

# Integrated Planning & Execution

**Collaborating with Retailers to Create  
World-Class Planning and Execution**

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# 1 The Opportunity

**IP&E provides a single system of record and clear visibility across all brands, thereby allowing everyone to see - and act on - the same data, at the same time.**

In a perfect world, the merchandise on a retailer's shelf exactly matches consumer demand. The closer a company can move its planning and execution to perfection, the greater its revenues, quicker its response and better its in-stock positions.

In the retail and consumer products industries, the supply chain is complex: Planning occurs one or two seasons ahead, while execution takes place "real time" when the merchandise needs to be delivered to the store and placed on the shelf. In both time frames, companies need relevant and meaningful information about merchandising, assortment planning, replenishment, pricing, inventory, sourcing and logistics. At the same time, the lines between "seller" and "producer" are blurring. Retailers are making private label products and selling them wholesale to other retailers; manufacturers are managing their major customers' shelf spaces, including inventory replenishment.

The good news in the emergence of these hybrid organizations is that, in theory, a company could have the insights to move closer to the consumer's "moment of value:" the actual purchase. Of course, the bad news is that hybrid organizations are — potentially — even more complex than their predecessors.

Retailers often lack a common view of merchandise across all their businesses, channels and brands. As a result, the processes and technologies for allocation and replenishment are inconsistent; forecasting is inaccurate; and inventory is poorly accounted for and excessive. Companies also miss opportunities to leverage purchasing power in sourcing, to collaborate in product design and to share in production capacity. But perhaps the greatest problem is that the business is unable to share consumer data, a goldmine for cross-selling.

Capgemini's Integrated Planning & Execution (IP&E) model addresses these business issues by integrating production, merchandising and logistics, enabling a "pull" business model. As a result, retailers and consumer products companies can better read and react to actual customer purchases, thereby achieving more accuracy in assortments, more control over inventory and more success in merchandising. IP&E provides a single system of record and clear visibility across all brands, thereby allowing everyone to see — and act on — the same data, at the same time.

# 2 The IP&E Model

In a perfectly rational retailing supply-demand chain, the consumer would find the right product, in the right place, at the right time.

## 2.1 Overview of Integrated Planning & Execution

In a perfectly rational retailing supply-demand chain, the consumer would find the right product, in the right place, at the right time every time. When a product is purchased from a website or a catalog, it would be automatically replenished or this would cause a trigger for the latest season's merchandise to be allocated to the shelf. The retailer would have the information needed to "read and react" to real-time shifts in demand. If an item is selling more or less than planned in any location, the replenishment/allocation cycle would adjust: Hot spots would get more inventory; cold spots would get less. Ideally, shifts in the demand chain (actual versus planned) would ripple up the supply chain, triggering an alteration in delivery from the manufacturer, in actual production volume (up or down) and in raw material supplies. During pre-season planning, the retailer would have insightful historical data, refined with demographic and market analyses, to create more accurate forecasts.

For this ideal state to work, a retailer needs processes and technology for Integrated Planning & Execution. Yet, so many organizations are characterized by the opposite: Core business processes supporting functions (merchandising, assortment planning, demand planning, replenishment, pricing, sourcing and logistics) and their supporting systems are disconnected, resulting in ineffective planning, poor inventory performance and missed retail sales opportunities.

Figure 1: Integrated Planning & Execution Key Components and Functions



Source: Capgemini

Capgemini's groundbreaking Integrated Planning & Execution (IP&E) solution provides a cross-functional, consumer-driven view of demand and supply, such that everyone can act in concert to improve in-stock performance, enhance inventories and improve revenues. Retailers can establish improved assortments and appropriate inventory levels to satisfy customers, while reducing out-of-stocks, markdowns and distressed inventory. Consumer

**The focus of Capgemini's solution is on integrating planning systems and then systematically linking them with execution systems, while providing real-time alerting and monitoring.**

products companies can reduce the “bullwhip effect” of too little information, too late. Everyone benefits from accuracy in planning and agility in execution.

The focus of Capgemini's solution is on integrating planning systems and then systematically linking them with execution systems, while providing real-time alerting and monitoring. For the vertically integrated retailer, the scope of Integrated Planning & Execution includes logistics, warehousing, transportation, purchasing, order fulfillment and manufacturing operations.

Capgemini's Integrated Planning & Execution solution aims to deliver these core business benefits:

*Alignment between top-down sales/merchandise plans and bottom-up assortment, space and demand plans.* To rationalize supply and demand during the planning process, our solution allows the company to consider not only historical data, but also demographic and market analyses, financial targets (What are we trying to achieve?), and any constraints in the distribution network that might inhibit the attainment of goals (Can our logistics infrastructure support flexibility and adaptability? Does our supply have adequate capacity? Do we have appropriate retail space?). By taking the results of a Store Segmentation analysis into account in the product selection process, Category and Class Planning helps to tailor the products sold in a specific store grouping. This approach incorporates demographic, psycho-graphic and competitive data so that planners can optimize the assortment in each store leading to significant improvements in revenue and inventory performance.

*Synchronization of all supply and demand plans with execution processes across the supply chain.* This occurs in both planning and execution. In pre-season planning, synchronization means continually refining forecasts and therefore, plans based on new market, competitor and product information. During the season, it means real-time, read-and-react merchandising and replenishment/allocation based on consumer demand and actual sales.

*Real-time monitoring and exception-based management.* Timely and accurate monitoring enables a rational supply-demand chain. Exception reports help retailers prioritize work within the high volume of stores, SKUs and transactions. The management team agrees on thresholds for triggering an exception report.

The Capgemini IP&E solution begins with Strategic Planning, a process which provides retailers with a platform for a dynamic and integrated roadmap for planning across all levels of the organization. The strategic plan is developed centrally and disseminated to other areas of the organization. These high-level targets provide the framework and direction for plans generated by all areas of the supply chain including design, production, logistics flow planning and new store development. The result is a more synchronized organization that is able to achieve company objectives with all resources focused on unified targets.

The following sections detail the processes that follow Strategic Planning in the end-to-end IP&E model.

## **2.2 Store Segmentation and Space Allocation**

### **2.2.1 Overview**

Store Segmentation and Space Allocation allows a retailer to “cluster” stores into a small set of groupings or segments based on customer purchasing preferences. The preferences identified as part of the segmentation analysis can then be used to broker space in the store through the space allocation process.

