SAP Forecasting and Replenishment

Automated Reference Product Detection

Engineered Service
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Business Case: Launch of new Products and opening of new Stores

How can we forecast the demand for new products or new stores with no history?
Retailers replace **20-80%** of their assortment with **new products** every year.

Strong growing retailers open continuously **new stores**.

Current solution with **SAP F&R**

**Assignment of a reference product**
- Good for replacement but not for new products
- Difficult to find the right reference product
- Manual effort
- Wrong reference lead to bad forecasts – no quality check

Automated Reference Product Detection for F&R

- Product sales forecast with no own history
- History of similar product
- New product sales forecast
Automated Reference Product Detection Process

Identify products which need a reference

New Store Product launch
New listing

No sales history

Sales Forecast?
Automated Reference Product Detection Process

**Identify** products which need a reference

**Compute** the best fit reference

**Product Attributes**
Customer specific
- listing, hierarchy, category, location, region, color, style, collection, taste, brand, size, seasonal, price group, ABC, department, country, …

**Best fit Reference Product**

**Products, which can be used as References**
Automated Reference Product Detection Process

Identify products which need a reference

Compute the best fit reference

Assign selected reference and adjust sales level

Automated and periodic sales level adjustment with Multiplier

No sales available:
- Pre-defined value (yearly sales forecast provided by planners)
- Based on distribution curves in category

Sales available:
- Real Sales of the new product
Automated Reference Product Detection Process

1. **Identify** products which need a reference
2. **Compute** the best fit reference
3. **Assign** selected reference and adjust sales level
4. **Optimize** periodically the reference assignment

- new product attributes available
- new possible reference products

*When first sales are available*

- check and adjust multiplier
- calculate new time series characteristics
- calculate and check forecast model fit
- disconnect reference – enough own history available
Architecture / Integration

SAP ERP Retail
SAP S/4HANA
Retail for merchandise management

Plug In

Master and transactional data

Purchase Orders

SAP SCM
SAP Forecasting & Replenishment

F&R Processor (FRP)
- Preprocessing
- Forecasting
- Demand calculation
- Order optimization

RPD - AddOn

Workbenches and configuration

In-Store Merchandising

Webstore / BW / other source

SAP ERP Retail
SAP S/4HANA
Retail for merchandise management

Attributes

Optimize

Identify

Assign

Compute

Exclusion List

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9
Calculation time sequence

- Available time window and no of items defines the necessary hardware for the order calculation.
- Calculation for different time zones can extend the time window.

Stores close at 10 pm and POS data become available. Inventory is calculated at Midnight. Forecasts and replenishment planners start working at 6 am, with stores open by 8 am. The critical time window for order calculation is between 6 am and 8 am. Non-critical time windows can be used for calculation.

Integrated Supply Chain
Forecasting & Replenishment
Order calculation process for DC
Forecasting & Replenishment
Order calculation process for Stores
Auto-release of Order

Automated Reference Product Detection
Delivered as Engineered Service

The Engineered Service includes:

► Automated Reference Product Detection - Addon
► Business Consulting around attributes and concept of similarity search
► Implementation including technical adjustments related to customer landscape
► Support for data migration resp. pre-processing of attribute values
► Analytical evaluation by our Retail Data Science Team (Optional)
Customer Example  -  The largest sporting goods retailer in the world

- Currently 1300 stores worldwide (planned 2000 stores in 5 years)
- In average 35,000 products per store
- 40% of assortment is replaced on yearly base
- In the past, references were set manually on article and supply zone level – huge manual work and many wrong assignments
- **Automated Reference Detection** solution was mandatory for a global roll out
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