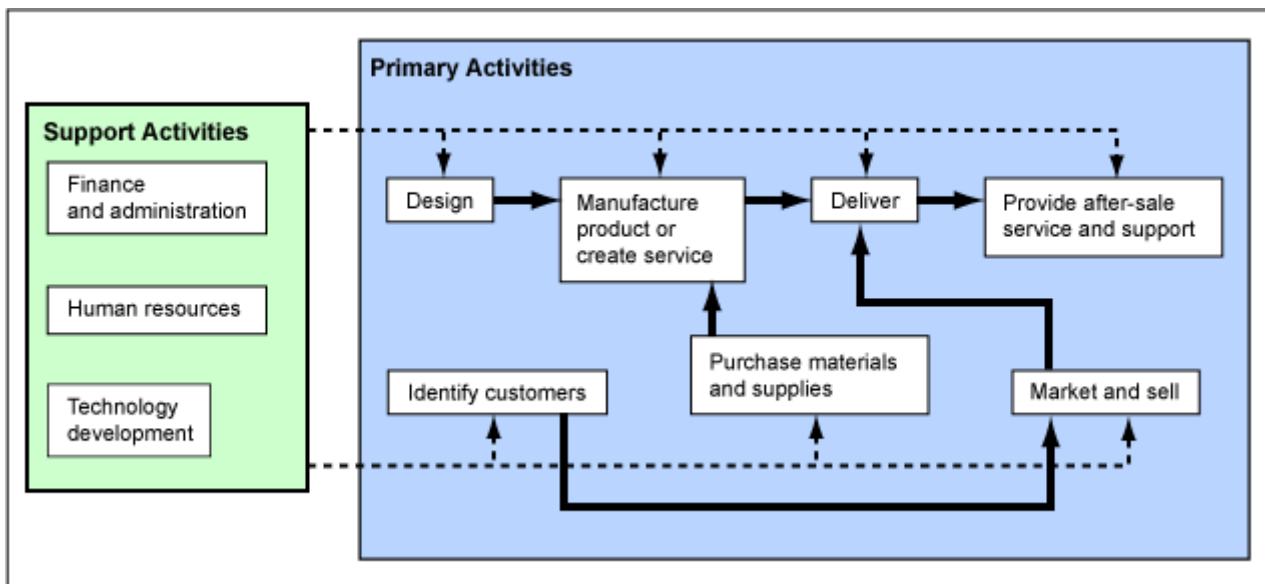


At this point, we want to address the **value chain** of organizations. The value chain of any organization describes the business activities that the company does to add worth or importance, and thereby profits. A question often asked in procurement departments when analyzing a bid from a company is, "How do they make their money?" What they are really asking is, "What is their value chain?"

Value Chain—Did You Know?

As we saw with the elements of the financial models in the previous discussion, changes in one activity (for example, sales) have a ripple effect in other areas (such as production). To fully understand how information systems can be a critical and effective tool to support business strategy, you should understand how the various activities in an organization add value. Then decisions related to the information needed and how it is made available using technology can be analyzed in terms of how those systems best add value to the business activities. Figure 1.10, below, identifies major areas in the value chain.

Figure 1.10
Detailed Value Chain



Source: Adapted from Schneider (2002, p. 23)

For the purposes of this discussion, we will focus on the primary activities. As we saw previously in the business model section, however, the support activities can be significant components of an organization's value chain. For example, because Booz Allen Hamilton's main corporate assets are the knowledge and skills of its employees, effective recruiting and retention activities are critical to its success.

A. Supply Chain Management

At the basic level, a system consists of three major activities: input, process, and output. Although the components in these three areas differ widely from one organization to the next, the fundamentals are the same. Therefore, when we discuss supply chain management, we must first define the **supply chain**. You can think of this in terms of these questions:

- What are the inputs?
- What kind of processing is required?
- What are the outputs, and how are they delivered to the customer/end user?