**Store segments are defined based on historical customer purchasing preferences... with input from the Strategic Planning process.**

In today's typical retailing organization, planning decisions are made based on the average store performance or, at best, on simple store segmentations reflecting sales velocity or store size. All the stores typically get the same assortments, those that are appropriate for the "average" store. Not surprisingly, most stores do not get the assortments and inventory levels that best match each store's market. On the other end of the spectrum, analyzing each store uniquely and developing plans and actions separately for each, is resource intensive, cost and time prohibitive, and difficult to execute.

As part of Capgemini's IP&E solution, clustering captures the diversity in the marketplace, yet also allows the retailer to leverage resources (including successful promotional programs) to "similar" stores. Action plans, developed at the cluster level, reflect shared patterns in sales and margins. These plans are scalable, customer-centric, easy-to-manage and more accurate than those developed using traditional approaches. These plans are then applied to Space Allocation, where space is adjusted based on customer buying preferences.

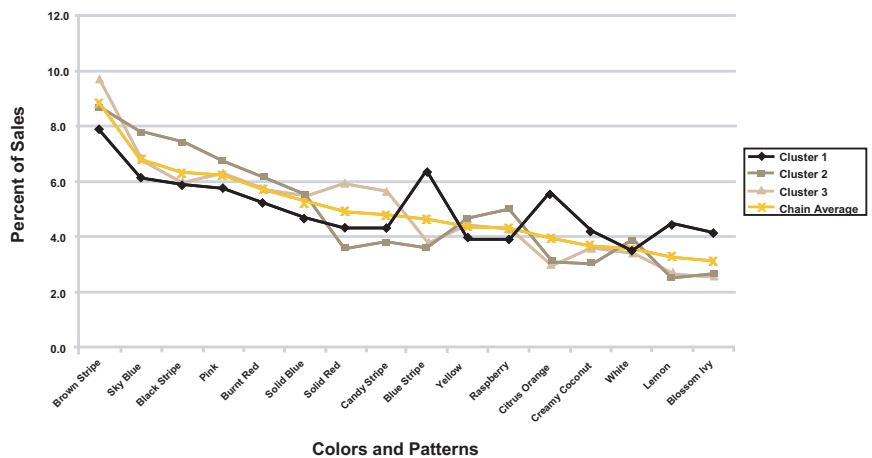
The Store Segmentation and Space Allocation processes drive higher performance and more effective use of space in the retail environment. The reallocation of space may lower revenue in some categories, in order to reap an overall increase in "total shop" revenue and margin. It also drives improvements in customer satisfaction and brand or item loyalty.

### 2.2.2 Approach

Store segments are defined based on historical customer purchasing preferences, generally measured in dollar sales or unit sales. Most segmentation models are tuned using metrics that most closely follow consumer patterns. Store segments are created with input from the Strategic Planning process. It is critical that changes in corporate strategy are incorporated in reallocation of space.

Each store segment or cluster can be described in terms of business opportunity (e.g., "Core" vs. "Value"). Establishing segment identities is essential for developing business strategies and quantifying the opportunity for each segment. Once each segment is formed, it is important to quantify the relative importance of each group, using metrics such as a sales index, sales contribution or even profitability. This can be shown as a mix percentage grid as given in Figure 2, which is used as input to the Assortment Optimization process (see Section 2.4).

**Figure 2: Cluster Mix Percentage Grid**

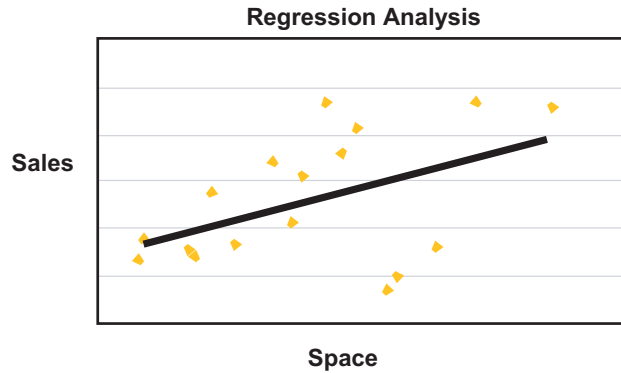


Source: Capgemini

A four-step process facilitates accurate space allocation:

*Step 1:* For each cluster, linear regression is used to quantify the category sales-to-space relationship. Category coefficients that indicate the relationship between sales revenue and units are developed using statistical tools, such as regression analysis, as shown in Figure 3.

**Figure 3: Regression Analysis**

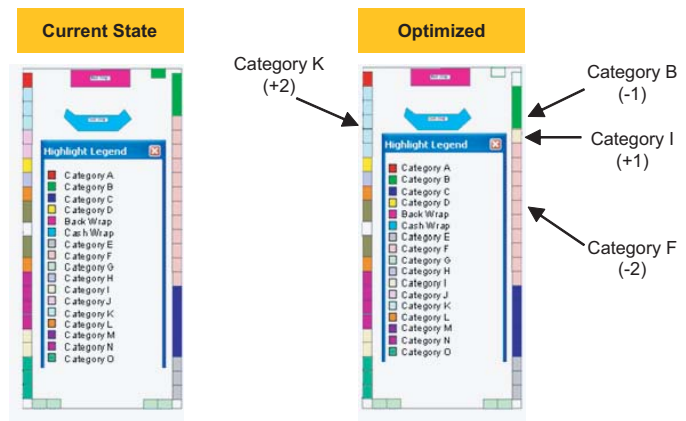


Source: Capgemini

*Step 2:* Category coefficients and strategic constraints are applied to accurately enable the distribution of space within each grouping. The rules dictate how much space can be taken from one product area to expand another; preventing a negative impact to product areas that lose space in the final space distribution model. More space is allocated to higher-performing categories or for new categories while the space for poor-performing categories is reduced.

*Step 3:* Optimal space distribution is applied to broker space for all stores within the grouping. In Figure 4, the impact of space reallocation is visually represented in a floor plan. Categories K and I are higher-performing categories while Categories B and F are lower-performing categories, as seen by their category coefficients.

**Figure 4: Current vs. Optimized Space Allocation**



Source: Capgemini

*Step 4:* Store-level space allocation counts by category are reviewed with planning leadership. Store Segmentation and Space Allocation is an input into the Floor Planning process. A component that is generally overlooked but plays an increasingly important role in the IP&E model is visibility of reallocated space as part of the Assortment Optimization process.

Because the reallocation of space has a direct cost impact on various levels within the field organization, the process needs to take into account the following: 1) the timing and frequency should be determined by floor resets in conjunction with other merchandising resets or other real estate efforts; 2) the business benefit is weakened by only generating store segments for under-performing categories or lines. A holistic or “total shop” space reallocation process should be used.

