

E-Business Issues, Challenges and Opportunities for SMEs: Driving Competitiveness

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Section 1

Technological and Organizational Challenges

Section 1, "Technological and Organizational Challenges" includes seven chapters concerned with the more technological and organizational challenges, opportunities and impact of e-business.

Chapter 1

Designing Digital Marketplaces for Competitive Advantage	1
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In today's digital world the majority of companies, including small and medium-sized enterprises (SMEs) and large firms, aim to have an online presence. However, SMEs differ from large-sized companies in terms of financial and staffing resources, which have implications for the development of e-business strategies. Thus, SMEs must not only overcome these barriers but must also take care of several critical success factors (CSFs). This chapter discusses three elements (i.e., design principles, web usability and search engine optimization), which are vital to the effective design of a successful digital marketplace. The chapter discusses the importance of integrating these three elements in website design especially for SMEs.

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According to the authors, it is hoped that agent mediated e-commerce will be carried out as open systems of agents interoperating among different institutions, where different auction protocols may be in use, and argue that in order to put such a scenario to work, agents will need a method to automatically verify the properties of a previously unseen auction protocol. This poses the problem of automatically

verifying desirable properties in order to trust a given auction mechanism. The chapter we discuss relevant opportunities for SMEs in addressing the issues of enabling software agents (e.g., PDAs, mobile phones) to connect to auction houses and verify desirable properties that need to hold before engaging any transactions.

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This chapter introduces Virtual Organizations (VOs) as a special organizational form of collaborative networks of SMEs to conduct e-business projects. VOs are normally not created from scratch, but instantiated from a strategic network or pool of enterprises. This enhances the preparedness of participating members when an e-business opportunity occurs. The underlying strategic network acts as a breeding environment for the VOs, called a VO Breeding Environment (VBE). Examples from the automotive industry are illustrating the development and needs of this concept. Strategic planning is important for such a network in order to increase chances of occurring business opportunities. The chapter also discuss how scenario-oriented methods such as cross-impact analysis can be used to support a collaborative strategic planning in such networked organizations. The application of such methods allows long-term foresight and the anticipation of the right technological, financial and business oriented decisions.

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SMEs have a special need to be able to collect knowhow from the global community and implement this as competence in the enterprise. E-Learning is an approach for competence development that can assist SMEs in creating a learning organization. There are different approaches to e-learning. Amongst the most powerful ones is the application of serious games. The PRIME project conducted experiments with serious games in project business and in manufacturing and has resulted in a set of guidelines for successful implementation of games in an organization. It is necessary to allow a learning curve and put emphasis on the social context to obtain effective learning. SMEs are advised to develop e-learning in cooperation with academic institutions, and to use real life cases and problems for assignments. Delivery should be based on proven technology when used in SMEs.

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21st Century Learning Opportunities for SME Success: Maximizing Technology Tools and Lifelong Learning for Innovation and Impact 65

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This chapter informs SME owners, developers, consultants, and academics with the reasons, means, and possibilities afforded by 21st century technology in helping SMEs to improve their operational efficiencies and discover more effective marketing strategies for their products and services. SMEs typically underutilize opportunities to enhance their efficiencies by using more complex e-Business systems, and in so doing under develop the talents of their workforce for innovation and success. This underutilization is due to a lack of exposure to leadership and HR development training. Knowing the need to learn must be a strong foundation before technological development can ensue. This chapter provides a synthesis of research and literature across several related, but seldomly connected fields - including, organizational theory, leadership, adult development and learning, 21st century learning, distance learning and human resource management. The authors attempt to communicate the need for SMEs to both develop leadership and technological program developments to implement the changes needed to compete in a marketplace that reflects rapid change and imperfect information.

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<i>Hakikur Rahman, University of Minho, Portugal</i>	

With the advent of innovative technologies and multi-dimensional researches along the setting of entrepreneurship development, philosophy, context and business handling has been transformed from being traditional to innovative. Depending on diversity and nature of the transformation, innovation has been shifted from closed to open to crowdsourcing innovation. Ranging from small entrepreneurs to corporate business houses are being immensely benefited by the innovation techniques, especially utilizing information and communication technologies. However, the road to innovation, despite being a paradigm shift is not smooth and ready for many, particularly the SME who mainly deal with the clients at the outer peripheries of the social circle. This chapter synthesizes issues of opportunities and challenges for SME by carrying out a broad literature review and synthesis, providing a few research hints to be applicable for researchers and research institutions.

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The Internet and information technology (IT) are being used in many ways to bring benefits and to increase competitiveness to businesses and public sector organizations. Implementing innovations in an organization is a dynamic and continuous process. This chapter discusses factors and elements fundamental for overcoming business challenges that most of the organizations are facing during successful implementation of an IT initiative within an organization. However, in order for systems to be prepared for change in terms of organizational readiness, organization needs to assess and plan their organizational readiness. The chapter also presents how to assess an organization's readiness for success and how to put together an organizational readiness plan.

