INTRODUCTION

The 21st century’s unstable and highly competitive business environment is calling for a fundamental reassessment of the way enterprises are doing business. Modern business entities, more like world class competing athletes that are constantly asked to run faster, jump higher and throw further, are continuously stressed by both competitors and customers to produce more customized products in low cost and high quality (Ponis et al., 2008). Inevitably, pressures imposed by this new and demanding environment have mobilized enterprises into seriously rethinking the way they are conducting business towards more flexible and cost effective forms of organization. This management switch has been further amplified by the momentum created by the emergence of Information and Communication Technologies (ICT) and in particular the Internet which acted as a catalyst to strategic thinking and new business model development in all industries. In that context literature has documented a management shift from well-defined, stable enterprises having limited relationships with other companies and focusing on internal efficiency towards open enterprises (Browne & Zhang, 1999), collaborating and establishing inter-enterprise networks in order to achieve a sustainable position in the market and ensure their survival and business success.

One of the most prominent organizational paradigms of this new era is undoubtedly the Virtual Enterprise conceptualized for the first time in the works of Miles & Snow (1986) back in the mid eighties followed by a series of more elaborated approaches by Davidow and Malone (1992), Nagel & Dove al., (1993) and Byrne (1993) to name a few. Since then, the Virtual Enterprise concept has been enriched with numerous perspectives and parallaxes most of them dealing with the strength, duration and level of formalism of the relationship between the members of the Virtual Enterprise Network (Ponis et al., 2008), resulting in a number of alternative business models, such as the extended enterprise (Browne et al., 1995), smart organizations (Filos, 2005) and Supply Chains (Stevens, 1998). In this book, four core characteristics are identified (Ponis et al., 2008) that distinguish a pure VE from a real, traditional brick and mortar enterprise. These are:

- Temporary existence: A VE is formed in order to pursue specific business objectives. Once these are satisfied the network is dissolved and the partner enterprises are free to identify and exploit other business ventures and opportunities.
- Agility: The team formation of a VE is subject to change at any given point in time. New enterprises may join the formation and others may just as easily depart whenever it is deemed necessary by the enterprise coordinating the VE, henceforth the VE coordinator.
- Flexibility: During the VE life cycle, customer requirements may change. The enterprise alliance should be flexible enough to respond to the new market needs rapidly but still cost efficiently.
• Capability of market switching: A VE should be agile enough to respond to emerging needs in the market it is functioning in, and still be able to pursue business opportunities in other vertical industries.

Managing an enterprise network with the above qualities has evolved toward utilizing numerous new practices such as lean manufacturing, low cost country sourcing and outsourcing, co-manufacturing and supplier rationalization, all targeted to the objective of reducing waste and minimizing costs throughout the supply chain, in an end-to-end fashion. However, none of these practices comes without consequences especially to what risk vulnerability is concerned. Stretching the supply chain to absorb inefficiencies, though tempting and gainful, removes defense mechanisms and safe cushions resulting in increased vulnerability to threats produced by even the smallest or least expected cause of disruption. Being anorexic, enterprise networks fail to react effectively to these risk-imposing events resulting in reduced revenues and market share, inflated costs, budget failures, production mismatches and in the end of the day, dissatisfied partners and customers.

In that context, the initial editorial idea for this book was to develop a collective volume carefully including research papers dealing with Risk Management in Virtual Enterprise Networks by creatively transferring well established Supply Chain Risk Management principles. The reason for setting that objective was the absence of research efforts in that area in contradiction with Supply Chain Risk Management which has gained significant attention from numerous authors in the last ten years (Jüttner et al., 2003; Finch, 2004; Christopher, 2004; Tang, 2006; Waters, 2007). It is interesting to note that a quick search in Google Scholar for the exact term “Supply Chain Risk Management” returned almost 800 results while those produced by a similar search on the term “Virtual Enterprise Risk Management” or “Risk Management in Virtual Enterprises” can be counted with the fingers of the editor’s two hands. Although this small experiment is of no scientific value, if coupled with the exhaustive literature review conducted by the editor during the process of developing the book proposal and call, which more or less produced the same results, one can justly argue that Managing Risk in Virtual Enterprise Networks is a research area at its infancy.

