications with open and flexible architectures. Thus the enterprise architecture will move towards service-oriented architecture (SOA) and will include a wider range of applications and scope of enterprise systems. Five chapters in this final section of the handbook describe state-of-the-art developments in Enterprise Systems and look beyond ERP to suggest a wider scope and role for Enterprise Systems including e-government and knowledge distribution. The authors having contributions in this section also suggest guidelines to emerging frameworks and next generation IT for knowledge distribution in enterprises.

This handbook is edited to cover a wide range of topics that are considered at the core of research and development of enterprise systems and applications. The coverage of this Handbook of Research on Enterprise Systems provides a reference resource for enterprise systems researchers both from industry and academia and professionals in obtaining a greater understanding of the concepts, issues, problems, trends, challenges, and opportunities related to this field of study. It is hoped that the diverse and comprehensive coverage of Enterprise Systems in this handbook will contribute to a better understanding of the research focuss and trends towards future developments in this evolving field of study. It is our

sincere hope that this publication, with its great amount of information, will assist the enterprise systems researchers, faculty members, graduate students, and organizational decision makers in enhancing their understanding of the current and emerging issues in enterprise systems. Furthermore, we hope that the contributions included in this handbook will be instrumental in the expansion of the body of knowledge in this vast field.

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