Using Oracle's ASCP Module in the
Development of a Successful Global Sourcing Strategy

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# About the Author

Mr. Kirch specializes in Oracle global financial and supply chain projects and has over twenty years experience in the management, design, delivery, development, sales and implementation of information management systems.  He has experience in the implementation of Oracle Financials, Supply Chain, Oracle Project Costing and Project Billing, and Oracle Distribution modules (PO, INV, OM), as well as in Strategic Planning, Business Process Reengineering (BPR), Activity Based Management (ABM), and all areas of financial systems analysis and design.  A Certified Public Accountant (CPA) with an MBA in International Business, Mr. Kirch speaks fluent Spanish and Portuguese, and some French and German, and has worked in Europe, South America, and the Middle East. He has served as an officer on several professional accounting organizations, including the DC Institute of CPAs where he was the Chairman of the Washington, D.C. International Business Committee and the Miami-based Latin American CFO Forum, which he founded.  The Latin American CFO Forum was a group of 50 CFOs, Controllers and other finance professionals from the Latin American regional headquarters of Fortune 500 companies in South Florida which met on a monthly basis to discuss issues around doing business in Latin America.  While a Practice Manager at Oracle, Mr. Kirch headed project teams composed of 20-30 and frequently made presentations at Oracle's Applications User Group (OAUG) and Oracle Open World, among others.  In 2005, Mr. Kirch had the honor of participating in Professor Hau Lee's Executive MBA course at Stanford University, "Managing the Global Supply Chain and is currently a candidate for the CFA (Certified Financial Analyst) Level I, (June, 2008 exam).  Mr. Kirch currently sits on the Board of Directors of Oracle's Oracle Application User Group (OAUG) Multi-national (MN) SIG group and is a Director in the Hackett Group's Oracle implementation practice, where he is responsible for managing large-scale global implementations of Oracle applications.

# Introduction

A supply chain is a network of facilities and information systems that facilitates the movement of material and information from a company's suppliers -- and their suppliers – in support of the company's manufacturing of finished and semi-finished products and distribution of finished product to the company's customers.  The supply chain describes the movement of material and information both upstream, to a company's suppliers, and downstream, to customers.

A supply chain starts with the identification of sourcing requirements, includes an analysis of potential suppliers able to fulfill those requirements, sourcing and the establishment of a business relationship with the supplier.  Some companies allow each product team to source from suppliers independently of other product groups; other companies enforce "qualified supplier" policies, in which a supplier must be validated using pre-established criteria (e.g. in business for 15 years, etc.).  As companies rationalize the supply base and "strategic suppliers" are identified, the relationship between global sourcing and Advanced Supply Chain Planning (ASCP) emerges.

Companies embarking on a global supply chain planning initiative, which includes global sourcing, may gradually increase the relationship with key strategic suppliers.  The relationship with key strategic suppliers normally develops over time:

- Supplier is identified as a possible supplier of a difficult to obtain, key component
- Supplier is identified as a strategic supplier and company places supplier on "Approved Supplier List," either as sole source or primary supplier of key component

- Supplier's product development plan tracks manufacturer's product development plan and management relationship is established
- Strategic supplier sets up an on-site location at manufacturing plant premises in order to closely monitor customer relationship and ensure steady supply of critical items
- Depending upon financial and supply risk drivers, supply of critical items may move to a JIT-like Vendor Managed Inventory (VMI) arrangement in which manufacturer owns the inventory and supplier manages on-hand stock, or;
- Depending upon value of items and volume of transactions, supplier and manufacturer may adopt an Supplier Owned Inventory (SOI) arrangement, in which manufacturer draws down supplier owner stock of items located on-site at manufacturer's plant and pays only for those items actually consumed using an "evaluated receipt settlement" (ERS) arrangement

California companies such as Cisco Systems and Qualcomm are at the forefront of these manufacturing trends and have spearheaded many of the management initiatives that define and compose these global sourcing movements.  For example, Cisco Systems has been cited as a model for the speed of Cisco financial close process and the forward thinking implementation of a two tiered supply chain process that allows Cisco managers to closely manage inventory fluctuations at first tier contract suppliers as well as the companies, second- and third-tier suppliers, which sell to their contract suppliers.

