

Introduction to supply chain management

The supply chain encompasses all activities associated with the flow and transformation of goods from raw materials stage (extraction), through to the end user, as well as the associated information flows both up and down the supply chain (not only internally within a company but also externally between companies). Supply chain management (SCM) is the integration of these activities through improved supply chain relationships to achieve a sustainable competitive advantage and to improve the long-term performance of the individual organizations and the supply chain as a whole.

The goal of SCM is to integrate both information and material flows seamlessly across the supply chain as an effective competitive weapon. To maximize supply chain's potential it's necessary to develop the performance measures and metrics that should be understandable to all supply chain members. It's important to evaluate supply chain in different stages/processes – plan, source, make/assemble, delivery/customer.

It's important to determine way and extent to which customer specifications are converted into information exchanged along the supply chain. The total order cycle time refers to the time elapsed in between the receipt of customer order until the delivery of finished goods to the customer. The reduction in order cycle time leads to reduction in supply chain response time, and as such is an important performance measure and source of competitive advantage—it directly interacts with customer service in determining competitiveness. By analyzing the customer order path, non-value adding activities can be identified so that suitable steps can be taken to eliminate them.

Traditionally supplier performance measures were based on price variation, rejects on receipt and on time delivery. But there also should be considered criteria like quality, reliability etc. That's why the evaluation of suppliers in the context of the supply chain (efficiency, flow, integration, responsiveness and customer satisfaction) involves measures important at the strategic, operational and tactical level. Strategic level measures include lead time against industry norm, Quality level, Cost saving initiatives, and supplier pricing against market. Tactical level measures include the efficiency of purchase order cycle time, booking in procedures, cash flow, quality assurance methodology and capacity flexibility. Operational level measures include ability in day to day technical representation, adherence to developed schedule, ability to avoid complaints and achievement of defect free deliveries.

The efficiency of a supply chain can be assessed using the total logistics cost—a financial measure. It is necessary to assess the financial impact of broad level strategies and practices that contribute to the flow of products in a supply chain. Since logistics cut across functional boundaries, care must be taken to assess the impact of actions to influence costs in one area in terms of their impact on costs associated with other areas. For example, a change in capacity has a major effect on cost associated with inventory and order processing. Cost associated with assets and return on investment. Supply chain assets include accounts receivable, plant, property and equipment, and inventories. With increasing inflation and decreased liquidity, pressure is on firms to improve the productivity of capital—to make the assets sweat. In this regard it is essential to determine how the cost associated with each asset, combined with its

turnover, affects total cash flow time. One way to address this is by expressing it as an average days required to turn cash invested in assets employed into cash collected from a customer. Thus, total cash flow time can be regarded as a metric to determine the productivity of assets in a supply chain. Once the total cash flow time is determined, this can be readily combined with profit to provide insight into the rate of return on investment (ROI). This determines the performance by top management in terms of earnings on the total capital invested in a business. With customer service requirements constantly increasing, effective management of inventory in the supply chain is crucial. In a supply chain, the total cost associated with inventory can be broken down into the following: Opportunity cost, consisting of warehousing, capital and storage; Cost associated with inventory at the incoming stock level and work in progress; Service costs, consisting of cost associated with stock management and insurance; Cost of finished goods including those in transit; Risk costs, consisting of cost associated with pilferage, deterioration, and damage; Cost associated with scrap and rework; and Cost associated with too little inventory accounting for lost sales/lost production. Information processing cost. This includes costs such as those associated with order entry, order follow/updating, discounts, and invoicing. Information processing cost is the largest contributor to total logistics cost. The role of information technology is shifting from a general passive management enabler through databases, to a highly advanced process controller that can monitor activities and decide upon an appropriate route for information. Modern information technology, through its power to provide timely, accurate, and reliable information, has led to a greater integration of modern supply chains than possible by any other means.