



# Recession-Resistant Demand Management Strategies and Tactics

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*How resilient companies can manage demand and pipeline inventory when the past is not a reliable indicator of the future.*

Accurate demand management is widely accepted as the cornerstone of supply chain excellence. It enables manufacturers to efficiently integrate production, distribution and inventory management, and deliver superior customer service, while at the same time significantly reducing cost and increasing revenues. Over the last several years, world-class organizations have developed agile, responsive, demand-centric and tightly integrated operations. These organizations, with their sophisticated algorithms, business intelligence, synchronized planning, roles-based abilities and cross-operational visibility, still depend upon long-term past performance history to consistently balance demand and supply.

That was then. This is now: AMR Research's February report, "2009 Consumer Products Market Outlook: Anything but Business as Usual," states unequivocally, "Never in our history have we experienced the level of demand volatility we'll see in 2009...85 percent of [consumer product companies interviewed] showed an increase in volatility at the end of 4Q."

Since January 2009, nearly all major retailers have reported sales figures declining in the double-digit range and consumer product manufacturers are taking hits on deeply discounted pipeline inventory. Consumer and business-to-business purchasing behavior has abruptly shifted, making past product performance largely irrelevant. Yet, looking forward, some tried-and-true forecasting practices may still be relevant for executives and sales managers as they wrestle current forecasts and pipelines, trying to get a handle on an entirely new and unpredictable demand paradigm.

## **Demand planning strategies and techniques for volatile times**

Though business as usual is no longer an option, companies still need to use all available tools to manage in

a volatile environment. Figure 1, next page, contrasts the key differences between the effective demand management tactics and strategies in a stable economy, and our recommended adaptations to navigate demand turbulence.

## **Collaboration and demand sensing**

Pressed by the unprecedented array of bad news about the economy, retailers are increasingly willing to improve collaborative relationships with their vendors, strengthen relationships with key partners and customers, and proactively use collaborative demand inputs for shorter-term demand planning. For most leading companies, the traditional sell-buy relationship between manufacturer and retailer has already evolved into a collaborative planning, forecasting and replenishment (CPFR) model. Now it needs to go a step further. Manufacturers and retailers must collaborate on a weekly basis regarding product assortments, product placement in stores and product stocking decisions in distribution centers.

## **Localizing POS data**

Manufacturers can also leverage sell-through information to improve their understanding of demand. In a market downturn, getting an accurate demand signal is a real challenge unless companies have a solid process and system for collaboration in place. In the past, i2 has helped companies by analyzing sell-through information from like stores to identify demand upside opportunities. A typical methodology for understanding consumer demand is to collect point-of-sale (POS) information from retailers once a week on a national level. But to really understand what is happening in the market, companies need to look at the data on a far more granular level. Some of i2's leading customers are currently processing sales data for every SKU



**Figure 1**

# Demand Management Tactics and Strategies in Stable and Volatile Economies

Stable Economy	Volatile Economy
<ul style="list-style-type: none"> <li>• Statistical models use 2-3 years of history to compute a baseline forecast.</li> </ul>	<ul style="list-style-type: none"> <li>• While it might still make sense to use 2-3 years of history for determining seasonality, level and trend are best determined from the past 2-3 months only.</li> <li>• Now is also the time to invest in new models that incorporate insights from order backlogs and history to derive the forecast.</li> <li>• For near-term forecasting, increase reliance on collaboration inputs from key customers.</li> </ul>
<ul style="list-style-type: none"> <li>• Rules-based scripts automatically adapt forecasting models to changing demand patterns.</li> </ul>	<ul style="list-style-type: none"> <li>• Escalate the most significant changes in demand patterns for manual review. These transitions might reveal valuable insights.</li> </ul>
<ul style="list-style-type: none"> <li>• Only adjust the forecast when you have “insider information,” i.e. you know something that is not already in the data.</li> </ul>	<ul style="list-style-type: none"> <li>• Look for clues and trends to gather more insider information when patterns look different from expectations.</li> </ul>
<ul style="list-style-type: none"> <li>• Rely on consensus focus to get to a common, agreed-upon demand plan.</li> </ul>	<ul style="list-style-type: none"> <li>• Shift focus toward triangulation and analysis of multiple scenarios across functions. Reconcile leading and trailing indicators. Try to share assumptions and risks. As a starting point, use aggregate annual operating plan guidelines or quarterly plan numbers distributed top-down and using recent bottom-up sales mix.</li> <li>• Evaluate the known unknowns in the plan, and the contingencies that need to be in place. Most important, determine how, when and by whom contingency actions will be mobilized.</li> </ul>
<ul style="list-style-type: none"> <li>• Demand-performance reviews focus on monitoring process compliance, validating assumptions and identifying root causes of the most significant demand errors.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the emphasis on identifying where process, model and demand collaboration adjustments are needed.</li> </ul>
<ul style="list-style-type: none"> <li>• Utilize long-term forecast and push strategy.</li> </ul>	<ul style="list-style-type: none"> <li>• With demand signals undergoing very frequent changes, a manufacturing-based push strategy relying on long-term forecasts may well lead to obsolete or devalued stock.</li> <li>• A combination of push-pull and stretching the push-pull boundary further downstream will keep business more profitable.</li> </ul>