So, after setting up the scientific terrain, in mutual agreement with the publisher, the ‘call for chapter proposals’ process was initiated. In the course of that quest, a satisfying number of two page proposals were summoned for reviewing and at that point the core criteria for inviting the authors to submit a contribution at a later stage was the adherence with the book theme and the quality and edge of the proposed research. Having filtered the proposals at hand, twenty two of them were compliant with the book theme and seemed interesting enough to proceed to the next process step which was the submission of the full chapters.

Deciding which chapters fulfilled the criteria for inclusion in the book was the next step of the process. During that cumbersome effort it became apparent that although virtual enterprises have been and still are a ‘hot’ topic of academic research and discourse, dealing – at a satisfactory grade – with issues penetrating the SCM thick surface into reaching the VE core and its discrete characteristics in conjunction with Risk Management was not a trivial task. This quality was the prime discriminating factor for the proposals that were finally accepted for proceeding in submitting a full chapter for review. Inevitably, this led to a wide variety of papers each one presenting a different perspective of risk management in virtual enterprises or supply chains presented with VE characteristics. The vast dispersion of risk management approaches of the candidate chapters called for a decision regarding the desired structure of the book. Does the editor want to include less interesting chapters in favor of a better book structure or should he include the most intriguing chapters at hand and then try to figure out the best possible structure for his publication? Truthfully, what I decided and implemented in the course of this book’s development
is to select those chapters that were presented with an interesting perspective of the book theme even if this was not at the service of the book structure. Then a procedure of ‘guiding’ the authors towards improving their chapters by digging deeper on their research surfacing the virtual enterprise dimension wherever this was deficient, was initiated.

After almost four months of reviewing and enhancing the chapters with the invaluable help of the body of reviewers, a set of 14 long chapters (most of them over 10.000 words) dealing with risk management in enterprise network formations was selected for publication, with the majority of them residing in the intersection of Supply Chain Management, Virtual Enterprise Management and Risk Management. The common denominator of all chapters is the attempt to stress the importance of risk management in enterprises organized in networks followed by the presentation of the researcher(s) approach which most of the time emphasizes in a supply chain dimension and the challenges it imposes to networked enterprises in regard of risk management and mitigation. In that sense this book is organized in two sections: a) Concepts, Methods and Approaches including contributions of a more theoretical approach and b) Models and applications including chapters providing empirical validation of their research efforts in one or more real life case study.

BOOK STRUCTURE AND CONTRIBUTIONS

The first chapter of this section by Jan Husdal can very well serve as an introduction to the whole book since it attempts to bridge the gap between the concepts of Virtual Enterprise Networks and Supply Chains by building on literature findings drawn from both research areas. Jan Husdal, provides the reader with a novel perspective on VENs and in doing so a new VE taxonomy is introduced. After a fruitful discussion on risk management in both VEN and supply chains, Husdal turns to the ultimate objective of this chapter, which is to propose a conceptual framework for Risk Management in VENs with a Supply Chain Risk Management perspective and provide well argumented evidence that VEN risk management can and should learn from existing supply chain risk management initiatives.

Brian Squire, in the next chapter, deals with the common characteristic of both discussed enterprise formations this being their network structure. Squire takes an exploratory look at the use of formal network measures to further understand the sources of risk in enterprises organized in networks. This exploratory chapter uncovers some of the network measures that may benefit risk identification and analysis within supply networks. In doing so, it follows a tradition within other fields that have used formal network measures to understand the robustness of their networks of interest.

Trust as the means of mitigating risks in Virtual Enterprise Networks is the core research issue of the next chapter by Burak Sari. According to the author, trust is the shared belief that network partners can depend on each other to achieve a common goal and constitutes a critical structural and cultural characteristic that influences the network’s success and performance. Being such, the author argues that the need for a contextualized view of building and managing trust in VEs, is imperative and that establishing a trusted environment can significantly reduce the level of the perceived relational and performance risk from network members.

