SAP Integrated Business Planning (IBP) Introduction Series

5: Inventory Planning using SAP IBP

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# SAP Integrated Business Planning (IBP) Introduction Series

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<th>Session Focus</th>
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<td>Sep. 27, 2018: 10-11:30 AM EST</td>
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<td>Oct. 29, 2018: 10-11:30 AM EST</td>
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<td>Dec. 5, 2018: 10-11:30 AM EST</td>
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<td>Eric Simonson + Michael Mack + Pramod Mane</td>
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Digital Business Planning in the Intelligent Enterprise

State-of-the-art business processes
Leverage SAP solutions to enable new end-to-end business processes, new business models and new revenue streams

Synchronized planning processes
Break down planning silos through connected and integrated planning processes

Leverage end-to-end visibility
End-to-end visibility on strategic, tactical and operational level and across siloed or external data

Faster planning cycles
React faster to changes in the business through complete integration,
Agenda

- What Business Processes does SAP Integrated Business Planning for inventory support?
- Key Functionality to support Inventory Planning
- How does the solution work? (Demo)
- Q&A
What Business Processes does SAP IBP for inventory support?
What Problems Are We Solving?

Business Volatility

Today, companies are facing increased supply chain risk due to economic uncertainty, escalating customer expectations, demand volatility, and supply variability. To remain competitive, they must improve their ability to plan, analyze, and collaborate to help ensure long-term growth and profitability.

Consequence

- Too much inventory → Finance 😞
- Not enough inventory → Customer 😞
- Right inventory, wrong place → SC planners 😞
Business challenge:
Eliminate excess inventory and at the same time improve service

Deploy inventory targets across the supply chain, meeting service level objectives at the lowest cost

But, this is not easy!
What makes this difficult to do

**SUPPLY CHAIN**

How much inventory do I need at my Manufacturing location?

How much inventory do I need at my Distribution Center?

**DEMAND**

- Service level targets
- Forecast
- Forecast error
- Consistently over/under forecasting (bias)
- Intermittent demand
- Outlier sales or forecasts
- Multiple service levels and inventory thresholds
- Seasonality/promotions
- Internal and external demand

**SUPPLY**

- Lead times
- Lead-time uncertainty
- Internal service levels
- Schedule attainment variability
- Production/distribution batch sizes
- Supply reliability
- Capacity restrictions
- Frozen production/planning periods
- Multiple supply sources
With increasing supply chain complexity…

- Suppliers

- Customers

…these factors multiply
SAP Integrated Business Planning for inventory *prescribes inventory activity* to maximize profit while buffering uncertainty.
## Traditional vs. State of the Art Inventory Target Calculation

<table>
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<tr>
<th>The real world is...</th>
<th>It is not...</th>
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<tbody>
<tr>
<td>Stochastic (variable, unpredictable)</td>
<td>Deterministic (if ( \rightarrow ) then)</td>
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<tr>
<td>Multistage</td>
<td>Isolated Single Stage</td>
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<tr>
<td>Time Varying</td>
<td>Stationary</td>
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<tr>
<td>Comprehensive Data Model</td>
<td>Multiple, Limited Data Models</td>
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<tr>
<td>Enterprise Scale</td>
<td>Desktop Scale</td>
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<tr>
<td>Dynamic &amp; Integrated (Online)</td>
<td>Static &amp; Offline Analysis</td>
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Multistage Inventory Optimization

Inventory Optimization simultaneously optimizes inventory across the entire supply chain based on meeting customer service requirements with the lowest amount of inventory dollars.

**Single Stage Calculations:**
Isolated planning results in over-buffering of inventory across the supply chain.

**Multistage Optimization:**
Coordinated planning eliminates over-buffering of inventory and ensures services objectives are met.
What does SAP IBP for inventory accomplish for the end-to-end supply chain?

Achieve the Right Balance Between Service Levels and Inventory Investment

Fix the Mix of Inventory!
What are the 3 key differentiators for SAP Integrated Business Planning for inventory?

