Meet the Expert - SAP IBP Operational Supply Planning

Deployment Planning

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IBP Product Management, SAP SE

PUBLIC
Agenda

What is operational supply planning and deployment planning? Thomas, 10 min

How does deployment planning work? Thomas, 20 min

How does deployment planning feel in the system? Michael, 15 min

What’s the product direction? Michael, 10 min

Questions & Answers All, 15 min
What is operational supply planning and deployment planning?
Tactical and Operational Supply Planning

Fast, flexible supply planning supporting a variety of approaches, suitable for many industries, including:

Support of **tactical** supply planning (time series) in the context of S&OP
- Unconstrained heuristics or constrained optimization
- What-if analysis
- Flexible, loosely coupled integration

Support of **operational** supply planning (orders)
- Unconstrained or constrained priority heuristics and optimization
- What-if analysis
- Tight, built-in integration with SAP ERP and S/4HANA
- Creates supply orders (planned orders, purchase req., distribution req.)
Supply Planning Horizons and Processes

**Operational Response Level**
- Short-term horizon & high frequency (daily)
  - SKU / Location
  - Focus on fast response to changes
  - 1-1 collaboration for quick decision making
  - Adjust supply plans
  - Fulfill sales orders
- Deployment Planning

**Operational Supply Level**
- Mid-term horizon & medium frequency (weekly \ daily)
  - SKU / Location
  - Forecast-driven operational planning process
  - Plan distribution, production, procurement
  - Creation of allocation plan
  - Supplier Collaboration

**Strategic / Tactical Level**
- Long-term planning horizon & low frequency (monthly)
  - Product Family / Market
  - Executive-level cross-organizational collaboration
  - Focus on deviations from plan (e.g. long-term plans, last week’s plans, non-performing KPIs)
  - Structured collaboration with executive review
Key processes supported in Operational Supply Planning

Generate a finite capacity supply plan based on prioritized and categorized demand such as orders and forecasts

Supply Planning & Allocations Planning

Create a supply plan based on prioritized forecast demands and supply chain constraints

Optionally, generate and provide allocations to ATP for online confirmations of sales orders

Response Planning

Create order confirmations and an adopted supply plan based prioritized demands, allocations and supply chain constraints

Deployment Planning

Create a deployment plan, adjust other supply proposals and order confirmations based upon prioritized demands, allocations, supply chain constraints, and deployment settings

Unconstrained or constrained priority heuristics and optimization

Unconstrained or constrained priority heuristics

Constrained priority heuristics
Operational Supply Planning

Monitoring & Controlling of the Planning Process

Process Step 1 ➔ Process Step 2 ➔ … ➔ Process Step n

Supply Planning Run

- Pegging & Gating Factors
- Manual Input by Planners
- Management by Exception
- Order-based priority Heuristic
- Optimization

Master & Transactional data

Profiles & Settings

Integration to execution Systems
How does deployment planning work?
Deployment distributes available supply to demand.

It distributes stock from central to downstream SC stocking points to meet expected service level.

- Order based, constrained deployment heuristic considering priority
- Multi-stage planning
- What-if Simulation capabilities
- Tight order level integration to SAP ERP & S/4HANA

SAP IBP for Response and Supply - Deployment Planning
SAP IBP for Response and Supply - Deployment Planning

Customer examples

Short-term Deployment planning on top of Supply Plan
- Create supply plan with IBP Response & Supply and run IBP Deployment as a subsequent step. Release results to SAP ERP for execution.

Short-term Deployment planning on top of existing Production/Procurement Plan
- Integrate existing plans with stocks and planned production or procurement receipts from SAP ERP. Run Deployment in IBP and release results to SAP ERP.