Software providers, such as Oracle and SAP, must keep abreast of these manufacturing trends in order to support their customers' – the lean manufacturers – business process requirements. This white paper describes Oracle's new Advanced Supply Chain Planning (ASCP) module, which is part of the Supply Chain Management suite of products, from a use and "functional footprint" perspective.  ASCP enables and embodies many of the concepts embedded in the "lean manufacturing" initiative.

This paper is describes the high level processes enabled by Oracle Global Sourcing module, the functional footprint of the Advanced Supply Chain Management (ASCP) engine, and rollout considerations around the use of iSupplier and iProcurement on global projects.
In addition, this paper describes the high level process enabled by ASCP, several of the setup options that companies implementing ASCP will need to consider, and the relationship of ASCP to other Advanced Procurement modules, such as iSupplier and iProcurement.


# MRP versus ASCP

Oracle developed the MRP, or Material Resource Planning module, as part of the Manufacturing Suite of Products, which was released in 1994.  Given seasonal trending, projected demand and available supply, Oracle MRP was developed to calculate a company's total material requirements given a specific projected demand.  In this simple world, Oracle MRP operated within an extremely simple world with unbounded manufacturing capacity, a single manufacturing plant, and suppliers blessed with unlimited supply.  Needless to say, Oracle MRP did not meet a sophisticated global manufacturer's supply chain management needs.

Oracle developed the Advanced Supply Chain Module (ASCP) as a result of these perceived shortfalls in MRP functionality.  Specifically, ASCP enhanced the functionality of MRP by allowing for:

- Constraint-based planning, instead of the unbounded production plans possible in MRP
- Configuration-based supply netting, in which companies could choose of not choose to include outstanding requisitions and Purchase Orders in the supply calculation
- Multiple inventory organization planning in one planning cycle, eliminating the need to run MRP multiple times by inventory org
- Firmed PO and Planned PO supply, depending upon the company's specific planning horizon and supply chain needs
- Complete integration with Supplier Scheduling and Purchasing Approved Supplier Lists (ASLs) and Sourcing Rules, creating a completely automated supply chain cycle

Figure 1, below, shows the relationship between Oracle ERP modules, such as Oracle Financials and Manufacturing (including MRP), and the Advanced Supply Chain Module. Oracle ERP modules function as the transactional modules, in which users place orders, create Purchase Orders, load Forecasts, and so on.  Oracle's Advanced Supply Chain Planning Engine (ASCP) receives the transactional information from the ERP modules and loads this data to the ASCP tables.
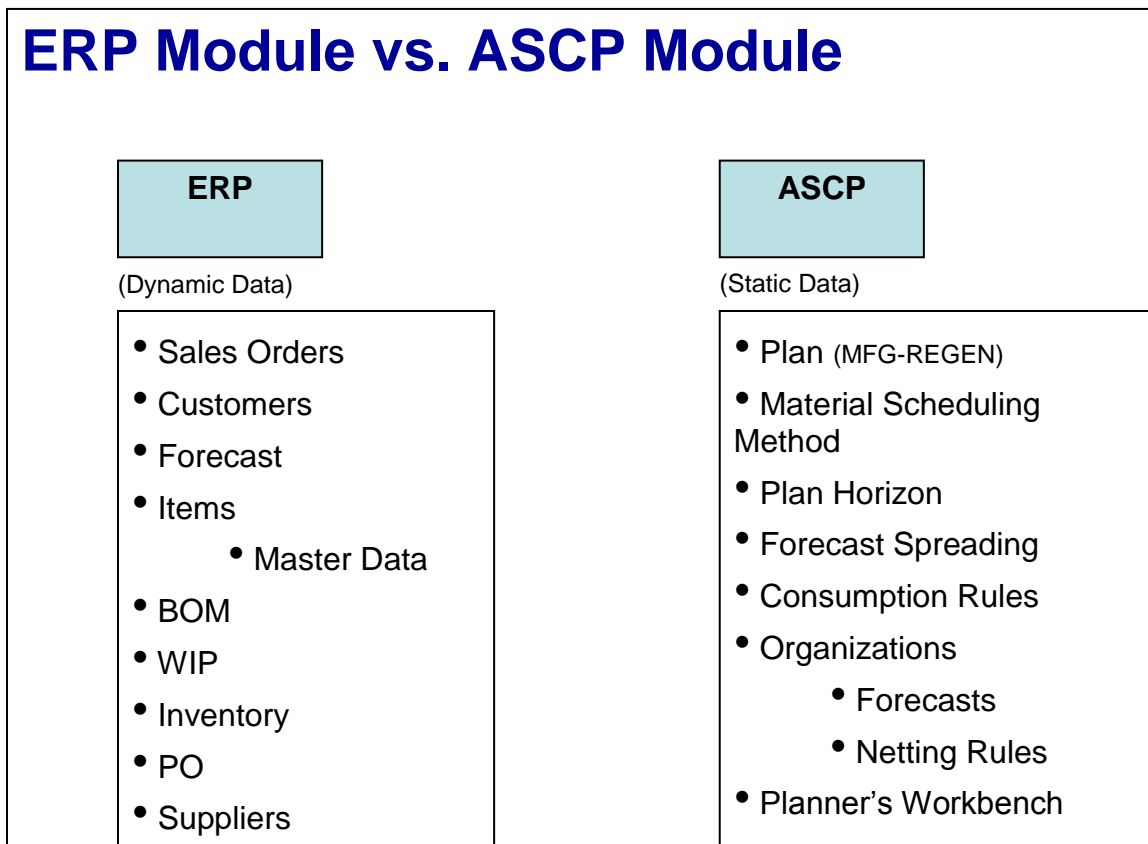
# ERP Module vs. ASCP Module