In the next chapter by Samir Dani, the dynamic quality of innovation is discussed in the context of Virtual Enterprise Networks which, by nature, provide an excellent opportunity for organizations to come together to pool their skills and competencies and create innovation within their supply chains. In this chapter, it is argued that innovation, apart from being a critical issue for maintaining competitive advantage, is also an important capability to manage/ mitigate risks especially when applied to communications, technology and legal areas. To support his argument, the author proposes a risk management
framework for Virtual Enterprise Networks based on innovation and the effective feed of its results back to the risk management process.

Knowledge is a resource of prime value for all organizations, a reality further amplified in the case of Virtual Enterprise Networks. In that context, Ettore Bolisani provides, with his chapter, a knowledge-based view of VENs and attempts an analysis and classification of the possible sources of risk associated to the management of knowledge in a Virtual Enterprise Network. For validating his arguments, the author utilizes a real life example drawn from the IT Software industry and based on it he argues that the cognitive management of a successful VEN raises a number of risk sources and risk factors that can be related to the general nature of knowledge as economic resource and to the particular aspects of Knowledge Management in a VEN. Finally, the author provides the reader with a set of guides and approaches to support the successful management of the risk categories previously identified.

It is true that IT Management in a Virtual Enterprise Network is asked to achieve the seemingly impossible, which is to simultaneously open and protect enterprise information effectively, balancing risks with opportunities, and at the same time efficiently satisfying the VE networks’ particular demands. In the next chapter, Mohammad Shalan aims to provide a comprehensive in depth analysis of risks and issues associated with the IT aspects of Virtual Enterprise Networks (VENs) from technical and procedural point of view and to prescribe specific guidelines to mitigate the effects of the identified and analyzed risks, processes and consequences. Finally, the author proposes an IT risk governance framework addressing IT risks in the context of a Virtual Enterprise Network.

Simulation is an established technique for the analysis of traditional supply chain and logistics systems. In that sense, the next two chapters attempt to describe the usefulness and applicability of the simulation tool in risk and disruptive events’ modeling and in understanding the impact of such fluctuations on the performance of the whole network. In her Chapter, Ila Manuj, presents a simulation model development process for modeling disruptions and other crises events in global virtual enterprise networks and supports her proposed methodology by providing the reader with an indicative modeling example. Finally, the author presents a framework for managers and researchers to better apply and gain from the strength of simulation modeling, identifies several common pitfalls to avoid during the process, and compiles extensive references for readers who want to further their knowledge in this specific area. On the other hand, in their chapter Klimov et al., present a framework of simulation-based supply chain risk analysis. The proposed framework provides a risk measurement system, which is based on the supply chain performance evaluation. In this way, many risky events or unexpected disruptions within supply chains can be analyzed in a single system. To support their framework, the authors display a simulation example in an attempt to demonstrate possible experiments which can be performed within the context of supply chain risk analysis and the support of simulation.

Section 2 of this book entitled “Models and applications” presents a series of chapters providing different perspectives of risk management in Virtual Enterprise Networks. Still, all the chapters of this section share a common characteristic which is the existence of empirical research and the validation of their research by its application on more than one case company of the same or different industrial sector.

In the first chapter of this section, Omera Khan and Alessandro Creazza, based on a systematic and structured literature review, highlight the importance of keeping product design at the centre of the entire business process and managing it concurrently with the supply chain, utilizing their suggested 4C approach. Next, the authors validate their research findings through a cross-industry study of three case companies. The case studies revealed how companies deal with the alignment of product design and the supply chain and how they confront relevant challenges such as supply chain risk management and responsiveness. The authors conclude by stating that product design is a crucial factor in determining
supply chain and business performance and propose a roadmap towards the design-centric organization, based on five transformation processes.

The issue of flexibility and the determination of its effects on risk mitigation for supply networks are discussed in the next chapter by María Jesús Sáenz, Maria Pilar Lambán and Eva Navarro. After presenting the basic concepts and features of flexible companies the authors introduce a conceptual framework including a set of best practices which enable flexibility value to be created in the context of an inter-organizational network. In that context, special focus is put on uncertainties and risks companies—members of a supply network—face when striving to reach a certain degree of flexibility. Finally, the authors support their research findings with an empirical analysis of how these practices are implemented in 57 companies of the food and beverage sector.

