Supply Chain Management 101

An Online Continuing Education Course for Engineers

Course Number: BS-1039

Credit: 1 Hour / 1 PDH / 1 CPD

Supply Chain Management 101

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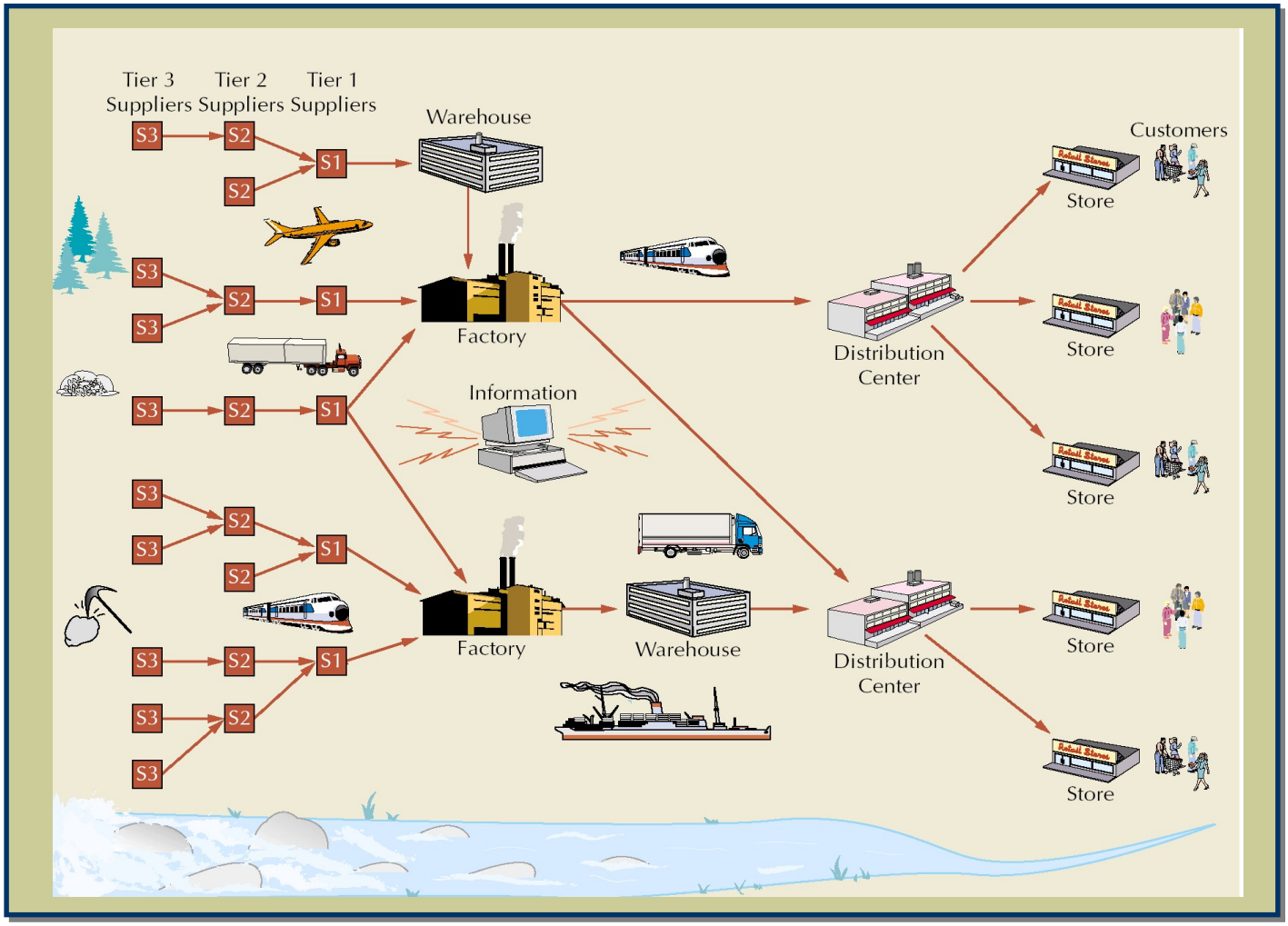

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Learning Outcomes

Students completing this course will be able to:

1. Describe the general flow of a supply chain and list the typical components within it.
2. Explain how the supply chains of manufacturers and service providers differ and are alike.
3. Define correctly and use appropriately the various terms associated with supply chain management.
4. Learn to use key performance indicators.
5. Identify typical uncertainties in a supply chain and suggest ways to protect against them.
6. Describe how technology has changed the traditional supply chain and can be used as a tool for success.
7. Describe the advantages of trust and communication between various players in the supply chain.