The supply chain represents "the network of organizations and business processes for procuring raw materials, transforming these materials into intermediate and finished products, and distributing the finished products to customers" (Laudon & Laudon, 2006, p. 360). What constitutes materials and products also varies widely. At Walmart, the number of products is huge. In a professional-services firm like Booz Allen Hamilton, the products are less tangible—the information, advice, and recommendations that the consultants provide to their clients are the products (Laudon & Laudon, p. 92).

Below is a simple representation of a supply chain that shows a **second-tier supplier** (a supplier to a supplier). This is a supplier to a firm who performs a process and sells to a wholesaler, who sells to a retailer and then to the ultimate customer. Think about this model as representing an automobile manufacturer, such as Ford Motor Company (which would have many more tiers of suppliers than what is shown here). This model could also represent the supply chain for Walmart.

Hold your mouse over each item in figure 1.11 to see an example of a type of organization associated with that step.

Figure 1.11
Basic Supply Chain Model



Figure 1.12
Supply Chain with Activities Model

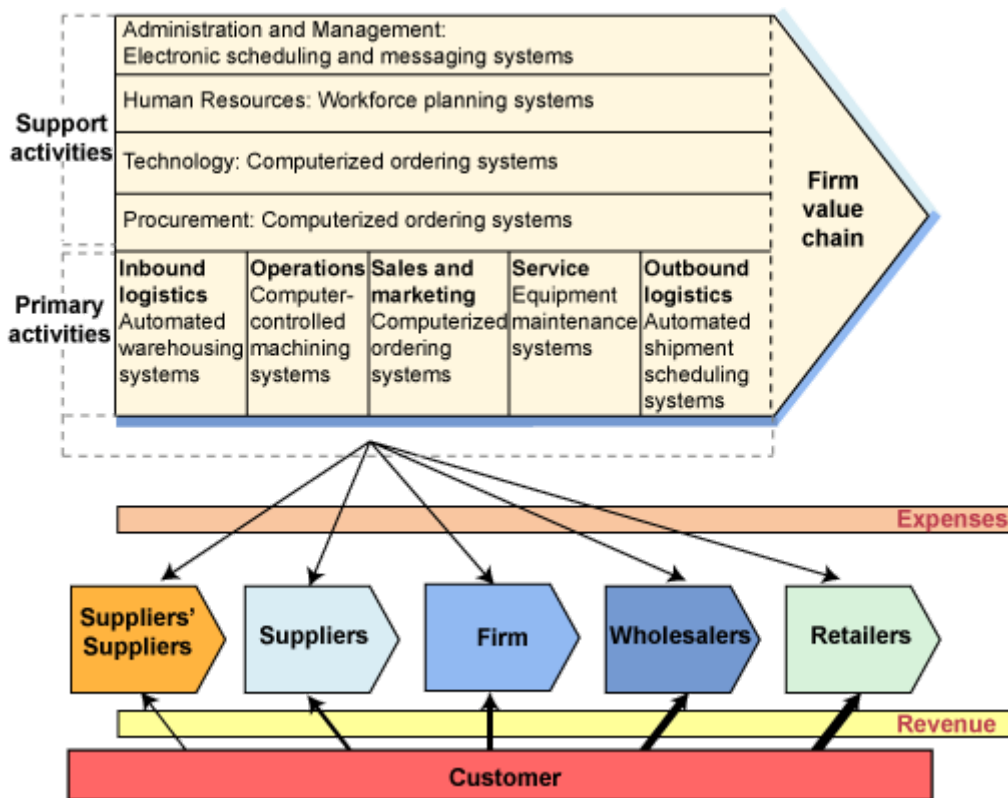


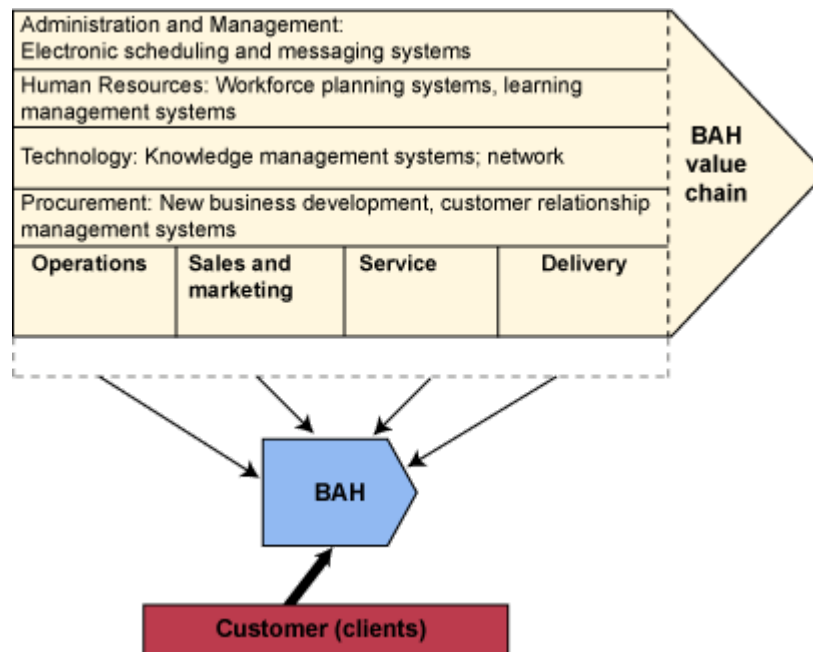
Figure 1.12, above, represents the supply chain with activities. These activities occur to some extent in any firm that participates in the supply chain and uses the systems associated with the various activities. It is important to note that the same general corporate structure is present with each participant in the value chain, regardless of its business model or financial structure. The various activities and their related systems are the areas in which the companies incur expenses. The amount of expense and the importance of the different areas would be defined by the company's business model.

For simplicity, we have represented these expenses with arrows of the same width, but realistically, arrows of varying thicknesses would represent these amounts, just as they did in [figure 1.3](#), the Booz Allen Hamilton business model. The width of the revenue arrow increases with each step toward the ultimate customer, indicating that the revenue received in each step of the value chain increases as we get closer to the ultimate customer. This increase in revenue at each step represents the value added by that participant in the chain.

