Topic 3: Demand Management Process

The *APICS Dictionary, 16th edition,* defines the **demand management process** as a process that weighs both customer demand and a firm’s output capabilities, and tries to balance the two. Demand management is made up of planning demand, communicating demand, influencing demand, and prioritizing demand.

Demand management seeks a balance between the extremes of trying to satisfy every demand and satisfying only demands that current capacity can handle. The four elements of demand management are shown in Exhibit 4-12.

**Exhibit 4-12: Demand Management Process**

```
Planning demand

Managing and prioritizing demand

Communicating demand

Influencing demand
```

**Planning Demand**

Planning demand includes forecasting activities but moves beyond it because it is a plan for action based partly on those forecasts. A key output is the demand plan, which is usually a rolling 18-month plan. (A new month is added to the end as each month passes.) Consensus on the demand plan is achieved through the S&OP process. Here we’ll look at the end results to see what the plan might look like. Exhibit 4-13 shows a demand plan dashboard, a graphical presentation of the demand plan. It is presented in units, but other audiences such as finance might get more benefit from a presentation in monetary units.
Exhibit 4-13: Example of a Demand Plan Dashboard—Units

The exhibit illustrates how the revisions from the prior month’s demand plan version can be made obvious so that significant changes can be discussed.

Note that to be complete, dashboards such as these need the following information for demand consensus review:

- Historical demand data for the past three months or more, with relevant key performance indicators and metrics for each month
- Demand plan for the next 18 months or more (For each month, this shows the demand plan [actual request for product] and, for comparison, the demand that is necessary to achieve the goals in the organization's business plan.)
- Prior demand plan (Since plans are revised each month, the prior demand plan can be shown as a point of reference and reasons for significant changes can be discussed.)
- Assumptions made in demand numbers and pricing assumptions
Planned branding, marketing, and sales promotions activities
Key risks, opportunities, economic trends, and competitor actions
Subtleties and uncertainties
Events and issues of note and decisions that were made

This nuanced information is what enables decision making regarding the true state of demand, plan feasibility, actions that need to be planned and executed to meet the plan and business objectives, and actions to keep supply and demand in sync.

Communicating Demand

Communicating demand starts with demand sensing, which involves collecting data on actual sales or actual orders. In the B2C environment, these are primarily point-of-sale (POS) data; in the B2B world, these are primarily open orders per period. Performing analysis on the POS data or open orders (versus what was forecast) can provide information on what will be in surplus or subject to scarcity in the near future. Analysis can also reveal opportunities for later demand management steps, such as noticing that customers who order this item usually order some additional materials (and then offering these materials to those customers) or that a particular customer orders on a regular basis (and then offering to automatically fill this order as an ongoing subscription).

Communicating demand also involves ensuring that everyone in the organization and external partners get the same information on demand. The demand plan dashboard just presented can serve as a useful communications tool. In general, communicating demand requires communicating soon to avoid surprises, structuring communications in a process to ensure that they occur (this is especially needed to ensure that bad news is communicated), and tailoring what is presented to fit the given audience, such as presenting supply jargon to supply professionals but excluding the jargon and presenting just the essential supply findings to other parties. A demand manager is an organizational position that helps present the same information to supply, demand, finance, and executives in formats they can easily digest. This position can also be used as an intermediary between these parties. In other organizations, the chief operating officer fills this role.

Demand Shaping

Demand shaping involves finding ways to balance supply with demand and it can take two basic forms: influencing demand and managing and prioritizing demand, as are discussed next. Note that another way to distinguish among methods of demand shaping is called external balancing versus internal balancing. External balancing works to change customer behavior while internal balancing works to change organizational behavior. These terms are also discussed more next.
**Influencing Demand**

Here we introduce the general concept of influencing demand, which applies to many areas of the organization, including logistics. The next topic will present some logistics-specific methods of shaping demand.

Influencing demand describes the activities of product and brand management, marketing, and sales to convince customers to purchase the organization’s products and services so that the organization’s business objectives are met or exceeded. Another aspect of influencing demand is the requirement for the demand side of the organization to influence the product development, logistics, and supply sides of the organization to recognize and support actual customer expectations and requirements.

Changing how customers order goods can also be called external balancing, and the two key external balancing levers that most organizations have are adjustments in price and adjustments in lead time.