Additionally, students will become conversant with such terms as:

- Inventory turns
- Days of supply
- Value chains
- The Bullwhip Effect
- Various technological tools used in modern supply chain management
- Cash-to-cash cycle
- Risk pooling
- Demand focused metrics
- Internal focused metrics

Intended Audience

This course is intended for project managers, department managers, process leaders, non-professional accounting staff or simply anyone wanting to gain a basic knowledge of how a supply chain works, including how to calculate various critical metrics within it.

Overview

The supply chain of a business includes all of the facilities, functions, and activities involving the flow and transformation of goods and services from raw materials to final customer, as well as the associated information flows. It is an integrated group of processes to "source," "make," and "deliver" products.

There are basically two different business models with supply chains: *manufacturers of finished goods* with very distinct flows of materials from suppliers and out to consumers (see the diagram on page 5) and *service companies* whose supply chains are not so easily described because they do not focus on the flow of physical goods but rather on human resources and support services. They are often more compact and less extended than their manufacturing counterparts.

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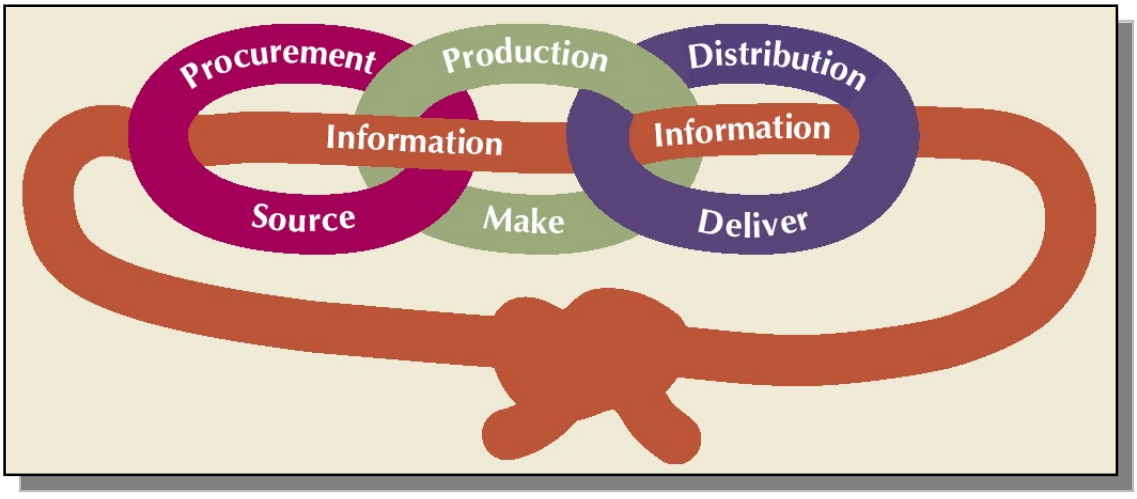
The key to success of supply chain management whether it is manufacturing, or service is DATA. There are three critical elements of using that data that determines the success of a business. It must:

1. Collect it from their customers to learn what they want, how they want it, and when it must be there (the *demand* side of the equation)
2. Interpret it carefully to improve:
    a. Their production, purchasing, and staffing forecasting
    b. Inventory management (enough of the right inventory to meet customer demand but not tie up too much capital in it)
    c. Planning for growth
3. Share it with suppliers to make sure their flow of needed materials stays reliable.



