



## What Is Demand Sensing?

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*Demand-driven supply networks (DDSNs)—The orchestration of demand based on channel sensing and response to a real-time demand signal across a network of employees, customers, and suppliers.*

While the concept seems simple, the implementation of demand-sensing processes requires a holistic look at demand processes.

For most organizations built on supply-centric processes, this is a major change. For example, 40% of organizations forecast monthly, but don't tie the forecast to operational decision making. AMR Research's survey of more than 700 companies also found 52% of companies take more than two weeks to sense true channel sales.

To help, we offer the following answers to the most common questions asked about demand sensing in a DDSN strategy, based on discussions with more than 75 companies.

### What are the elements of demand sensing?

Demand sensing is the translation of downstream data with minimal latency to understand what is being sold, who is buying the product (attributes), and the impact of demand-shaping programs. These three demand elements are then translated into requirements to craft a profitable demand response through internal processes for demand translation.

While we see many clients building demand networks to capture volume information and sales in the network, DDSN leaders simultaneously capture demand insight information on who is purchasing the product. They then translate that information to adjust their predictions of future demand.

To sense demand, **Seagate**, for example, has built a demand network with 41 of its downstream distributors (see "Seagate a Leader in the Use of Downstream Data"). When an order is written by a distributor, Seagate receives a parallel transmission that outlines not only what was sold, but characteristics of the buyer. The signal is uploaded many times a day, decreasing demand latency by two weeks (in the old system, sales would have to trigger an inventory reorder point that would take time). Seagate can view daily sales in this distributor network, noting and tracking distributor trends.

### What are the obstacles?

Building new demand networks to capture the data is new and also may require changes to existing relationships. In multitier distribution networks, like electronic components and food service distribution, access to this data must be negotiated as part of the joint agreement.

Also, organizations tend to build demand networks for the use of specific functional groups. While sales may pay for the implementation of the demand network, successful demand-driven organizations think more holistically about its use, expanding it to other groups throughout the value chain like finance, marketing, research and development, and supply chain.

### What is demand translation?

Demand translation is the process of translating independent or channel demand to dependent demand (requirements by supply processes).

The three levels of demand translation are as follows:

- **Strategic**—The design of the network based on channel assumptions. This network serves as the base model in sales and operations planning (S&OP) processes.
- **Tactical**—The intersection of the processes of S&OP, new product introductions (NPIs), and supplier development. It is the basis of agile demand translation. Decisions are made on where the supply load should be placed and the right roles for each node in the network.
- **Operational**—The translation of dependent demand requirements in cash to cash and manufacturing processes through processes like materials requirements planning (MRP), distribution requirements planning (DRP), and the development of available-to-promise (ATP) signals reflecting what is feasible from supply.

Many pilots of new technologies testing a concept of adaptive translation are currently underway. In adaptive translation, ship-from to ship-to points are dynamic, with ongoing optimization to redefine the network for

maximum profitable demand response.

### **What happens to forecasting processes?**

In DDSN, forecasting increases in importance as it becomes more closely coupled to a more comprehensive demand visibility signal. But forecasting processes do need to be altered somewhat in the following ways:

- **Focus on channel modeling**—More than 70% of forecasting processes have been designed to determine what plants need to make and when. What this type of forecast fails to predict is what will be sold in the channel and when. In demand sensing, channel modeling and the use of downstream data increase in importance.
- **Use of downstream data**—In traditional forecasting processes, demand modeling is based on order and shipment streams. What becomes clear for DDSN leaders is that the order does not represent true channel demand. The reasons vary by industry, but include such areas as data latency, causal factors, market assortment, out of stocks, and changing requirements. As a result, many are migrating their demand forecasting models to use downstream data based on the construct of demand rather than supply networks.
- **Reduce latency**—In demand sensing, the frequency of demand modeling changes from a monthly to a more frequent process. This may require weekly or even daily modeling of the short-term, or slush, period (the period where orders and shipments are being confirmed). In this operational period (normally zero to 12 weeks), DDSN leaders are moving from rules-based consumption, where forecasts are allocated to daily buckets based on rules instead of monthly or weekly buckets, to daily modeling by account. The frequency of new information about demand should determine the timing. For example, if you receive orders every day, you need to revise your demand estimates every day so that you can operate with the most accurate picture.

