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Efficient Demand Management By Using Oracle EBS Applications

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Abstract

Efficient demand planning is pivotal for the overall success and sustainability of businesses across diverse industries. In markets characterized by dynamism and competitiveness, the ability to promptly respond to shifting demand is indispensable. Demand planning not only bestows businesses with the foresight to navigate market fluctuations, emerging trends, and changes in consumer preferences but also empowers them to maintain agility and responsiveness. Conversely, inefficient demand planning results in suboptimal customer satisfaction, heightened surplus inventory, increased stockouts, and an overall decline in operational efficiency.

The Oracle E-Business Suite (EBS) Application, an encompassing enterprise resource planning (ERP) solution, provides a sturdy foundation for streamlining and elevating demand planning activities. This abstract explores the salient features of Oracle EBS contributing to efficient demand planning, encompassing its sophisticated demand management capabilities and integrated supply chain management. Through an examination of case studies and instances, the study showcases organizations that have successfully implemented Oracle EBS for demand planning, highlighting tangible enhancements in accuracy, responsiveness, and inventory management.

Moreover, the abstract delves into the challenges commonly encountered by businesses in demand planning and elucidates how Oracle EBS effectively addresses these challenges through its adaptive and scalable architecture. The overarching objective of the journal article is to furnish insights and practical guidance for businesses seeking to optimize their demand planning processes through the adoption of the Oracle EBS Application

Keywords:

Demand Planning;
Demand Management;
Forecast Consumption;
Demand Time Fence;
Demand Class;
Oracle Advanced Supply Chain Planning;
Supply Planning

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1. Introduction

Demand management is a critical aspect of supply chain management that involves forecasting and anticipating customer demand for products or services. It is a systematic process that helps businesses align their production, procurement, and distribution activities with expected market demand. However, in the face of current demand uncertainty, businesses face challenges in accurately predicting and responding tochanging market dynamics.Below are some important factors and their importance for effective demand planning like ERP applications like Oracle EBS applications

- Demand variability: In a consumer business, demand variability is a crucial factor to be considered. There are various sources for demand including - deriving a statistical forecast or receiving customer forecastschedules directly or a combination of both. In any case, you can't predict an accurate forecast, hence forecast accuracy is calculated and used as bias for the next period or month's forecast to smooth it down. This approach is common in forecasting to improve the reliability of predictions over time.
- Lead time: In real business, manufacturing and purchase lead is a variable to determine customer delivery date. Manufacturing lead time is affected by various situations like uncertainty manpower, and uncertainty of machine breakdowns/ maintenance. However, these are within your control whereas purchase part lead is unknown as those will be informed a bit late and kept hidden in some way, including carrier delays, supplier side manufacturing issues, or their material issues. Hence allocating effective demand to supply is a crucial task in order to meet customer demand on time.
- Surplus and stockouts: Surplus and stockouts are two contrasting challenges that businesses often face in managing their inventory. Surplus, also known as overstock or excess inventory, occurs when a business holds more stock than is needed to meet current or anticipated demand whereas Stockouts occur when a business runs out of inventory and cannot fulfill customer demand for a particular product or service. Both are results of inefficient demand planning, end up with unnecessary blocking of cash, or end up with losing customers. This could be addressed during the demand planning or demand management phase.

For effective Demand Management, Oracle has come up with efficient demand planning tools to do statistical forecasting by using Oracle Demantra and supply planningparameters that help to align the business and stabilize the demand by using Oracle Advanced Supply Chain Planning (ASCP).

Oracle Demantra [1],[2] is a configurable demand planning tool that provides the ability to import historical shipment or point of sales (POS) data, to do statistical modeling, and to provide prediction of demands/forecasts that could be imported to the demand management side. Oracle ASCP is the brain of supply chain execution where the received forecast is leveled, adjusted, and consumed when real/ firm demand comes.Below are parameters that control the demand signal between demand planning and supply planning for an efficient Demand Management process.