Section 2 New Business Models and Technological Support

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In the networked world supply chain, integration and networking is being echoed in various industries as a strategic imperative solution for firms. Digital marketplaces represent one of the most powerful solutions adopted by firms to manage their supply chains and to support the networking practices among firms, especially among SMEs. In fact they enable firms to more efficiently buy, sell, and manage their supply chain processes on a global scale. However, SMEs supply chains may differ in the modalities of coordination and collaboration, in the intensity of relations between actor and more specifically in the technological infrastructure and competencies available. These factors may affect the success of digital marketplaces and their potentialities for firms networking. The chapter suggests that digital marketplaces could provide a viable model for SME networking; however, successful path toward networking requires a harmonization of digital marketplace business model with supply chain characteristics.

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In modern working relations, a company can improve its business dramatically, especially with formation and performance of suitable management. An important role in the whole management of a company belongs also to management of e-business. One of the main concerns about management of e-business is how much of each e-business should be owned by each e-business participants. This is called the extent of vertical integration. But in the modern business environment, vertical integrations alone are not enough. The alternative to vertical integration is some other form of relationship, not necessarily ownership. The chapter examines the relationship between the links of the e-business in terms of the flows between the operations involved. This contribution discusses two issues: (1) How different relationships in e-business impact organization of e-business, and (2) How different organizational forms impact of e-business.

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Current trends of globalization and increased competition require new forms of organization and work support. Especially in SME, the competitiveness and future market position of an enterprise is closely related to the ability of cooperating with partners in SME networks or virtual supplier organizations. In complex work processes with a number of distributed partners, high requirements with respect to competence and a lot of rules and guidelines to be obeyed; detecting and sharing knowledge among different members of networked organizations is an important issue. Based on an empirical investigation regarding the demands of SME and illustrating this demand with industrial cases, this chapter investigates two technical approaches supporting knowledge supply in networked organizations: enterprise modeling and self-organization of flexible supply networks. These approaches are presented with related work and their limits and potentials.

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SME as a Service 173

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Enterprises, and in particular SMEs, besides having to stay agile, competitive and aware of competition, must give customers what they need (customized products or services) when they need it. The classical business paradigm (carefully studying what customers have bought in the past to predict what they will buy in the near future and derive a strategy from it) is not agile and adequate enough anymore. This chapter discusses a customer-centric business paradigm with enough agility to follow the patterns of customers' needs and the ability to customize specific needs as a variant of some pattern, turning the very low volume customer market into a viable business opportunity. The customization and corresponding production result from concrete user request and not anticipation of demand. The authors call it EaaS (Enterprise as a Service), and is particularly adequate to SMEs.

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As modern economies faces its growth challenges, SME are potential agents to become strategic competitive, especially when it can be supported by information technology. A scenario composed by rapid changes in the economies, introduction of new communication and information technology and emergence of new markets forms the study background, which was proposed to analyze new business mod-

els for SMEs based on e-business concepts and how these resources, applied under strategic thinking, are increasing the SMEs' competitiveness. A case study of Brazilian e-business based SMEs is conducted, in order to understand IT application in this evolving context, examining five successful cases.

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Internet and IT (information technologies) among other innovative drivers push companies to update their business models, and design stands out as an emergent issue strongly connected with innovation, which, in turn, is the main resource of the modern economy. One way to achieve innovation is through artifacts that allow the development of successful information systems in organizations. Moreover, the field of health appears as a sector with many opportunities to improve services through IT and design. Therefore, e-health comes out as one of the elements that should eventually help in the evolution of business models in health systems. In this chapter, authors present a design method of IT artifacts for e-health adapted from the method proposed by Pahl and Beitz (1995). The correctness of the design method adopted is a significant issue to generate new business models successfully or to adapt the existing ones in health systems.

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These days, small businesses typically have a web presence beyond their own website, employing the services of other online providers to host details of their businesses and hopefully attract more customers to them. This chapter examines the notion of a web presence audit tool for small businesses to enable them to track the various website features that they have implemented on their own, and other, websites over time. A 'website feature' can be something as simple as listing the business address and telephone number on the website, but it can also include more advanced features such as online ordering and purchasing. The chapter discusses the specifications for such a website audit tool and suggests a relational database design for the tool. The resultant specifications are to be trialed in a number of settings before being introduced to a wider group of small businesses.

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Businesses are aware of the popular demand for careful waste management as a high priority environmental issue. SME face greater pressure when coping with waste products, because they often lack necessary resources or expertise. E-Business could offer unique opportunities both for SMEs wanting to dispose of their waste or find waste management services and for SMEs who deal with specific aspects of waste disposal itself. This chapter proposes an approach for locating actors involved in the transportation, disposal, recycling and reuse of waste created by SMEs. The authors' approach incorporates the notion of request based virtual organizations (RBVOs) using a service oriented architecture (SOA) and an ontology for the definition of waste management requirements. The populated ontology is utilized by a multi-agent system which performs negotiations and forms RBVOs. This approach enables SMEs to find appropriate partners, handle waste management and gain competitive advantage in the marketplace.