from thousands of stores every day to adjust marketing and promotions at regional and local-store levels.

### Forecast optimization

Now is the time to audit forecasting models and their underlying assumptions and then realign them to the new

market conditions. i2 recommends an approach called forecast optimization. Forecast optimization differs from traditional demand management approaches in that it leverages deep understanding of data through rigorous segmentation along various dimensions. The tools then apply diagnostic techniques to profile variability, drilling



down to root causes. Different forecasting models and model parameters are used to analyze each segment.

For example, segmentation along process attributes yielded several forecasting insights for one of i2's semiconductor clients. Sales inputs based on the latest customer buying pattern, at a weekly granularity, offered a more accurate forecast on the product mix. In the midterm forecast, a blend of sales and marketing data, at a monthly granularity, yielded a better handle on the product-family level. This blended forecast showed a 10-25 percent improvement over more traditional methods. Furthermore, customer order lead-time information from this analysis was used to drive postponement policies that staged inventory at different points in the supply chain to improve service levels, despite forecasting challenges.

Given today's business climate, it may be worthwhile to investigate the applicability of models such as variable response smoothing for some of the segments. Such models rapidly adapt to the most recent demand patterns while incorporating seasonality patterns derived over the long term.

### **Continuous monitoring of forecast and business performance**

Fine-tuning forecasts is not a one-time or discrete exercise. It must be a continuous learning process with a closed feedback loop. This loop helps determine whether the root causes are still valid or new ones need to be explored, or whether the current techniques of forecasting are working in the current volatile business environment.

In this business climate, it is critical to monitor changes and tune the forecast optimization parameters weekly to control the forecast quality and impact on business results. This requires systematic institutionalization of the knowledge gained as new patterns emerge, assuring the ability to call up the entire series of optimization calibrations and responses as a repeatable process.

### **Demand shaping**

Many companies have pushed their supply chain organizations into back-office roles that have little direct interaction with sales and marketing. This inevitably results in a fatalistic posture where all demand is treated as an uncontrollable external phenomenon that at best can only be anticipated and reacted to. In contrast, the savviest companies leverage insights about demand gained through disciplines such as forecast optimization to actively influence and shape demand.

Pricing and promotions are not the only ways one can shape demand. In retail stores, the simple strategy of placing merchandise prominently at the front of the aisle or next to a cash register can be effective in raising sales for that item. This same concept applies in many other situations.

For instance, Dell is well known for changing the configuration of its product offerings on its web site—daily if needed—to steer customers toward material that they want to move, or at any given time, to steer customers away from materials where inventory is low. Consumer electronics companies such as Apple closely monitor sell-through demand and may accelerate or delay product transitions to shape demand advantageously.

Samsung experienced significant business success with a “Black Friday 2008” promotion, strategically positioning four flat-screen TV models in 30- and 40-inch ranges at Best Buy, Circuit City, Sears and Wal-Mart. Samsung acted on the assumption that, given the down economy, demand would gravitate to the low- and medium-end flat-screen TVs. In addition, Samsung did not opt for buy-down promotion of the existing line-up models. To avoid cannibalization while maximizing the sales volume, they introduced cost-down models by simplifying the product specifications and maintained primary functionality from the end-user perspective. Samsung sold about 360,000 units of Black Friday models only, which represented 120 percent achievement against the planned quantity, according to *Hankook Ilbo*, a Seoul, South Korea newspaper.

The key takeaway here is that Samsung had analyzed the economic situation carefully and took the proactive demand shaping actions six months before Black Friday—seeing opportunity where most other consumer products manufacturers suffered steep sales losses. It is a best-practice example showcasing the power of streamlined demand sensing and demand shaping strategies in a highly volatile marketplace.

