

Tackling Retail Out of Stock Problem and Demand Planning with SAP BPC Embedded

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Out of Stock Problem

It is no secret Retailers are losing a substantial chunk of revenue due to shops going out of stock. It is especially relevant to seasonal campaigns when demand is high and shops don't always know exactly which products to order and when to order them, or existing demand planning applications are not powerful or flexible enough. At the same time, according to [Repsly](#) 30% of consumers feel that stockout hurt their shopping experience and affect more than just sales - brand equity, but also retailer relationships, and investor confidence.



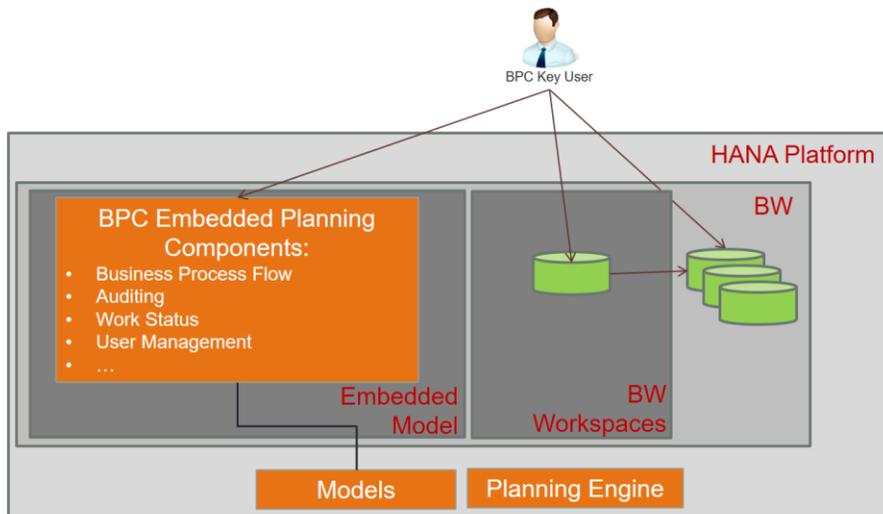
Other analysts point out that Out of Stock costs Retail industry billions ([Askuity](#)). Studies consistently reveal an average Out of Stock rate of 8%. But apart from lost sales, the added costs of dealing with Out of Stock are numerous: extra ordering and auditing eats up time and resources; forecasting accuracy plummets; brand loyalty is eroded; promotions lose impact.

How SAP BPC on HANA Can Help?

SAP BPC with HANA in-memory engine can help Retailers optimize and automate demand planning by article, vendor, shop, day, etc. If a Retailer already has a SAP BW datawarehouse with actual sales and stock models it is recommended to proceed with SAP BPC Embedded as a planning tool (see [7 good reasons article](#) by Sue Kirby).

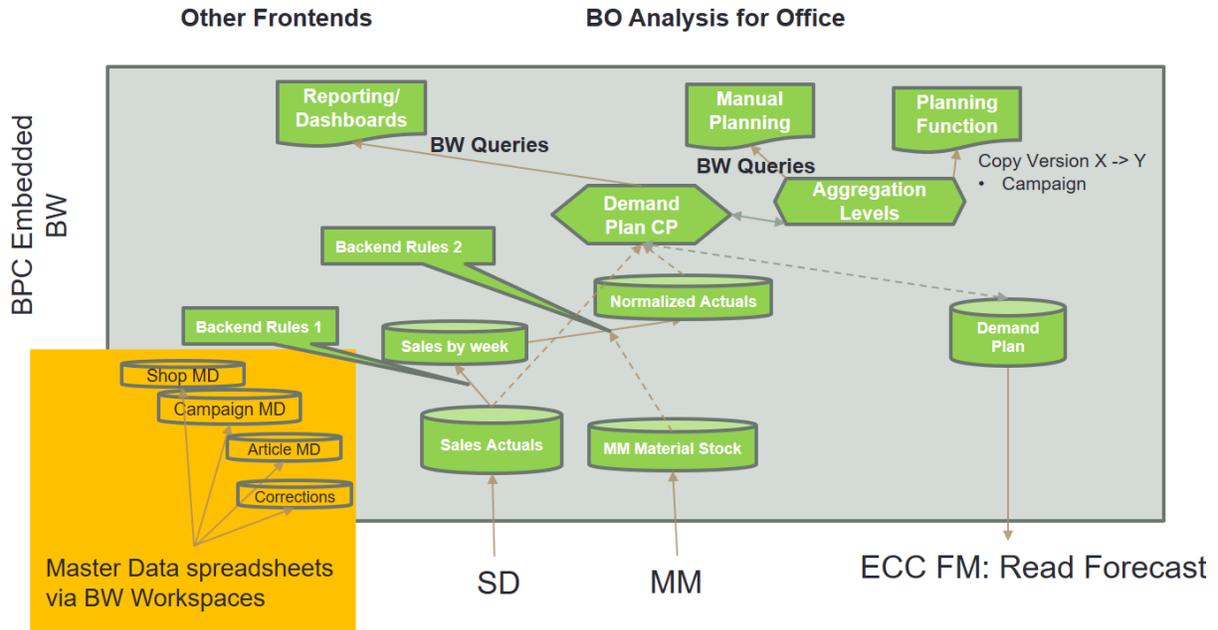
In the demand planning process by campaign we want to have capabilities to easily manage campaign related master data, generate proposed demand plan based on history and a set of business rules, provide powerful user friendly capabilities to end users for managing demand plan versions. In the case of SAP BPC Embedded we want to benefit from the existing master data in BW and models for actuals. We also want to use BW Workspaces to refresh and upload user managed master data. For more information on how to set up and use BW Workspaces with BPC Embedded please see the white paper: [SAP BPC Embedded and BW Workspaces](#).

