Preface

With the development of the Internet and modern information and communication technology (ICT), new ways of conducting business have been evolved. The term e-commerce has become a buzzword and Internet applications such as virtual marketplaces, Internet auctions and Internet procurement platforms are becoming more and more popular with companies in purchasing and selling products and services in virtual space and in the global marketplace. However, e-commerce does not create any value on its own; it basically improves the market transparency, and it increases competition and provides companies with an extended potential customer base.

On the other hand, e-business aims to improve the value creation process between companies or company units by making use of Inter- and intranet applications. Thus, B2B e-business seeks to generate synergies between value chain elements through the fast and detailed exchange of data and information along the supply chain. Theoretically, e-business is a way to organize cooperations between individual parts of value chains without geographical limitations and to generate benefits for all parties involved.

However, despite the differences, both e-commerce and e-business have to be integrated on the company and intercompany level. Both concepts, the kinds of e-relationships within the supply chain and towards the external environment, are interrelated and constitute the emerging global e-economy.

Today, many e-commerce and e-business concepts promise economic benefits through ad-hoc market transaction, short-term ones of collaborations and almost unlimited access to global resources. All these e-solutions are short-term driven and exploit the immediate global market opportunities. This short-term thinking and opportunistic behavior lead to uncertainty and mistrust between the value chain elements and consequently to unsatisfied final customers. The main criticism is that these e-solutions lack sustainability, neglects long term strategies, and hinder the generation of synergies through cooperations. Basically, the businesses become opportunity driven.

In contrast, the virtual Web organization is a different and particular form of an e-business organization model with long-term prospects. Like other e-business models the virtual Web concept aims to improve the collaboration between independent economic actors. However, in addition it focuses on the fast and flexible configuration and operation of dynamic value chains. Similar to other new forms of organizations the main drivers of virtual Web organizations are customer orientation and globalization facilitated by the global spread of the Internet and efficient ICT applications. The main difference compared to traditional and other new forms of organizational arrangements is the different business understanding of the partnering virtual Web member firms. On the one hand, the tendency towards concentrating on core competencies has been resulting in the fact that individual companies cover smaller parts of the total value creation process. This tendency increases the need of companies to be included in many different value chains in order to market and exploit their specialization and core competencies. On the other hand, this development increases the dependency on other, more powerful value chain partners, as well as the need to coordinate the activities along the supply chain. The different business understanding of virtual Web partner firms is integration and

cooperation with other partner firms in dynamically formed and temporally operated virtual corporations. Basically, it is the openness of partner firms for 'real' cooperation, which means the preparedness of partner firms to share costs, risks, benefits and profits. The competitive advantage of such interorganizational virtual organizations (virtual corporations/virtual enterprises) is the dynamic and flexible configurations of (world-class) value chains.

However, the major concerns of partnering companies are how to find suitable partner companies with complementary (core-) competencies, how to establish a trust-based partnership in a very short period of time and how to coordinate the activities of the geographically and organizationally dispersed independent partner companies.

The virtual Web organization, as an e-business organization model, provides an organizational framework that facilitates the coordination and cooperation between virtually partnering companies. Basically, the virtual Web concept incorporates three sub-concepts: the virtual Web platform, the virtual corporation, and the Net-broker.

First, the virtual Web platform is a pool of independent companies that generally agree to cooperate. This virtual Web platform provides the environmental condition, such as trust and coordination mechanisms and tools, necessary for the dynamic configuration of market and customer-driven value chain constellations.

Thus, deriving from the rather stable virtual Web platform, virtual corporations are temporary operational units that are configured on market opportunities and/or customer needs. Moreover, virtual corporations are characterized not by close but integrated cooperation between independent and dispersed partner firms. Virtual corporations can take the form of supply chains, joint R&D projects and any other form of vertical or horizontal partner cooperation. Both the relatively stable virtual Web platform and the dynamic virtual corporations are integrated and constitute the virtual Web organization.

The third organizational element of the virtual Web concept is the management organization, the so-called net-broker (management service company) that acts as a inter-firm network facilitator. Basically, the net-broker initiates the virtual Web platform, maintains the relationships between the Web partner companies and facilitates the formation of market and customer driven temporary virtual corporations. Modern interorganizational ICT applications and a common business understanding of partnering companies facilitate the collaboration between the virtual Web partner firms.

