



**CHAPTER FIVE**

# **Managing Value-Creation in the Digital Economy: Information Types and E-Business Models**

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## **INTRODUCTION**

Today's economy is increasingly driven by the integration of information in many aspects of business. Greater information intensity in industries such as hospital supplies and express package delivery is causing a fundamental transformation in the way firms conduct business, the menu of competitive choices that they are faced with and the need to continuously keep ahead of competitors. Information-driven businesses appear to adopt several managerial practices to create value. These include: mass customization or the development of highly customized products for individual customers (Wind and Rangaswamy, 1999; Pine, 1993); disintermediation or the creation of direct links between producers and consumers such that traditional intermediaries such as wholesalers and retailers are removed from the value-added chain in an industry (Westland and Clark, 2000; Benjamin and Wigand, 1995); self-design of products by customers as firms allow them to design products in-house and then transmit production specifications directly to suppliers; faster response times as direct communication links between customers and suppliers enable reduced order entry and processing cycles and on-demand production (Timmers, 1998; Keen, 1993); and lower transaction costs arising from expanded

use of single-source electronic sales channels (Kerridge et al., 1998; Picot and Kirchner, 1987).

This research seeks to advance understanding of information as a source of value creation in the digital economy. It therefore focuses on the nature of information itself as a resource, the effective management of which may be used to create products and services of economic value. Implicit in this assertion is the belief that the mere possession of information technology is a necessary but not sufficient condition. Hence, we focus not on the management of information technology, but on the ways that different types of information may be used to create value. The reader should note that our use of the term “products” refers to both tangible and intangible offerings. The convergence of information, physical products and services is becoming a particularly powerful driver of value creation in the form of fusion products that embody all three elements (Berryman et al., 1988; Goldman et al., 1995). Toward this end we develop a classification of information types based on the rate at which information changes and the degree to which information can be combined with other types of information to create value. We then use the classification scheme to describe the types of information that underpin four Internet business models. The reader should note that we do not purport to describe all extant business models. The Internet is a technologically dynamic, fast changing environment. It is virtually a certainty that other models will arise.

## LITERATURE ON INFORMATION TYPES

Machlup (1980) suggested that information can be classified into five types: practical, intellectual, pastime, spiritual and unwanted. Although interesting, this is of very little practical use in depicting the information content of value chain activities. Holsapple and Whinston (1996) proposed two main classifications of knowledge: primary and secondary knowledge. The three primary types of knowledge are descriptive, procedural and reasoning knowledge. The three secondary types of knowledge are linguistic, assimilative and presentation knowledge. The classification scheme proposed by Holsappe and Whinston (1996) is targeted at Decision Support Systems. Though useful and applicable, it is not ideal for our research questions. An alternate classification, intended for the health care professionals, distinguishes between professional knowledge and improvement knowledge (Batalden and Stolz 1993). In psychology, Anderson (1983) distinguished between the declarative and procedural knowledge. While important for the study of human cognition, this classification is too general for our purposes.

The question of an appropriate classification scheme may be answered by adopting one already in existence or building on existing schemes to design a classification suitable for understanding the role of information as a source of competitive advantage. In this paper we pursue the latter alternative.

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