
The COMMON PITFALLS *of Demand Planning*

Effective demand management is critical to the financial performance and health of an organization. However, to be successful companies must overcome the common pitfalls that have evolved from decades of insufficient demand planning and management.

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Effective demand management is critical to the financial performance and health of an organization. Demand management is boundary spanning and, as such, needs to be independent of the functional management organization. When we refer to demand management, we are referring to every functional group within the organization contributing to and relying on managing demand. Digitization and digitalization offer the promise of digital collaboration across functional silos and organizational boundaries without significant manual interaction. However, to be successful companies must overcome the common pitfalls and archetypes that have evolved from decades of insufficient and siloed enterprise demand planning and management. Let's take a look at the four most common pitfalls of demand planning.

The Problem: The traditional supply chain view is linear and disconnected

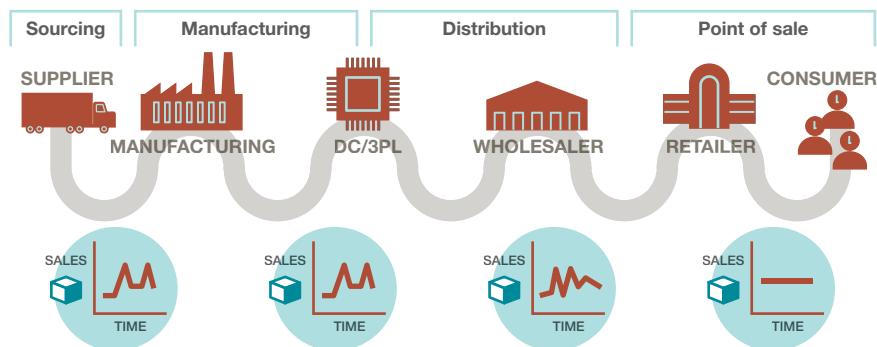
Pitfall No. 1: Lack of an organizational commitment to improved demand planning

- Organizational culture has been conditioned to the “forecast is always wrong.”
- Lack of executive commitment to integrated demand/supply planning:
 - demand planning resides in functional silos with a bias to functional metrics; and
 - demand planning led by middle managers supported by junior analysts.
- Operational demand planning is supply chain focused and forecast oriented.

We traditionally view the supply chain as a chain of sequential links each with behavioral attributes that act separately and together to cause demand variation from historical performance. This has been widely characterized as the bullwhip effect. As demand variations are communicated sequentially through the supply chain there are time delays and amplification of the signal variations that cause error to propagate the network (see Figure 1).

FIGURE 1

Errors in the network



- Forecast cycles plan weekly or monthly demand at various aggregated levels
- Sales and operations planning processes don't address SKU by location accuracy
- Advanced: demand driven, demand sensing and shaping techniques occur outside daily operations
- Network and inventory optimization initiatives don't address on-going variability

Source: Author

As a result, planners are making million dollar working capital decisions largely based on custom spreadsheets and tribal knowledge.

Statistical forecasts are based on historical data, and are not representative of the existing and future conditions (causal factors) that influence demand. The departments responsible for creating, marketing and selling do everything they can to change history. The result: The forecast is always wrong. Sales & operations planning (S&OP) is a

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noble attempt to capture causal factors; however, the time delays associated with S&OP processes exacerbates the error. The statistical forecast is only useful when determining a basis for segmentation, analyzing patterns and creating baseline forecasts. As a result, statistical forecasts about stock keeping units (SKUs) at the location level, for example, will always be inaccurate.

The resulting culture is one of acceptance of inaccuracy with no one collecting the reasons why the forecast was wrong to consider those recurring causes in the future. To improve accuracy, organizations need to collect and study the causal factors that are likely to increase or decrease demand, across the business, to determine and manage variability from baseline demand, for each item, at each location. New and more abundant sources of data from digitization make this feasible today.

Pitfall No. 2: Lack of collaboration among functional silos

- Functional planning silos don't collaborate.
- Actions in one functional silo result in variability to other silos' requirements/demand
 - R&D introduces new products affecting marketing, sales, procurement and production;
 - marketing introduces demand generation initiatives (e.g. promotions, feature extensions, etc.) affecting sales, procurement, production and logistics; and
 - operating plans lack visibility and consideration of

demand generation initiatives affecting marketing and sales.

- Finance praises the guilty and punishes the innocent; blame persists throughout the organization.

The traditional organizational structure is vertical and groups function in a way that creates the very silos that serve as a constraint to optimizing performance. Breaking down the silos is impossible; vertical silos are necessary for effective execution of horizontal processes that flow across organizational structures. I've written about it in detail in my book, "Supply Chain Transformation: Practical Roadmap to Best Practice Results." Sales won't be reporting to purchasing anytime soon, for example, although accurate demand forecasts are critical for both functions. Companies must look to digital technologies to electronically connect the silos and functional plans to manage the organization vertically and horizontally simultaneously and foster intelligent "digital collaboration" among the silos.