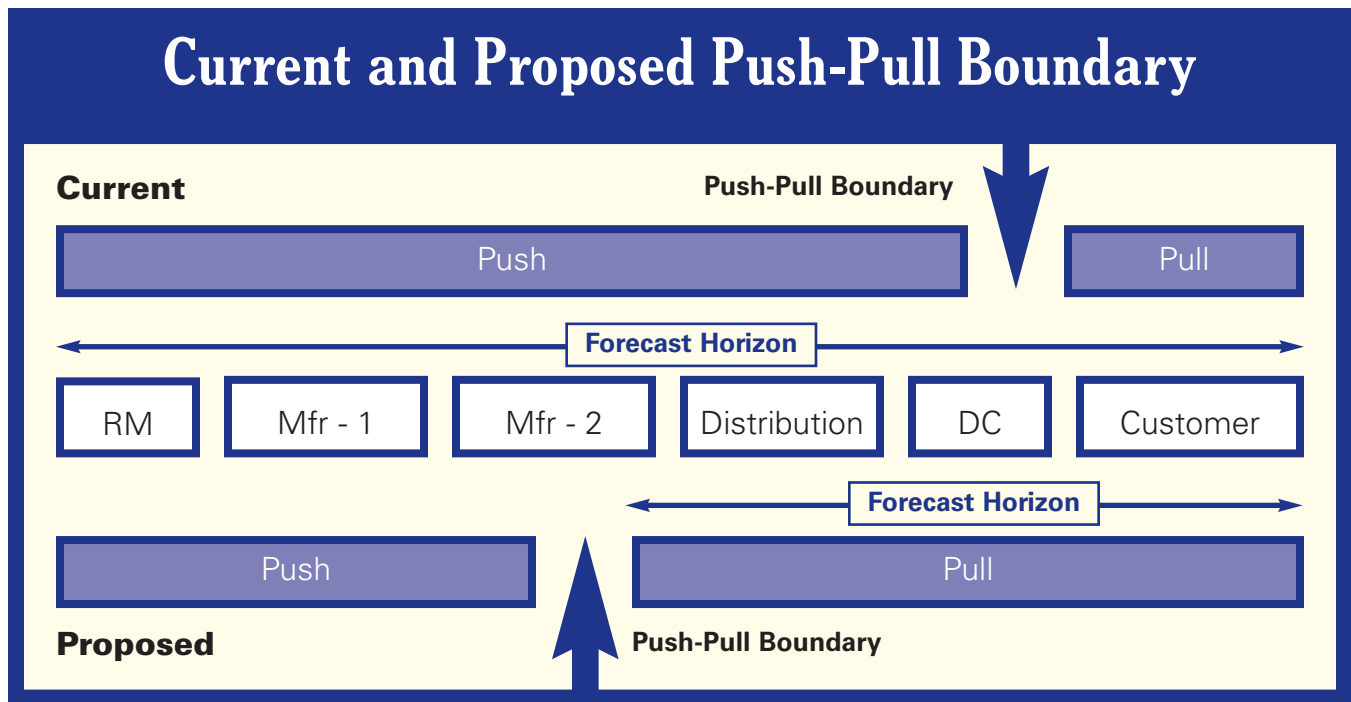
In a consumer electronics market such as LCD TVs, revenue generation through spot deals is also playing a bigger role in sales and operations planning. Coordination of the entire supply chain for spot deals across product offering, collaborative volume estimation, pricing, capacity reservation and key part procurement are the critical differentiators in demand shaping capability. In fact, AMR Research has identified seven levers in all for demand shaping: price management, marketing actions, sales incentives, promotions, trade deals, new product introduction and product run-out strategies (“What Is Demand Shaping?” Lora Cecere and Robert Bois, AMR Research, March 22, 2007).

### **Push-pull strategy**

One effective way of dealing with demand uncertainty is by shifting the “build-to-forecast” point upstream in the supply chain. Frequently, this is also referred to as the “push-pull boundary,” as show in Figure 2, next page. Products are “pushed” to a distribution center (DC) based on forecasts and then “pulled” out and shipped in response to orders. The placement of a push-pull boundary is



Figure 2



fundamental to supply chain and inventory policy design, and companies may have limited flexibility in this regard. In today's uncertain demand climate, even for companies that have traditionally operated in pure push mode, it may still be quite worthwhile to explore how to adjust the push-pull boundary further downstream and improve forecast accuracy by reducing the forecast lag horizon.