- **Complete Scalable Model**
  - Demand, supply chain, and financial model at aggregate & detailed levels

- **Multi Stage Inventory Optimization**
  - Maximum working-capital efficiency to meet service level targets

- **Real-Time What-if Scenario Planning**
  - Real-time scenarios and simulation on entire model

Additional topics:
- Sales and Marketing Forecasting
- Consensus Demand Planning
- Inventory Target Setting & Projections
- Material & Capacity-Constrained Planning
- Revenue & Profit Impact
- Executive Review & Real-Time Analytics
SAP Integrated Business Planning for inventory

Plan to Forecast

**Multi-stage Inventory Optimization**
Use less inventory to buffer more risk, with multi-stage optimization

**Robust Statistical Models**
Proven algorithms provide significant improvements over textbook calculations

**Embedded Analytics**
Visualize your Supply Chain Network and quickly gain insights into inventory drivers

**Buffer Forecast Error and Demand Risk**
Buffer against forecast error and other demand-side uncertainty, to support your demand-driven supply chain

**Efficiently Master Supply Uncertainty**
Buffer supply uncertainty most efficiently by considering late deliveries as well as other uncertainties in the supply chain

**Manage Exceptions**
Focus planners on problem materials and identify opportunities for improving the root causes of inventory

**What are the benefits?**

- Improve customer service levels
- Maximize the efficiency of inventory and working capital
- Standardize and simplify the inventory target-setting process at each tier within the supply chain to feed operational plans
Key Functionality to support the Processes
Comprehensive data model for Supply Chain

**Master Data**
- Item-Locations
- Inventory unit cost
- Units of measure
- Holding cost percent
- Currency
- Planning Unit (sub-networks)

**Replenishment Planning Data**
- Forecast demand mean
- Aggregations to attribute categories (product group/family i.e.)
- Review frequency (order cycle)
- Total mean lead time
  - Physical lead time
  - Processing lead time
  - Vendor lead time
- Target service level
- Minimum batch size
- Incremental batch size
- Sourcing fractions/quotas
- Minimum stocking requirement
- Minimum/maximum internal service level

**Manufacturing/Process Data**
- BOMs
- Yield

**Transactional Data**
- Historical sales

**Planning History Data**
- Historical Forecasts

**Uncertainty Data**
- Forecast error/standard deviation
- Total lead time standard deviation
- Attainment loss % and std dev
- Source reliability
- Pooling factor
- Average demand interval

**Scenario Analysis and versions**
- Costs
- Service Levels
- Lead Times

**Optimization Data**
- Internal Service Level
- Average expedite
- Safety stock
- Safety stock drivers

**Bold** = Basic input
**Italics** = Additional input
**Blue** = Time-varying input
Comprehensive outputs across locations and purpose of inventory

Safety Stock Drivers:
- Demand
- Demand uncertainty
- Lead times
- Lead time uncertainty
- Review frequency
- Service level targets
- Service times

Cycle Stock Drivers:
- Demand
- Review Frequency
- Batch Sizes
- Production Rules

Pipeline Stock Drivers:
- Order Processing lead times
- Transit times
- Demand

Pre-Build Stock Drivers:
- Time-varying capacity
- Time-varying demand
- Sourcing ratios
- Changes in safety stock
SAP IBP for inventory – Inventory Operators

Running sequence for both batch and simulation modes.

1. Manage Forecast Error Calculations - Inventory
2. Global (Multistage) Inventory Optimization
3. Calculate Target Inventory Components
4. Lost Demand Calculation
5. Local (Single-stage) Inventory Optimization
How does SAP IBP for inventory support scalability?

### Planning Units (Subnetworks)
- Inventory planning operators support the use of planning units (subnetworks).
- Users can separate/filter the whole network either by region and/or product family into planning units, so they could run them separately.

### Planning Horizons
- Users can define planning horizon parameters for inventory optimization planning operators.
- This feature supports cases where users desire to use: (1) planning horizons different than the standard Planning Area planning horizons and, (2) apply different planning horizons at the planning unit level.
SAP Integrated Business Planning for Inventory

Sample Use Cases

Inventory positioning in network

Inventory optimization

Drivers of inventory

‘What-If’ analysis on inventory
Inventory Optimization
Mature Solution moving towards Strategic Inventory Management

Components of a Strategic IO Mgmt
- Service Level Optimization
- Optimization based on budget constraints
- Product Lifecycle Management

This is the current state of planning and may be changed by SAP at any time.
Solution demo
Thank you.

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