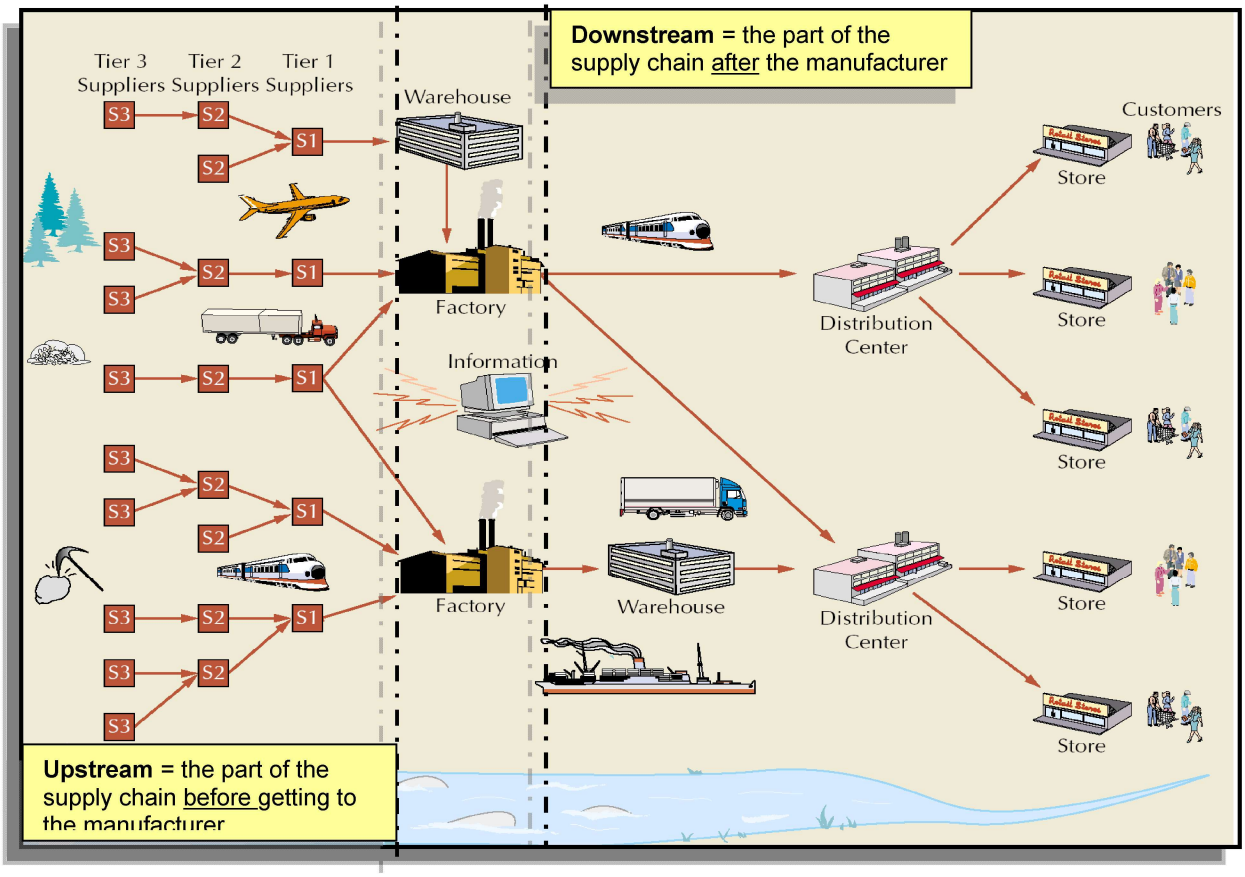
The picture below tells us a lot about the supply chain concept.

Suppliers:

- **Tiers** - First-tier suppliers provide materials that are ready for the manufacturer without additional processing. Second tier means it needs one more step of preparation before going to the manufacturer and so forth for additional tiers.

- **Information** – this is the heart of an effective supply chain as data is exchanged as close to real time as possible between suppliers, the manufacturer, distribution centers, and end-user access at stores.

- **Distribution Centers & Outlets to customers** – the customer end also provides the "demand" which helps the factory forecast future needs so they can contact their various tiers of suppliers to begin the cycle.



Service Providers

Although we will spend most of this course talking about the supply chain and how it relates to manufacturing, it is important to apply the same model to service providers such as a dentist, a lawn service business, or a community services agency.

A dentist must purchase equipment (and have it serviced as necessary) and supplies such as drugs used in their office procedures and that bag of goodies they always give you after cleaning your teeth with the new toothbrush, dental floss, and maybe a travel-sized tube of toothpaste inside. They are very focused on the human resources aspect of their business because it's their employees who clean the teeth or assist in the more serious dental procedures that interact with their patients and determine, to a large extent, whether the patients stay with them or look for another provider.

The lawn service provider must have sufficient equipment and tools from a supplier plus enough employees to make their business successful. They may not interact with customers as much as a dentist's employees do but customer satisfaction and reliability is still an important element of their job.

The community service provider must also obtain materials (depending on the nature of their services) from suppliers and, using the skills of their employees, apply those materials appropriately in their service to their customers. Any disruption in the flow of their supplies can mean a breakdown of service.

