

Microsoft Dynamics 365 for Finance and SCM

Allocation & Replenishment Solution

[Draft] Design Notes | 6/26/2024 | Build-A-Bear Workshop

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1 OVERVIEW

1.1 JUSTIFICATION

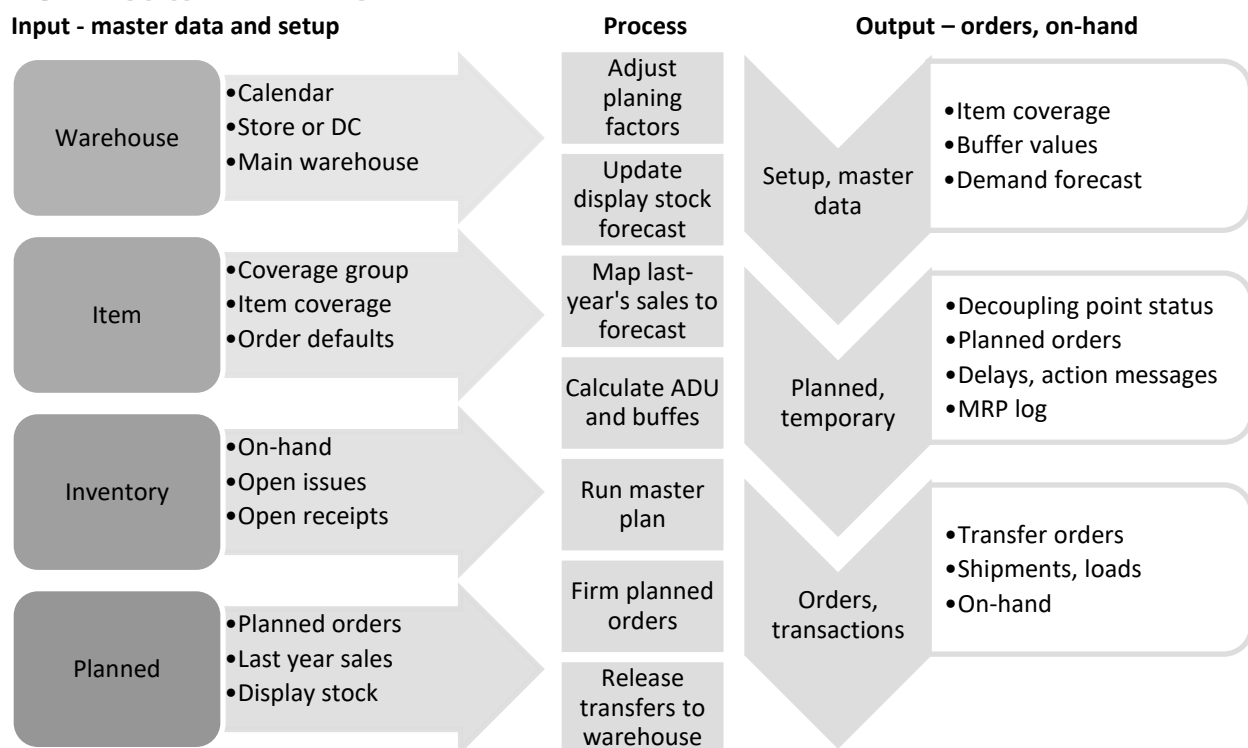
Build-A-Bear Workshop is seeking to replace their inventory allocation and replenishment system based on Aptos software platform. New process is based on Microsoft Dynamics 365 for Finance and Supply Chain Management (D365 F&SCM). This process should leverage an existing production environment, master data, inventory details, and current processes for sales, procurement, and warehousing.

1.2 ALLOCATION & REPLENISHMENT SOLUTION OVERVIEW

Build-A-Bear Workshop Allocation & Replenishment Solution includes the following:

- Master Planning (MRP) - satisfies the changing merchandise needs of stores, including a communication with Inventory and warehouse management, Sales, and Procurement. Master planning enables merchandise plans at a store level.
- Demand Driven Material Requirements Planning (DDMRP) - planning methodology that is based on the decoupling of supply and demand by setting up inventory buffers to ensure that the correct amount of stock is kept. Each buffer is intended to cover the average use of a part and can also be adjusted to cover demand spikes.
- Inventory and Warehouse Management - supports all inventory movement transactions including transfers, adjustments, and physical inventory, as well as receiving, picking, and distribution; it enables monitoring items as they move from supplier to store or individual customer.
- Master Data Management- a single point of entry for all information that defines a retail enterprise, such as list of merchandise company sells that can be used across all selling channels, planning profiles, stores, distribution centers, hierarchies, etc.

