GAINSystems
Supply Chain Optimization

GAINS Provides the Foundation
Critical to Optimize SI&OP
(Sales, Inventory, & Operations Planning)

by GAINSystems, Inc.

Introduction

The tangible success of SI&OP (Sales, Inventory, & Operations Planning) is predicated not only on the reports with which one directly interacts, but with the values on which those aggregate (e.g., 'financial') plan numbers are based. This foundation begins with detailed forecasts (by Item, Location, and, optionally, Channel/Customer) as well as detailed inventory plans and sourcing rules. These fundamental values are critical to ensuring that the SI&OP plan both synchronizes properly with the aggregate plan and that the target inventory turnover and service goals are both met as expected. Without this foundation of detailed forecasts and optimized inventory policy, SI&OP merely comprises aesthetically pleasing reports where control knobs are only loosely connected to what transpires at the detailed level (i.e., 'in the trenches') where operational and financial performance is determined.

With that said, the process and reports with which the SI&OP team and executives interact must be effective. Also, the SI&OP culture must be instilled in the organization. Both of these are requisite for success. At the end of this paper, we review our abilities to ably fulfill these needs. The primary focus of this paper is GAINS unique ability to provide the foundation critical to success as introduced above.

Only GAINS Provides Sound SI&OP Foundation

For forty years, GAINS has optimized both the demand planning and inventory policy from the 'bottom-up'. This detailed level is where actions are actually taken that impact the bottom line. In SI&OP, the executive team agrees to the aggregate Volume and other processes or tools translate this into a detailed 'Mix' of item plans. This is often simplistic and inaccurate thereby diminishing the impact of any accurate Volume adjustments. To ensure this translation & synchronization occurs effectively, two things are crucial: 1.) There must be an unbiased 'baseline' for the SI&OP process that is machine-built from the bottom-up (humans are brilliant but invariably biased); and, 2.) All changes must occur without de-coupling the aggregate 'Volume' changes from this detailed foundation.

SI&OP Foundation

GAINS automatically determines forecasts based on a large library of automatically selected models that account for myriad demand patterns (seasonal, sporadic, trend, etc.). This goes well-beyond 'best-fit' and ensures lead-time matching as well as statistical viability for later-stage processes such as inventory policy and SI&OP aggregation. GAINS filters models that exhibit bias so that aggregate error tends towards zero. It also includes leading indicators that can be quantified (e.g., macroeconomic or industry factors) so that these are already embedded in the baseline forecasts that form the starting point of the SI&OP process.

Figure 1: SI&OP Foundational Pyramid

Robust and Scalable Synchronization

Determining Volume from the Bottom (or Middle) Up avoids execution error from simplistic top-down allocation assumptions. Often this move from 'Volume' to 'Mix' is an afterthought in the SI&OP process. In fact, it is absolutely essential to driving actionable information to achieve the key organization cost/profit and service goals. To do this the plan must start from the bottom-up and always remain in synch even when hundreds of thousands of detailed forecasts are affected by a single change at an aggregate level (e.g., product family). In order to scale, other approaches over-simplify this process (e.g., if applying a % change, how do you raise a 5-unit forecast by 7%) by starting at the top and resolving the detail only later (e.g., Excel or other stand-alone S&OP facilitation tools).

Comprehensive Management of Planning Error

GAINS ensures that the demand planning error is manageable by fitting the error pattern to the appropriate inventory model/distribution. It considers all error sources including the variability in supply and user variance from plan. Only through this comprehensive approach is precise Service Level attainment achieved (most approaches overshoot for most items and undershoot for some leading to excess costs). The goal is to attain exactly the cost-minimizing or profit-maximizing Service Level, not more or less.