If demand outstrips supply for a given item, a price increase can help turn customers to items that are in surplus if the organization offers substitutes. Substitution may also need to occur because there is limited capacity and not all customers can be served without making full use of other products in a product family. Dell has long used these price change (and lead time) tools on its website to steer demand toward items they want to sell more of. Increasing the price in times of high demand will also ration demand to those customers who place a high priority on getting the good or service soon even if they have to pay more. (The practice also increases profits.) On the other hand, if a product is in surplus, offering a two-for-one deal or a similar type of promotion could help get this inventory moving. A promotion or discount could also be timed to a period in which there is excess production capacity. Changing bulk purchase discounts, payment terms, or credit approval policies are similar external balancing tools. Dynamic pricing systems can also be used. These systems influence demand by focusing on maximizing sales of available inventory at positive contribution margins (the sales price minus variable costs), especially in situations where the inventory cannot be stored. For example, empty airline seats or hotel rooms still consume variable costs, while heavily discounted seats/rooms with a positive contribution margin still improve the bottom line.

Increasing lead times (or convincing customers to delay purchases or wait in some form of queue) will provide more time for supply to achieve balance, and this is one lever that may be up to logistics professionals to determine how and when to exercise. Of course, use of these price and lead time levers can also turn the customer toward competitors, so other internal levers exist. For example, sales and marketing can create sales force incentives.
The key to using these external and internal balancing tools effectively—while also avoiding the bullwhip effect—is to communicate when they will be occurring up and down the supply chain or, better yet, to collaborate with others in the implementation of these tools.

Succeeding at influencing demand requires not only generating and executing marketing and sales initiatives but also determining if the plans are working as intended. If they are not, there must be a process in place to make course corrections during execution.

Positively influencing demand over the longer term involves developing products that customers are actually demanding, settling on the most profitable product mix, setting strategic pricing, placing products at various physical or online distribution points to establish a presence and level of customer convenience, and promoting products through advertisement and other means (i.e., the four Ps). Similarly, new product introductions or decisions to drop a product line can be timed to minimize the impact on other lines.

The other aspect of influencing demand over the longer term is to influence the organization to support actual customer expectations and needs. However, this influence must be directed toward the organization's business objectives. Specifically, this means that the organization should support only products and services that have a positive contribution margin. A positive contribution margin means that the increased demand will increase net income (profit) rather than simply increasing sales volume or revenue. Expanding product mixes and varieties to satisfy all customers could otherwise result in unsustainable costs and growth.

**Managing and Prioritizing Demand**

Managing and prioritizing demand requires an organization- or supply-chain-wide view. It involves optimizing demand across the system as measured by optimum organizational profit, demand volume, sales revenue, and customer service (including customer retention). This is a management activity because it involves setting and enforcing policies to promote this optimization process; it is a prioritization activity because it involves making judgment calls to decide what actions or customers are more important than others when capacity is limited.

Organizations must manage and prioritize demand because sales will differ on a regular basis from planned demand in total volume and/or in product mix and because supply often cannot produce products in the exact timing and mix specified by the demand plan.

The primary internal balancing levers used to manage and prioritize demand include production flexibility and inventory holding. Production flexibility involves small batches of production with fast changeovers to produce more units that are in
demand now. It can also involve prioritizing production to increase supply of certain items or prioritizing items within distribution systems to better distribute supply to meet demand. For inventory, safety stock helps manage supply-demand mismatches by preventing stockouts or avoiding lead time issues; however, it only makes oversupply situations worse.

Management and prioritization from an external balancing perspective can be based on customer segmentation strategies, such as fulfilling orders to the most valuable customer segments first. Another example is rationing supply so that each warehouse or retailer receives a portion of the full demand but no entity goes without a certain minimum amount.

Exhibit 4-14 shows some situations in which managing and prioritizing demand is usually necessary.

**Exhibit 4-14: Situations Requiring Managing and Prioritizing Demand, with Examples**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>When conducting sales and operations planning and the supply organization cannot meet the demand plan without changes</td>
<td>An organization with fixed capacity starts with high demand for a hot-weather product. Rather than continuing to try to predict the weather far in advance, they prioritize how product is distributed so that only areas currently forecasting or experiencing hot weather are allocated more product, reducing capacity pressures and inventory.</td>
</tr>
<tr>
<td>When the demand plan overstates actual demand and plan changes will impact sales revenue and product costs</td>
<td>An organization resolves a situation of too much supply by establishing a series of decision points (time fences) for production activities such as purchasing so that some operations can be delayed until more accurate demand information is available. Demand that does not materialize prior to the decision points can be de-expedited (moved back in the production queue).</td>
</tr>
<tr>
<td>When the demand plan understates actual demand and plan changes will impact sales revenues and product costs</td>
<td>An organization resolves a situation of insufficient capacity by extending its planning horizon to give it more time to increase capacity. For current capacity issues, it provides incentives for substitute products and offers discounts for taking delayed delivery.</td>
</tr>
<tr>
<td>When a large, one-time sales opportunity arises that would impact regular orders, production costs, and profits</td>
<td>An organization prioritizes unusual demand by establishing a process of recognizing and reporting the demand as soon as possible to allow time for decision making. Both demand and supply organizations develop cost and profit margin projections for accepting and rejecting the order, including impact on customer service. Sales management determines how to prioritize other orders if the order is accepted.</td>
</tr>
</tbody>
</table>