1.3 PROCESS AND DATA FLOW



1.4 PROCESS HIGHLIGHTS

Demand Driven Material Requirements Planning (DDMRP) is a key component of Build-A-Bear Workshop Allocation & Replenishment Solution. It consists of five components:

- Strategic inventory positioning – Identify decoupling points in the supply chain network. Decoupling points are specific points of your supply chain where you put an inventory buffer that you will monitor and replenish.
- Buffer profiles and levels – For each decoupling point, identify the buffer sizes (minimum quantity, maximum quantity, and reorder point) and the reorder quantity.
- Dynamic buffer adjustments – Adjust buffer levels, based on varying operating parameters or planned future events.
- Demand-driven planning – Generate supply stock transfers as they are required.
- Highly collaborative and visible execution – Run the supply orders with the help of visualization.

1.5 FIT/GAP

D365 F&SCM is a general-purpose ERP that does not offer same functions as Aptos Allocation & Replenishment. Key highlights:

Aptos A&R Function	D365 SCM Function	D365 Fit / Gap
Group: Table Maintenance	Group: Released products	
Location Eligibility Specify whether a location is eligible to receive merchandise by merchandise level down to the style / color / size and by location.	Item Coverage Specify item replenishment methods and quantity modification per item / style / color / size and by location / inventory status. Plain list, no levels, all combinations of eligible styles and locations to be specified.	Partial Coverage settings per location groups or style groups are not supported require mode data management compared with Aptos A&R.
Volume Grade Groups Location grading reduces the need to manage locations separately, by grouping locations whose performance is similar for a particular merchandise group. You define the criteria to assign stores to different grade groups for any level of merchandise.	Not Applicable	Gap
Sell Thru Grade Groups; Ranking Groups Sell Thru grade groups are used only with the actual selling distribution method. Stores with a similar turnover of units (how fast an item sold) can be grouped to form a sell thru grade group. For each grade group, a sell thru lower limit is set.	Not Applicable System calculates ABC classification and automatically assigns classifications to products. Used in reporting, analytics, cycle count frequency, etc.	Gap
Size Scales	Item Allocation Key	Fit

Aptos A&R Function	D365 SCM Function	D365 Fit / Gap
Size scales define within a size category or group of sizes, each size's proportion of a total quantity and can be expressed as a percentage breakdown (totaling 100%) or as a ratio. Used in planning, assortment, bulk PO documents, Min/Max profiles.	Specify the item number and any applicable inventory dimensions with percentage of the total aggregate forecast quantity to allocate. Used in forecasts and supply schedule.	
Min Max Profiles Define the ideal levels of stock for each SKU/location combination; maintained at any level of the merchandise hierarchy; used with the SKU Min/Max distribution method.	Coverage groups; Item coverage Coverage code Min/Max for static safety stock levels, and code Decoupling point for dynamic inventory buffers (DDMRP).	Partial Settings at a hierarchy level is not supported.
Comparable Sets A comparable set is a user-defined group of similar style colors that allows you to order, distribute or forecast a group of colors as one item. A comparable set can be used when discontinuing a style color that will be replaced by another style color.	Not Applicable	Gap
Location Protection; Balancing Rules Protection level for each merchandise/location combination so that when distributing merchandise using the SKU Min/Max distribution method, each combination will be allocated sufficient inventory on a priority basis when there is insufficient inventory to meet the needs for all locations.	Coverage Group Group-specific priority calculation method that defines priority to planned orders. The available values are Percent of maximum inventory quantity and Priority ranges. Coverage group codes are assigned for SKU/location combination. No levels.	Gap
Location Groups Grouping of locations with the same seasonal curve or selling pattern. Location groups can be associated with seasonal profile groups and used when seasonal indices are calculated.	Not Applicable	Gap
Seasonal Profile Groups Grouping of merchandise or locations that have the same selling curve. An item/location can belong to only one seasonal profile group	Coverage group - Min/Max Define Maximum keys by going to Master planning > Setup > Coverage > Minimum/maximum keys. Minimum/maximum keys are incompatible with Decoupling point (DDMRP).	Gap
Seasonal Indices Weekly percentage of annual sales for items belonging to the same seasonal profile group. Seasonal indices are maintained for a seasonal profile/year/location or a seasonal profile group/year/location group.	Minimum/maximum Keys Minimum/maximum keys are incompatible with Decoupling point (DDMRP).	Gap
Group: User-Defined Calculations	Group: Master Planning	

