Infosys®
POWERED BY INTELLECT
DRIVEN BY VALUES

ViewPoint

Win in the flat world

Demand Management in a Multi-Channel Commerce Environment – How Complex is it?

– Jeffrey Jones

Abstract

As customers and business partners get more demanding, manufacturers are under increasing pressure to get their orders right when it comes to delivery. Customers want the 'perfect order' – the correct product sent and delivered on time in perfect condition. A company's ability to forecast demand can help in such a scenario as it will be able to stock products based on demand-driven customer requirements.

However, in today's multi-channel commerce (MCC) environment, forecasting demand has become a complex process. This paper examines the steps an organization can take to manage demand in this environment more effectively.

Nov 2007

Introduction – Fighting the Friction

Every enterprise faces the same crucial challenge: Your customer expects perfect orders every time – can you deliver them? If your answer is no, it means that your company faces the expensive consequences of lost sales.

Better demand management can increase a company's capacity to deliver the perfect order. An AMR Research report titled 'The Importance of the Perfect Order', describes the perfect order as "the ability to deliver an order to the customer that's complete, accurate, on-time and in perfect condition."

Accurately forecasting demand will have a direct impact on the bottom line. It will help ensure a product is always available and stocked in the right quantities when a customer wants it, thus increasing the probability of your organization delivering a perfect order.

However, in today's MCC environment – where manufacturers and retailers are leveraging their presence across various sales channels (catalog, web, stores and kiosks) to increase sales – the stakes go up if demand is not managed effectively. Companies must ensure they make accurate demand forecasts across multiple channels.

In an ideal world with a frictionless supply chain, companies manufacture to order and not to stock and there is zero delivery latency. As a result, there are no inventory buffers to cover lags in delivery lead times or forecast variability.

In reality, however, there are resistance points and information lags. Therefore, we need to forecast demand and ensure the highest level of agility in the supply chain to adapt to changes in customer requirements. Having the best available and timely information to manage demand, aligning the supply chain accordingly and yet delivering the perfect order in an MCC environment is a constant challenge.

Overview – What's it All About?

Companies have targeted multiple commerce channels to increase revenues and profits. Studies show that cross-channel customers spend on average more than single-channel shoppers. This is a well know fact in the analyst community that companies such as Best Buy, Lowes, Staples, JC Penny, etc., have taken to the bank. Even as the profit-generating opportunity increases, managing demand and converting the potential into actual profit becomes even more complex.

Companies can take several actions to help manage the increased demand management complexity in the MCC environment. These are:

- Reviewing their forecast segmentation and aggregation practices,
- Rationalizing inventory locations
- Implementing executive-supported demand management processes
- Developing in-process forecast performance metrics
- Leveraging forecast technology

These steps, discussed in detail in Section 6, can help your company make its demand management process more robust in an MCC environment.

Complication – Is Managing Demand in the MCC Environment More Difficult?

Managing demand in the MCC environment is more complex. This complexity is driven by the vital need to capture and analyze dynamic demand signals across multiple channels, supply networks and fulfillment locations.