The following components are used in the SAP BPC Embedded. Key Users are responsible for master data uploads and planning steps execution:



Campaigns Master Data Management

Demand Planning process for Retailers will start with Seasonal Campaign master data preparations. We will use an example with the following master data objects: campaigns, articles, shops, corrections/adjustments for historical sales. The following data flow is designed for Demand Planning in SAP BPC Embedded. Campaign related master data is uploaded via BW Workspaces, complex backend rules including Out Of Stock checks have been set up in the BW transformations, and final planning steps have to be performed by planners via frontend tools like AFO. "Normalized Actuals" ADSO in the data flow below contains data prepared for planning by campaign. It considers new seasonal products and new shops as well as adjustments related to exceptional sales:



Configure Backend Processes

In the backend we want to prepare “Normalized Actuals” automating as many business rules as possible. Obviously, backend rules must take into account new sets of articles and how they are related to the old ones, new shops comparable to the existing ones. Out of Stock rules can be set up once cluster related sales (ADSO Sales by Week) have been generated.

How to address the Out of Stock issue?

We assume that in our datawarehouse the Inventory and Sales models have the same level of granularity (e.g. article, shop, day). Another assumption is that we do planning by week, and shop/product clusters are defined in the master data. When processing sales for each article/shop (Backend Rules 2 in the diagram above) we check Inventory model if the article was out of stock at least one day of the week. If so, we replace reference sales amount for the article/week/shop by the average sales amount from the relevant cluster.

Besides addressing the Out of Stock issue we can set up a number of other business rules for the backend automated processing, such as:

- Keep only Valid Product/Shop combinations
- Apply Corrections for exceptional sales

- Derive Sales by shop/article clusters
- Replace old SKUs with new ones
- Generate history for new shops based on comparable stores

Empower Analysts with Frontend Planning Tools

Demand Planning process cannot be fully automated as a number of plan drivers cannot be associated with historical sales. These can include information about shop renovations, vendor promotions, competitor activity, special events, etc. Frontend tools allow planners to introduce demand plan adjustments linked to these drivers.

A set of input forms by data slice can help planners to apply drivers step by step. At the same time when making corrections to the plan we can simply return a step back, introduce a correction and continue the process. Here is an example of input forms that can be used in Demand Planning based on Input ready BW Queries (BPC Embedded):

- Input form by supplier/vendor sub-range
- Input form by article/product family
- Input form by shop/region/area
- Input form by week

Final Words

With the modern tools from SAP complex business planning scenarios can be automated and the work of planners can be substantially simplified. During the planning process business users would rather focus on a bigger picture (e.g. inflation, market dynamics, competition, special promotions, campaigns) and see impacts of planning drivers and assumptions in seconds. Out of Stock checks can be defined in the data processing logic when preparing plan reference data. The power of SAP HANA allows processing large datasets, perform powerful data disaggregation, and therefore enable business users with new planning capabilities.



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