Aptos A&R Function	D365 SCM Function	D365 Fit / Gap
Calculations Worklist User-defined calculations for distribution purposes.	Master Plan System supports multiple master plans to plan operations daily, simulate planning strategies, and implement various planning strategies.	Fit
SKU calculations; Pack calculations For SKU/Pack calculations, the system breaks the quantities calculated by the distribution method down to SKU/location using the formulas defined in the SKU calculation.	Planned Order Planned orders are future supply transactions (PO, transfer, production) calculated by master plan run.	Fit
Group: Worklists	Group: Inventory and Warehouse Mgmt.	
To Do Worklist Contains entries that require action: Purchase order maintenance, ASN notification, PO Receipt notification, Unsuccessful generation of a PO.	Delays; Action messages; MRP Log Master planning can calculate the delays – notifications of earliest fulfillment date, based on lead times, material availability, capacity, etc. Action messages indicate supply to-do list.	Fit
Approval Worklist All distributions with a status of Pending. Users can open and view a distribution document, modify, approve and reject distribution documents.	Planned Order; Approval Status Planned orders are regenerated at every master plan run unless approved. Approval process is simple flip the approval status on the order.	Fit
Group: The Distribution Document	Group: Inventory and Warehouse Mgmt.	
Distribution Document Initial statuses “New” and “Preliminary”. Distribution documents can be used together with the Purchase Order document or store transfer.	Planned Order; Transfer Order Planned orders must be firmed as part of the master planning process. When planned orders are firmed, they become actual purchase orders, transfer orders, or production orders.	Fit
Available On-Hand Available on-hand is based on on-hand and reserved orders.	On-hand List On-hand list page is automatically updated when transactions are made in inventory. Those transactions might be expected, physical, or financial transactions.	Fit
Distribute using Actual Selling Allows to review both sales volume and sell thru for specific merchandise for a range of weeks.	Planned Order; Transfer Order Decoupling point planning strategy implements calculation based on average daily usage, lead time, spikes, and adjustments.	Fit
Distribute using SKU Min/Max This is the traditional replenishment method. Both packs and loose items can be distributed; you do all your work in the distribution document in units.	Planned Order; Transfer Order Planned order quantity is calculated based on item coverage strategy (min/max, decoupling point, etc.). There is no additional level of control at firming.	Fit

Aptos A&R Function	D365 SCM Function	D365 Fit / Gap
Distribute using Manual Entry When distributing style/colors as loose items user selects the Olocations and specify the distribution quantities using Distribute Manually.	Planned Order; Transfer Order There are three methods for firming planned orders: Manual; Auto-firming by default firming time fence (defined per coverage group); Query-based firming by specified items or planned orders' properties.	Fit
Submitting a Distribution A distribution document must be submitted to signify that it is complete and ready to be released to other systems.	Release to Warehouse Transfer order can be released to warehouse both manually and automatically based on schedule and other criteria like store number.	Fit
Generate Store Shipments Creating a store shipment completes the distribution. This relieves the warehouse of the allocated inventory, moving it from the warehouse to a store. The store inventory will be in-transit until the store receives the shipment.	Shipment Warehouse management offers shipments representing individual outbound transactions and loads representing a truck or container. Shipment picking deducts warehouse inventory; confirmation updates transfer order status; transfer receipt updates store inventory.	Fit
Group: Sales Forecasting	Group: Demand forecasting	
Sales Forecasting Forecasting supports nine algorithms: Simple Moving Average; Weighted Moving Average; Exponential Smoothing; Double Exponential Smoothing; Adaptive Smoothing; Simple Regression; This Year/Last Year Trend; This Year/Last Year Season; Base Factor	Demand Forecast; Demand Planning (Power App) Static demand forecast with basic allocation per period, seasonality schedule (period key), item allocation key. Forecasting features are implemented in the external product Demand Planning implementing sales data import and export to forecast.	Gap
Calendar Shifts Some holidays such as Easter and Thanksgiving do not always fall on the same date each year. Additionally, some years have 53 weeks as opposed to the normal 52-week year. This can cause spikes in seasonality because of the change in week from year to year. Use this function to define these holiday periods and 53-week years by identifying the holidays each year by location/week and mapping the week to the same week in other years.	Demand Forecast; Adjustment Various adjustment and copy functions can be used to update static demand forecast. There is no direct mapping to past-year sales.	Gap

2 DEMONSTRATION SCRIPT

1. Master data and setup
 - a. Released products
 - i. Order default
 - ii. Coverage group
 - b. Warehouses
 - i. Stores and distribution centers
 - ii. Replenishing configuration
 - iii. Calendar
 - I. Weekly shipping schedules
 - II. Working days
 - iv. Negative stock
 - c. Master plans
 - d. Coverage groups
 - i. Planning strategy
 - ii. Configuration
 - iii. Decoupling points formula
 - iv. Adjustment factors
 - e. Workaround for mapping of last year's sales
 - f. Workaround for display stock
2. Processes
 - a. Review of decoupling point status by net flow
 - b. Calculate buffer values
 - c. Update decoupling point buffers to trigger replenishment
 - i. Manual adjustment
 - ii. New forecast
 - iii. New sales
 - d. Master plan run
 - e. Planned transfer orders
 - f. Planned data review, approval, correction
 - g. Other master planning messages: delays, actions
 - h. Firm planned transfer orders
 - i. Review and update transfer orders
 - j. Release to warehouse
 - k. Transfer order shipment, inventory in transit, receipt at the store
 - l. Calculate buffer values #2, and review of decoupling point status
 - m. Master plan run #2
3. Review
 - a. Inventory on-hand
 - b. Orders
 - c. Manual adjustments throughout the entire allocation process
 - d. Process differences between D365 F&SCM and Aptos
 - i. New advantages
 - ii. Gaps
 - iii. Improvement opportunities
 - e. Data migration