

Commentary on *The Keys to Demand-Supply Integration Extension Beyond Fast-Moving Consumer Goods*

TONYA BOONE AND RAM GANESHAN

INTRODUCTION

Matching supply to demand is simple in principle, but in actuality extremely hard to execute. The whims and changing tastes of customers, complexity of global supply chains, increased risk and disruption, and the proliferation of data have made Sales and Operations Planning (S&OP) challenging, especially in the last 20 years. Also, as Marshall Fisher has pointed out (1997), approaches to planning demand and supply differ by product characteristics.

John Mello gives an excellent overview on how internal and external collaboration is key for demand and supply-chain integration; however, the ideas in the article largely apply to products with (a) stable life cycles, (b) relatively low margins, (c) relatively easy forecastability, and (d) high volumes and availability. These typically are fast-moving consumer products, found at mass merchandisers and grocery stores. And even for so-called “stable” or “functional” products, demand-supply integration is rife with challenges that need to be addressed before the full potential can be realized. As we explain here, products that have short life cycles are more difficult to forecast and have higher margins; also, relatively low volumes (like apparel, electronics, etc.) require a different mind-set when integrating demand and supply.

CHALLENGES OF INTEGRATING DEMAND AND SUPPLY FOR STABLE PRODUCTS

Mello’s central premise is that collaboration – both internal and external – is key to matching supply and demand. Common

approaches include vendor-managed inventory (VMI); collaborative planning, forecasting, and replenishment (CPFR); DC and retail-level collaboration. The basic idea is that the retailer (or manufacturer) will provide information to the supplier on a number of market and logistical parameters, such as POS data and shipments from the warehouse at the SKU level. Based on pre-arranged contracts, the supplier will then monitor and replenish the inventory of the retailer (or manufacturer), eliminating the inefficiencies due to the “bullwhip effect” and improving availability and asset utilization (Boone & Ganesan, 2008).

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These programs, however, present unique challenges. In most firms, even those that follow a prescribed S&OP system, the sales organization usually interacts with the distribution channel, canvassing the distributors and retailers and informing them on products and promotions, thus helping “move” the product. Compensation packages are often based on sales volume. Under programs like VMI and CPFR, it is typical for the logistics or operations functions to monitor the inventory of downstream partners and replenish the product. In these cases, the volume of product is not controlled by the sales organization anymore, but by mechanistic algorithms that analyze data on shipments; perhaps unsurprisingly, this in turn creates friction between Sales and

Operations. The very same salespeople that Mello mentions will now be chewing out Operations/Logistics for taking away their jobs. Such information-sharing initiatives necessitate an organizational change in how Sales is structured and compensated.

VMI, CPFR, and other collaborative programs also face external challenges. Distributors, for example, develop multiple suppliers and manufacturers to try and serve as a one-stop shop for retailers. Distributors often make their margins by buying from suppliers during promotional periods or via bulk discounts, and sell them to their retail customers at a higher margin. If distributors are part of a collaborative program, they have to give up this opportunistic buying style and negotiate instead an “everyday low price” (EDLP) to keep replenishments continuous and inventories low. Such margin pressures need to be addressed by promises of increased availability and throughput.

While collaborative platforms that enable multiple partners are still evolving, CPFR and VMI-like programs predominantly are still “two at a time”; that is, two firms sign a contract to work collaboratively. Each of these dyadic relationships requires different sharing parameters and contractual agreements, making planning difficult.

Finally, collaborative programs are also data intensive. Effective inventory planning and execution of replenishment depend on the accuracy of data and the reliability of the technology platform on which the data resides. Frequent cycle counts, effective training of employees on the transaction platform, and a trustworthy relationship with the technology vendor are also key in the success of these collaborative programs.

INTEGRATING DEMAND AND SUPPLY FOR SHORT-LIFE-CYCLE PRODUCTS

Short-life-cycle products like fashion apparel and electronics face a different set of challenges. Their constantly changing product portfolios create high forecast errors and hence a bigger mismatch of supply and demand. Often, the products are manufactured far away from the consuming markets (a majority of apparel and electronics sold in the U.S. is made in Asia, for example) and

thus require long lead times, necessitating their manufacture well ahead of consumption. The typical planning procedure is to make a probabilistic trade-off: if margins are sufficiently high when compared to the cost of carrying inventory (or eventually liquidating it), the decision will be to err on the side of making a lot more than expected demand. This is especially common for fashion apparel. Conversely, for certain low-margin items like computers, conservative decisions are often made – production is less than what they anticipate selling, to avoid the cost of liquidation.

The keys to success for mitigating such probabilistic gambles are to redesign products and supply chains that reduce or remove uncertainty in demand and supply. New leading indicators of sales (like Google trends, or sales from other markets), simpler product designs, or modular designs (i.e., customizable products that share common components) can reduce the uncertainty of demand of products.

A second strategy is to invest in supply-chain flexibility – the ability to respond quickly to changes in the market. It is now common for firms to make semifinished products and pre-position them in the supply chain: as demand signals get clearer during the selling season, they use subcontracted capacity to complete assembly or customize the product to satisfy demand. For firms that use distant suppliers with long lead times, a prevalent strategy is to commit base quantities of demand with these suppliers earlier in the season, and satisfy any additional demand with “local” suppliers as in-season demand becomes available.

A third strategy is to use a vertically integrated or a contract-manufacturer-based supply chain with extra buffers of inventory and capacity. Apparel retailer Zara is the poster child for this (Ferdows and colleagues, 2004). The extra buffers help the firm react rapidly to evolving demand patterns, reducing lead time to days as opposed to months for traditional retailers.

Collaboration between the firm, its suppliers, the contract manufacturer, and carriers are important so that everybody is in the loop. When there is transparency over

demand as the season progresses, the reaction to demand is fast and efficient. As John Mello points out, internal synchronization, relationships with external partners based on trust, and transparency of processes are still important in this context.

REFERENCES

Boone, T. & Ganeshan, R. (2008). The Value of Information Sharing in the Retail Supply Chain: Two Case Studies, *Foresight*, Issue 9 (Spring 2008), 12-17.

Ferdows, K., Lewis, M. A. & Machuca, J. A. D. (2004). Rapid-Fire Fulfillment, *Harvard Business Review*, November, 104-110.

Fisher, M. L. (1997). What Is the Right Supply Chain for Your Product? *Harvard Business Review*, March-April, 105-116.



Ram Ganeshan holds the D. Hillsdon Ryan Professorship of Business at the College of William & Mary. His current research explores how Big Data can improve supply chain performance.

Ram.Ganeshan@mason.wm.edu



Tonya Boone is Associate Professor at the College of William & Mary's Raymond A. Mason School of Business. Her current research focuses on sustainability, especially in fashion and health care.

Tonya.Boone@mason.wm.edu



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