Preface

ABOUT THE SUBJECT

Electronic business (e-business) plays a central goal in the economy, facilitating the exchange of information, goods, services, and payments. E-business is not exclusive for large enterprises. It propels productivity and competitiveness, and is accessible to all enterprises. Sophisticated systems like e-Marketplaces act as business integrators, potentiating business opportunities for both buyers and sellers.

E-business represents potential and opens opportunities to foster competitiveness, but brings in operational, tactical, and strategic challenges for small and medium enterprises (SME). This topic is gaining an increasingly relevant strategic impact on global business and the world economy, and organizations of all sort are undergoing hard investments (in cost and effort) in search of the rewarding benefits of efficiency and effectiveness that this range of solutions promise. But as we all know this is not an easy task; it is not only a matter of financial investment. It is much more, as the book will show.

Responsiveness, flexibility, agility, and business alignment are requirements of competitiveness that enterprises search for. And we hope that the models, proposals, and studies presented and discussed in this book can contribute to highlight new ways to identify opportunities and overtake trends and challenges of e-business adoption and exploitation, in particular targeting SME.

The book project was born under the intention to collect the most recent developments on the organizational, technological, and legal dimensions of electronic business, discuss its potential, impact, trends and challenges. This objective was met, due to the high adhesion of contributors and the quality and complementarity of the manuscripts proposed that allowed a comprehensive whole, addressing all the aspects initially previewed.

ORGANIZATION OF THE BOOK

This book is a compilation of 18 contributions to the discussion of the main issues, challenges, opportunities and developments related with e-business technologies and business trends, from the technological, managerial, and organizational perspectives, in a very comprehensive way, in order to disseminate current achievements and practical solutions and applications.

These 18 chapters are written by a group of 45 authors that include many internationally renowned and experienced researchers and specialists in the e-business field and a set of younger authors, showing a promising potential for research and development. Contributions came from the five continents, integrating contributions from academics, research institutions, and industry, representing a good and
comprehensive representation of the state-of-the-art approaches and developments that address the several dimensions of this fast evolutionary thematic.

Innovations in SMEs and Conducting E-Business: Technologies, Trends and Solutions is organized in four sections:

- **Section 1:** “Technological and Organizational Solutions,” with seven chapters, is focused in advancing solutions for the development of e-business, in particular in SME.
- **Section 2:** “Marketing Strategies” introduces new concerns of e-marketing strategies and optimization of its potential to organizations.
- **Section 3:** “Semantic Technologies” reflects the main advances in semantic technologies, ontologies, and Web services that support e-business.
- **Section 4:** “Legal and Security Aspects” discuss these issues as major concerns for e-business development.

The seven chapters in section one introduces issues in technology and organization of SMEs.

The first chapter, “Web 2.0: An Emerging and Innovative Solution for SMEs,” critically analyses and assesses the concept and development of Web 2.0 within SMEs. Web 2.0 is changing the way that business can be conducted, offering SMEs opportunities for developing strategies, business models, and supply chains whilst adding value and gaining competitive advantage. There are many advantages for SMEs using Web 2.0, including them being easy to use, limited skills required, and relatively low-cost; there are also a range of emerging applications in fields such as marketing, collaboration, knowledge transfer, enhancing products and services, and research. Equally, there is an array of operational and managerial challenges that need to be overcome. This chapter suggests a set of questions that SMEs may consider using as a guide if they are considering Web 2.0 as a competitive weapon for the future.

E-procurement accelerates SMEs at a reduced cost. The purpose of chapter two, “E-Procurement System and Adoption for SMEs,” by Bayram and Vayvay, is to show that the adoption of an e-procurement system is essential in the supply chain for SMEs and to find solutions in order to make the use of this system as easy as possible. The adoption should be considered as a re-engineering process from an innovative perspective. An adoption plan is proposed within the study, consisting of three phases: 1) identification of the e-procurement process, 2) seeking integration points with other elements of the system, and 3) IT implementation of the integration areas. The study also proposes to use business process management tools that have workflow engines and Web service implementations for integration points. Although BPM tools are seen as quite expensive to SMEs, there are also dependable free licensed ones. The chapter is concluded with a case-study that is implemented with a free-licensed BPM tool for proof-of-concepts.