A shorter supply chain (one that contains fewer components) is less complex and easier to manage. For example, Booz Allen Hamilton's value chain shows a greater emphasis on the traditional support activities and has a much shorter supply chain that we can infer from the BAH business model.

As illustrated below in figure 1.13, BAH is both the beginning and the end of its supply chain, a situation that results in its experiencing all of the expenses and receiving all of the revenues.

Figure 1.13
Booz Allen Hamilton Supply Chain



Looking at Mitigation Technologies, we see a more traditional company in terms of building and selling a specific product. Supply chain management involves the organization's methods of effectively and efficiently acquiring the needed materials, turning the materials into finished goods, and getting those goods into customers' hands.

As shown in the financial models, organizations have alternatives in terms of how they seek to increase profits. When Comfy Chair sought to increase sales by 20 percent, the production department required additional equipment to meet the demand. This is a supply chain management issue. Because production had the right information and tools required to perform the needed analysis, they could predict the impact of a 20 percent increase in sales volume and determine what it would take to meet that increased demand.

If you look back at the business models illustrated at the beginning of this module, you will see that the width of the arrows reflect the degree to which an element may affect (or be affected by) the business. In discussing supply chain management, the focus is on the arrows related to suppliers and customers. In an organization with a very thick supplier arrow, a substantial portion of the operating-expense budget relates to that aspect of the supply chain. Most of these expenses are variable costs, so as we have seen, a reduction of these costs can increase profits significantly. Because we know that organizations have finite resources and should seek to optimize their use of those resources, it is evident that management can provide value and profitability by focusing on the myriad activities in this area.