## 2.3 Category and Class Planning

### 2.3.1 Overview

Category and Class Planning is the process by which strategic plans are further developed by the Merchandise Planning group to create season/monthly/weekly targets for sales, inventory and margin. Targets are created at the category through sub-class levels and across store formats, brands and channels.

Category and class plans incorporate strategic themes and marketing concepts and reflect entry and exit strategies for product lines. The result is a broad view of planned customer behavior based on a weekly sales, inventory and margin plan. This plan identifies targets such as style/SKU counts and productivity plans, and incorporates pricing strategies across divisions.

As part of Capgemini’s IP&E solution, category and class plans are used to provide directional information to autonomous and often siloed business units such as Merchandise Planning, Logistics, Marketing and Production. Important information such as category and channel roles and expectations, significant changes in strategies, and long-term testing agendas are communicated to downstream processes and business functions so that company goals and targets are consistent across the organization.

### 2.3.2 Approach

Creating an informed category/class plan requires retailers to make key business decisions around what data will be used to begin plan creation. Using historical actuals allows planners an opportunity to apportion potential sales, inventory and receipts targets using baseline values. Apportionment can be informed by demand forecasts, inventory policies, exit and entrance strategies, and theme and event strategies. The demand forecast is a key input to apportion the initial plan to add lifts from promotions to the baseline and to provide a more scientific basis for the plan, including better trend information.

Inventory policies that are set during the Strategic Planning phase heavily influence dollar and unit inventory targets set during the Category and Class Planning phase. Metrics such as service-level percentage and days on hand should be developed to support inventory targets following consideration of characteristics such as style/SKU margin, velocity, appearance, merchandise type or strategic importance of the class.

Incorporating exit and entrance strategies within the plan allows the planner to apply merchandise strategies that were not included in the historical data that was used to begin creating the plan. Past performance is analyzed incorporating new product initiatives, service enhancements, augmentation of current product sales such as product cannibalization or halo effect. Considerations for shelf space and markdown strategies should be taken into account at this time and would be reflected in the sales, inventory

**Demand forecast is a key input to apportion the initial plan to add lifts from promotions to the baseline.**



**Assortment Optimization offers retailers the ability to optimize their assortment planning process by integrating the development of the assortment.**

and margin metrics of the plan.

An informed category and class plan also aligns with and represents organizational themes and events. Theme strategies should be reflected at the category/brand level by modeling behavior of products after like items from historical themes. Events lifts should be layered into an amended historical sales and inventory plan. Optimizing the plan based on demand forecasts that include event lifts is one of the biggest value-added benefits of the IP&E model. Further refinement of the plan may occur when incorporating new initiatives, planned distortions and calendar shifts.

Once the plan is approved, a consensus process shares the targets with other business functions such as Logistics, which may be influenced directionally in the way of capacity planning and sourcing, which may place raw material commitments based on the planned targets. The recipient of the category and class plans is the Assortment Optimization process.

## 2.4 Assortment Optimization

### 2.4.1 Overview

Assortment Planning is the process of taking the category level merchandise plan and developing more granular (potentially down to SKU and store or store cluster) plans. Assortment Optimization offers retailers the ability to optimize their assortment planning process by integrating the development of the assortment with not only the traditional product hierarchy, but also other common product characteristics and affinities.

Capgemini's IP&E solution incorporates Attribute Planning, Assortment Clustering and Key Item Planning into the overall Assortment Planning process. All of these processes work in harmony to create a detailed assortment that achieves previously set targets and supports the assortment architecture provided by the strategic, category/class and attribute plans. The result is a weekly sales, margin and inventory plan at the consumer product level (styles/SKUs), for a season and by store cluster.

### 2.4.2 Approach

The first step in the Assortment Optimization process is the development of the attribute plan - a sales and receipts plan created at a meaningful level of product characteristics. This plan provides the foundation for the targeted assortment differentiation within the detailed item-level plans. The Attribute Planning process uses inputs from the strategic plan and trend information from Merchandising and Design to determine the primary attributes for planning. Price tier, fabric type, fragrance, season and pricing groups are all examples of measurable planning attributes that might be identified. These product characteristics help define the product assortment, merchant visions, and financial business mix.

The next step is to develop a key item list, which, in concert with the attribute plan, will provide specific guidance on the buying team's approach to developing the assortment architecture for other functional groups like Design, Production, Sourcing and Logistics. The key item list will be used as a primary input into the Assortment Planning process as it will provide a preliminary view of entry/exit timing, sales and receipt direction, and pricing and profitability targets.

In parallel, based on product affinity, assortment clusters are being created. Stores are grouped and key performance measures for a chosen time period and product set are determined. Top-performing product categories will be good candidates for clustering based on their data volume, importance to the business and possibility for tailoring assortments.

**Optimize sales and asset utilization by developing store-specific space and floor plans using customer-focused category analysis.**

The input from the clustering process for Assortment Optimization is a mix percentage grid (see Figure 2), which shows the percentage contribution for the cluster run for each group of stores and the group average.

Additionally, an opportunity grid will be created. This grid shows the driving and underperforming items as well as demographic and real estate factors for each group of stores. This process provides statistical information to Assortment Optimization about customer affinity toward products and is used to help define the right assortments by store cluster.

Within the IP&E solution, the category/class plan, attribute plan, key item list and store clusters will be used to inform, or act as a reference in the Assortment Optimization process. The closer the assortment plan is to execution, the more detail is developed. Further out, where styles/SKUs have not been defined yet, placeholders (or budget slots) are used as proxies for items that have not yet been selected for the assortment.

The next step is seeding the assortment plan with a statistical demand forecast. For new items without any previous sales, the history or sales curve of a similar product may be used (known as the “model after” process). After using the demand forecast and planning key metrics like sales, margin, receipts and inventory, the assortment plan will be reconciled with the category/class plan and approved. This process is repeated in-season as placeholders are defined and read-and-react opportunities present themselves.

## **2.5 Space and Floor Planning**

### **2.5.1 Overview**

Space Planning is the process of optimizing product presentation and productivity at a store/fixture level via plan-o-grams. Floor Planning is the process of creating and maintaining store-specific floor plans that enable companies to improve the position, performance and layout of product categories on new and existing store floors.

Store Segmentation and Space Allocation are critical inputs to this process. Integration with Strategic and Category Planning is key in enabling reconciliation of space allocation with financial planning. Space and Floor Planning provides input to the Demand Forecasting and Replenishment Planning processes through optimized plan-o-grams and minimum presentation quantities.

Capgemini's IP&E solution enables retailers to optimize sales and asset utilization by developing store-specific space and floor plans using customer-focused category analysis.