### **Why do I need a long-term forecast?**

A long-term forecast provides strategic planning and allows for the development of long-term sourcing and capacity strategies. Companies that are not forecasting with long-term views have more difficulty in establishing buy-side contracts and negotiating the best market terms and conditions.

### **Does the sales forecast play a role in demand sensing?**

Yes, as demand shaping increases and S&OP processes mature, the role of sales in the forecast development increases in scope.

Think of your sales forecast as an additional demand input, one that must be converted since it is revenue that is not product based and biased (in collaborative forecasting, the sales forecast usually has the greatest bias and error). The secret is to look for macro trends by account and to hold sales more and more accountable to measure and improve sales forecast accuracy.

In industries where downstream data is available (apparel and consumer products), the sales forecast becomes less important. However, in industries where downstream data is not available (industrial manufacturing and telecom), improving sales forecasting accuracy is an important step in becoming demand driven.

### **How do you keep from introducing noise into the demand signal?**

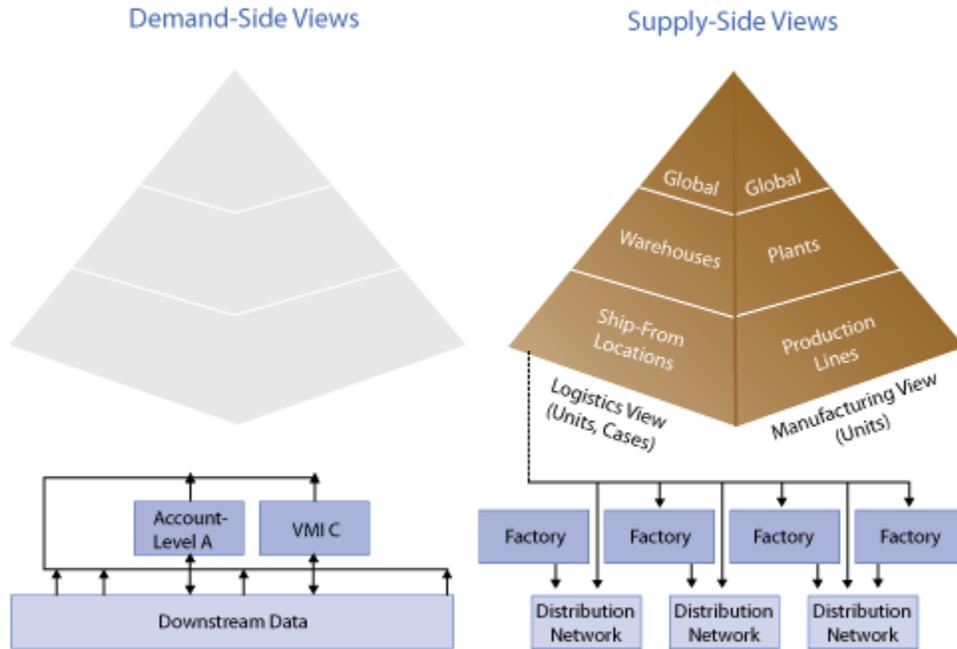
This is always a key question to ask during the design of any demand processes. In the definition of DDSN, the real-time forecast is necessary in the short term, or the operational horizon commonly known in supply chain management as the slush period. However, daily forecasting across the entire forecast horizon is not necessary. It, in fact, will only introduce noise.

Daily sensing for short-term modeling within the slush period is a replacement for rule-based consumption frequently found in advanced planning systems (APS). Forecast deviations and alerts are then viewed cross-functionally through systems for demand visibility.

### **What is demand visibility?**

We define demand visibility in "What is Demand Visibility?" Since mature companies know that a one-number forecast is not a reasonable expectation, the focus shifts to agreement on a common plan based on demand- and supply-side assumptions, as well as on price, margin, mix, and demand-shaping assumptions (see Figure 1).