Optimal management of the supply chain can help an organization minimize costs. For example, maintaining large volumes of inventory costs money because the inventory requires space, personnel, and tracking; it can be lost or stolen, or it can become worthless as a result of obsolescence or shelf-life expiration. In addition, suppliers and vendors expect to be paid when they provide the materials and will not want to wait for them to be shipped and sold. The company cannot receive payment for inventory until it is actually sold to customers—a reality that can seriously affect a business's financial well-being. But let's not forget that the customers will expect to receive their purchases in a timely manner and will have little tolerance for long delivery times because the product is not available. Proper supply chain management and systems must seek to balance these requirements.

Organizations can minimize the time from initial procurement to customer delivery ([cycle time](#)) through good planning (forecasting demand, production schedules, delivery routes, and so on), thereby increasing value while using the minimum amount of resources. The availability of accurate information to the right people at the right time is critical to accomplishing this.


The supply chain is the network that connects the elements from outside the organization, linking the business to its vendors and customers. For example, a retail store will include its suppliers of shoes and accessories in its network. A manufacturing company will include its shipping agents (such as FedEx and UPS) in its supply chain. An online business network includes customers, vendors, and delivery services connected via the Internet. An online retailer may include its brick-and-mortar stores to simplify the return of merchandise for its customers.

In the general business model, we indicated that a variety of factors affect a business's strategy. To respond to competitive challenges, environmental changes, or supplier issues, an organization must react quickly to maintain or improve its position. This may call for adding new or substitute products and services, lowering costs, increasing quality, or changing delivery methods. Because of the many activities involved in the supply chain, each of which has a number of related tasks, the use of information technology and effective information systems is critical to a rapid response and well-executed changes in strategy.

Although the logic of paying attention to the supply chain is evident, the specific business value and return on investment may not be as obvious to management. A study led by researchers from Stanford University identified the link between the supply chain and financial performance by studying 630 global companies and evaluating their supply chain performance. The researchers looked for companies that excelled at managing inventory, costs of goods sold, and return on assets. This study provided four key findings regarding leading companies in this area (D'Avanzo, von Lewinski, & Van Wassenhove, 2003):

1. Senior executives recognize supply chains as critical drivers that can make large contributions to profit and add shareholder value and competitive distinction.
2. The companies in the study integrate supply chains into their key business strategies and put considerable effort into developing integrated operational models.
3. Innovation is built into these operating models, with emphasis on outsourcing, integrating internal sources with external ones, and ensuring that market demands match supply.
4. The companies in the study are rigorous in executing their strategy, constantly adapting it to changing market needs.

This study demonstrated that supply chain management is not just a business function, but a set of key business processes that successful executives recognize as being a critical strategic driver. The supply chain must be constantly monitored and improved, using innovative technologies and processes, to support the organization's success.



Think About It 1.1: Walmart's Supply Chain

Walmart has a goal of always giving its customers the lowest price. It achieves this pricing strategy by excelling at the management of its supply chain. Walmart uses more than 60,000 suppliers to provide merchandise to its stores around the world. Because of very small profit margins, it is critical that the supply chain be as efficient and cost-effective as possible. Walmart provides prospective suppliers with extensive information about its process and requirements on its website. This includes electronic data interchange (EDI) capabilities, timely delivery, and quality assurance measures. Walmart has standardized its supply chain management process and works with vendors to help them comply with these requirements for mutual benefit.

Now let's return to Mitigation Technologies, so we can analyze its supply chain and how it supports its business strategy.