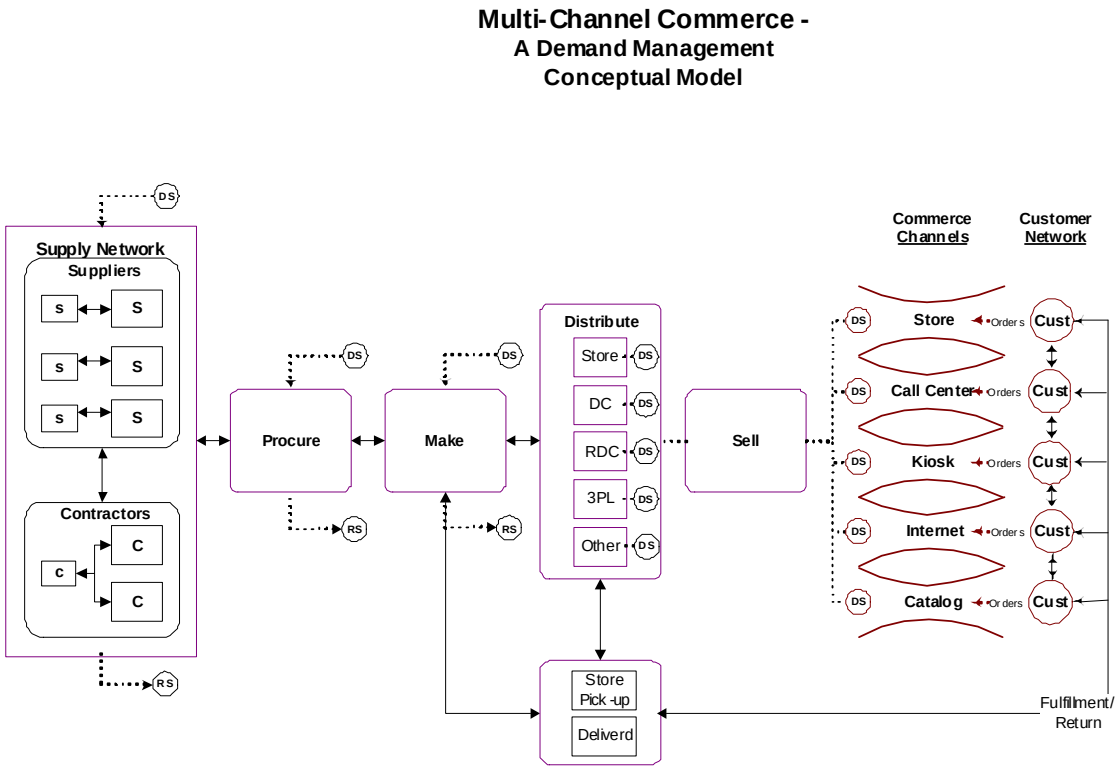

Figure 1

As shown in Figure 1, in an MCC environment, a company needs to integrate multiple demand signals in planning and logistics to effectively manage demand across the supply chain and channels.

Conversely, with a pure play or single-channel business model, demand management complexities are reduced almost in proportion to the number of channels.

In an MCC environment, however, customer behavior has to be understood by channels to better predict demand and reduce demand variability. As demand streams are segmented, the potential for variability is greater. Hence, understanding and anticipating customer behavior through cross-channel collaboration (internal and external) and utilizing enabling technologies is critical.

Demand Management Infrastructure Enablers

Applications

Organizations need to put in place integrated application architecture to fully leverage demand forecast-enabling technologies. Ideally, the forecast system is programmatically connected to all supporting applications which capture and anticipate demand.

This ensures easy and timely access to available sales data irrespective of the mode through which it is communicated – Internet, point of sale (POS), electronic data interchange (EDI), kiosks, etc.

Figure 2 shows a general map of where these applications primarily play in the supply chain. These are the key systems driving a demand management program. As application functionality advances, as it has in the past, their footprints will expand. The increasing activity of the enterprise resource planning (ERP) system's supply chain functionality is a notable example.