### **2.5.2 Approach**

The ultimate goal of Space and Floor Planning is to establish the final item/store relationship. The item/store relationship serves three purposes: First, it establishes which items/stores should be forecasted and fulfilled. Second, it establishes the MPQ (Minimum Presentation Quantity), which represents the minimum quantity required at a store at all times for merchandise presentation. The MPQ is leveraged by Replenishment Planning in its projections. Lastly, the MPQ is communicated to Field and Store Operations as part of the Floor Set process.

Store cluster data defined by the Space Allocation process (see Section 2.2), provides the starting point for Space Planning. In its calculations, Space Planning considers sales productivity, assortment ranking, fixtures, product affinities, density and breadth of presentation, and store space limitations.

A typical Space Planning approach would include the following components:

1. *Creation and maintenance of store layouts, fixtures and floor plans.* Prototype floor plans are created based on store, fixture and physical layout constraints, taking into account upcoming reallocation of space.
2. *Development of segments (from the Space Allocation process) and groups of floor plans.* Floor plans are developed after the macro space has been reallocated. At this time, prototype floor plans are also developed based on the physical constraints and space allocation groups previously created, and space can be brokered between product groups based on cluster affinity for particular product groups.
3. *Creation and maintenance of plan-o-grams.* Space planners create the necessary item/plan-o-gram combinations to match the cluster matrix of like stores where shoppers have a proclivity to buy particular products. Plan-o-grams are also created based on the Assortment List process.
4. *Development of groups and clusters of plan-o-grams.* To reduce the exponential growth in the number of plan-o-grams, it is necessary to develop groups or prototype plan-o-grams. These plan-o-grams should be based on the available clusters, the assortment list and physical constraints at the plan-o-gram level.
5. *Association of assortments to groups of plan-o-grams.* At this point, the final association between items on plan-o-grams, plan-o-grams on floor plans, and floor plans assigned to stores creates the item/store relationship.
6. *Alignment of plan-o-grams to the assortment plan.* This step should be used to make sure that space constraints are aligned with the Assortment List process in addition to other strategic constraints, including Field or Store Operations constraints.

For stable assortments that change infrequently, exact store and product dimensions can lead to exact calculations of KPIs. Pictures of products can be tied to plan-o-grams and mass communicated. As a result, Store Operations will benefit from the graphic capabilities of the plan-o-grams to assist store employees in merchandising the store.

For more highly dynamic assortments, there may be little time to develop fully merchandised plan-o-grams. A list of items placed in plan-o-gram files, which are placed on floor plans and assigned to sites may have to suffice. This will pass the relevant SKU/store relationship and MPQ to other systems, with space-to-sales KPIs inferred to a certain level of detail.

## 2.6 Demand Forecasting

### 2.6.1 Overview

Demand Forecasting leverages point-of-sale historical information to predict future sales. Customer demand can be projected at the SKU/store level, or at higher levels of the product-location hierarchy to attain greater improvements in forecast accuracy. Demand Forecasting allows retailers to move away from “average-store thinking” and to more accurately replenish and allocate product in a more targeted manner across the entire chain. The Demand Forecasting process discussed here focuses on baseline demand, excluding promotions and markdowns. Promotional forecasts (see Section 2.8) and markdown plans (see Section 2.9) can be systemically integrated with the demand forecast, and used to seed the merchandise plan. A key added value that the IP&E solution brings to retailers is the ability to use the demand forecast to seed top-down merchandise plans with a bottom-up statistical demand forecast, supporting an improved consensus planning process (see Section 2.7).

### 2.6.2 Approach

Sales patterns can be characterized in groups such as fast-moving, slow-moving, lumpy and seasonal products. Once SKUs have been characterized, the appropriate algorithm or forecasting process can be applied to enable improved forecasts for each grouping. A fast-

**Demand Forecasting allows retailers to move away from “average-store thinking.”**

moving product may lend itself to a forecasting approach that quickly adjusts the future projection to increased sales, where a relatively stable product, such as a men's white T-shirt, would be best suited for a less dynamic algorithm with little fluctuation around the mean. As a further example of using different methods to forecast different products, seasonal products with a short lifecycle can be forecasted leveraging a model-after approach, where the sales pattern of a similar product is used to predict future sales.

Another aspect of Capgemini's approach to Demand Forecasting concerns segmenting history and estimating future events to analyze key drivers of sales. Because promotions are large sales drivers in a retail environment, care must be taken to identify historical and future promotions. Seasonality also greatly impacts sales variability across time. The Promotions Optimization process incorporates event lifts into baseline demand forecasts by leveraging historical promotional performance to estimate known future events utilizing market response and price elasticity models (see Section 2.8).

Further techniques that can improve the accuracy of demand forecasts and help simplify the process involve forecasting at more appropriate levels and the use of multi-algorithm forecasting. Managing a large number of forecasts can be tedious and labor-intensive. By forecasting at aggregate levels in the product and location hierarchies (in other words, category or class, store segments or all stores), historical sales can be combined to eliminate noise and provide more representative sales patterns. The aggregate forecasts can then be reconciled to lower levels to provide data for replenishment and allocation. Forecasting can be taken a step further by leveraging product and location information to forecast at store groupings.

Multi-algorithm forecasting involves generating multiple forecasts for a given product, and then determining which forecast to accept based on statistical parameters. Demand planning software can perform these calculations and even optimize model-tuning parameters so that the management of multiple algorithms does not require additional human intervention.

Another method of reducing the number of forecasts managed while also ensuring the appropriate issues are being monitored concerns exception management techniques. Exception alerts compare the models' output to actual sales and measure forecast accuracy, allowing demand planners to focus on improving forecasts with higher error rates, while prioritizing products with greater importance to the business (high sales, high product margin).

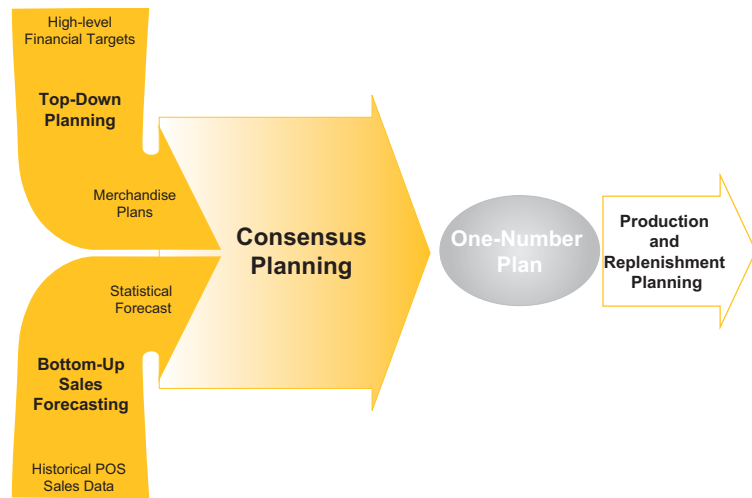
The bottom-up forecasts based on historical POS data combined with event information from promotions and markdown optimization are compared with top-down financial merchandise plans, via the process of Consensus Planning to derive a one-number forecast.