This book and its individual chapters aim to provide readers with a better understanding of this new kind of e-business organization concept. Thus, this book deals with issues and challenges of managing virtual Web organizations. Besides introducing the organizational concept of virtual Web organizations, the individual chapters provide theoretical background, practical examples and guidance on how to manage virtual Web organizations. The different book contributions view and investigate the virtual Web organization from different managerial perspectives, identify issues and challenges about the management of the stable virtual Web platform and, in particular, the deriving dynamic virtual corporations (virtual enterprises) as well as introduce management models, concepts and tools that are suitable to operationalise virtual Web organizations. In general, this book can be regarded as a handbook – guidance for the management of a new kind of b2b e-business organization, namely the virtual Web organization.

The first part of this book reviews the particular challenges in respect to managing virtual Web organizations and proposes possible solutions on how to tackle those challenges by applying a number of distinct managerial models, concepts and tools developed to facilitate the management of dispersed and independent partner firms in virtual space and real day-to-day business performance.

The first chapter of this book introduces the organizational concept of virtual Web organizations that encompasses three organizational elements, namely the relatively stable virtual Web platform from which dynamic virtual corporations derive. The third element of this organizational construct is the management organization that initiates and maintains the stable virtual Web platform as well as forms and facilitates the operation of dynamic virtual corporations. In order to provide readers with a better understanding of how virtual Web organizations are managed, the author introduces a competence-based management model of virtual Web management organizations. Based on empirical research across six different virtual Web organizations this competence-based model provides an overview of a set of competencies virtual Web management organizations employ to initiate and manage stable virtual Web platforms and facilitate the dynamic formation of temporary virtual corporations.

In Chapter Two, Malcolm Warner and Morgen Witzel argue that interorganizational virtual organizations are a powerful strategic option for firms attempting to extend the scope and reach of their operations. However, physical dispersal of organizations brings with it many associated problems of management and control. The authors argue that management in virtual organizations still requires attention to the fundamentals of management. 'Going virtual' should be seen as a strategic option which requires firms to achieve the optimal mix of physical and virtual elements and systems. In particular, they argue that a mastery of the skills of knowledge management is necessary in order to manage virtual systems and structures and if firms fail to develop these skills they will run significant risks when taking the virtual option.

Chapter Three deals with one of the key challenges in virtual organizations, namely, trust between the dispersed and independent partner firms. The authors regard virtual corporations as new organizational forms to ensure knowledge sharing and innovation. They argue that in virtual corporations a shared identity and mutual trust between participating partners are of paramount importance to innovation. Virtual corporations are in fact balancing on a tightrope. They have to create an identity which is strong enough for the participants to trust each other. At the same time the identity shared by the participants of the virtual corporation must not become so strong that very promising innovative avenues are blocked. Besides the development of knowledge-creating competencies, the authors place emphasis on information and communication technology (ICT) that will fulfil an important function aiming to support the social relations between virtual corporation participants.

Chapter Four outlines some of the constraining forces and suggests the parameters in which a business strategy and a course of action can be devised as a pathway to the future. Richards and Makatsoris note that a process of turbulent change is taking place in which companies shape up to deal with the unremitting global competition for which there is an uncertain outcome. Businesses have to look at the wider horizons and dynamics of both their supply chains and markets to discover new ways of working with both customers and suppliers to grow and remain viable. The authors state that a number of opportunities exist to advance a business to dynamic trading networks and also market to virtual corporations. The future path is cut according to business strategic goals and on the ability to determine the right course of action by a strong capable leadership. Strategy can change at any time to set a company on the right path with respect to its business partners in dynamic supply chains and eMarkets. It will be essential for short term stepwise actions to ensure company benefits that progress toward a larger landscape for business with an ability to deal with the real dynamic world in synchrony with the supply chain and market need. The authors conclude that ultimately all companies will strive to be part of dynamic trading networks and/or virtual corporations.

In Chapter Five, Chandrashekar and Schary constitute that the virtual Web-based supply chain is emerging as a new form of industrial organization. Their contribution discusses the concept as a juncture of three forces: the virtual organization, Web-based communication and the application service provider (ASP). They state that the virtual organization is a familiar concept in many industries and that Web-based communication provides access and networks with new institutions. The third element is the ASP, which makes rapid change and flexible connections feasible. Together they establish focus, flexibility and rapid response to change in demand and customer requirements. Therefore, by casting this in a strategic framework of structure, process and organization, it provides a basis for projecting the future.