In chapter three, “Model of Functionalities for the Development of B2B E-Commerce Solutions,” Pinto, Rodrigues, Varajão, and Gonçalves focus on business to business (B2B) e-commerce. B2B describes electronic commerce associated to operations of buying and selling products and services through the Internet or through the use of private networks shared between business partners, thus replacing the physical process around commercial transactions. The analysis of the several B2B solutions enabled the verification that there are major differences in the amount of the supported functionalities, and significant opportunities for development, with the aim of helping companies to evaluate their electronic commerce solutions and to conceive new and more complete systems. This chapter presents a new model of functionalities for the development of B2B solutions.
Chapter four, “Cross-Site Scripting: An Overview,” introduces a comprehensive survey on a currently relevant security threat to Web applications: cross-site scripting (XSS). The rise of reported XSS vulnerabilities has made this family of attacks an interesting area for computer security researchers. XSS consists of the injection of code in Web pages. As injected code is made up of client side scripts, it is executed at the user’s Web browser. The main reason for the existence of this kind of vulnerabilities is the incorrect or insufficient handling of the input performed by Web applications. In this chapter, guidelines on proper input treatment for Web developers are offered. Additionally, existing proposals for XSS mitigations are exposed, and future lines of research are indicated to interested researchers and developers. Web applications are susceptible to including vulnerabilities that may not only disrupt the provided service, but also facilitate private and personal information to an attacker. As these applications are usually public or even publicized, attacks are expected to be more and more frequent, making it necessary to supply the means to provide an adequate level of security in the utilization of Web applications.

Open Source Software (OSS) has gained a strong interest and an increased acceptance in the software industry, introducing wholly new means of software development and distribution, creating a significant impact on the evolution of numerous business processes. Chapter five, “An Open Source E-Procurement Application Framework for B2B and G2B,” examines the impact of the open source paradigm in the e-Procurement evolution and identifies a trend towards Open Source e-Procurement Application Frameworks (AFs) which enable the development of tailored e-Procurement Solutions. Anchored in this notion, the authors present an Open-Source e-Procurement AF with a two-phase generation procedure, combining the Model Driven Engineering (MDE) approach with the Service-Oriented Architecture (SOA) paradigm for enabling the cost-effective production of e-Procurement Solutions by facilitating integration, interoperability, easy maintenance, and management of possible changes in the European e-Procurement environment. The assessment process of the proposed AF and its resulting e-Procurement Solutions occurs in the context of G2B in the Western-Balkan European region. The evaluation yields positive results and further enhancing opportunities.

Often, small and medium enterprises consider the possibility of creating their own contact centre as a tool to improve the customer service. They pose some important questions about business and technical aspects: Why should we use a contact center solution? Which technologies, architectures, and solutions are available? Which key issues should be analyzed? Rijo, in “Contact Centers: Tool for Effective E-Business,” provides specific information and practical guidelines about Contact Centers based on a literature review and interviews made to contact center business consultants specialized in the small and medium enterprises sector. The goal of the chapter is to help top management and Information Technology personnel in making the best technological choices and methodological approaches.

Parking is costly and limited in almost every major city in the world, and misparking aggravates the competition of parking slots. Innovative parking systems for meeting near-term parking demand are needed. The chapter “E-Parking: An Electronic Parking Service Using Wireless Networks” proposes a novel parking system which adopts the wireless network and sensor technologies to provide an intelligent and automatic parking service, and presents the implementation and a probabilistic analysis of the new parking service. The drivers will be informed the detailed information, i.e. the vacant parking slots and the route to the slot. From the investor’s view, the electronic parking system proposed in the chapter is an efficient and profitable system in utilization of slots and the maintenance cost.