Mid-term Distribution planning
- Distribute constrained supply to demands to identify supply shortages on entire planning horizon.
SAP IBP for Response and Supply - Deployment Planning

Step by step

- Deployment Run: Input Data
- Deployment Run: Constraints
- Deployment Run: Engine
- Deployment Run: Output Data (can be integrated to SAP ERP)
- Deployment Run: Analyze Results
### SAP IBP for Response and Supply - Deployment Planning

#### Step by step

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<tbody>
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<td>Stock on hand, Purchase Orders, Stock Transfer Orders, Production Orders, (fixed and unfixed) Purchase Requisitions, (fixed and unfixed) Stock Transfer Requisitions, Deployment Stock Transfer Requisitions, (fixed and unfixed) Planned Orders Multi level distribution network</td>
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<td>Min/Max Lot size &amp; Rounding Value Settings</td>
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<td>Factory calendars Goods Receipt processing time</td>
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SAP IBP for Response and Supply - Deployment Planning
Step by step

Deployment Run: Input Data
- Sales Orders, Forecast
- Safety stock (static or time-dependent)
- Target stock (static or time-dependent)
- Adjusted Distribution Receipts
- Stock on hand, Purchase Orders, Stock Transfer Orders, Production Orders, (fixed and unfixed) Purchase Requisitions, (fixed and unfixed) Stock Transfer Requisitions, Deployment Stock Transfer Requisitions, (fixed and unfixed) Planned Orders
- Multi level distribution network
- Min/Max Lot size & Rounding
- Value Settings
- Factory calendars
- Goods Receipt processing time

Deployment Run: Constraints
- Product allocations
- Rules to segment and prioritize demands

Deployment Run: Engine

Deployment Run: Output Data
(can be integrated to SAP ERP)

Deployment Run: Analyze Results
- Available to Deploy definition (configurable via ATD APP): Stock on hand, Purchase Orders, Stock Transfer Orders, Production Orders, fixed Purchase Requisitions, fixed Stock Transfer Requisitions, fixed Planned Orders

Order- and constraint-based heuristics
The Priority Deployment Heuristic will plan individual demand elements, one by one.

Planning algorithm selects highest priority Source of Supply first. In case of shortage or lateness secondary sources are used.

Planning run plans Distribution based on fixed Production and Procurement Quantities.

Deployment Stock transfers are only created if pegged supply is part of ATD List.

Optionally you can create Sales Orders confirmations helping you to distinguish between Sales and intercompany demand at a Plant.

Planning Runs cannot change fixed Stock Transfer Orders or Deliveries because ECC is the master of these orders.
Executing Deployment Planning Run 2/2

With Pegging strategy Stable Supply you can preferably use firm supply for your high-priority demands. E.g. Sales orders consume stock, before Forecast does.

Optionally you can create Sales Orders confirmations helping you to distinguish between Sales and intercompany demand at a Plant.
# SAP IBP for Response and Supply - Deployment Planning

## Step by step

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SAP IBP for Response and Supply - Deployment Planning

Step by step

### Deployment Run: Input Data
- Sales Orders, Forecast, Safety stock (static or time-dependent), Target stock (static or time-dependent)
- Adjusted Distribution Receipts
- Stock on hand, Purchase Orders, Stock Transfer Orders, Production Orders, (fixed and unfixed) Purchase Requisitions, (fixed and unfixed) Stock Transfer Requisitions, Deployment Stock Transfer Requisitions, (fixed and unfixed) Planned Orders
- Multi level distribution network
- Min/Max Lot size & Rounding
- Value Settings
- Factory calendars
- Goods Receipt processing time

### Deployment Run: Constraints
- Product allocations
- Rules to segment and prioritize demands

### Deployment Run: Engine
- Order- and constraint-based heuristics
- Available to Deploy definition (configurable via ATD APP):
  - Stock on hand, Purchase Orders, Stock Transfer Orders, Production Orders, fixed Purchase Requisitions, fixed Stock Transfer Requisitions, fixed Planned Orders

### Deployment Run: Output Data
- (can be integrated to SAP ERP)
- Sales Order Confirmations
- Deployment Stock Transfer Requisitions (if pegged against ATD Elements)
- Stock Transfer Requisitions (if not pegged against ATD Elements)

### Deployment Run: Analyze Results
- IBP Excel
- View Supply Usage
- View Projected Stock
- Multi level distribution network
- Min/Max Lot size & Rounding
- Value Settings
- Factor calendars
- Goods Receipt processing time
How does deployment planning feel in the system?
What’s the product direction?
SAP Integrated Business Planning for response and supply
Long-term Product road map overview for order-based planning – key themes and capabilities