Wade, Lewis, Brook and Donnelly state that a key element in successful e-Commerce / e-Business operation is the improved integration and management of the e-Business value chains, such as the management of Business-to-Customer (B2C) and Business-to-Business (B2B) chains. In chapter six they criticize that current e-Business managed solutions tend to concentrate on only single aspects of the e-Business integration, e.g., outsourced accounting management or virtual private network (VPN) services. Thus, the authors advocate that e-Business organizations of the future will require a more holistic, integrated approach to e-Business management networks. Such e-Business services would support integrated management solutions across the B2C and B2B value chain. Therefore, this contribution proposes a management component framework to support the rapid and flexible construction of an e-Commerce management infrastructure. This management solution is based on a holistic management approach supporting seamless integration of network and application management services (i.e., vertical), as well as integrating management across distinct functional areas (i.e., horizontal). Furthermore, this contribution presents an analysis of the business model for a provider of such B2B and B2C management and examines the requirements for such management services.

In Chapter Seven, Selz and Klein investigate 'Value Webs'. They argue that the new information infrastructure redefines the roles and relationships between buyer, seller, and middleman, allowing new ways of accessing and tapping information and price arrangements. Most importantly, information about a product or service may be separated from the product or service itself. Thus, their contribution scrutinizes how companies are using these opportunities to establish networked retail businesses and generate customer value in innovative ways. The authors have reconstructed widespread interorganizational arrangements for product and service retailing on the Web, its antecedents, its challenges and its economic logic.

In his contribution, Hugo Meijers introduces a specific type of Web organization in the professional service sector. Due to the knowledge-intensive, project-based and service-centric characteristics, the professional service sector acts as a prime example of this possible new organization model. Chapter Eight provides a general overview of all system elements such a Web organization is based on. This contribution is based on theoretical models, practical experiences out of three cases, as well as the personal involvement of the author as business architect in the formation of Web organizations. The three case studies conducted are described in detail and the author identifies the major lessons learned from each case. The author concludes that whether such organizational structures can survive the complexity of fast-changing environments, cultural differences and general human nature will show the future. Many challenges lie ahead in developing Web organizations; its limitations are not yet clear. However, the first examples are promising.

The support of real collaborative 'Virtual Enterprise' (VE) scenarios sets forward particularly interesting challenges in terms of distributed information management, regarding

the proper sharing and exchange of information among pre-existing autonomous enterprises. In order to address these challenges, it is necessary to achieve a comprehensive analysis of advanced information management approaches that can be applied in virtual enterprise platforms. In this context, the authors of chapter nine present a representative survey of several virtual enterprise-related information management standards, technologies, and existing approaches that can be applied to support future virtual enterprise infrastructures. This survey is useful for managers of enterprises that are considering joining virtual organizations, because it describes some of the crucial ICT management issues that will be faced by those companies. In addition this chapter also points out how these issues have been addressed by existing virtual enterprise in order to support platforms in a wide variety of application domains.

The second part of this book deals with special issues and possible solutions with respect to the management of virtual Web organizations. Therefore, each chapter places emphasis on particular virtual Web management issues and provides ideas and management approaches in order to ease the dynamic partnering process and to support the operation of temporal virtual corporations.

Chapter Ten seeks to reach a better understanding of the relationship between virtual organizations and international strategic alliances in manufacturing industry. In the consideration of international strategic alliances and virtual organisations, little attention has been paid to networks devoted to manufacturing and the implication of communication technologies for their structure and operations. Understanding the nature of manufacturing system operating in the emerging global and electronic commercial and communication environment is fundamental to understanding the implications of e-business for manufacturing worldwide. The authors identify the 'Global Manufacturing Virtual Network' (GMVN) as a specific class of manufacturing system and outline its characteristics and potentials. The potential of GMVNs is to enhance company's ability to dynamically generate and exploit competence and thus the authors suggest that the global manufacturing virtual network represents a new form of manufacturing system based on Internet interfirm collaborations.

Tononi and Amorosi present in chapter Eleven an Italian research program. This research program aims to support networks of small-medium sized enterprises (SMEs) in depressed regions of Italy. Their research focuses on experimentation with a business model for SME networks and introduces advanced tools and methods, such as concurrent engineering. The business model, developed within the program, has the basic features of virtual Web organizations. Thus, in this chapter the authors explain the organizational and functional model that has been defined in a framework of a cooperation between the researchers and the SMEs involved in the research program. The authors conclude that, despite the Internet usage, SMEs still prefer to network with others from the same geographical area. It is not a matter of geography but of culture and of sharing the same problems, such as (local) market trends or other (local) environmental problems. Initiatives by the local associations or authorities, aimed at solving shared problems, have proven to be very good enablers for virtual Web organizations consisting of SMEs.