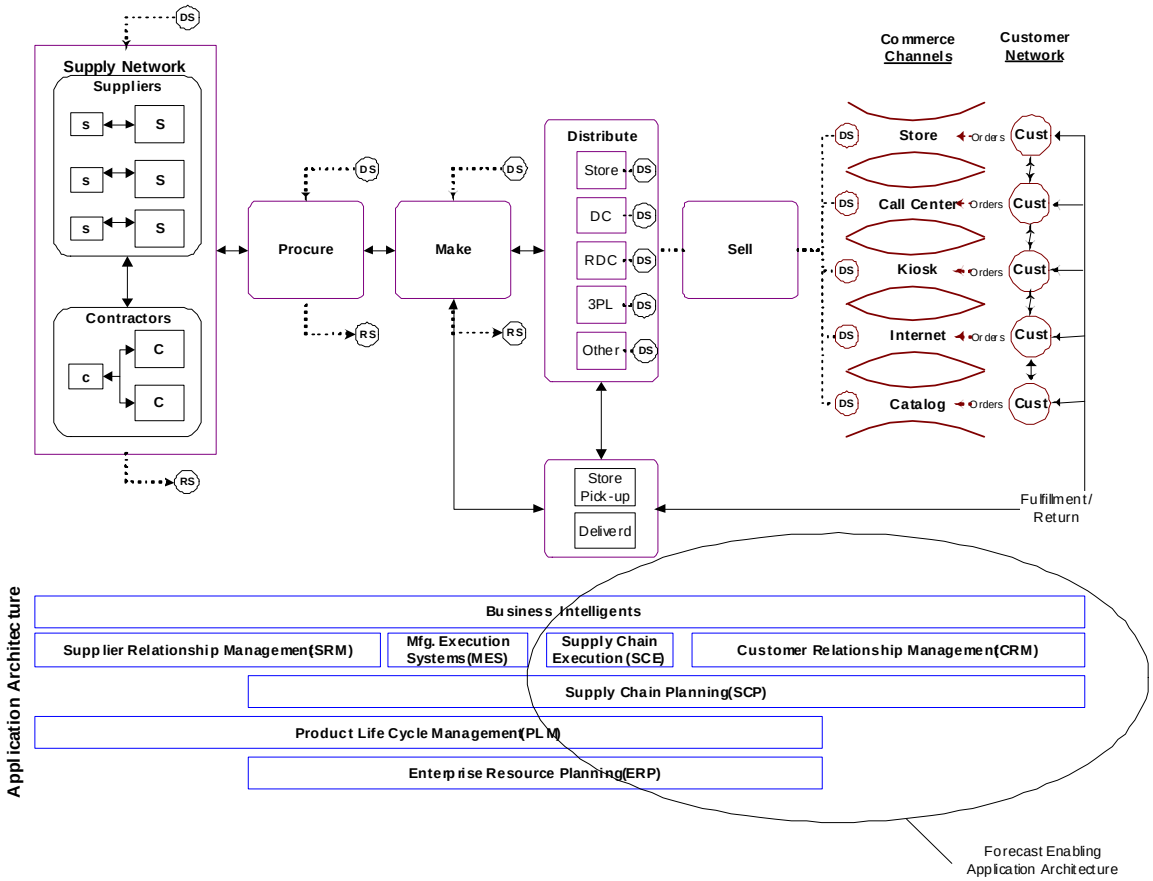

Figure 2

Companies with disparate systems use data warehouses to help close the information gap between the forecasting system and supporting applications. In addition, a good demand

management application will utilize application programming interface (API) and other technologies like an Enterprise Service Bus (ESB) to interface with supporting applications.

However, to the degree this gap cannot be closed, achieving results may require added processing / data manipulation, potentially impacting the efficiency, accuracy and timeliness of information.

Data

In addition to integrating applications, the supporting item and customer master file structure must be internally consistent to allow enterprise-wide visibility and consistent data capture across channels. This increases the company's capacity to more effectively capture cross-channel events affecting channel demand and customer behavior.

Having such an enabling infrastructure helps capture and deliver information that drives the demand management process and supporting performance metrics.

Managing the Complexity

With a solid technology and data-enabling foundation in place, companies should consider the following actions:

- Review forecast segmentation and aggregation practices
- Rationalize inventory locations
- Implement executive-supported demand management processes
- Develop in-process forecast performance metrics
- Leverage forecast technology

Review Forecast Segmentation and Aggregation Practices

Analyzing product demand by channel and customer provides greater insights into true demand patterns, even as it leads to higher levels of forecast accuracy.

In addition, the appropriate level of aggregation must be reviewed and optimized in a multi-channel environment. Too much aggregation could mask critical pieces of product-channel-customer information that might otherwise help drive greater forecast accuracy.

Inventory Location Rationalization

Companies need to re-evaluate logical inventory locations to reach an optimal balance between the value of information (i.e., visibility, cross-channel customer behavior, replenishment patterns, etc.) and the required administrative support (i.e., financial accounting).

An inventory management structure based on a consolidated or single-channel business model may not provide the level of granularity required to understand both channel demand and replenishment dynamics. The chosen inventory model should support the supply and demand forecasting structure.

Executive-supported Demand Management Processes

Executive sponsorship and ownership is critical for a streamlined, channel-oriented demand management process. An effective MCC demand management process involves cross-organizational cooperation in terms of intelligence gathering, analysis and decision-making.

Hence, a company needs to determine a process owner for the demand forecast. Factors such as level of influence over the forecast, access to information and cross-channel supply chain visibility are some considerations. Marketing or the demand management departments are potential owners in this function.