2019 – Planned Innovations
- Integration with S/4 and ERP
  - Enable a separate integration source for each order-based planning area
  - Multiple integration sources for one common planning area
- Generic Supply Planning
  - GR time processing
  - Inbound Quotas
  - Assembly Scrap
  - Maximum Lateness
- Distribution Planning
  - Transportation and shipping/receiving calendars
- Order-based Optimization
  - Cost Profile
  - Support Multiple Order Activities
  - Telescopic Buckets

2020 - Outlook
- Integration with S/4 and ERP
  - Integration from single ERP to multiple IBP systems
  - Integration from central Master Data Hub
- Generic Supply Planning
  - Periodic Lot sizes
  - Stock segments
  - MRP Areas
  - Supply Chain Sub-Networks
  - Switchable constraints for infinite planning
  - Interactive Planning: Delta Planning, Repair Planning
  - Change/ delete version dependent master data
- Distribution Planning
  - Transportation and Shipping/Receiving resources
  - Outbound Quotas
- Order-based Optimization
  - Deployment Optimization (for Push)
  - Fair Share in Optimization
  - Supply Optimization
- Process Integration
  - Concurrent Planning: Tight Integration with S/4 PP
  - Subcontracting

2021 - Outlook
- Integration with S/4 and ERP
  - Near real-time integration
  - Extensible supply chain – including rules and UI extensibility
- Generic Supply Planning
  - Infinite MRP-like heuristics
  - Re-order point planning
  - Interactive planning: more use cases
  - Intelligent Alert
- Distribution Planning
  - Load Consolidation with Transportation UoM
  - Storage resources (Optimization)
- Order-based Optimization
  - Results Monitor
- Process Integration
  - Make-to-order segments
  - Scheduling agreements
  - Production in another plant
  - Co-products, recursive BOMs
  - Initial use case for characteristics-based planning

2022+ - Outlook
- Integration with S/4 and ERP
  - Enhancements to scalability and usability
- Generic Supply Planning
  - Component Allocation, Supply Segmentation
  - Capacity Levelling
  - Order-based planning support for DDMRP
- Distribution Planning
  - Integration to SAP TM
  - Vendor-Managed Inventory
- Process Integration
  - Batches
  - Shelf Life
  - Project Orders
  - Further use cases for Characteristics-based Planning
  - Product and location substitution
Load Consolidation is part of IBP roadmap (12+ month). This will group multiple shipments into one considering transportation constraints. A close interaction to transportation planning in SAP Transportation Management and execution in SAP S/4 is foreseen.

A transportation resource per Mode of Transport will be used to model constraints. The Transportation Resource has a capacity dimension in either Volume, Weight or similar.

Stack ability and cross product dependencies (e.g. dangerous/hazardous goods) are initially not foreseen.

The Load Consolidation functionality will be part of deployment optimizer allowing planning simultaneously supply distribution and load consolidation.
Logical Flow

Input

Master Data:
e.g.:
• Transportation Lanes with
• Mode of Transport
• Transport Resources

Transactional Data

Output

Stock Transfer Requisitions (type deployment)
• Grouping information: what is planned to be shipped together?
• Demand information: e.g. demand type, ... demand priority

Deployment Optimizer including Load Consolidation aspects
Load consolidation will be seamless integrated in the E2E Process

**Input**
- Master Data:
  - e.g.: Transportation Lanes with
  - Mode of Transport
  - Transport Resources
- Transactional Data

**Deployment Optimizer including Load Consolidation aspects**

**Output**
- Stock Transfer Requisitions (type deployment)
  - Grouping information: what is planned to be shipped together?
  - Demand information: e.g. demand type, ... demand priority

---

**Share STR grouping for shipments creation**

**Share Primary Demand information - e.g. Market, Customer, Priority**
SAP IBP for Response and Supply - Deployment Planning

Key take away

- Today - Deployment is
  - Using an order based planning model
  - Tightly integrated with SAP ECC or S/4HANA on Premise (Built-in batch integration)
  - Heuristic planning model, priority demand rules based

- Deployment is evolving (important improvements on the roadmap)

- Key differentiators compared to APO (today)
  - Simulation, what-if, scenario/version management capabilities
  - Gating factor analysis
Questions & Answers
Still got Questions?

