Role of information technology in the supply chain

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Information a prerequisite to supply chain efficiency

Information is key to creating an effective supply chain. The strategic, planning and execution levels within every business which deals with the supply, movement and consumption of physical goods is impacted by the information it has available for input to the decisions and action, regarding inventory, production, international transportation, customs clearance, finance, warehousing, Local Distribution and any other elements pertinent to a particular supply chain. Individually each of these activities has cost implications, for example, costs associated with inventory include ordering costs, carrying costs and even the cost attributable to stock-outs. Distribution likewise provides obvious cost issues relating to delivery scheduling, load sizes and route planning.

The speed, accessibility and quality of information is thus a vital factor in the decision-making process and execution within the supply chain and ultimately the determination of the cost of goods available for consumption.

IT should efficiently gather, process and supply information

"Information Technology" is the hardware and software mechanism which can be used to gather and process that information required to provide input to the myriad decisions which need to be made in support of the activities identified above. Effective use of IT can therefore have a significant positive impact on supply chain performance. Conversely, ineffective use will have the opposite effect. This position is exacerbated for the consumer because of the nature of the chain, where a weakness in one link in the chain has a knock-on effect on all subsequent dependent activities.

In most systems IT is initially used to provide for the input and storage of data within a database, for subsequent processing of simple transactions and the output for reporting. It is then made available for use in other processes which have access to the same database. This certainly has the potential to greatly improve efficiency within an individual organisation. However, the real value is only realised if decision-making is enhanced, initially for the operator, then across the wider organisation and eventually throughout the entire supply chain. The extent to which IT is able to facilitate the distribution of data across the chain, addressing the organisation's internal operational/functional requirements, the customer interface and reporting requirements and interaction with other suppliers will ultimately determine its contribution to supply chain efficiency.

Considerations for applying IT in the supply chain

With the above as background the following may be considered in determining the application of IT in the supply chain:

• Select the information technology that addresses the company's key activities
• Align the level of functionality available with the need for such functionality
• Consider future as well as current requirements
• Ensure that your systems can easily receive from and provide information to other participants in the supply chain
• Understand that wider systems implementation process is an incremental exercise, and take steps appropriately
• Remember that IT systems should be used to support the decision-making and action, do not expect information technology itself to make or execute decisions

Relevant information made easily accessible throughout the supply chain allows players to make decisions that take into account all stages of the chain, and allows performance to be optimised for the entire process, leading to better decisions and cost reductions. Parties involved in the supply chain should consider the implications, both strategic and operational, on their business. ◆