

Managing Risk in Virtual Enterprise Networks: Implementing Supply Chain Principles

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A Conceptual Framework for Risk and Vulnerability in Virtual Enterprise Networks	1
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Jan Husdal, Molde Research Institute, Norway

Is managing risk in Virtual Enterprise Networks (VENs) different from managing risk in supply chains? This chapter studies VEN risk management from the perspective of supply chain risk management and attempts a mapping between concepts related to supply chain risk e.g. vulnerability, robustness, flexibility, resilience, business continuity and their possible VEN counterparts. Conceptual in its approach, this chapter introduces four distinct groups of VENs, namely Constrained, Directed, Limited and Free and concludes that VEN risk management can and should learn from supply chain risk management.

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Brian Squire, Manchester Business School, UK

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 determine the robustness of their networks of interest and to understand the sources of extended enterprise or supply chain risk. In this chapter, the author argues that network measures can provide additional insight to uncover sources of risk that could remain hidden using ‘traditional’ measures alone and provides researchers and managers with a wide-ranging framework for risk identification.

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<i>Burak Sari, Leiden Institute of Advanced Computer Science (LIACS), The Netherlands</i>	

The social integration of virtual enterprise networks involves the creation of identities for the participating nodes, the building of trust and the sharing of tacit and explicit knowledge between them. In that context, and in the presence of new challenges such as cultural differences and missing face to face relationships, to name a few, trust emerges as a critical issue. This chapter discusses extensively the way of managing trust in virtual enterprise networks as a solution to mitigate collaboration and performance risk and presents the necessary conditions that are required to support trust building in a virtual collaboration context.

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The temporary nature of the relationships and the informal structures of Virtual Enterprise Networks (VENs) can be the source of various challenges and risks. Based on a synthetic literature review on the risks associated with Virtual Enterprise Networks, in this chapter it is argued that establishing a shared culture of innovation within the network and integrating innovation proactively within the product and service offerings of the network members, alleviates the risk management/mitigation process. The author supports these arguments by proposing a framework which supports risk mitigation under the perspective of VEN innovation

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Virtual Enterprises (VEs) are business models characterized by the aggregation of co-operating firms that share a common goal such as a business opportunity or a project. In these structures, knowledge can be seen as a primary asset. This chapter provides a knowledge-based view of VEs and aims to study a rather underexplored area of VE operation, which is the management of risks associated to the exchange and sharing of knowledge. In doing that, the author explores the nature of knowledge flows in a VE and after studying the related managerial issues he determines the different knowledge-related risk factors and discusses the challenges raised by the need for their successful management.

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<i>Mohammad Ali Shalan, PMP, ITIL, CISA, CGEIT, Jordan</i>	

IT integration with the VE business model particularities is never a trivial task, thus calling for a special approach to discover and mitigate risks and apply controls related to the continuously growing of IT usage and support in a VE environment. The main objective of this chapter is 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 in the form of an IT Governance framework

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Simulation is not only a powerful decision-making aid for supply chain managers but also a powerful research tool for theory building and testing. The purpose of this chapter is to illustrate an approach toward modeling disruptions, risks and other crisis events in Virtual Enterprise Networks. It provides several illustrations from published literature, 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.

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Supply chain management under uncertainty and risk has become the target of extensive research. In this chapter, a theoretical framework of supply chain risk analysis is proposed. Within this framework, risks and possible disruptions that affect supply chain ability to function normally are determined and studied. Next, the implementation of the proposed framework is evaluated through the presentation of a simulation example while, as the authors declare, the future objective of the research presented in this chapter is the elaboration of a software solution for supply chain modelling and risk evaluation.

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Aligning Product Design with the Supply Chain: Towards a Responsive and Resilient

Enterprise 184

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The continued rise in global sourcing and manufacturing has significantly added to the complexity of contemporary supply chains, creating new challenges and risks. At the same time, there is now a growing realization that the supply chain ‘begins on the drawing board’, meaning that design decisions can dra-

matically impact the risk profile of the business. Thus, the primary purpose of this paper is to propose a design centric approach towards creating resilient and highly responsive enterprise networks. Furthermore, the authors validate their proposed approach by applying it in three case studies from different industry sectors where design is an important element in the success of final products.

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Organizations that remain flexible take advantage of new opportunities, explore new ways of working and resolve unanticipated consequences. In this chapter, a conceptual strategic framework for increasing value chain flexibility is proposed. This framework addresses issues such as the company's own strategy towards the supply chain partners, the organization strategy, the logistics approach, the market strategy, the production strategy and finally innovation. The feasibility and adaptability of the proposed research is supported by an empirical study of fifty seven companies of the Food and Beverage sector.

Chapter 11

Managing the Risk of Knowledge Transfer in Outsourcing Organizations 239

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Outsourcing has been and still is a very popular management strategy for companies entering the globalized manufacturing era. In this chapter, the authors attempt a categorization of risk sources during the outsourcing initiative, propose mitigating actions and introduce the concept: '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 knowledge acquisition. The authors validate their findings through a case study analysis of four medium size pharmaceutical companies, all of them having implemented outsourcing strategies.

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Upgrading Effectiveness in VEs: Decision Framework Based on the Benefits, Opportunities, Costs and Risks (BOCR) Model 263

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The core objective of this chapter is the provision of a decision framework for enterprise formations organized as collaborative clusters, which according to the authors constitute a sophisticated form of a virtual enterprise network. This framework, based on the ANP-BOCR model, takes into account clusters' special characteristics the most important of which is that the supply chain entities do have a clear picture of strategies, policies, needs, strengths and weaknesses of one another. The whole approach is illustrated

through a parapharmaceutical cluster case study which reveals that “common” knowledge and risks are very important in an environment where entities are sometimes partners and sometimes competitors.

Chapter 13

Risk Assessment in Virtual Enterprise Networks: A Process-Driven Internal Audit Approach 290

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In this chapter, it is argued that Internal Audit activities and controls can help virtual organizations to improve and operate in a more efficient manner. This chapter proposes a methodological approach for the design of the Internal Audit function for risk assessment and control identification of inter-organizational supply chain processes, using business process modeling techniques and an internal audit-oriented enterprise modeling tool. Both the proposed approach and business process modeling tool are tested in a case study of a Virtual Enterprise Network operating in the Electronics sector

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Avoiding Risks Related with Strategic Pricing in Virtual Enterprise Networks – An Agent Based Approach 313

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In this chapter the effort to capture market dynamics of consumer products via Agent-based Models and apply the findings in the context of risk management focused in Virtual Enterprise Networks, is presented. The research efforts result in the development of a software tool that supports leveraging risks associated with price wars, or other aggressive strategies the players in a given market may choose to follow. In that context, the proposed tool supports risk management during purchasing and production planning and provides solid justification for decisions associated with the introduction of new products by a Virtual Enterprise Network in an existing market.

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