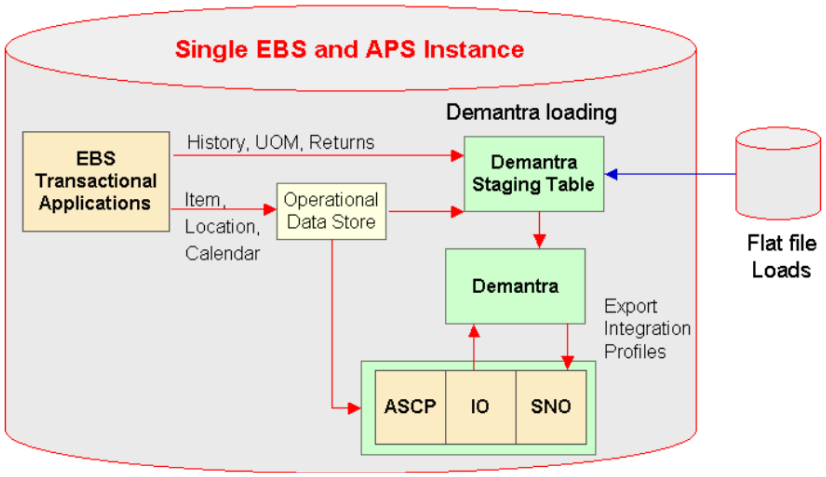

Figure 1: Integration between Oracle EBS, Demantra, and ASCP [3]

2. Demand Management Parameters available in Oracle Supply Planning

(2.1) Demand Time Fence (DTF): The demand Time Fence is the duration in which supply planning respects actual sales orders as demand and ignores forecast. If a customer is very serious about buying a material, then we need to have a customer purchase order or firm demand to ensure that the manufacturing business is allocating material and starts shipping as the material gets ready. During this window, there is no point in allocating material to forecast when we can't ship the same. Some important considerations while deciding on DTF

- This is an item (or product family) - customer-specific parameters, that need to be discussed and possibly contractually agreed with the customer. This is applicable for items where it is expected to have forecast-derived or directly received from customers.

- Within the DTF window, no fewer changes are allowed as this is a short team planning window where changes in demand will create chaos to accommodate the change.
- Typically, this time fence should be the "cumulative total lead time" of an item when customer-specific material is bought and used in manufacturing to build final products. DTF could be the "cumulative manufacturing lead time" of an item when common material is brought that could be used for all customers, but every customer product has its own custom manufacturing process
- If this time fence is large, then end up ignoring forecasts and end with multiple stock-outs, ending up with unhappy customers; whereas if it is short, then a "double dipping" effect is seen where forecast and actual sales order (both) will drive demand, this will lead to excess inventory or surplus.

Oracle ASCP offers this setting at the lowest granular level i.e. item level, which allows formodeling various business needs. Further, DTF could be set at dynamic values like "Cumulative Total Lead Time" or "Cumulative Manufacturing Lead Time" or can have fixed predefined values.

(2.2) Forecast consumptions: Forecast consumption is a process where uniform demand i.e. forecast is replaced by firm demand ie sales order or customer purchase order. Manually replacing demand is a big task, hence Oracle offers forecast consumption based on certain guide rules or settings, which are explained below.

- Consumption by bucket: Forecast is loaded into weekly or monthly buckets, (loading forecast into daily buckets is too much scattered demand, leading to creating multiple purchase orders and work orders to meet each day's demand). When 'consumption by bucket' is enabled, then it is expanded to have firm demand to be in the same bucket asthe forecast bucket. In reality, it is difficult to predict the future and have forecasts on the same bucket for sales orders and if this does not go as planned, then ends up "double dipping" effect where material will be planned against double demand (one firm demand and another forecast demand)
- Backward and Forward consumptions [4]: To avoid the above effect, Oracle also offers backward and forward consumption which is nothing but a tolerance for forecast consumption. Here the consumption process identifies any sales that fall on the same bucket first to reduce/ consume it. If it is not available or needs a more consumed sales order, then goes backward. If remains the unconsumed sales order, then goes backwards. This is an effective way to avoid the "double dipping" demand effect but wipes out forecasts, leading to an adverse impact on the supply chain. So the following needs to be considered.
    - In order to determine the effective consumption window, the sales order date pattern needs to be monitored alongside the forecast date pattern. If a customer commits a sales order a bit later than the forecast date, then having an equivalent backward window or vice versa.
    - If the business caters to the needsof specific customers/OEM, then we can derive this consumption window for specific customers, but if products are consumed by any end consumers, then analyzing this pattern atthe customer group level is more reasonable. Oracle offers this setting at the "forecast set" level i.e. lowest level and also allows to define this setting at the global level ie Oracle ASCP plan level.
    - There is the possibility that every item might have different consumption parameters but typically a set of items will have a similar output so needs to be grouped, example – In the case of the MTO business model, all customer items will be grouped in a single forecast set and defined as a common parameter for all items.
- Outliner parameters: There is a possibility that a customer might place one big bulk order as a firm order which will wipe out the complete forecast within the consumption window. Then another demand does not have any opportunity to consume the forecast. So needs to define the maximum percentage of forecast that can be consumed by a single demand line.

  Typically, this feature is used when you have multiple demands for a single item and want to provide an opportunity to consume forecasts across multiple customers. If we do have a single customer for an item, then you can set it to 100% as you don't worry about sharing material with another customer. Oracle offers this setting at the forecast set level, which can define these parameters alongside forecast consumptions.