## **2.7 Consensus Demand Planning**

### **2.7.1 Overview**

Consensus Demand Planning is the process of reconciling the bottom-up forecast with the top-down merchandise plan. It incorporates both top-down and bottom-up Demand Planning philosophies and results in an agreed-upon unit forecast. This new consensus forecast guides the assortment planning process and sets the inventory cycle stock. This forecast is evaluated, and modified when necessary, through ongoing reporting and consensus meetings. (See Figure 5.)

**Figure 5: Consensus Planning - A Key Integration Point in the IP&E Model**



Source: Capgemini

Through Capgemini’s IP&E solution for Consensus Demand Planning, retailers are able to more accurately forecast future demand and seed forecasts to merchandise planners as a baseline, enabling them to improve inventories. Statistical capabilities, combined with market intelligence gained from internal collaboration, bring pinpoint accuracy to companies’ demand plans. The result: a single, companywide view of the “truth” or one-number plan that provides the foundation for sales and operations plans and helps drive measurable improvements.

**2.7.2 Approach**

Although retailers should refine their demand projections on an ongoing basis, many companies limit Demand Planning to a single, monthly demand forecast. Continuous Consensus Demand Forecasting enables companies to quickly detect, interpret and act on changes in demand. Consensus Demand Planning is broken down into three distinct and important categories, pre-consensus activities, actual consensus meeting and post-consensus activities.

**Productive consensus meetings facilitate decisions that enable the adoption of the most appropriate forecast for selected records over a desired timeframe.**

Productive consensus meetings facilitate decisions that enable the adoption of the most appropriate forecast for selected records over a desired timeframe. The agenda topics are prepared by the demand forecaster and should reflect pre-consensus preparation to detail specific topics for dialogue. Examples of pre-consensus activities consist of:

*Completion of merchandise plan* - Merchandise planners oversee finalizing tactical plans, setting up known events and managing of financial targets.

*Determine time/items to discuss in consensus meeting* - Demand forecasters and merchandise planners should confirm that they have the same context leading into consensus meetings and communicate to each other what items will be discussed during the meeting and throughout what time horizon.

*Compile necessary consensus reports* - In preparation for the consensus meeting, demand forecasters and merchandise planners generate reports that review aggregated total historical data vs. recent historical data, to determine forecast accuracy. These reports may be separated by themes or aggregated to specified levels of the merchandise hierarchy.

**[Promotions Optimization] allows retailers to measure the effectiveness of promotional programs and significantly impacts sales dollars and the gross profit earned from these programs.**

A consensus demand plan is an agreed-upon unit forecast created during the consensus meeting where a demand forecaster and merchandise planner reconcile the top-down merchandise plan with the bottom-up forecast. Discussions during a consensus meeting are centered on exceptions and timeframes that will influence a buy or even long- and short-range themes. Examples of consensus activities include:

*Leverage consensus reports during discussion* - These reports help drive the level at which the conversation will occur between the demand forecaster and merchandise planner. Potential information will include last year's results, recent past two themes as a trend, SKU counts, store counts, CRM, events, assortment, promotions, newness and exits.

*Build momentum* - Demand forecasters need to set the tone for the next consensus meeting and verify that the merchandise planners are fully aware of their post-consensus responsibilities.

Following the consensus meeting, merchandise planners, demand forecasters and replenishment analysts take part in Post-Consensus Demand Planning activities, which include reviewing the financial and inventory implications of the unit demand signal. Additional post-consensus activities consist of:

*Inventory consensus* - Merchandise planner adopts consensus forecast to determine dollar/inventory impact.

*Review impact* - Independently review with team's planning manager, director and senior leadership the effect of the agreed-upon consensus forecast on inventory cost plan and unit sales plan.

*S&OP Meeting* - Post-consensus activities are designed to guide conversations in S&OP.

A key element in all of the above activities is that they should be exception-based so as not to overwhelm planning resources.

## **2.8 Promotions Optimization**

### **2.8.1 Overview**

Promotions Optimization is a centralized process to select items to promote, determine optimal prices and promotion vehicles, and provide a promotional forecast for an event at the desired location/channel level. It allows retailers to measure the effectiveness of promotional programs and significantly impacts sales dollars and the gross profit earned from these programs.

Promotions Optimization is closely integrated with Demand Forecasting so that the right quantity of product can be purchased to support the promotion. The optimized, customer-centric forecast is then updated in the merchandise and assortment plan to better align with the sales and gross margin plan.

Retailers that run highly promotional businesses and lack the tools to determine the value of their promotions will reap the greatest benefits of implementing Capgemini's IP&E Promotions Optimization approach. However, retailers that currently rely on merchant instinct or vendor recommendations and often see ineffective promotional funds management will also benefit from this approach.

### **2.8.2 Approach**

The Promotions Optimization approach begins with analyzing the organization's current state in planning and executing promotions. How effective is the process? How efficient

are underlying systems? What is my pricing policy and is it well represented by pricing rules? What promotion vehicles are utilized?

For the Promotions Optimization process to be effective, the organization must align on key factors in the process. There must be consistency in the enterprise promotional planning process; clearly defined accountability across different business functions; integration between existing and new systems; alignment on business rules; and defined promotional windows or calendars.

A defined promotional calendar is necessary for consistent communication across the organization. It is important that a promotional calendar is defined in advance and that the discipline is in place to execute to it. In the event that a change occurs, it must be clearly communicated to all teams impacted - Finance, Marketing, Merchandise Planning, Visual, Allocation, Production Planning, etc.

The Promotions Optimization approach requires a centralized repository of promotion, customer and product data. Historical promotion data should consist of unit sales and dollar sales in time buckets at the desired location/channel level, what items were promoted when, where and how, and regular and promotional prices, etc. A critical success factor is diligence in maintaining clean and accurate promotions data to avoid spending more time validating data than strategizing.

While retailers typically have comprehensive sales and product data, one of the biggest challenges is the lack of data for what was promoted when. Documentation of past promotions, if any, is often scattered across the organization, from spreadsheets to visual guides to old flyers. Because the collation and conversion of historical promotion data can be a manual and time-consuming effort, the business may decide to focus on certain promotional vehicles that are believed to be more significant than others.