Section 3 **New E-Business Frameworks**

A set of seven chapters are contemplated in Section 3, "New E-Business Frameworks," centered on e-business and e-commerce barriers, readiness, constraints, and the proposal of new frameworks to enable overcoming the difficulties.

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<i>José António Porfírio, Universidade Aberta, Portugal</i>	
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Retail was born in 1879 with the first Five & Dime Stores. 130 years after, we still live in the era of Retail 1.5, this means, no real Quantum Leap was made in Customer Experience. However, we strongly believe that, starting half of the first decade of the 21st century, a new Retail Era began. The objective of the study underlying the chapter is to understand what have been done in the field of New Customer Experiences since the beginning of the Classic Retailers, and try to devise what will be the strategic implications for the future, arising from the changes foreseen in the field of retail business. The authors emphasize the emerging new trends, and try to foresee what in Social Retail and Online / Shop Customer Experience could be the mainstream for the next decade.

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SMEs have been looking at expanding their market share by extending beyond their geographical boundaries and this is where electronic business has come to the forefront. The path to e-business

adoption is ridden with barriers and understanding these along with the benefits it offers to SMEs is important. This chapter has reviewed the existing literature of barriers and benefits of e-business adoption by SMEs to identify the various enablers that can facilitate adoption. The chapter also provides an insight into e-readiness and analyses six existing tools that are used globally to measure e-readiness. Based on a comprehensive analysis, an holistic framework (Motivation Application Measurement Support (MAMS) e-readiness assessment framework) has been proposed. The framework can be utilized as a reference to assess, design and implement a supplementary strategic approach for the assessment of e-business readiness of SMEs. Further empirical research to test, amend and improve the MAMS framework can be undertaken in the future.

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This chapter aims to investigate the issues of electronic commerce activities in SME as a consequence of organizational change initiated by IT adoption. The fundamental issues influencing e-commerce practices of SMEs are their insufficiency of cognitive learning and organizational strategy, financial and distribution problems specific to SMEs, limitations of supply chain management, reluctance of organizational culture for electronic change, problems of IT usage, insufficiency of human resource, resistance of top management to organizational change as required by the adoption of information technologies, integration problems of new technologies with the existing systems, lack of confidence on the side of customers towards electronic commerce. A study of the Turkish Automotive Supplier Industry has revealed that electronic commerce has been adopted and its benefits are accepted, however, the industry has to overcome some technical and managerial difficulties to implement it more efficiently and effectively.

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Technological advance of the last decades created an atmosphere in which the organizations are forced to look actively for new options for the cost reduction, in addition to, simultaneously, seeking to compete more effectively in their markets. This context requires focused, swift, more flexible and more competitive organizations which are forced, many times, to implement radical changes in the way they conduct business, employ people and use technology. Despite the recognition and the attention given to e-business over the last years, this type of business has not yet achieved a desirable maturity stage. This problem, current and stated over the last years, demands research efforts so that a solution can be

found to solve it. The chapter explores a range of constraints which are suggested by the literature to influence e-business evolution, so that organizations could be better equipped in anticipating any difficulties while in progress through their e-business initiatives.

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A conceptual model to understand the consumer's adoption and use of certain website recommendation system is presented in the chapter; the research problem is tackled from a psychological perspective. The authors base on, adapt and integrate classical theories of consumer behavior with particular theories developed in the framework of computer-mediated environments. The model proposed, along with the relations analyzed among the variables considered (a total of 16 research propositions), should be of help for recommendation systems designer and website managers, in order to work with systems more aware of the psychological process experienced by consumers when interacting with them.

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Constant D. Beugré, Delaware State University, USA

Using organizational justice as a conceptual framework, this chapter discusses the importance of fairness in managing virtual teams, introducing a new construct, e-organizational justice, defined as employee perceptions of fairness in virtual work environments. The chapter also posits that fairness is essential to building and maintaining the cohesiveness and effectiveness of virtual teams and ends with a discussion on e-organizational justice's implications for further research and management practice.

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Open Innovation in SMEs: From Closed Peripheries to Networked Paradigm..... 378

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In the realm of technological development, innovation processes have been transformed into various forms, like open innovation, crowdsourcing innovation, or collaborative innovation. This chapter focuses on open innovation processes to reach out to the common stakeholders in the entrepreneurship system through SME. It has been observed that to provide innovative services or products to the outer periphery of the customer chain, SMEs play an important role. Hence, focusing innovation for SMEs would lead to a newer dimension of innovation research for better business and economic growth. It

could be applied to both ways in terms of value gain to the participants. The chapter emphasizes open innovation for SMEs at the outset, by focusing transformation of innovation leading to a networked paradigm in spite of being in closed periphery, providing some overview on innovation strategies and challenges.

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