B. Mitigation Technologies Supply Chain

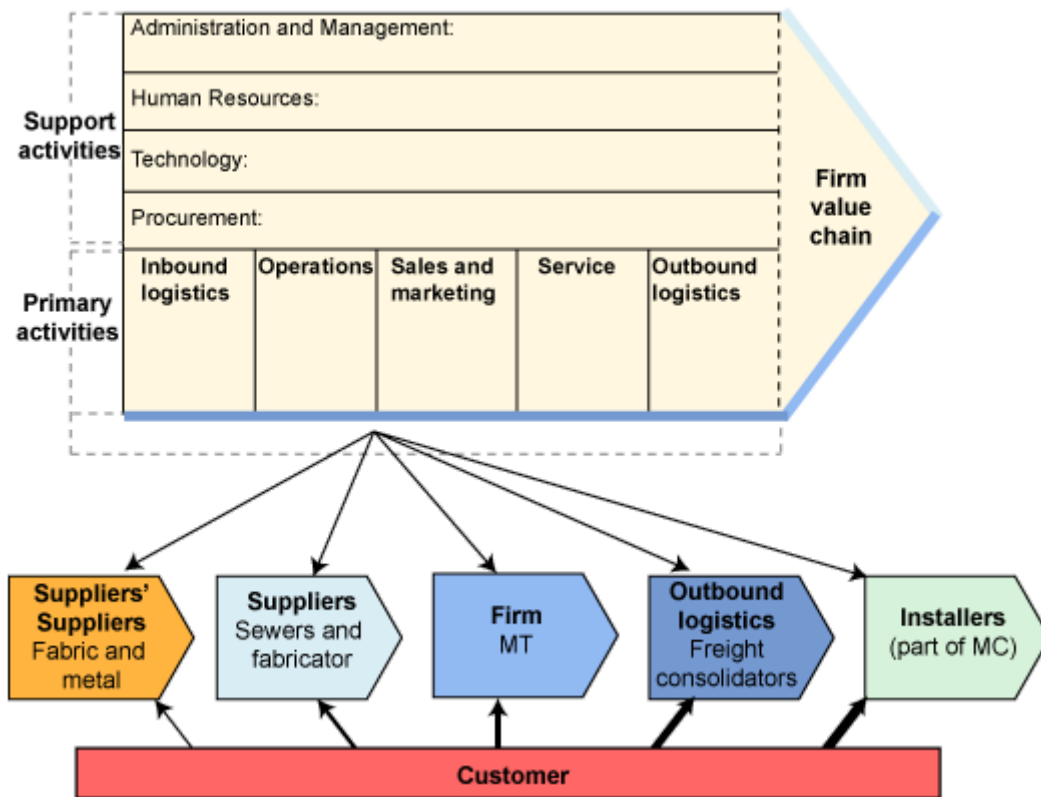
A key business strategy of Mitigation Technologies is to stay "lean and mean." In other words, rather than building a large manufacturing and production facility, MitiTech has chosen to identify and qualify a number of vendors who can provide the various customized components needed to produce Safetydrape. So let's consider what may be key requirements in monitoring its supply chain. For example, getting accurate information to the vendors, tracking orders, monitoring delivery schedules, and monitoring quality assurance are key activities.

Because Safetydrape is manufactured specifically for each customer (in terms of window sizes and installation requirements), maintaining an inventory of completed products is impractical. However, there are component parts (such as fasteners, brackets, material, and metal) that are stockpiled by the vendors who create the custom components. MitiTech does have a very small warehouse facility to permit consolidation of small orders, and the company uses shipping specialists to consolidate and deliver large domestic or export orders.

The distribution channels for Safetydrape are expanding, and MitiTech expects sales to increase dramatically in the coming years. As a small company with a unique product, MitiTech must ensure that its supply chain can handle future demand. A key success factor for MitiTech thus far has been its reputation as a provider of quality products and services.

Let's look at the supply chain for MitiTech, shown in figure 1.14. Here we will evaluate MitiTech's supply chain by focusing on the **primary activities**—those that provide value to the customer related to production and distribution of its goods.

Figure 1.14
MitiTech Supply Chain Model



Now that we have defined the supply chain for MitiTech, it is your turn to think about the systems that support these activities. Given its business model, the systems are fairly simple.



[Try This 1.1: MitiTech's Value Chain Systems](#)