Ideally, high-impact promotional vehicles will be identified based on analysis of historical results, provided there are sufficient data points. Price discounts and in-store displays are obvious examples of powerful levers. Promotional vehicles that are believed to be of significant impact to sales, but are lacking in data points (such as in the case of a retailer recently adopting the use of TV advertisements to promote specific items), may also be captured if it is in the retailers' plans to consistently utilize the new vehicles in future.

The length of history appropriate for each retailer will depend on the nature of their business. It is recommended to have about two years worth of historical data; the historical data should go back far enough to reflect at least two complete seasonal cycles (to distinguish seasonality from event lifts).

Based on all these inputs, a market response model is developed that helps to better predict the lift associated with each promotional activity. Market response models are based on elasticity modeling techniques, which evaluate customer responses to different promotional activities. These response models should be self-learning and tune themselves over time as customer preferences change so as to reduce the workload of the promotional planner.

## 2.9 Markdown Optimization

### 2.9.1 Overview

Markdowns are reductions to the initial retail price of in-season, end-of-season and end-of-life merchandise. In-season markdowns occur to promote old merchandise, make room for new and increase customer traffic flow. End-of season and end-of-life markdowns occur during the last phase of a product's lifecycle to reduce obsolescence and liquidate



merchandise. Markdown Optimization is an approach to reducing the number of markdowns through preseason planning and ongoing in-season pricing activities, based on up-to-date demand signals and inventory visibility across all stores.

Retailers normally set markdowns based on intuition, past experience and inventory and sales analysis. Too often, markdowns are taken on the incorrect items, at the incorrect times, at the wrong stores, and are often priced too deep. This activity results in lost revenue and margin opportunities, along with higher inventory and labor costs.

Although retailers can expect to take markdowns, those markdowns may be reduced through Capgemini's IP&E markdown processes and software solutions that integrate expected sales lifts, inventory plans and exit strategies across the different supply chain planning and execution processes. Implementing a new markdown program requires overcoming many internal and external factors. It also introduces many complexities that only a software solution can manage.

### 2.9.2 Approach

An effective Markdown Optimization process includes alignment on key decisions for markdown business rules, competitive targets, price image, constraints, budgets and forecasts, inventory targets, sales movement and costs. It also includes consideration of integration needs and the rollout of markdowns by chain, store cluster or store.

The Markdown Planning and Optimization process begins with a bottom-up analysis of historical demand and inventory trends, along with price sensitivity to consumer markdown responses. Advanced analytical methods such as non-linear market response modeling, genetic optimization and Monte Carlo simulations are used to determine and predict the optimal frequency, timing and prices before they are executed.

Systems that support the Markdown Optimization process are centralized and facilitate the optimal frequency, timing and depth of price reductions for the most profitable sale of end-of-season and end-of-life merchandise through defined business rules. These rules allow retailers to forecast lift, monitor performance against target, provide alerts, predict spend and assess appropriate exit timing while determining demand and inventory impact.

Markdown Optimization solutions are well suited for most general merchandise retailers that have short product lifecycle mixes and are subject to fashion trends and seasonality. Those retailers with long, stable product lifecycle mixes, such as food retailers, chain drugstores, office supply retailers and service retailers are not as well suited for this solution.

Optimizing the markdown frequency, timing, depth of price reduction and monitoring the past, present and future performance may drive significant financial benefits and reduce inventory risk.

## 2.10 Price Optimization

### 2.10.1 Overview

Price Optimization is the process of determining a set of retail price points that will best meet a retailer's financial and strategic objectives for a given set of products and stores. Capgemini's IP&E solution for Price Optimization allows retailers to capture significant margin upside that would be lost otherwise. It also enables category managers to focus more of their time on strategically important categories and items such as "profit builders" or "traffic drivers." As a result, Price Optimization leads to increased sales and profit, enhanced competitive position and improved brand loyalty. Retailers that benefit the most

**Optimizing the markdown frequency, timing, depth of price reduction... may drive significant financial benefits and reduce inventory risk.**



from Price Optimization are those that operate in a highly competitive, fast-changing marketplace, have a large number of products under management and enjoy a fairly stable base of products with long lifecycles.

### 2.10.2 Approach

The foundation of Price Optimization is price elasticity. To obtain the right price elasticity model, a minimum of two years' historical data is recommended. If an item does not have two years worth of history, the history of a like item is usually used as a proxy for the newer item. More important is the quality of the data because it has a significant impact on the resulting price recommendations. The data must be reviewed and cleansed of pricing errors before feeding it into the market response model.

In reality, category managers and pricing analysts must consider factors such as corporate policies and store-level inventory constraints in their pricing decisions. Therefore business rules need to be defined and incorporated into the model to prevent undesirable outputs. Common business rules include margin, price movement, competitors, associated product, size parity, ending number rules, among others. Once the data is confirmed and business rules are defined, a statistical model will be built to simulate customer demand.

The last step of the process involves price scenario generation, optimization and implementation. Category managers can use the tool to perform what-if analyses, evaluate trade-offs and edit the prices to meet enterprise and category goals before approving the prices. The approved prices will then be sent to stores through pricing execution systems for implementation at retail. Companies often underestimate the importance of this step. Without accurate and timely execution, the benefits of these optimized prices will not be fully realized.

Last but not least, retailers must consider pricing decisions within the context of their overall merchandising and pricing strategy and must also address changes from process, organizational and cultural perspectives in order to reap the full benefits of the tool.

## 2.11 Replenishment Planning

### 2.11.1 Overview

Replenishment Planning is the inventory planning process for creating multi-echelon, time-phased inventory procurement and deployment quantities at various points in the supply chain network. This process starts from a consensus forecast and ends with the generation of procurement and/or deployment plans across the supply chain network.

Effective Replenishment Planning incorporates exception-based management, clear accountability for key planning associates, and the appropriate balance between “pull” and “push” replenishment methodologies. Retailers can expect improvements in inventory metrics and profitability. Retailers that will reap the most benefit from Capgemini's IP&E Replenishment Planning approach typically see frequent stock-outs, markdowns and write-offs, low inventory turns, high logistics costs due to frequent air shipments or small shipments, and overworked planners dealing with cumbersome SKU-level planning issues.

### 2.11.2 Approach

The effectiveness of Replenishment Planning depends on several key inputs. The consensus forecast, a product of marrying the statistical demand forecast (including promotions and markdowns) and the merchandise plan, is one of the most critical inputs. Additionally, building a sound replenishment model requires accurate transactional data (for example, current inventory on hand position, in-transit inventory and open purchase orders) and Minimum Presentation Quantity (MPQ) - the minimum quantity required to

**[Replenishment Planning] starts from a consensus forecast and ends with the generation of procurement and/or deployment orders across the supply chain network.**

be held at a store at all times for merchandise presentation purposes, which is obtained from the Space and Floor Planning Process (see Section 2.5).