In addition, a sales and operations planning (S&OP) process – that involves key representatives across the organization and which brings market, operational and financial intelligence along with decision-making authority – must be established.

Because these processes are cross-organizational and require high levels of collaboration and buy-in, some companies cannot implement the S&OP process effectively. The risk increases when you add the need for alignment and buy-in not only from multiple organizations but multiple channels as well. To help ensure an effective implementation, the S&OP process must be both mandated and sponsored at the executive level and actively managed by key directors/managers in the business.

In-process Forecast Performance Metrics

The demand management and S&OP processes must be enabled with accurate, timely and relevant knowledge and performance metrics. Critical information related to the company's supply and demand picture should be shared in regularly scheduled S&OP meetings. These are typically monthly cross-organizational meetings. To identify, gather and analyze this kind of information is a significant challenge for single-channel supply chains, let alone multi-channel organizations. Nonetheless, if the information is missing, these S&OP meetings will prove ineffective and lose relevance over time.

Many organizations have a forecast accuracy performance metric, such as Mean Absolute Percent Error (MAPE). However, fewer have a portfolio of in-process forecast performance measures that align with a multi-channel environment.

In-process measures help motivate the behavior that drives high forecast accuracy. Some examples of these are forecast error by channel, region, number of forecast changes per month, number of forecast changes within a frozen period, quality of forecast changes, frequency of under-/over-forecasting, etc.

The order fill rate performance should also be measured across channels and at different points within the supply chain (i.e., between customer-distribution center, distribution center-manufacturing, manufacturing-supplier, etc.). This provides additional insights into potential problems.

Organizations should embark on a process to define and develop methodologies that generate, track and communicate these metrics across channels.

Leveraging Forecasting Technology

The good news for companies is that forecasting technology to meet many MCC environment requirements is available. For example, forecast algorithms supported by 'pick-best' technology, forecast segmentation and aggregation, collaboration portals, etc., are common features of Tier I and II forecasting applications.

The challenge lies is defining the requirements and putting in place a solid multi-channel commerce strategy to enable demand forecasting processes. The business process requirements must be defined to ensure the best technology fit. Taking a process-based approach (defining the future state process in parallel with developing the business requirements and mapping them to this process) followed by a technology selection effort is a good idea, especially in the MCC environment given its potential risks and rewards.

The Value Proposition

Better demand management can improve the bottom line in a multi-channel environment. It encourages an improved cross-channel shopping experience by ensuring your products are available to your customers whenever and wherever they desire. In particular, a refined demand management process can:

- Increase the capacity to deliver the perfect order
- Optimize inventory investment
- Increase multi-channel expected revenues

Increase the Capacity to Deliver the Perfect Order

Improving forecast accuracy can have a significant impact on achieving the perfect order. A more accurate forecast can impact the accuracy and timeliness of an order by helping ensure that the requirement for a product has been forecast correctly so that the product is in stock when the customer requests it.

Optimize Inventory Investment

With higher forecast accuracy, companies have the opportunity to reduce the portion of inventory they stock for protection against demand variability. They can, instead, optimally allocate inventory to support multiple channels and inventory locations. Having a better understanding of the level of demand and its source will help create a better distribution network and replenishment strategies in this environment.

Increase Multi-Channel Expected Revenues

As mentioned, studies have shown that customers shopping across channels typically spend 3 to 4 times more than single-channel shoppers. Improving service levels for these priority customers will not only minimize stock-outs, but also increase expected sales by averting lost sales. Thus,

accurate demand forecasting offers this target group a better shopping experience and the company a healthier bottom line.

Conclusion

Demand management in an MCC environment is more complex than it is in a single channel scenario. However, if a company succeeds in the critical task of leveraging leading practices in this area, it can make a direct positive impact on financial performance.

Infosys' expertise in services helps companies achieve maximum benefits in an MCC environment – from developing the technical and application infrastructure necessary for back-office enabling technologies and processes to the development of an integrated multi-channel commerce demand management front-end. Infosys has the assessment methodologies to help your organization determine where you are now and develop an MCC strategy to help you reach where you want to go.

About the Author

Jeffrey Jones, a Principle in Infosys's MCC Practice, has over 15 years of supply chain and demand management experience consulting for large and mid-sized companies across a range of industries such as consumer packaged goods (CPG) and Retail.