Outsourcing adds complexity to the business system it is applied and thus propagates new risks and enhances or transforms older ones as a result of the differentiated business model. In the next chapter by me and Epaminondas Koronis the knowledge-related risks of outsourcing are studied. In doing that, the authors first identify and taxonomize the risk sources of the outsourcing initiative, pinpoint the related threats and propose mitigating actions. Then, the authors turn their focus on knowledge exchanges during outsourcing and introduce the concept of “vicious cycle” suggesting that outsourcing if not managed successfully eventually leads to the addiction of the organization to “buy” expertise and knowledge in spite of creating it. The authors validate their findings through a case study of four companies drawn from the pharmaceutical industry.

In the next chapter by Konstantinos Kirytopoulos, Dimitra Voulgaridou and Vrassidas Leopoulou clusters, as a sophisticated form of a Virtual Enterprise Network, are studied. After a thorough literature review on clusters that results in a comparison table with Virtual Enterprise Networks the authors introduce a decision support framework based on the ANP-BOCR model. The application of the proposed framework is focused on the supplier selection process which is critical for clusters where its members not only cooperate but also compete. The ultimate objective of the authors approach is to enable the decision maker to visualize the impact of various conflicting criteria in the final outcome and document the evaluation results in such way that they can be communicated to various stakeholders. To support the validity of their research efforts the authors apply the proposed model in a cluster of the Greek Parapharmaceutical industry.

An interesting approach towards risk management in Virtual Enterprise Networks, based on the establishment of a network-wide Internal Audit function is introduced in the next chapter by Nikolaos Panayiotou, Stylianos Oikonomitsios, Christina Athanasiadou and Sotiris Gayialis. The authors’ approach is supported by a set of specific templates connected with the existing organizational and inter-organizational processes and activities and by an internal audit oriented enterprise modeling tool for risk assessment and control identification. The elaborated toolset assists business process improvement and quality enhancement in the enterprise network and supports the extended role of Internal Audit as a facilitator of change towards the network’s business objectives. Finally the authors present their findings from the application of their approach in a virtual enterprise network operating in the electronics sector.

The electronics sector is the application test bed for the research efforts presented in the next and last chapter of this book by Christos Manolarakis, Ioannis Christou and Gregory Yovanof. The authors attempt to capture market dynamics and provide Virtual Enterprise Network managers with a new insight on consumer segmentation regarding a specific product type which will help them avoid risks associated with changing pricing strategies and compute near-optimal counter-strategies in case of price-wars initiated by opponents (other virtual enterprises or single companies). The authors propose an Agent Based Modeling tool that allows the description and simulation of the evolution or interactions of social
structures and approaches consumer behavior under the perspective of their perception for consumer products. In that sense, the aforementioned tool can potentially support risk management in purchasing and production planning and to decisions associated with the introduction of new products by a Virtual Enterprise Network in an existing market.

AIM OF THE BOOK AND TARGET AUDIENCE

As already indicated in the first section of this preface, managing Risks in Virtual Enterprise Networks is a rather underexplored and unstructured scientific area. While this stands as an impediment for researchers and practitioners that aim to study the field, it also provides an increased degree of freedom in the development of new concepts, models, methodologies etc. The overall objective of this book is to contribute to activities that will result in an increased awareness on the Risk Management discipline, its usefulness and importance, in the context of contemporary enterprise formations such as Virtual Enterprise Networks by providing a set of methods, approaches and models that can guide existing research efforts or ignite new ones by introducing concepts and perspectives not previously been studied by academicians all over the world. In that sense, this book is neither a textbook nor an encyclopedia but rather a first attempt to establish a first wave of research efforts targeting an overlooked scientific area. Hopefully, this book including more than a thousand scientific references will establish the necessary background for further research in the field, attract interest and create challenges for both researchers and practitioners, thus initiating a broad academic discourse. In that sense, this book aspires to set a point-of-reference for scholars and researchers in the fields of Virtual Enterprises and Supply Chain Management who are interested in studying the Risk Management dimension in a cross-disciplinary fashion by applying new ideas and synthetic thinking in already well established concepts. Furthermore, the reader-friendly nature of this book aims to attract both graduate and post-graduate students who will hopefully consider it as a valuable reference resource.

REFERENCES