| **ERP** | **ASCP** |
|---|---|
| (Dynamic Data) | (Static Data) |
| • Sales Orders | • Plan (MFG-REGEN) |
| • Customers | • Material Scheduling Method |
| • Forecast | • Plan Horizon |
| • Items | • Forecast Spreading |
|     • Master Data | • Consumption Rules |
| • BOM | • Organizations |
| • WIP |     • Forecasts |
| • Inventory |     • Netting Rules |
| • PO | • Planner's Workbench |
| • Suppliers | |

**Figure 1**

ASCP makes supply recommendations to Planners and/or Buyers based upon Sales Orders entered or Forecasts loaded into the system.  Given actual and/or forecasted demand, the ASCP module aggregates supply based upon the parameters used to set up the system and makes scheduling recommendations – to either "bring in" or "push out" on both the demand and supply side – in order to match actual/ forecasted demand with actual/ forecasted supply.  In microeconomic terms, the Planners Workbench creates the point of equilibrium in which actual + forecasted supply = actual + forecasted demand.

ASCP uses a "Collection Plan" to bring supply into equilibrium with demand.  The Collection Plan aggregates the total demand including changes to Orders to create the "demand signal" and aggregates total supply according to the specific parameters set up in the ASCP Engine that defines "supply."

In Figure 2 below, the Master Scheduler creates a plan to run in the manufacturing inventory organization.  In the example given, the Master Scheduler creates three new plans: MFG-REGEN, MFG-SIM, and MFG-SIMDLY.  (Note: In order for Planned Orders to be generated and EDI to run successfully, the Production box must be checked.)
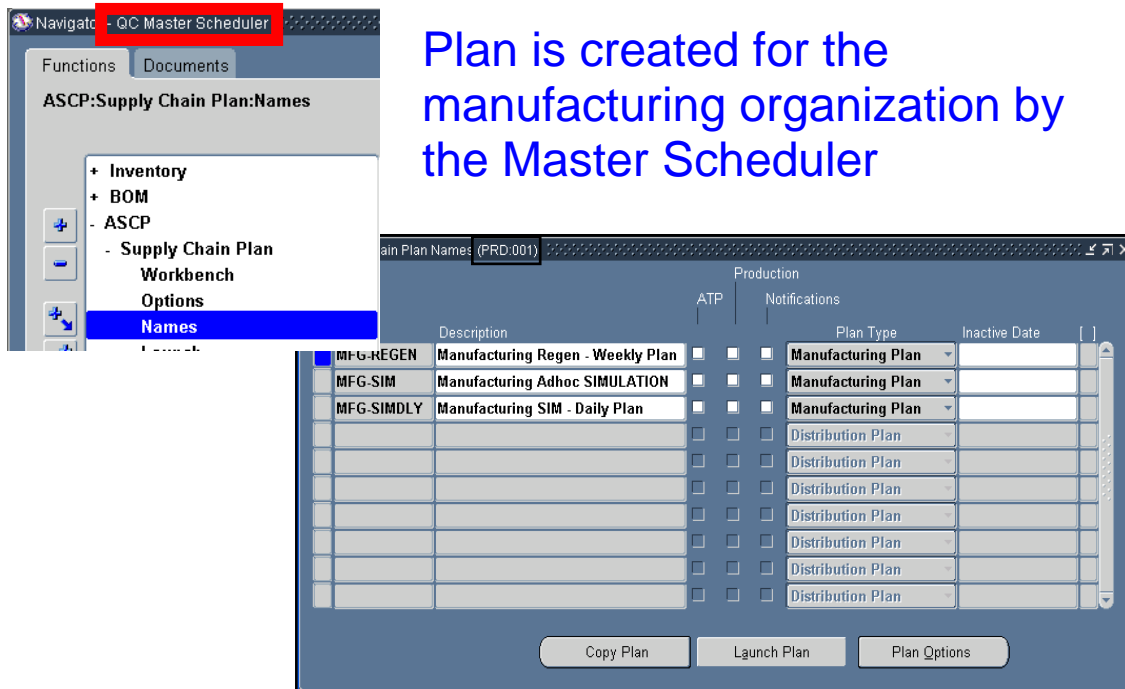