Since demand management and prioritization often involve thinking beyond an internal department focus or beyond a single organizational focus, successful implementation can benefit significantly by setting a clear prioritization policy and implementing it using a structured process.
Policy

A demand management and prioritization policy should clearly indicate who is allowed to manage and prioritize demand. Responsibility should be restricted to appropriate management levels in the supply organization based on the level of risk. Decisions involving strategic risks should be made at the executive level. Responsibility for lower-risk decisions should be kept at the management level rather than delegated to individual salespersons. Delegating responsibility to salespersons tends to create conflicts, because each salesperson will naturally be motivated to act in his or her own customers’ best interests.

Another policy best practice is to retain this management and prioritization power in the demand side of the organization rather than delegating it to the supply organization. While the supply side will provide critical input to decisions regarding the cost of changing ongoing production or logistics activities, the demand side has information on valuable customers and sales goals.

Process

A demand management and prioritization process rests on a couple of principles. One is that the organization’s intent is to fulfill demand—including demand for logistics services—whenever it is feasible and will result in an increase in marginal profits, even when this demand comes from unexpected sources. The prioritization process involves finding ways to make the unexpected orders become profitable if they would not be otherwise. This may involve fulfilling the demand later than is requested, delaying other orders to meet the customer’s request date, or offering a substitute product. An order is declined only if these measures are not acceptable to the customer or the sales manager. An exception process helps to get these orders analyzed as soon as possible, while multiple options still exist.

Another principle is that when demand differs from supply within a time frame that allows for supply capacity or operations to be changed without impact on costs or other operations, prioritization is not necessary. It is the supply organization’s responsibility to manage supply in this case. When there are cost implications to a supply and demand mismatch (such as when materials have already been purchased or work is in process), management and prioritization are necessary to match supply.

The process should involve determining ways to delay commitments until the last possible moment so that prioritization is necessary for as few operations as possible. This is done by delaying decisions until a necessary decision point, or time fence, is reached, such as when raw materials need to be ordered. (These decision points are called “time fences” in operations.) Decision points such as time fences should be set in consultation with both the supply and demand sides of the organization so that they reflect the optimum balance between production
costs and customer service. Other decision points may include strategic decisions, such as whether to increase warehouse capacity. Delaying such a decision until it is absolutely necessary to start the related capital projects will allow the organization to have the most current information on projected demand.

**Topic 4: Logistics Demand Shaping**

While many of the tools for demand shaping discussed in the last topic could be used by logistics (such as adjusting lead time to allow more time for supply to catch up to demand), others, such as changing the price of a product, are decisions made by marketing or other professionals in the organization. Here we focus on levers available to logistics professionals, first from a B2B perspective and then from a B2C or e-commerce perspective.

**B2B Logistics Demand Shaping**

Logistics demand shaping for B2B customers often depends on having good data on a customer's purchasing, shipment, and payment timing history so that options that the customer is most likely to accept can be offered first. For example, if a customer orders the same item every six weeks, a shipment delay beyond the normal arrival time may cause a business disruption, but early shipment or shipping two units in one period and none the next might be acceptable, especially if payment timing is not also required to be early. When it is unclear what customers would and would not find to be a hardship, give them a call and ask.

Whether or not to offer an incentive (and, if so, what type and amount) is also an important consideration. Some customers may not need incentives to accept shipment timing differences when the differences do not affect their operations. In fact, since B2B organizations often have greater variability in sales (e.g., fewer customers ordering), a subset of them may actually want to delay an order for a raw material while they have a lull in their orders. In such cases, delaying a shipment to reduce a capacity constraint could be seen as a win-win. Another example of a win-win would be to offer a discount for orders placed in the morning before a particular deadline so that more loads can be planned together and some can be consolidated. This might also help ensure that warehouse staff is fully utilized. In other cases, incentives will need to be provided to influence customers to accept a deal that will entail some cost to them (e.g., inventory carrying cost). An example is an incentive to accept shipments during nonpeak periods or forgo the incentive and get the shipment at peak periods. The incentive should be priced so that any additional costs the customer bears are roughly equivalent to the discount.