In Chapter Twelve the authors state that the process of core competencies identification has been incorporated by enterprises in their strategic planning. The virtual enterprise, which is a form of cooperation between independent enterprises, is one of the most benefited with this new process, mainly in its formation stage. The identified core competencies, which are deployed in products, process and technology, may support a more agile gathering of the virtual enterprise partners. Chapter Twelve presents a method to identify core competencies, supported by a practical case of successful virtual enterprise formation, where the method was applied and validated.

Similar to Chapter Twelve, Chapter Thirteen focuses on the partner search and dynamic configuration of virtual enterprises (VEs). Vaggelis Ouzounis notes that VEs enable the deployment of distributed business processes among different partners in order to shorten development and manufacturing cycles, reduce time to market and operational costs, increase customer satisfaction, and operate on global scale and reach. Dynamic virtual enterprises are an emerging category of VE where the different partners are being selected dynamically during business process execution based on market-driven criteria and negotiation. Thus, in this chapter the author presents an agent-based platform for the management of dynamic VE. The main contributions of these approaches are the distributed, autonomous agent-based business process management, the XML-based business process definition language, the flexible ontologies, and the dynamic negotiation and selection of partners based on virtual marketplaces. The presented platform has been fully developed using emerging agent and Internet standards like FIPA, MASIF, and XML.

Having selected the suitable virtual enterprise partner firms, Florent Frederix introduces a planning and scheduling methodology for the operation of virtual enterprise. In Chapter Fourteen the author notes that virtual enterprises consisting of geographically dispersed, independent units are a reality in the global economy. These units concentrate on core technologies and create partner networks for the design, manufacturing and sales of their products. Thus, this chapter presents a methodology, more flexible and efficient than the more traditional techniques, to schedule activities in virtual enterprises and enterprise networks. The presented technique that stepwise searches for improved activity schedules has the advantage that in any stage of the iteration process a resource-feasible schedule is available. Investing in network and computation capacity results in more efficient schedules. The virtual enterprise units view the platform as a time phased capacity trading marketplace.

Veil and Hess introduce a basic approach towards cost accounting for virtual Web organizations in Chapter Fifteen. Virtual Web organizations as well as traditional companies require a cost accounting system in order to guarantee the organization's competitiveness in markets. Their contribution outlines the design of a cost accounting system for the management of virtual Web organizations based on cost accounting theory and the cost accounting practice of virtual Web organizations. Specific methods for transfer pricing and order pricing for virtual corporations are shown and discussed. In addition, to assure accurate order pricing decisions, a coordination-cost rate analysis is presented.

Another important issue regarding the management of virtual Web organizations is to evaluate the success of deriving dynamic virtual corporations. Wohlgemuth and Hess state that a fundamental condition precedent to strategic decisions of virtual corporations and their partners is a profound knowledge of the cooperation's success. Thus, in Chapter Sixteen the authors discuss different evaluation methods and elaborate a specific technique for multidimensional appraisals of success. The authors introduce the CONECT-procedure as a specific kind of benefit value analysis that has been adopted in a pilot project with satisfactory results. With this method both the evaluations of the partners and the consolidated assessments of virtual corporations can be ascertained with little expense in installation and transaction. Simultaneously, the procedure allows very sophisticated analysis possibilities through the inclusion of both the main examination levels. The "benefit" of CONECT is the possibility of recognizing early existing dissatisfaction of partners and with that to avoid related costs for the cooperation, like passive or destructive behavior as far as to the withdrawal of the partner.

Claudia Cevenini tackles a different management issue about interorganizational virtual organizations. From a legal point of view she argues that virtual organizations are a complex

subject, which requires an interdisciplinary approach. In the absence of a specific legislation, consolidated doctrine and case law, jurists can resort to three main cornerstones: agreements between members and with third parties, analogical application of laws in force, informal rules and trade usage. She proposes that the preliminary step is to define the object of analysis as clearly as possible by building a model definition of 'Virtual Organizations' for the legal research. On the basis of the model's features, the most relevant legal issues are outlined in Chapter Seventeen.

At present, due to the very nature of VOs, no definitive legal solutions are possible. However, this chapter provides some basic indications in order to enable potential and affected partners of VOs and other readers to reach a better understanding of the legal issues and implications in regard to their activities in virtual organizations.

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