The four chapters of Section 2 introduce new concerns of e-marketing strategies. El-Gohary, in “E-Marketing: Towards a Conceptualisation of a New Marketing Philosophy,” aims to add to the accumulative knowledge in the field of e-marketing through conceptualising e-marketing
as a new marketing philosophy. The review of the literature has revealed that one of the main obstacles to developing e-marketing potential is the absence of a clear conceptualisation of e-marketing purpose and definition. The majority of researchers within the field misuse the term e-marketing and are using the terms e-business, e-marketing, e-commerce and Internet-marketing interchangeably as if they are similar or have the same meaning, which is incorrect. The differences between these terms as well as the main components of e-marketing are illustrated and discussed in detail within the chapter towards achieving a conceptualisation of e-marketing as a new marketing philosophy and to build a ground base of understanding for these different concepts. The chapter will help researchers and scholars to have a clearer view towards this concept that in turn will contribute to the related accumulated knowledge in the field.

Chapter nine, “Analysis of the Variables which Determine a Good E-Marketing Strategy: The Techniques Most Used During Times of Crisis,” demonstrates how adequate planning is fundamental in a SME to increase sales. The objective is to analyze the aspects that must be taken into consideration when developing a good e-marketing strategy and to study some of the different alternatives that the Internet and e-marketing make available to us: e-mail marketing, viral e-marketing, geomarketing, and positioning within search engines. Also, the concept of Customer Relationship Management (CRM) will be analyzed. The leap into the global market is not easy and the reduction in budgets has inspired marketing professionals to adopt strategies which can be measured and the results controlled, pointing out that the online tactics and tools used by the vast majority of marketing professionals in their strategic plan are banners, search engines and e-mail.

“Market Research 2.0: An Inclusive Approach to Understanding Customers’ Needs,” by Given and Rathi, examines the possibilities of conducting market research in Web 2.0 environments, with a focus on implications for small to medium-sized companies. The chapter discusses how companies can undertake market research using Web 2.0 platforms, explores how these tools can facilitate successful and appropriate market research design, and examines the characteristics of qualitative and quantitative “Research 2.0” techniques appropriate to a Web 2.0 environment. The chapter also presents examples of companies that are using these tools successfully for market research and discusses advantages and barriers in adopting these tools, including privacy, ethics, and legal implications of this type of research.

In chapter 11, “E-Marketing,” Manarte and Teixeira present e-marketing and the channels, tools and techniques that can be used by SMEs so they can optimize the benefits of an online presence. Knowing its customers is the starting point for any firm’s marketing activity, so the chapter introduces concepts related to the process of gathering information about e-customers. The company website is the gateway to Internet marketing, so it is important to promote it in a variety of ways that are also explained in the chapter. Selling online can be an interesting option, but this decision should only be taken after considering the pros and cons that it involves. To conclude, the authors discuss the e-marketing plan, which should guarantee that the objectives, strategies, and actions of online marketing are coherently integrated with the offline marketing plan.

Section 3, “Semantic Technologies” describes how e-Commerce is strongly supported by advances in semantic technologies, ontologies, and Web services, as reflected in the four chapters of this section. The purpose of Beckett, Rowland-Campbell, and Strahl in “Critical Success Factors to Yield Business Benefits from Semantic Technologies” is to explore opportunities offered by and issues associated with the use of emergent semantic technologies in enhancing an enterprise’s business position. These technologies include a foundation level set of standards and descriptive languages supporting interpretive connections to applications. The chapter is more oriented towards applications and the human side
of the human/machine interface. The authors draw on both the literature and case material available to
them as active practitioners to illustrate benefits realized and potential barriers to the uptake of semantic
technologies. Critical success factors are related to user learning capabilities, the establishment of trust
in the technology and its providers, and factors influencing the nature of potential engagement with
users and markets.

Nowadays, firms need to refocus the way they manage the knowledge generated from business
processes, in order to optimize their information systems’ performance. Business ontologies are an ex-
cellent tool for this. In “The Semantic Integration of Information: A Business Ontology Proposal with
Semantic Interoperability,” Paredes-Moreno, Martínez-López, and Schwartz highlight how important is
for companies to invest efforts in a closer integration of their systems, with the aim of improving their
performance and cooperation. This implies moving towards more efficient systems in their knowledge
management. The big challenge for firms now is the semantic integration of information. Essential ques-
tions related to this question are synthetically introduced. Then, some of the most significant initiatives
and projects on semantic integration of information are presented and compared with a business ontology
that authors have developed for commercial use.