A case for digital demand management

Pitfall No. 3: Reliance on historical performance data

- Companies use historical data sources to forecast:
 - shipments (traditional);
 - orders (more recent); and
 - forecasts based solely on historical data produce hysterical results.
 - Sherman's Law of Forecast Accuracy: "Forecast Accuracy improves in direct correlation to its distance from usefulness."
 - Companies must leverage new and more abundant sources of data;
 - causes to demand variability must be collected and explained; and
 - companies must leverage advances in cognitive analytics.
- Digitizing your business will give you the data you need to sense, shape and respond to demand changes in real time. This will also allow you to apply scientific principles and derive more accurate demand forecasts. Going digital doesn't break down silos, but it does help to horizontally integrate your organization by linking vertical functional activities with horizontal processes. Digitization also facilitates digitally "connected" collaboration and helps apply statistical process control techniques to manage and improve demand forecasts

by determining an acceptable upper and lower range of flowpath variability from forecast. Holding product flow to a range of performance instills confidence that the plan can be achieved as well as serving as an alert to a causal factor that is disrupting the plan.

Traditional S&OP and integrated business planning (IBP) processes are too fragmented and unable to foster the execution level internal and external collaboration needed by modern businesses. As a result, they're unable to execute the new digital demand management processes required to support and develop better supply chains and more mature analytics capabilities (see Figure 2).

Using data to turbocharge analytics and forecasts

The connected age calls for a new corporate demand management function. One that can effectively tap into the new digital sources of data—from external partners and from various fragmented functions, apply advanced predictive and prescriptive analytics methods, and provide more accurate, actionable demand forecasts.

Why is this a competitive imperative? Analytics, especially machine learning, are strongly rooted in historical data. If you haven't collected the data to compile a historical basis for predictive and prescriptive analytics, you are behind. The time

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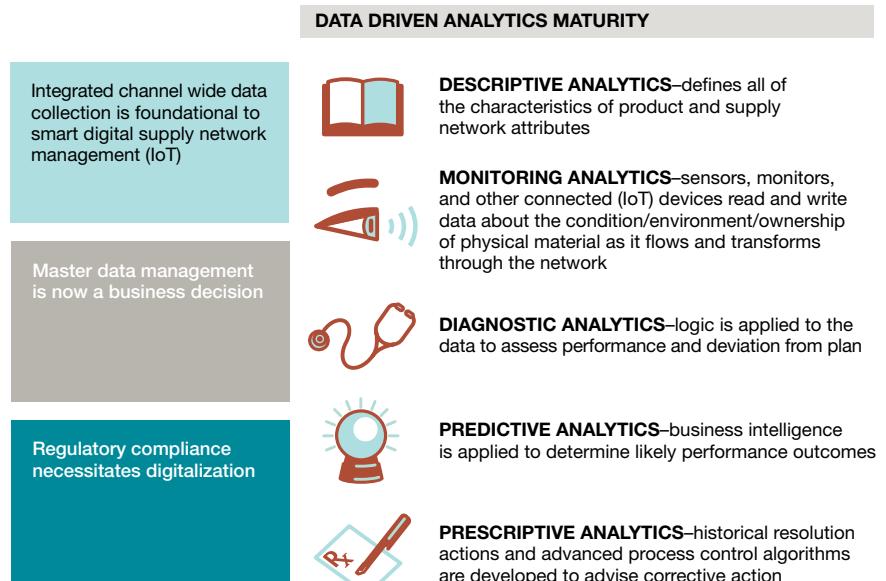
lost is a hurdle you simply can't leap over, and catching up will take at least a year or two.

A demand management program office outside of traditional functional silos can leverage data from the

entire organization and apply cognitive machine learning technology to capture the reasons for unplanned

FIGURE 2

Using data to turbocharge analytics and forecasts



Source: Author

demand and learn to consider them for future planning as well as capture the work arounds that were taken to bring the flow of goods back into control for future prescriptive analytics (see Figure 3).

Causes of Demand Variability Must Be Captured & “Explained” for Future Analytics

Leveraging a causal based demand plan, the plan can be “functionally decomposed” to systemically develop linked individual plans with links to actual demand performance. Each planner is connected to an enterprise plan that is both top-down, bottom-up, and horizontal-vertical cross functional. Using Business Intelligence technologies, the flow of goods to meet the plan can be optimized and at each level and function and an acceptable range within “upper and lower control points” based on standard deviations. The cost of meeting both the upper and lower variations can be simulated and mutually acceptable risks taken for setting the actual control limits as illustrated in Figure 4.