**Figure 1:** What most companies have today

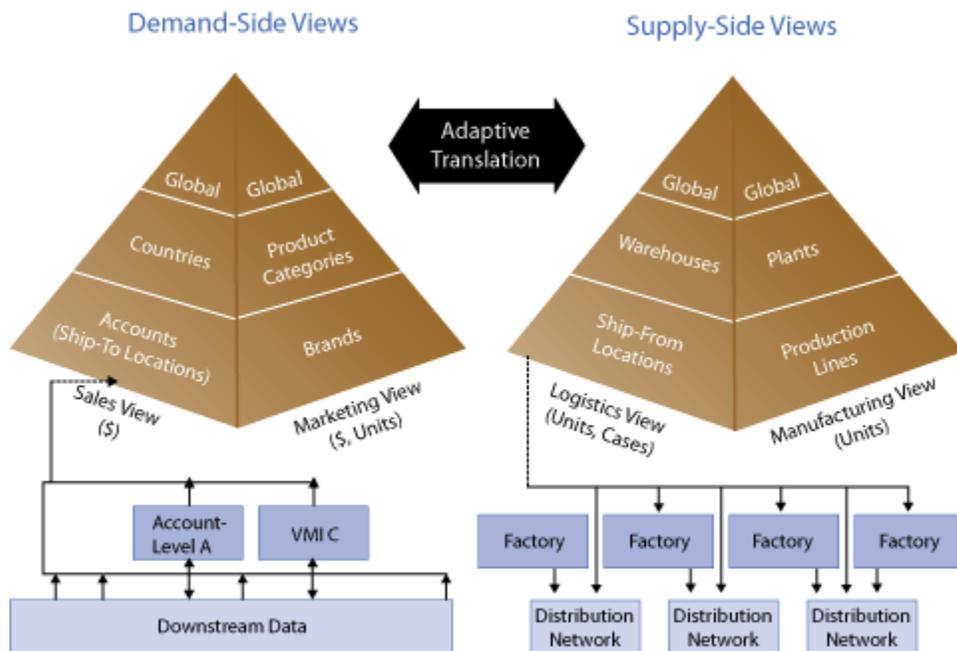


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The goal in demand visibility is to consume the plans formulated in S&OP with weekly demand forecasts and daily demand sensing. Deviations detected from S&OP assumptions on volume, mix, price, and revenue versus actual performance are then pushed, based on role, to cross-functional team members.

**Figure 2:** What is needed to support demand-sensing strategies



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### Does this mean S&OP needs to be real-time?

No. While demand translation and load leveling in supply processes become a daily process, the demand signal from channel sensing is compared through rule-based alerts to the S&OP plan. The S&OP plan remains a monthly process based on the nine steps outlined in "S&OP Leadership: A Guide to Commonly Asked Questions."

While supply processes can be adjusted on a near-real-time basis, it's not in the best interest of most companies

to adjust sales and marketing strategies that quickly, in near real time. The best practice is to hold weekly review processes of the S&OP plan by a small group within the S&OP process. The group should review market deviations and make decisions on demand shaping based on the supply chain strategy (see "In Search of a Supply Chain Strategy," Parts 1 and 2).

### What does good look like?

The following eight characteristics will help determine success:

- **Accurate**—The final demand signal is consistent, with all current information, and is as accurate as possible.
- **Outward facing**—Strive for near-real-time sensing of channel purchases with the transmission of information about volume sold, price and market conditions, and buyer attributes.
- **A synchronized demand signal**—Generate accurate and timely translation of channel requirements into dependent demand at all three levels—strategic, tactical, and operational planning—to craft a profitable demand response.
- **Reduced latency of demand translation**—Translate the demand signal through demand networks into design and supply networks to answer questions about the effectiveness of demand shaping, future requirements by supply, and changing market conditions.
- **Translation into network decisions**—Make visible the daily impacts of channel sensing on demand- and supply-side views on volume, revenue, profit, and mix. Couple this closely to S&OP, supplier connectivity, and new product forecasting processes.
- **Comprehensive**—While the goal is to include 100% of the channel, leaders have at least 85% of the channel represented in demand-sensing processes. This includes sensing from multiple channels and incorporates cross-channel delivery and return processes.
- **Cross-functional**—Demand data is synchronized and shared across functions, based on role-based alerts.
- **Predictive**—Through the use of predictive analytics, downstream data is analyzed and built into channel models for continuous learning by the organization. The focus on continuous learning becomes a core competency of the organization.

### Conclusion

When talking about demand, the first step is to be grounded on definitions. Demand sensing seems like a simple concept on the surface, but can get complicated quickly.

Do not focus on the integration of demand signal. Instead, focus on the synchronization of the demand signal across time periods based on a master data framework that allows channel sensing and demand translation as outlined in Figure 1.

Please let us know how we can help. If you have any questions, contact us at [rbois@amrresearch.com](mailto:rbois@amrresearch.com) or [lcecere@amrresearch.com](mailto:lcecere@amrresearch.com).