Find answers and ask your questions about SAP IBP on our Q&A community

https://answers.sap.com/index.html
Webinar Series on SAP IBP

Planned Sessions focusing on operational supply planning:

2/14/2019  Operational Supply Planning – Overview  

5/14/2019  Operational Supply Planning - Deployment Planning –  

6/27/2019  Operational Supply Planning - Integration - SDI, etc -  

7/23/2019  Operational Supply Planning - Supplier Commit Scenario w/ Ariba -  

9/26/2019  Operational Supply Planning - Order Based Optimizer -  

10/24/2019  Operational Supply Planning - Best practices/ Tips and Tricks – Troubleshooting -  
Recent Webinars & Blogs

How to visualize a Freeze horizon in IBP Excel?

What’s new in IBP Response and Supply 1805 – Order-based Planning

What’s new in IBP Response and Supply 1808 – Order-based Planning

What’s new in IBP Response and Supply 1902 – Order-based Planning

What’s new in IBP Response and Supply 1905 – Order-based Planning

FAQ on Order-based Planning:
https://wiki.scn.sap.com/wiki/x/5AHXHQ
Thank you.

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Michael Mack
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Appendix
Freeze Horizons
Planning Features

- Keep the planned distribution plan stable (frozen) for the near future in order to improve the interaction with distribution and transportation.
- Planning runs do not create, change, or delete orders inside the freeze horizon. Demands and receipts are considered and pegging is calculated.
Review Exceptions, make What-if Simulations 1/3

Analyze Gating Factors

- Gating factors give you root cause analysis why demands could not be fulfilled.
- Optionally it can also provide valuable insight to distribution planners if there are production constraints.
Review Exceptions, make What-if Simulations 2/3
Analyze Supply Usage to see what demands are covered by firmed receipts

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Supply Type</th>
<th>Order Number - Receipt</th>
<th>Requested Date - Receipt</th>
<th>Confirmed Date - Receipt</th>
<th>Supply Quantity</th>
<th>Pegged Quantity - Receipt</th>
<th>Fulfilled Quantity - Demand</th>
<th>Requested Quantity - Demand</th>
<th>Material Number - Demand</th>
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## Review Exceptions, make What-if Simulations 3/3

### View projected Stock

![SAP interface showing projected stock view](image)

### Table: Location Materials

<table>
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<tr>
<th>Material Number</th>
<th>Location Number</th>
<th>Date of Deviation</th>
<th>Status</th>
<th>Target Deviation</th>
<th>Projected Stock</th>
<th>Static Safety Stock</th>
<th>Last Planning Run</th>
<th>Type</th>
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**Material:** MA23_PHONE_D (Phone D), **Location:** FA71 (Factory Glasgow)

### Stock Projection

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<th>Type of Receipt or Requirement</th>
<th>Item Category</th>
<th>Source or Destination Location Number</th>
<th>Planning-Relevant</th>
<th>Order Fixed for...</th>
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<td>-200.000 EA</td>
<td>0.000 EA</td>
<td>0.000 EA</td>
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Make adjustments
Analyze Results in IBP Excel

- Manually adjust planning results of batch planning runs in Excel
- Manual Adjustments are considered as top priority demand and constraint in subsequent planning runs
- Adjust quantities in new key figures for the respective source of supply (production, internal distribution and external procurement)
Finally when the plan is made, you like to publish it to execution.

There is an option to only release Deployment Stock Transfer Requisitions to ERP/S4 for Supply Chain Execution.
Selective Outbound of Deployment Stock Transfers

With OpenAPI Version 1711.0.0_Outbound the Deployment Indicator on Stock Transfer Requisitions is transferred to ERP/S4/File.

In ERP/S4 you can make use of BAdI /IBP/ECC_MODIFY_PREQ to filter out normal Stock Transfer Requisitions during ERP Order Inbound