Statistical process control for the supply chain

Pitfall No. 4: Failure to innovate and embrace change

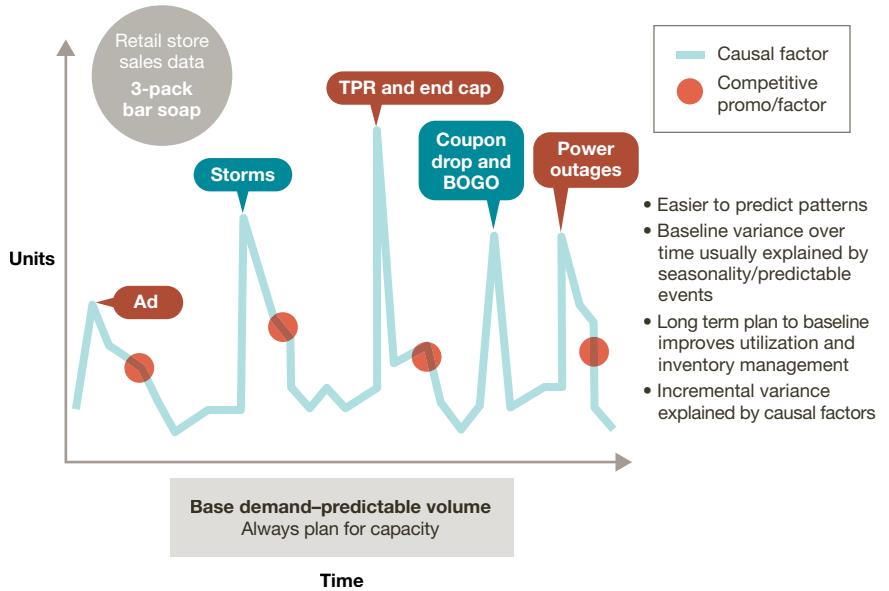
- Innovation is not invention; innovation is incremental change.
- Ecosystem thinking is not new:
 - based on Jay Forrester’s research at MIT on computing’s impact to business in the late 1950s;
 - evolved based on Peter Senge’s “Fifth Discipline” research at MIT in the 1990s; and
 - embodied today in most disciplines especially operations research.
- Encourages collaboration both intra-organizationally and inter-organizationally.

Maintaining the status quo is no longer an option. Digital is a reality and markets are changing dramatically. Companies must embrace and leverage digital technologies. Digital disruption has no boundaries and every company is at risk to changing markets and competition. To compete in the 21st century requires new levels of digital and analytics maturity that are time and data dependent. Not acting and embracing the new digital technologies will be an extinction event for many companies.

We advocate the demand management program approach to transformation as it is the least disruptive to the current structures and is managed with C-level commitment, authority, and governance. As processes are digitalized and functions connected, the transformation to systems thinking and digital demand management is easier to embrace. It simply has to be done. ∞

FIGURE 3

Causes of demand variability must be captured and “explained” for future analytics

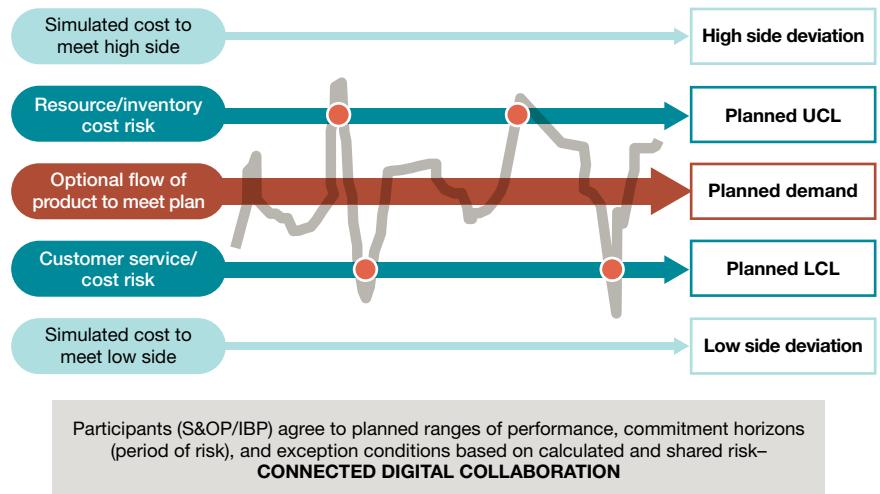


Source: Author

FIGURE 4

Statistical process control for the supply chain

Minimizing the impact of variability and forecast error through model-based supply chain optimization and simulation to forecast a range of acceptable performance



Source: Author