(2.3) Forecast spreading: Typically, long-term plans contain forecasts, grouped into monthly or quarterly buckets. This information is used for high-level material and resource planning. However, it is assumed that all materials and resources are needed at the start of the month or quarter. This will create bulk resource and material requirements which will be unrealistic. To avoid this situation, Oracle offers a solution of "Forecast spreading" where bulk forecast demand is spread across weeks or daily if needed. This level down the demand and corresponding material will be more realistic. Here the user's burden of spreading or leveling demand is gone by enabling it to be done by Oracle ASCP.

(2.4) Consumption by customer or Demand Class: Sometimes customers offer their forecast, and they want to stick to their commitment. Meanwhile, you do have another few customers who don't want to offer forecasts or they do offer forecasts with low accuracy. In that case, good customer forecasts might be consumed by bad customers if the parts are the same. To avoid such a situation, Oracle offers a solution of forecast consumption by the customer or by a group of customers, called 'Demand Class'. If a forecast is defined with customer or demand class, then the corresponding forecast will be consumed in the sales order, having the same customer or same demand class, and then consume entries that have no demand class defined.This will create a virtual barrier for forecast consumption and hence allocating material.

Oracle Cloud Demand Planning(cloud version of Oracle EBS Application) offers additional features to further control consumption behavior.

- Within each bucket[5]: If you select this option, then it consumes entries with matching demand classes and then entries with no demand class. Then it consumes forecast entries within the backward and forward consumption buckets. For each bucket, it uses the matching demand class first and then the no-demand class.

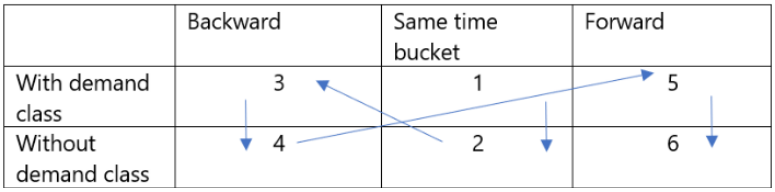

Figure 2: Within each bucket

- After consuming forecasts specific to the demand class[5]: If this option is selected, then the forecast consumption process starts by consuming forecast entries within the consumption bucket of the sales orders with matching demand class only. Then it consumes forecast entries within the backward and forward consumption buckets with matching demand class only. If there are any remaining sales order quantities, it repeats the process for forecast entries with no demand class. At first, the process runs within the consumption bucket of the sales order and then within the backward and forward consumption buckets.

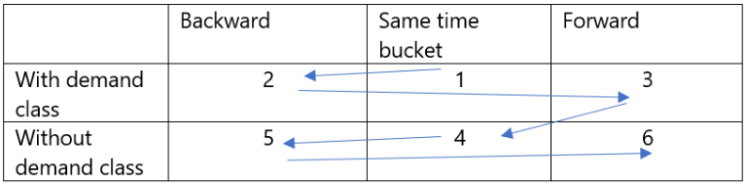

Figure 3: After consuming forecasts specific to the demand class.

3. Conclusion

The Oracle E-Business Suite (EBS) Application is presented as a robust solution for streamlining and elevating demand planning activities. The abstract explores the sophisticated demand management capabilities and integrated supply chain management features of Oracle EBS through the lens of case studies, showcasing tangible improvements in accuracy, responsiveness, and inventory management achieved by organizations that have successfully implemented Oracle EBS for demand planning.

Furthermore, the challenges commonly encountered in demand planning are discussed, emphasizing how Oracle EBS effectively addresses these challenges through its adaptive and scalable architecture. The overarching objective of the journal article is to provide insights and practical guidance for businesses aiming to optimize their demand planning processes through the adoption of the Oracle EBS Application.

The second part of the journal introduces the Oracle Demantra tool and its integration with Oracle ASCP to stabilize demand planning. It emphasizes the importance of managing demand variability, lead time, and the challenges of surplus and stockouts. The article highlights Oracle Demantra's configurable demand planning tools and Oracle ASCP's role as the brain of supply chain execution.

The final section delves into demand management parameters, providing a detailed explanation of the Demand Time Fence (DTF), forecast consumption, outlier parameters, and forecast spreading. Integration between Oracle EBS, Demantra, and ASCP is discussed, offering a comprehensive solution for efficient demand planning.

In essence, the journal provides a comprehensive overview of the importance of demand planning, the features of Oracle EBS, and the tools offered by Oracle to address demand variability, ultimately contributing to enhanced supply chain management and customer satisfaction.

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