

# Chapter 5

## Process Analysis of Knowledge Production

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### **ABSTRACT**

*This paper presents an optimized supply chain for 'knowledge products'. Based on the traditional logistics model for academic knowledge, knowledge creation and delivery are discussed. A new framework of an optimized supply chain for 'knowledge products' is developed. A semi-structured interview was undertaken to capture and analyze the knowledge logistics in a traditional publishing setup. Findings include the illustration of a new optimized supply chain for the manufacturing and distribution of 'knowledge products'. Realised benefits are discussed showing a significant reduction in total supply chain processing. Research in this domain involves the actual knowledge creators (publishing companies). Connecting knowledge delivery systems to the supplier presents challenges including information sharing and openness to accessing their systems. More challenges are discussed with implications, primarily related to commitment, partnership and re-engineering of present systems. Publishing companies still follow the same traditional supply chain for knowledge creation. They have moved towards custom publishing, but their processes remain practically the same. Publishing companies have to change their mindsets and re-engineer their processes.*

### **INTRODUCTION**

Research work in the last few years revealed the emergence of two distinct aspects of information, in the supply chain domain. The first relates to the study of management of information systems to enhance the supply chain linkages in e-business.

The second deals with IP, which entail the logistics within the supply chain associated with the creation and dissemination of information mostly in the service industry.

It seems that today's telegraph equivalent is e-business and all of its various forms such as e-commerce, e-government, e-learning and e-supply

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chain. A supply chain refers to a connected series of organizations such as suppliers, original equipment manufacturers, distributors and transporters, resources and activities involved in the creation and delivery of value, in the form of both finished products and services to end customers (Somendra et al., 2003). The internet is the technology driving the e-businesses supply chain enabling inter- and intra- organizational information systems to accomplish business processes effectively and efficiently. This phenomenon produced a paradigm shift with focus on information, collaboration and value (Boone & Ganeshan, 2007). The call for supply chain research in the information sector (Karmarkar & Apte, 2007) is answered in this article by analyzing processes in 'knowledge production' logistics.

This article focuses on the processes in the manufacturing of knowledge, and which is the core business of academic publishing companies. Information technology (IT) is used by all organizations for the management of information and knowledge across its functions and between its partners. Everyone understands the significant importance of business knowledge gain and loss. This paper looks into knowledge from a supply chain lens and focuses on its production processes. Production of knowledge (which is intangible) and optimizing its logistics are analyzed in the context of the publishing industry. Today's most recent application of the knowledge production paradigm discussed in this article is the e-book technology. The e-book technology alleviates the need to produce, store and distribute physical books while at the same time decreases publishing production costs (The Economist, 2010).

Inspired by the work of Wills and Wills (1997) we refer to the production of knowledge as "knowledge logistics". There are two important extensions to be made: the first is that knowledge entails the manipulation (summation, aggregation, filtering) of information which, in the present context, needs to be treated in terms of 'information products'

(IP). The second relates to logistics which we address in this article in terms of supply chain – more specifically electronic supply chain, since we use IT to leverage its optimization. Our literature review builds first on the ideas of information and information products leading to the production of knowledge. We then briefly position today's e-businesses and their dependence on IT – hence the e-supply chain concepts, followed by focusing on the engineering of knowledge logistics. After this review we build on the supply chain framework as we apply it to our experiences with an enterprise learning management system (ELMS) and one major publisher. We conclude with a proposed optimized supply chain for the production of knowledge. Opportunities and challenges are discussed.

The foregoing emphasizes the importance of research regarding the information production paradigm as it redefines the information and knowledge products and services manufactured, and delivered within the supply chain processes. It is the aim of this article to contribute to this new paradigm – more specifically in the knowledge supply chain domain.

The architecture of an optimized supply-chain for 'knowledge production' in the context of e-learning is presented. This case is carried out in the John Molson School of Business, Montreal, Canada using an enterprise learning management system for the creation and management of core online courses.

## **RESEARCH BACKGROUND**

There are only few studies that examined the information products domain. Starting from Hill (1999), he recognized intangible products to be any product that can be captured and stored, such as a concert, a chemical formula, a building design. He emphasized the importance of the intangible products domain, and the need to distinguish

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