Various "Chain" Terms

The word "chain" has been used in a wide range of references dealing with manufacturing or services and has become fairly universal. This is a breakdown of their current usage for familiarization:

- **Value chain -** every step from raw materials to the eventual end-user where its "value" increases steadily as a result of something being done to it.

For example, a cabinet manufacturer uses oak as a primary ingredient of his product. Going to the source of that material, we see the logger who cuts down the tree and sends it to a sawmill. This adds value to the wood because it is no longer in the forest but getting closer to becoming a cabinet.

The sawmill adds additional value by cutting the raw tree trunk into boards and pressing the scrap into a thin veneer for cabinet facing. This wood is shipped to the cabinet maker.

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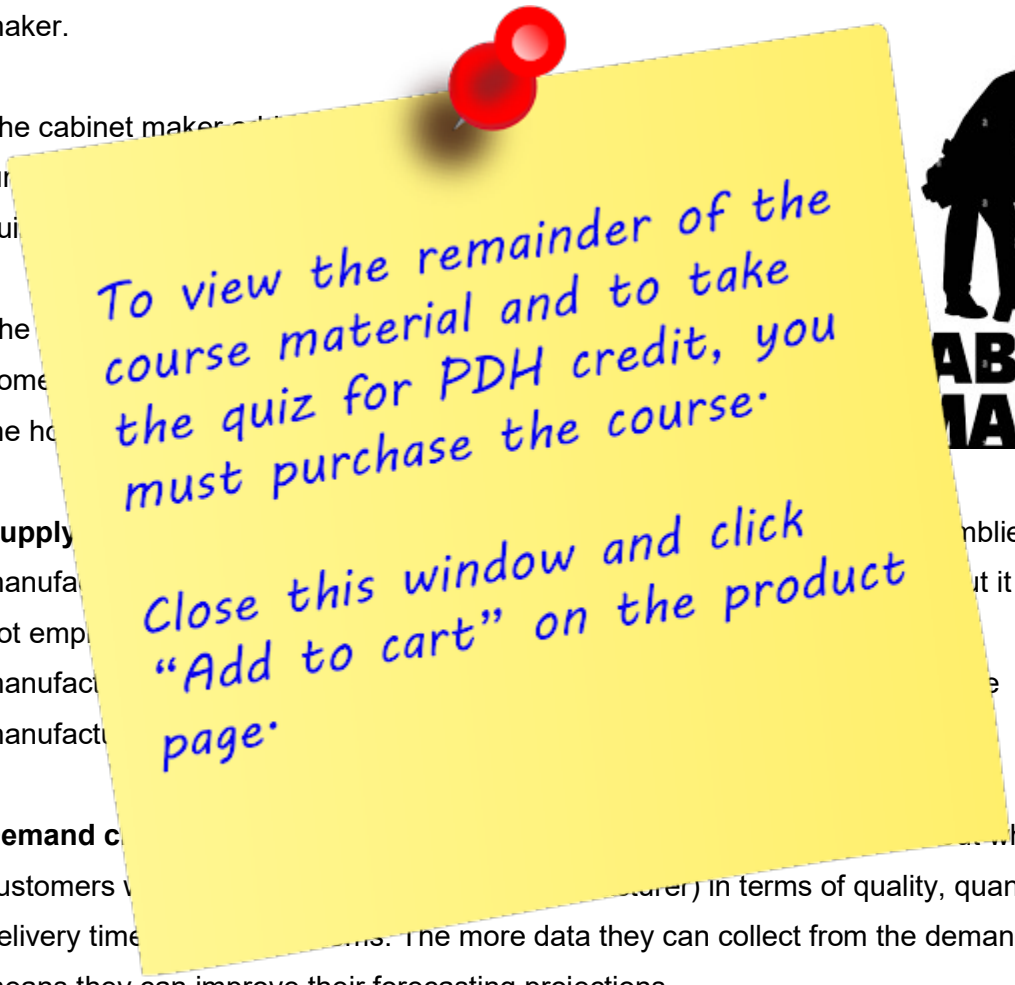

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  ms. The more data they can collect from the demand side means they can improve their forecasting projections.

Better forecasting means being more specific in buying raw materials (thus wasting less) from suppliers and, thus, carry a lower inventory of raw materials in the factory. As the quantity of the data exchange between end-users, manufacturers, and suppliers increases, the greater the opportunities for just-in-time supply delivery. (We will talk more about this later.)