Defining it very simply, high levels of demand uncertainty lead to a preference for pull strategy, and lower demand uncertainty favors a push strategy. Most businesses fall somewhere in between the two poles, with more product movement on pull as a rule. Given the long lead time for procurement from Asia, however, long-term forecasts are imperative. By adjusting push-pull boundaries it is possible to manage long lead-time procurement as well as appropriate inventory levels when long-term forecasts are unreliable.

### Classifying products based on volume and demand uncertainty

When demand volatility is high—particularly with products manufactured globally—postponing the manufacture or delivery date as long as possible to obtain a better demand forecast means moving the push-pull boundary upstream, as show in Figure 3, next page.

**Category I** (high volume/high demand variability): Here lot size is large but forecasts are inaccurate due to SKU proliferation and long lead times. Home-appliance companies who are selling their product globally from China, India or Eastern Europe require long transit times as well as long procurement lead times. They tend to

forecast for finished goods two months in advance, resulting in very high demand uncertainty.

i2 suggests creating a vendor-managed inventory (VMI) hub for inbound component inventory for better control of procured components, thus bringing the forecast lead-time window down. In this case the push-pull boundary is now shifted almost post manufacturing (cycle time is less than a day), and the forecast is now just accounting for lead time—increasing forecast accuracy almost twofold.

**Category II** (high volume/low demand variability): This is still dominantly a push sector, however, from a forecasting standpoint, i2's recent experience and understanding is that sales managers/brand managers are not really responsible for forecast accuracy as much as for fill rate, market development and collaboration. Distribution planners are in constant contact with the market, including the key accounts and positioning inventory. So even for a very stable demand industry, such as grocery or beverage, one may need to have more trade, key account and non-trade relationships (such as collaboration) to effectively disaggregate the forecast to the SKU-DC level.

**Category III** (low volume/low variability): Depending on transportation cost and production lot size, these companies may need to depend on a long-term forecast.

**Category IV** (low volume/high demand variability): This represents portfolio segments where products are customized and manufacturing is predominantly on pull (i.e. order-based). Assembling components to manufacture computers or airplanes fall into this category. The push-pull boundary is at manufacturing, but these companies

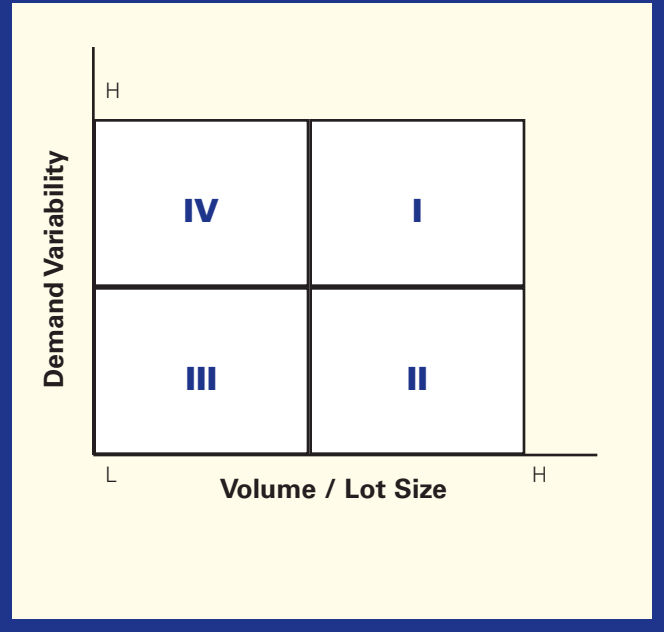
still need to have a long-lag forecast (equal to transit lead time) to procure components. Such companies use VMI relationships with upside flexibility terms to manage near-window forecasts.

Due to the long procurement lead time for products from Asia—components, finished goods in consumer electronics, or other fast-moving goods where the portfolio mix contains imported SKUs or imported raw materials—it is imperative that long-term forecasts are available to help in procurement.

### Conclusion

Uncertainty rules the day in the current business climate, and supply chain executives are challenged as never before by the variability of supply and demand. Resilient companies will monitor and analyze point-of-sale data and channel inventory on a frequent—often daily—basis. Equally important, they will have put in place the organizational structures, management processes and IT systems necessary to respond quickly to changes in buying patterns and other demand or supply disruptions. A sixth sense for recognizing leading demand indicators, supported by the tools to take rapid, advantageous action is the best defense and offense against a turbulent global economy.

## Classifying Products Based on Volume and Demand Variability



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