With the increasing development of the Semantic Web technologies, the Semantic Web has been in-
troduced to apply in the Web Services to integrate data across different applications. For Semantic Web
Services to succeed, it is essential to maintain the security of the organizations involved. To guarantee
the security of the Web Services, security measures must be considered to protect against unauthorized
disclosure, transfer, modification, or destruction, whether accidental or intentional. Access control is a
kind of security measurements to guarantee the service processes, which is defined to allow resource
owners to define, manage, and enforce the access conditions for each resource. In “Semantic Mapping
for Access Control Model” by Zhao and Halang, an attribute based access control model with semantic
mapping (SABAC) to specify access control over attributes defined in domain ontologies is proposed.
The model is built on the basis of XACML policy language. Semantic mapping process is proved to be
syntactical, semantic, and structural.

Chapter 15, “Ontological Representation of Virtual Business Communities: How to Find Right Busi-
ness Partners” by Petrič, Urbančič, and Cestnik addresses the field of efficient information retrieval and
knowledge discovery from textual data. To become acquainted with a particular domain and to better
understand the underlying concepts, domain knowledge can be represented by ontologies. In addition,
ontologies can be used for identification of potential links in virtual business communities and for deci-
sion support when searching for right business partners, which is very relevant to small to medium-sized
enterprises. Potential applications range from dynamic supply chain configuration to building consortia
as quick responses to business opportunities.

Legal and security aspects are fundamentals for e-commerce, and several major concerns are intro-
duced in section 4.

In order for a SME to conduct business electronically, that SME requires the establishment of a website.
This requires agreements relating to (1) website development, (2) website hosting (3); Internet access,
and (4) online content and advertising. In “Key Contracts Needed for SMEs Conducting E-Business: A
Practical Guide from a UK Law Perspective,” Sam de Silva provides a practical guide from a UK law
perspective for a SME in relation to the issues which should be considered when contracts for the above
mentioned services are negotiated. The chapter does not cover the issues relating to how the SME should
set up its arrangements with its own customers (for example, through website terms and conditions), nor
does it consider e-commerce legislation required when conducting business on the Internet.
In cyberworld, intellectual property rights and the right to informational self determination have become two realities in tension; nevertheless, they are two main concerns of the e-commerce stakeholders. From the industry point of view, new digital technologies, left unregulated, may allow a free flow of information and unauthorized access to contents both from consumers or competitors; from the consumers’ perspective, security and privacy concerns are the major barriers to contracting online. The goal of chapter 17, “Electronic Surveillance, Privacy and Enforcement of Intellectual Property Rights: A Digital Panopticon?” by Pedro Pina, is to understand the relationship between anti-piracy oriented private electronic surveillance and consumers’ privacy. If, on the one hand, the enforcement of intellectual property is a laudable activity, on the other hand, the individual’s privacy sphere is one of the most important values and personal freedoms that law, including intellectual property law, must preserve.

Nowadays, when organizations, no matter what dimension they possess, are confronted with more exigent market challenges, they must change strategies and behaviors as needed to respond according to their new business positioning. If all organizations are affected by markets instability, SMEs suffer a greater impact due to a lack of suitable resources to appropriately change business strategy or develop a new one. This reveals information and information security significance, and so the relevance of securing information systems that supports their flows through organizations. In “SMEs E-Business Security Issues,” Gaivéo points information security issues that are important to SMEs e-business strategies, issues which could simultaneously guarantee organizational information privacy, and Gaivéo establishes guidelines which could also be applied to SMEs, allowing information security policies definitions.

EXPECTATIONS

Along this 18 chapters, the reader is faced with discussions and confirmation of the relevance and impact of this hot topic on enterprises (and in particular SME) competitiveness; its role in the support of new organizational models (networked, collaborative, virtual, knowledge-based, ubiquitous); discussion of drivers and barriers to e-business development; and the presentation of state-of-the-art enabling technologies.

The book provides researchers, scholars, and professionals with some of the most advanced research developments, solutions, and discussions of e-business challenges, impacts, and opportunities under the social, managerial, and organizational dimensions. This way, is expected to be read by academics (teachers, researchers and students of several graduate and postgraduate courses) and by professionals of Information Technology, IT managers and responsible, Marketing experts, Enterprise managers (including top level managers), and also technology solutions developers.

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