Trinamix Multi- Echelon Inventory Optimization

Multi-level, Multi-node Supply Chain Inventory Optimization and Safety Stock Planning

Trinamix

Background

In recent decades, value chains have grown in length and complexity as companies expanded around the world in pursuit of margin improvements. However, the way value chains have shaped with global environmental changes and organizations are subjected to more disruptions with growing frequency. To be resilient against these risk, companies needs to be ready for anything. To be ready, companies needs to optimally place buffer across the supply chain decoupling any variability.

Solution Overview

Trinamix Multi- Echelon Inventory Optimization – A comprehensive solution for Multi-level, Multi-node Supply Chain Inventory Optimization and Safety Stock Planning

Optimal Safety Stock Sizing
Algorithm optimizes safety stock using simulation of an econometric KPI called 'Marginal Utility of Inventory' against inventory positions

Multi Echelon Optimization
Algorithm can infer postponement & risk pooling, account for 'disruptions' in demand, supply; flexibility for planners to change

Inventory Entitlement
A mechanism to decompose stock drivers into error, disruptions etc. for planners to focus on right levers; monitoring of inventory drive

Budget Constraint
Generic Algorithm to optimize inventory holding in constraint environment

Prediction on OTIF Delivery
Correlation with historical data, current & predicted events

Governance & Process Augmentation
Workflows fpr planners o simulate inventory levels and infer impact on the supply chain

Multi-echelon Inventory Optimization is a micro service that works with Oracle supply planning to convert uncertainty to variability, decoupling demand and supply variability by placing the right inventory, at right location and time, creating a more robust and resilient supply chain.

Multi-echelon Inventory Optimization (MEIO) uses time-tested advanced mathematical algorithms to accurately model inventory flows through the interdependent stages and locations of a supply chain, and analyzes historical behavior under all conditions. The model helps create an optimal configuration of inventory buffers and locations adequate to handle any degree of demand and supply uncertainty, seasonality, etc., while achieving desired service levels for minimum cost. MEIO typically recommends specific strategies for postponing inventory at earlier stages of manufacturing and distribution processes.
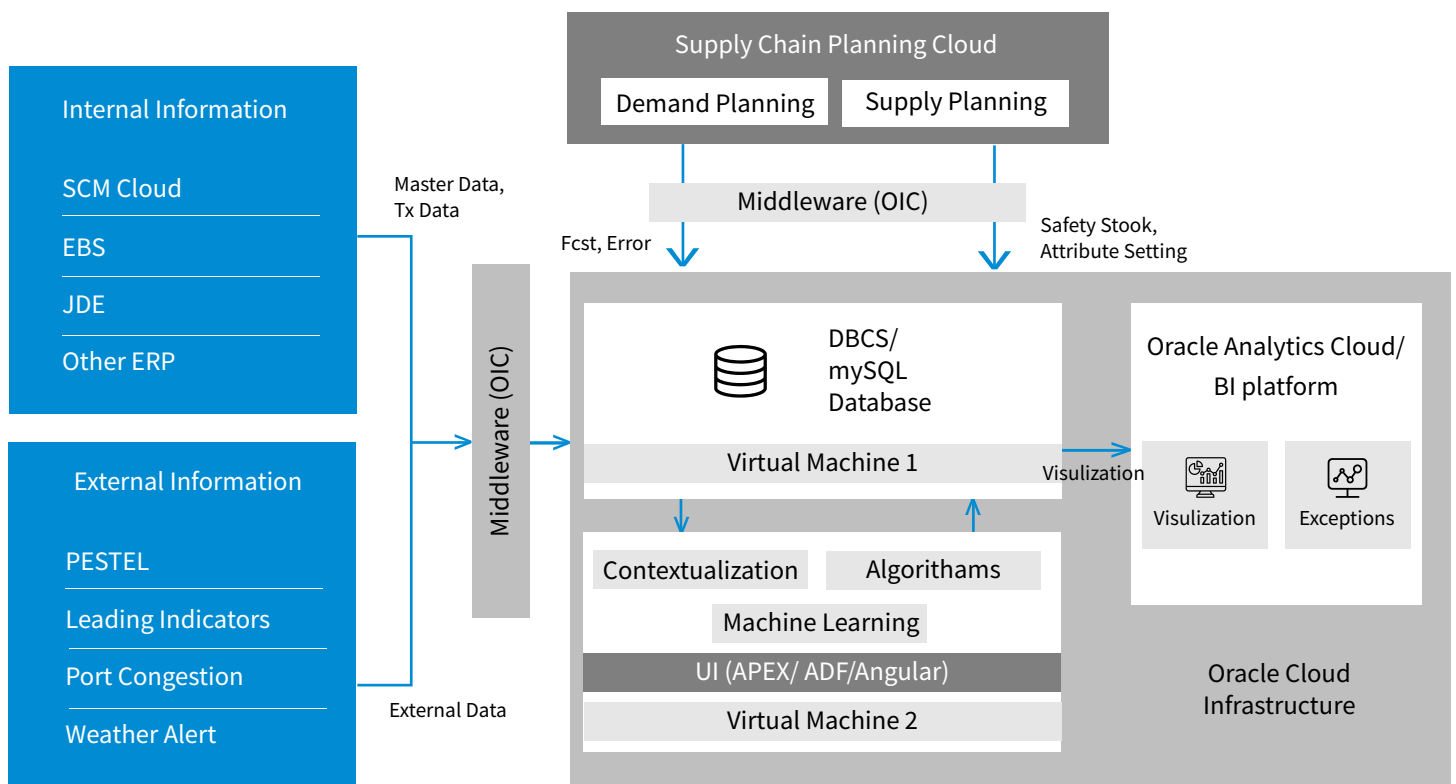
Architecture: Trinamix Resilient Planning (MEIO)

Key Features

▶ **Automate planning to increase productivity**
Planners can focus on more productive and highest value added activities

▶ **Optimal Inventory Spending**
Marginal Utility of Inventory optimized based on budget constraint

▶ **Guarantee high service levels at lowest cost**
Position inventory across the network to efficiently meet high customer service level with minimum inventory investment

▶ **Master demand uncertainty**
Stochastic-based forecasting identifies a range of outcomes and the probability of occurrence to calculate optimal inventory targets

▶ **Digital Supply Chain Twin**
Leverages machine learning to convert supply and demand uncertainty to variability

Key Benefits

▶ **Free up working capital**
▶ **Meet high service levels while minimizing inventory**
▶ **Optimize inventory for uncertain demand**

Contact Us

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