Total Cost/Profit Optimization

GAINS ensures that demand planning error is manageable by optimizing over 20 cost and margin-related factors as applicable to each location. (e.g., costs such as carrying, expediting, opportunity). This is applied in Multi-echelon Inventory Optimization which establishes Service Levels that minimize costs (maximize profit) within identified operational constraints such as overall Service Goals. It also optimizes Postponement Strategies where stocking policy (e.g., levels at which to stock) is determined across a BOM, RBOM, &/or distribution network.
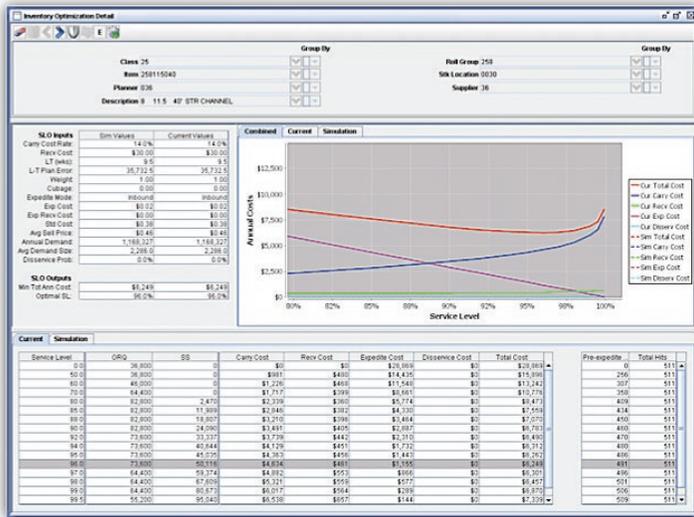

Figure 2: Inventory Optimization Simulation

Focus on Value-Added Activities

GAINS applies the impact of manual adjustments to the model. Other approaches look strictly at the simulated error (albeit ignoring many error sources) although manual intervention can significantly change results. Also, GAINS measures process value-add (versus 'Baseline') to encourage value-added plan engagement and discourage low (or negative) yield adjustments that are common. Lastly, root cause analysis of performance lapses transforms subjective & unproductive discussions into objective, data-driven collaborations.

Rapid Implementation

Typically, SI&OP implementations can be fast or robust, but not both. Given that GAINS automates the process of establishing a robust foundation for the plan (i.e., the 'Mix'), and does so without the need to establish and constantly tweak business rules for large volumes of items, the focus can remain on the 'Volume' management aspects of SI&OP. This allows for rapid deployment and value-added focus.

SI&OP Elements Built on the Solid Foundation

As mentioned, this paper focused on the foundational elements that GAINS uniquely provides to the SI&OP process. That said, GAINS matches the best-in-class abilities to provide workbenches with embedded reports to manage in any unit-of-measure at the aggregate level to connect and synch multiple plans across multiple functions in the enterprise (e.g., Strategic / Financial / Marketing) with the Detailed Plans (including replenishment). See the figure below as a sample of the multi-level, multi-unit-of-measure review abilities.
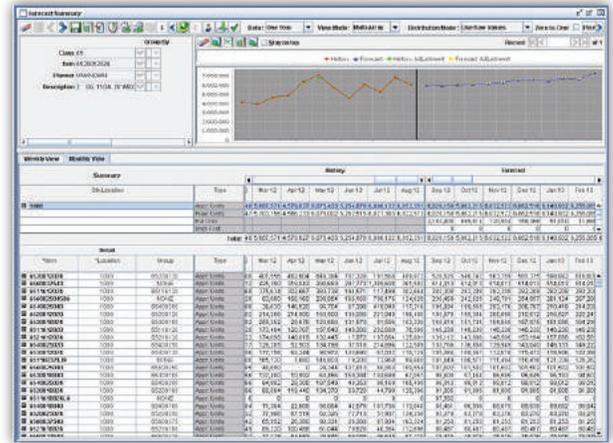

Figure 3: Forecast Summary

Workflow and KPIs

GAINS also coordinates cross-department workflow and provides KPIs. These drive executive discussion to the key areas where Return-on-Time-Invested is maximized:

Figure 4: KPI Dashboard

Process Facilitation and Culture Change Management

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