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**Chapter V**

# **The Virtual Web-Based Supply Chain**

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The virtual Web-based supply chain is emerging as a new form of industrial organization. This paper discusses the concept as a juncture of three forces: the virtual organization, Web-based communication and the application service provider (ASP). The virtual organization is a familiar concept in many industries, even without electronic connections. Web-based communication provides access and networks with new institutions. The ASP makes rapid change and flexible connections feasible. Together they establish focus, flexibility and rapid response to change in demand and customer requirements. Casting it in a strategic framework of structure, process and organization provides a basis for projecting its future.

## **INTRODUCTION**

The concept of the supply chain is now familiar territory (Houlihan, 1985). Successive stages of closely coordinated product and material flow become a process of long-linked technology (Thompson, 1967). Similarly the virtual organization, even without computer connections, is recognized in practice (Hedberg et al., 1994, Davidow and Malone, 1992). The new elements are the impact of the Internet with the World Wide Web, and the application service provider (ASP). Together they create a new form of business organization with implications for major sectors of the industrial world. This new form promises the ability to supply customer requirements more directly than ever before through focus, flexibility, adaptability and capacity.

The supply chain was enabled through electronic communication and transaction-oriented software, first to link functions within the enterprise, then to customers and suppliers, spanning a process from resources to final customers. The traditional supply chain involves long-term relationships, such as an underlying IT system with direction from a dominant organization. It is an inter-organizational process linking functional activities to serve a common customer (Hammer and Champey, 1993).

This view is now being modified by new developments. Software extends beyond corporate boundaries with faster, high capacity Internet connections, creating new directions for strategy through ease of access, speed, capacity, simplicity and low cost. It changes the rules so dramatically that it reorders business organization and the nature of competition.

Observers project business-to-business (B2B) electronic trading exchanges as the major thrust of the Internet economy, encompassing customers, suppliers, manufacturers and service providers (Radjou, 2000). It is driven by the efficiency and simplicity of electronic transactions, compared to older computer-based legacy systems and manual procedures. The reach of the virtual Web-based supply chain however goes farther. It enables focused systems of supply to appear for a specific need and then disappear until a similar need arises.

This paper emphasizes organization of the virtual chain beyond the exchange process, managing a sequence of activities leading to delivery of products specifically configured for a customer. We begin with the concept of the Web-based supply chain. It is built on the underlying concepts of the virtual organization and the Web with other technologies to organize the process. We then turn to the implications for strategy. The final section projects a future that is almost upon us, with some unresolved issues. The focus is on organizational impacts of technology on management and strategy, not the technology per se.

## **THE CONCEPT OF THE VIRTUAL WEB-BASED SUPPLY CHAIN**

The traditional supply chain emphasizes long-term fixed relationships, with close collaboration for both product creation and delivery. In one sense, relationships are already virtual, because all firms deal with external sources of supply and services to some degree. They rely on proprietary firm-resident software and communications with a limited number of partners. Partners should have visibility extending over the entire span of the chain, share plans and contribute innovation in product and process development. It presupposes an atmosphere of trust and management integration for joint planning, control and sharing data. Integration becomes the basis for specific investments both in IT and operations, and connections through software and EDI connections. This model remains valid for many industries, even allowing for change in information technology (IT).

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