It is also critical to establish processes for the proper creation and maintenance of inventory planning parameters, such as lead time, safety stock rules, days of supply rules, planning horizon, source/destination relationships, inventory fair-share logic in the case of constrained supply, and so on. For example, a product might require larger initial order quantities and safety stocks during the launch phase of the product, but at a later stage of the product lifecycle, these parameters will need to be adjusted, either due to seasonality or change in customer shopping behavior.

Following are the three main approaches of an effective Replenishment Planning process in a retail business environment:

*Clearly defined accountability model in inventory management* - Retail organizations that have an effective Replenishment Planning process usually have an accountability model clearly defined in managing inventory. Key associates within the planning organization (for example, allocation planners, merchandise planners, buyers, etc.) are held equally accountable for the performance of inventory management in the businesses they manage through structured, KPI-linked incentives. Additionally, the accountability model needs to be supported by robust Demand Planning and Sales and Operations Planning (S&OP) processes, which in turn, should reduce the risk of inaccurate Replenishment Planning due to the inherent dynamics of a retail business environment.

*Exception-based inventory management practice* - The greatest benefits of utilizing Replenishment Planning processes will be realized by retailers that use sophisticated inventory management models while managing inventory by exception, instead of manually micro-managing inventory position at each store or DC to meet business goals. Inventory allocation decisions should be made through a bottom-up view of receipt planning, balancing forecasts, supply constraints, allocation rules/priorities, safety stock and customer service levels, and pre-determined inventory balance targets.

*“Pull-based” inventory management mentality* - Replenishment Planning should stem from the notion of a “pull” inventory management mentality, instead of a “push” mentality where appropriate for a given product type. The “pull” process is an inventory management process that appropriately reacts to business trends and “pulls” inventory to locations with the highest inventory needs based on forward-looking forecasts. Pull-based models utilize statistical safety stock calculations in a multi-echelon environment while also accounting for ordering minimums, truck-load building requirements and presentation quantities. In certain retail product categories, especially short lifecycle products or fashion products, both “push” (allocation) and “pull” replenishment processes are needed to properly manage inventory.

## 2.12 Flow Planning

### 2.12.1 Overview

Flow Planning optimizes the flow of products through the existing supply chain network while making trade-offs between service and cost. Flow Planning typically involves modeling the extended supply chain network to better understand product flow options in a time-phased manner. These plans are integrated with replenishment and allocation capabilities to support better inventory management and reduced logistics costs.

By integrating and aligning demand and supply planning processes through Capgemini's IP&E approach for Flow Planning, organizations can better make complex decisions such

**By integrating and aligning demand and supply planning processes... organizations can better make complex decisions.**

as vendor and site selection, sourcing assignments, physical flow path assignments and mode/carrier decisions.

**2.12.2 Approach**

Per the chart below, Flow Planning falls into three distinct levels of planning: strategic, tactical, and operational.

Level	Objective	Horizon	Frequency	Granularity
Strategic	Network Configuration - Design supply chain network configuration to support future required capacities and capabilities	1 to 5 years	Annual or as needed due to acquisition, etc.	Product group aggregation  Quarterly to yearly time buckets
Tactical	Network Utilization - Develop time-phased demand-driven flow plans constrained by capacity, capability and cost	Rolling 18 months	Weekly	Product group aggregation  Weekly to monthly time buckets
Operational	Network Projection - Project transportation and warehousing daily requirements and capacity issues. React to problematic demand and supply intelligence. Dynamically source requirements through alternate flow paths	Rolling 1 to 18 weeks	Daily	Local aggregation  Lane aggregation  Daily time buckets

On a strategic level, the analysis can include the number and location of manufacturing, distribution and storage points. This is typically known as Network Strategy or Network Design. On a tactical and operational level, the goal of Flow Planning is to create and maintain dynamic, time-phased flow plans for both merchandise and non-merchandise across the supply chain. The major difference between the two is the level within the product hierarchy at which the analysis is performed as well as the planning horizon (weeks versus months). Additionally, Flow Planning looks to reroute materials through the supply chain network, taking advantage of seasonal peaks to leverage better economies and improve service levels.

Flow plans are typically based upon open orders, forecasted sales, production plans, and operating capabilities and capacities. Flow plans also include storage and transport plans for raw material, components, merchandise and non-merchandise that consider alternate flow paths, within multiple time horizons and various distribution facility types.

**2.13 Sales and Operations Planning**

**2.13.1 Overview**

Sales and Operations Planning (S&OP) is a multi-disciplined approach to get consensus and commitment on one sales and operations plan that drives the entire organization. The

**S&OP is a multi-disciplined approach to get consensus and commitment on one sales and operations plan that drives the entire organization.**

process consists of formal monthly meetings with all impacted disciplines that cover a planning horizon adequate to plan resources and fulfill demand effectively.

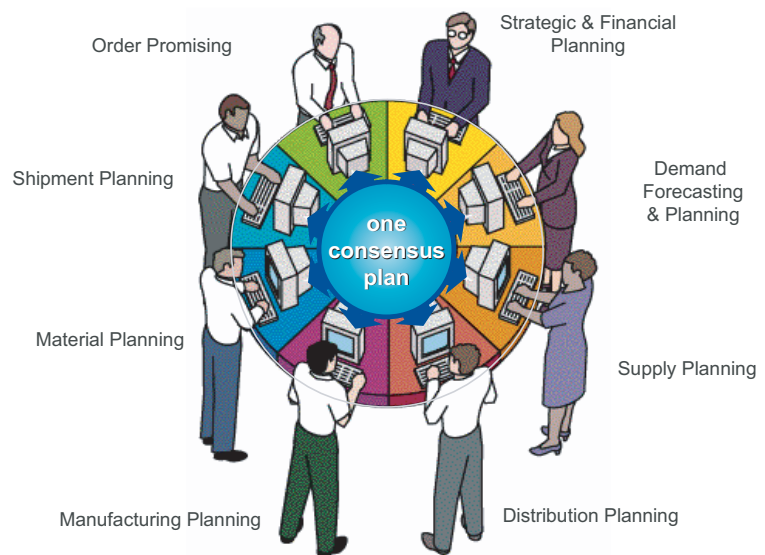
Enterprise Resource Planning (ERP) systems resolve demand-supply imbalances only if everything runs as planned. The challenge is to decide what information should be escalated for human decisions, and then to put in place a structure to orchestrate these decisions. The S&OP process helps supports this type of decision making.

