Supply Chain Inventory Management

The effective management of supply channel inventories is perhaps the most fundamental objective of supply chain management (SCM). Up to this point, the focus of SCM has concentrated on how channel strategies, partnerships, network designs, and operations management plans can provide today’s enterprise with the ability to leverage channel network resources to activate business processes and core competencies that merge infrastructure, share risk and cost, reduce design time to market, and exploit technology tools to anticipate and create new vistas for competitive leadership. Although these strategic topics have dominated the discussion, it must be remembered that SCM has an equally important operations side at the core of which resides the management of supply channel inventories.

The basic goal of SCM is to resolve the fundamental dilemma that resides at the very core of inventory management. In the supply channel environment, inventory is necessary to satisfy the sales and revenue objectives of marketing and customer service; however, too much inventory or the wrong inventory is destructive of the well-being of the entire channel. Inventory ties up capital, incurs carrying costs, needs to be transported, and can deteriorate or become obsolete over time. When it is improperly controlled, inventory can become a significant liability reducing profitability and sapping away the vitality of strategic channel initiatives targeted at revitalizing new markets or inventing whole new industries. On the other hand, the value of a properly managed inventory far exceeds its cost. Product availability at the time, location, quality, quantity, and price desired by the customer not only provides benefits in the form of immediate profits but also secures long-term customer allegiance and market segment leadership. When it is effectively controlled, inventory management enables the realization of channel marketing, sales, and logistics strategies and provides the lubricant for the smooth flow of material and service value from supplier to customer.

This chapter explores the elements necessary for the effective management of
supply chain inventories. The discussion begins with an overview of the flow and functions of supply pipeline inventories. The goal is to illustrate how buffer stocks staged strategically throughout the supply network can provide a fundamental source of competitive advantage and service value. Next, the chapter turns to an analysis of the principles of supply chain inventory management. The key points focus around maximizing service value, managing channel inventories as if they belonged to a single supply network, inventory and time-based competition, and the use of information as a substitute for inventories. At this point, the chapter turns to a review of channel inventory planning and ordering methods. The use of statistical models and distribution requirements planning (DRP) in creating supply channel replenishment linkages are explored. Attention is also paid to continuous replenishment concepts that seek to link the channel through computerized automatic replenishment techniques. The chapter concludes with a discussion of supplier management. Conceptual principles and practical techniques and benefits are detailed.

Elements of Modern Supply Chain Inventory Management

The management and strategic deployment of supply chain inventories is one of the essential pillars of channel competitive strategy. The prime purpose of channel inventory is to provide internal network partners and external customers with the required product in the quantities and at the time and place required. However, whereas there is wide consensus as to the benefits of stocked inventories, there is also universal agreement as to the destructive affects excess inventories can have on total channel profitability. Ensuring the proper balance between the value of holding inventory and the costs incurred requires channel inventory planners to have a complete understanding of the scope, functions, and expected value of inventories as they appear across the supply channel network.

What Is Supply Channel Inventory?

Inventory can be found throughout the supply channel in various forms and in response to various purposes. As illustrated in Figure 6.1, the physical flow of inventory through the distribution supply channel can be said to occur in six stages. The supply pipeline materials flow begins with the acquisition of materials and components. For the most part, this stage is the reserve of product manufacturers who purchase raw materials and component parts that will be later transformed into finished products that ultimately will be sold to the customer. The key inventory management issues during this stage revolve around vendor selection and qualification, contract partnerships, supplier scheduling, transportation and delivery, and vendor performance measurement.

In stages 2 and 3, purchased inventories are transformed into semifinished and finished products through the manufacturing process. Stage 2, termed primary