

# Oracle Value Chain Planning In-Memory Consumption-Driven Planning

## ORACLE<sup>®</sup> 12 VALUE CHAIN PLANNING

*Would you like to become more demand-driven by using true end-customer demand for forecasting and replenishment planning? Are you able to understand and respond using downstream consumption data? Have you been unable to do this because of the large data volumes and performance limitations using traditional hardware and software? Oracle<sup>®</sup> In-Memory Consumption-Driven Planning, optimized to run on Oracle Engineered Systems, offers the extreme performance needed for planning with large data sets and enables transformational business processes such as daily store-level forecasting and replenishment*

### KEY FEATURES

- Granular time-phased forecasting using high-volume consumption data
- Sell-through to sell-in calculations
- Safety stock calculation using choice of methods
- Time-phased replenishment at the distribution center or store level
- Scalability for daily store-level planning
- Detailed consumption-driven and traditional DC-level demand planning in single system
- Multichannel demand management: ability to manage heterogeneous distribution channels
- Integrated execution with Value Chain Planning

### KEY BENEFITS

- More accurate and responsive forecasting and reduction of bullwhip effect
- Improved on-shelf availability
- Increased sales
- Reduced inventory levels and increased turns
- Lower total cost of ownership
- Faster time to value

### Extreme Performance for the Demand-Driven Value Chain

Built on the proven Oracle<sup>®</sup> Demantra platform, In-Memory Consumption-Driven Planning is a new product which offers the step change in performance, scalability, and new functionality needed for forecasting and replenishment planning at a highly granular level. Supply chain performance is most effective when forecasting and replenishment planning are done as close to the end customer as possible using demand, or consumption, data in order to avoid the bullwhip effect, where lack of visibility to downstream demand results in amplification of demand variation propagating upstream. For consumer products manufacturers, for instance, this ideally would be at the level of retail store using daily Point of Sale (POS) data to enable shelf-connected and collaborative replenishment planning.

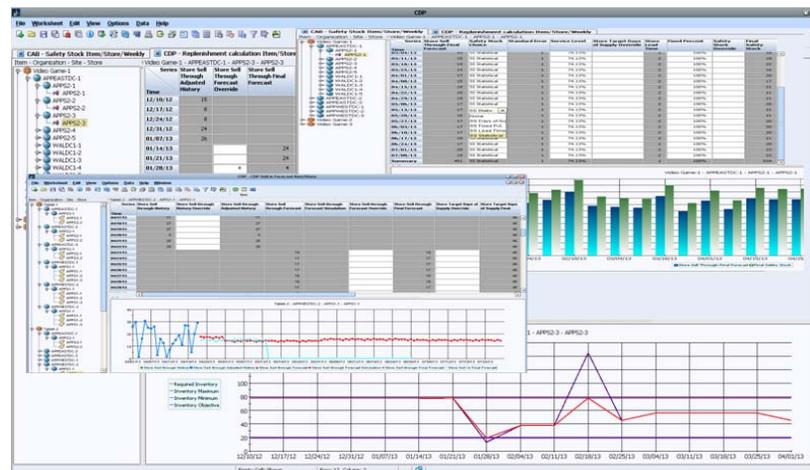


Figure 1: Sell-through forecasting, safety stock, and replenishment views

However, limitations in software and hardware performance have precluded the use of sophisticated store-level forecasting and replenishment algorithms in most situations. As a result, most companies plan at the level of distribution center (DC) and week using outbound shipments instead of end-customer demand, and are limited to simple execution systems at the store level. This approach leads to suboptimal forecasts, service levels, and inventory turns. Oracle In-Memory Consumption-Driven Planning overcomes the limitations of traditional approaches to make daily store-level planning a reality.

## Reduce cost by operating a single system for consumption-driven and traditional demand planning across all customers

To get around the performance limitations of traditional systems, many companies have deployed multiple solutions for different parts of their business. For instance, they might have one system for traditional demand planning at the DC level and then different systems for a few strategic customers for which they do more granular planning. The result is a high cost of deployment and operation. In addition, ensuring data synchronization and consistency among the environments presents a tough challenge, with a large number of potential points of failure.