As the marketplace evolves, we have seen a transition from the traditional, monthly S&OP process to the next evolution of S&OP. This transition addresses some of the key issues that have surfaced as the S&OP process has matured, particularly around the need to account better for variability in the supply chain. Capgemini's IP&E model supports both versions of the S&OP process, allowing retailers to optimize the supply-demand decision making process. Through integrated processes and effective communication, retailers can develop a true consensus-based plan with considerations for supply chain variability, driving both revenue and cost improvements.

### 2.13.2 Approach

In general, the S&OP process is conducted monthly and by exception as issues arise. The meetings involve a demand review and a supply review. The goal of the demand review is to obtain a realistic sales plan, together with customer service targets, lead times and target inventory levels. The goal of the supply review is to obtain a supply plan, based on material and capacity constraints in sourcing, manufacturing, warehousing and transportation. The overarching goal of the S&OP process is to improve delivery performance at minimum costs.

**Figure 6: S&OP Meeting**



Source: Capgemini

**Rather than looking only at a static point-in-time demand forecast, the next evolution of S&OP includes analysis of the expected variability of demand associated with different periods in an item's lifecycle.**

The next evolution<sup>1</sup> of S&OP is emerging that addresses the limitations inherent in the traditional S&OP process such as static data inputs, lack of aligned incentives — particularly on the merchandising side of the organization and lack of availability of real-time information on supply and demand. The characteristics of the next evolution of S&OP include a dialogue that encourages discussion on demand variability rather than just point-in-time demand forecasts, as well as incorporates information linkages from raw material suppliers all the way out to the end consumer in order to enhance the quality of the “S” part of the S&OP process. Improved systems support of the S&OP process enables participants and stakeholders to view the right data at the right time. The process involves metrics that allow for tactical decision-making on a day-to-day basis and can help to strategically focus the S&OP discussion on key decisions.

Rather than looking only at a static point-in-time demand forecast, the next evolution of S&OP includes analysis of the expected variability of demand associated with different periods in an item's lifecycle. This variability-based dialogue in turn, allows the Operations functions to develop an appropriately flexible response strategy rather than focus on supporting a single point-based forecast, which, by definition, will be wrong.

In traditional S&OP Sales Planning, the Merchandising and Merchandise Planning functions drive the development of the sales forecast, often using incomplete, out-of date, consumer-facing sales data. This sales forecast is then passed to the Operations functions to be confirmed against operational constraints.

In the next evolution of S&OP, the Demand Planning function uses real-time, consumer-driven, point-of-sale data to drive a bottom-up forecast. This forecast is then reconciled against a top-down forecast, which Merchandising and Merchandise Planning generate using more traditional sales forecasting techniques, to generate a consensus sales forecast.

The S&OP process, whether traditional or next evolution, faces several challenges as it requires a broad perspective of the business along with proactive involvement from senior management to enable regular, cross-functional decision making.<sup>2</sup> Lack of participation from the organization's leadership can significantly diminish the effectiveness of the process because of difficulties in gaining alignment among functions. Information technology plays a critical role in ensuring the effectiveness of the S&OP process, as many of the metrics required for the S&OP process are resident in a number of business applications and need to be combined to support an effective process. Finally, care must be taken to review performance incentives across the participants to make sure they are aligned with the overall goals of the S&OP process.

<sup>1</sup> James B. Marceau, Vice President, Belinda Griffin, Senior Manager, Capgemini, February 26-28, 2006 for IBF.

<sup>2</sup> KELLOGG'S EUROPE 2000 PROJECT by J.R. Wolfe, 1996.

# 3 Why Do I Need to Change?

## 3.1 Integrated Planning Business Benefits

Capgemini's Integrated Planning & Execution solution has the potential to deliver significant business benefits by improving accuracy in planning and agility in execution.

*Improved levels of integration* - The Strategic Planning process provides a platform for better integration of top-down and bottom-up plans. Areas such as Merchandise Planning, Logistics, Marketing, Store Operations, Design and Production will be better aligned from the start of the planning process, which will result in the reduction of costly mistakes closer to the point of execution.

*Improved sales and margin performance* - Customers find more of what they want to buy and the stores experience lower out-of-stocks, increasing customer loyalty. More intelligent Assortment and Space Planning, Promotions Planning and Price Optimization models can increase retail sales and gross margin on certain merchandise categories. Flow Planning can reduce transportation costs via active capacity management and lower carrier rates, and reduce DC costs in terms of reduced overflow and improved capacity management.

*Inventory optimization* - By monitoring the plans through the in-season management and the open-to-buy process, retailers can quickly respond to market trends to maximize inventory investment and reduce inventory liabilities. Improvements in forecast accuracy have an indirect impact on inventory performance as the improvements reduce the safety stock levels required to buffer against uncertainties in demand.

*Standardized KPIs* - By creating standardized sales, margin and inventory targets across the company, it allows the retailer to maintain consistent benchmarks and measurements between categories and channels.

*Improved in-store experience* - Products preferred by the customer are more prominently displayed and are present in higher inventory quantities.

Integrated Planning & Execution's benefits are not confined to a particular industry or business type. Capgemini has implemented Integrated Planning & Execution in many client environments in industries that range from grocery to lawn care to specialty retail. Although the specifics around each implementation vary based on the individual client's needs, in each case the client has recognized significant business benefit. The accompanying tables reflect the ranges of business improvements that Capgemini has observed in specific client examples, both from the supplier and retailer perspectives:

SUPPLIER VALUE PROPOSITION	
Inventory Reduction	25% - 50%
Returns Reduction	25% - 50%
Fill Rate Improvement	5% - 10%
Order Forecast Accuracy	75% - 100%
Order Lead Time Reduction	25% - 60%

RETAILER VALUE PROPOSITION	
Inventory Turns	10 - 20
In-Stock Service	2% - 6%
Sales Increase	5% - 15%
POS Forecast Accuracy	50% - 75%

Source: Capgemini



## About Capgemini and the Collaborative Business Experience

Capgemini, one of the world's foremost providers of Consulting, Technology and Outsourcing services, has a unique way of working with its clients, called the Collaborative Business Experience.

Backed by over three decades of industry and service experience, the Collaborative Business Experience is designed to help our clients achieve better, faster, more sustainable results through seamless access to our network of world-leading technology partners and collaboration-focused methods and tools.

Through commitment to mutual success and the achievement of tangible value, we help businesses implement growth strategies, leverage technology, and thrive through the power of collaboration.

Capgemini employs over 75,000 people worldwide and reported 2006 global revenues of more than \$9.6 billion.

More information about our services, offices and research is available at [www.capgemini.com](http://www.capgemini.com).

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