

## FORECASTING, OPTIMISATION & PLANNING

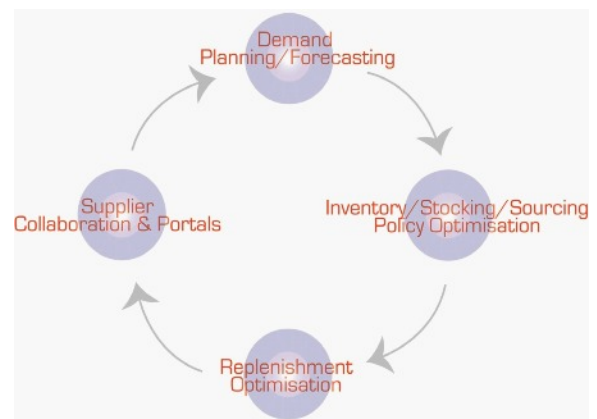


### Demand Planning & Forecasting

**GAINS provides accurate, plausible and optimised demand plans through sophisticated, but automatic, multi-modeling that includes:**

**Pattern-recognition models** (more than 30) designed to automatically recognise observed demand patterns and predict a baseline future demand that matches those patterns including:

- seasonal
- trending
- end-of-life
- sporadic/low-volume/'lumpy'
- fleet-size/effort-based modeling (eg MTBF, number of landings/ cycles, etc)
- hybrids of the above that automatically determine likely shifts in historical demand patterns and auto adjust the baseline forecast; these leading indicators can include (exact indicators are user-defined):
- point-of-sale data
- machine/fleet usage
- macroeconomic indicators such as changes in: housing starts, interest rates, vehicle purchases, etc
- commodity price changes, etc for superceding (direct replacement), similar (mostly-similar attributes), related (some similar attribute), and entirely-new product launches
- cross-department and cross-enterprise collaboration for facilitating inclusion of 'extrinsic' or market knowledge into the forecast (that cannot effectively be captured via leading indicators)
- ability to manage work-flow across multiple groups in the organisation (eg, marketing, sales, finance, operations)
- ability to share demand (or replenishment) plans with suppliers and customers for notification, validation, and refinement



### Supplier Collaboration & Portals

**GAINS provides the ability to automate flow planning and execution of data to and from suppliers to coordinate priorities and manage value-added changes in plan:**

- purchase order manager that facilitates web-based communication of initial orders as well as subsequent changes (expedite/de-expedite requests) in a prioritised and value-driven fashion
- supplier planning portal that provides configurable and secure requirements forecasts to ensure supplier readiness and improved delivery performance (to drive lower costs for both parties)
- supplier scorecard that provides detailed and objective performance measures in both absolute and relative (ie ranking) terms including estimating cost impacts of performance issues

*Find out more about GAINS in Asia Pacific*

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## Inventory, Stocking & Sourcing Policy Optimisation

**GAINS determines where and how much to stock of each item at every location (and level in the bill-of-materials) by considering a comprehensive set of factors with sophisticated, automated, proprietary algorithms:**

**Multi-echelon/indenture stocking policy optimisation** algorithms that determine whether or not to stock an item and at what service level to stock each item given:

- impact on total costs and/or profit
- interdependencies among locations (at the same or different levels in the network)
- interdependencies within a bill-of-material (BOM) such as where-used density, critical-path-likelihood, cumulative lead-time, etc to devise postponement strategies
- customer expectations

**Inventory policy optimisation** that considers a comprehensive set of sources of planning error to identify the optimal ordering sizes and buffer stock including consistently achieved targeted service levels:

- demand plan/forecast error
- lead-time variation
- yield/quantity-delivered performance
- optimal ordering cycles (considering ordering constraints as well as price-breaks)

**Service level optimisation** that automatically determines service levels uniquely for each item to achieve an aggregate target while minimising or maximising a business objective. For example:

- determining the mix of service levels by-item to deliver total service of 98% with minimum inventory investment
- determining the mix of service levels by-item to deliver maximum service while maintaining a specific inventory investment, inventory turnover, or purchasing budget

**Sourcing optimisation** that determines the supplier(s) that provide the lowest total-cost supply considering:

- ordering minimums and volume-discounts (line and cross-item/order level) vis-à-vis demand
- in-bound logistics costs
- lead time and lead-time performance
- procurement costs, etc

**Routing (ie network-flow) optimisation** that considers which supplier provides lowest total-cost supply and, in multi-site environments, how to plan to flow product through the network that considers:

- the inventory savings of hub-&-spoke (via buffer-stock pooling)
- the re-handling and transportation cost savings of direct-from-supplier shipping
- the hybrid advantages of 'cross-dock' logistics

## Replenishment Optimisation

**GAINS provides automated replenishment suggestions to create or change supply orders. This ensures that inventory returns to optimal levels given the pre-determined GAINS demand plan and inventory policy targets by performing the following functions (where applicable):**

**New order creation, prioritisation, and auto-approval** that considers lead-time requirements, likelihood of stockout, optimised order quantities, and autoapproval risks-versus-benefits

**Transfer order prioritisation and creation** that considers parent-child relationships and, in instances of shortage, allocates as needed to minimise risk-of-stockout

**Optimised re-distribution** that considers carrying costs of excess as well as on order to preclude new supply orders when unnecessary

**Optimised component allocation** that, in instances of component shortages, allocates components to multiple later-stage items to minimise finished goods stockouts across the entire network (ie allocation optimised across multiple echelons)

**Cross-dock optimisation** that dynamically re-determines target locations for in-bound supplies to the hub location

**Rotables planning optimisation** that considers unique repair parts planning needs such as:

- core/carcass reverse logistics
- variable repair times
- capacity constraints
- repair yields and requirements to 'refresh' the rotatable pool with new purchases
- potential 'zero-sum' rotatable pool constraints/parameters

**Automated and optimised order pooling** that builds multi-item, potentially multi-location, orders that minimise the cost related to meeting supplier constraints (eg, minimum value, full-container, etc)

**Optimised expediting and de-expediting** that considers the costs/benefits of actions to focus attention of high-impact actions often obscured by low-value-added 'noise'

**'Rough-cut' production capacity optimisation** that optimally smoothes orders in light of pre-build when needed (eg in seasonal environments) and allocates projected needs optimally during shortages

**Cycled production management** that optimises inventory policy and ordering in light of fixed ordering cycles (eg, batched production runs)