In contrast, In-Memory Consumption-Driven Planning has the scalability to plan across all of your business and can accommodate planning at different levels in a single system. The level at which a line of business or account will be planned will be tied to the criticality to the business as well as data availability and planning needs. By combining IMCDP with Oracle's in-memory processing capabilities, it enables you to combine daily store-level highly granular and high volume data processing with other processes, such as Sales and Operations Planning, without incurring performance impacts. The business benefit is having a single, up-to-date enterprise plan across all channels and customers, with the greatest accuracy possible. This makes it easier to arrive at consensus demand plans, prioritize resources, and adapt to changing market conditions, taking into account demand across all of your customers.

## Comprehensive channel forecasting and replenishment

In-Memory Consumption-Driven Planning builds upon the Oracle Demantra Demand Management platform with new functionality for forecasting using consumption data and for planning store replenishment.

### Flexibility for multi-channel demand management

A typical company sells through a variety of channels, including: direct /online, wholesale distribution, retail (either direct to stores or via retail distribution center), with multiple variations for each of these categories. For each customer the type of downstream data available varies. Some retailers might provide daily store-level data, while others may provide only DC-level data. In-Memory Consumption-Driven Planning offers the flexibility to support planning an account at either the DC or store level under a variety of circumstances.

### Time-phased forecasting and sell-through to sell-in conversion

In-Memory Consumption-Driven Planning creates a time-phased forecast using the lowest level of demand data, such as retail store sell-through data -- what the store sells

to consumers. A time-phased sell-in forecast (the demand in terms of shipments into the store) is then calculated taking into account channel inventory and target days of supply. By forecasting consumption and then deriving a sell-in forecast taking into account channel inventory, a more accurate forecast can be derived versus the alternative of simply forecasting sell-in. The distortion which sell-in forecasting introduces to the planning process is stripped away, and a clearer picture of end-customer demand and how a channel reacts to that demand becomes available.

#### Configurable safety stock policies

In-Memory Consumption-Driven Planning offers the ability to calculate safety stock levels using different policies and assign them at an aggregate, item or store level as required. Available policies include: statistical based on forecast error and desired service level, days of supply coverage, lead time coverage, and fixed percentage. Planners can view the safety stock resulting from each of the policies side by side and pick the strategy which will provide the inventory strategy which best meets business objectives.

#### Time-phased replenishment planning

In-Memory Consumption-Driven Planning calculates a time-phased replenishment plan. The plan combines current on-hand and inventory targets with in-transit, on-order, and shipment lead time to create an order which will meet end-customer demand. Inventory targets are derived from forecast quantities and safety stock as well as business-driven constraints, such as maximum inventory. The resulting time-phased replenishment plan provides upstream visibility for manufacturing and distribution planning.

#### Manage your business at the store level

For manufacturers selling through retail channels, In-Memory Consumption-Driven Planning gives you the ability to plan your business at the store level. Safety-stock and replenishment parameters can be tailored by store. Additional functionality is provided for new store openings and store-level excess inventory and stock-out alerts. This enables manufacturers to improve inventory turns and manage store-level replenishment as part of Vendor Managed Inventory (VMI) initiatives.

### Unparalleled performance and scalability

High performance is critical to address the dramatic increase in data volumes when going from weekly DC-level planning to more granular planning. For instance, for a manufacturer distributing to retailers with an average of 100 stores per DC and planning for 7 days in a week, the shift in planning granularity would yield up to a 700-fold increase in the number of transactions (locations x SKUs x time periods; less than 700-fold in cases where not all SKUs are distributed in all stores). In addition, such a system will typically include many more users, such as store operations personnel, increasing the concurrent use and load on the system.

#### Optimized for Oracle in-memory processing

Oracle's in-memory processing capabilities as provided by Oracle Engineered Systems and the Oracle In-Memory Database Option enable the necessary performance to handle large-scale deployment. Oracle Engineered Systems are the preferred platform for deploying Oracle applications when performance and scalability are mission critical,

due to the extensive performance optimizations in engineering of hardware and software working together, and the synergies that are only available with the complete Oracle technology stack.

In addition, In-Memory Consumption-Driven Planning has been engineered from the ground up to take full advantage of Oracle's in-memory processing capabilities to provide unparalleled performance, with benefits for the entire family of Demantra products. For example, Exadata provides massive data processing throughput, with enough memory to store and manage an entire planning data set of a size not feasible with traditional systems. Additional performance is provided by enhancing the forecasting processes with Exadata using optimized In-Memory processing approaches. In-Memory systems enable scalable set-based processing which has been applied throughout the data processing architecture from data loading to planning operations, batch processing, and integrations. The forecasting engine cluster has been extended to enable new algorithmic processes to leverage the Oracle Demantra Demand Management cluster framework with Exadata. Additional performance gains are available with the optional use of Exalogic. The Oracle In-Memory Database Option, which can be deployed as an alternative or additional capability to Oracle Engineered Systems, further enhances system's performance as it accelerates in extremely fast processing of dynamic queries as is common for the Oracle Demantra applications.

#### Increased planning system availability

In-Memory Consumption-Driven Planning focuses on dramatically improving the performance of all long-running processes, including data load, analytical engine runs, batch calculations and series archiving, resulting in drastically reduced downtime and enabling business processes which were previously not possible. With In-Memory Consumption-Driven Planning, customers get full support for Oracle® Real Application Clusters (RAC) when running the Analytical Engine for any Oracle Demantra products. This will allow improved utilization of resources across the cluster and reduce engine execution times. Run times of intensive batch calculations executed with the Business Logic Engine (BLE) have been reduced by an order of magnitude by using advanced distributed processing and net change detection. These BLE improvements allow calculations that could only be carried out once a month or week to be enabled for nightly and ad-hoc execution, empowering completely new business flows and user experience. Gains made in data load performance can be used to support data refresh in global instances where available downtime is minutes instead of hours.

#### Reduce deployment and upgrade cost with a single enterprise instance

Companies continue to transition from multiple disconnected planning systems to more consolidated corporate planning solutions. With In-Memory Consumption-Driven Planning you can use a single hardware platform to support a larger volume of transactions and end users in a single instance. Whether this is an upgrade of older planning systems or a rollout of a new planning process across multiple regions or business units, such initiatives drive cost savings in managing infrastructure, better user experience, alignment of business processes, corporate visibility to the overall supply chain, and synergies across business units to optimize the global supply chain.

## RELATED PRODUCTS

- Oracle® Demand Signal Repository: capture, harmonize, and manage downstream point-of-sale data
- Oracle® Demantra Demand Management: improve demand collaboration and consensus, with improved statistical forecasting
- Oracle® Demantra Advanced Forecasting and Modeling Option: increase forecast accuracy and improve causal analysis and shape modeling
- Oracle® Demantra Real-Time Sales and Operations Planning: evolve to Integrated Business Planning
- Oracle® Demantra Predictive Trade Planning and Trade Promotion Optimization: integrated account planning and promotion optimization

## Lower total cost of ownership, faster time to value

In addition to providing business users new functionality and performance, In-Memory Consumption-Driven Planning benefits IT staffs. Traditional approaches to large scale planning systems often involve lengthy, complex, and expensive implementations. The initial iterations of loading data, stabilizing batch processes, and tuning the statistical engine may take a very long time with large data volumes. Business processes with large transaction volumes can also be time consuming to configure and finalize. The inherent performance offered by In-Memory Consumption-Driven Planning can dramatically reduce these times, reduce implementation costs, accelerate user acceptance testing, and speed time to value.

## Additional business value through pre-built integration

In-Memory Consumption-Driven Planning is part of the Oracle® Value Chain Planning solution and provides synergy when used with other products. For instance, tight integration with the entire Demantra suite of products means that In-Memory Consumption-Driven Planning can be part of the Demand Management and Sales and Operations Planning processes. In-Memory Consumption-Driven Planning can also provide a forecast to Oracle Advanced Supply Chain Planning for multi-tier upstream supply planning.

## VALUE CHAIN PLANNING — A COMPLETE SOLUTION

Oracle's Value Chain Planning solution enables companies to efficiently design, plan, and service their value chains from factory to shelf. Its componentized architecture enables you to start with any product and expand to other areas at any point in time. The Oracle Value Chain Planning architecture leverages the scalability and security of Oracle's Database and Fusion Middleware technology and can be deployed as a single instance with Oracle E-Business Suite, or integrated with other systems. Whether you implement one module or the entire product solution, Oracle Value Chain Planning enables you to share unified supply chain planning information across the enterprise so you can make informed decisions faster.



### CONTACT US

For more information about Oracle In-Memory Consumption-Driven Planning, visit [oracle.com](http://oracle.com) or call +1.800.ORACLE1 to speak to an Oracle representative.

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### Hardware and Software, Engineered to Work Together

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