Plan is created for the manufacturing organization by the Master Scheduler

**Figure 2**

In Figure 3, below, the Master Scheduler sets the forecast allocation and consumption parameters to "spread forecast evenly" and indicates that Requisitions, POs, and Safety Stock should be netted to create supply.
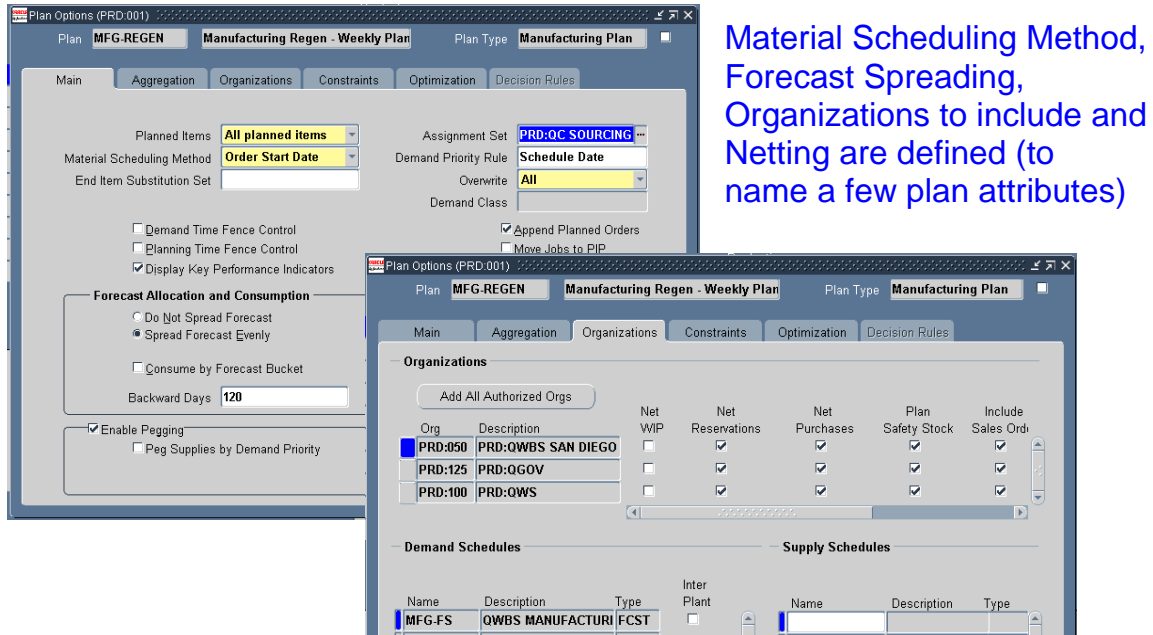


Material Scheduling Method, Forecast Spreading, Organizations to include and Netting are defined (to name a few plan attributes)

## Figure 3

In Figure 3, note that the "Enable Pegging" and "Append Planned Orders" flags are checked.  The "Demand Time Fence Control" flag should also be checked in order to create EDI Purchase Orders and Planned Orders according to the 20 manufacturing days rolling PO creation date.

The "Add All Authorized Org" allows this specific plan to be run for multiple inventory orgs as indicated in the screenshot above.  In the example given, the ASCP Plan MFG-REGEN is being created to run in 3 inventory orgs for all planned, or active, items.

Figure 4, below, describes this relationship between the ERP transactional modules on the left side of the figure and the Advanced Supply Chain Planning (ASCP) modules on the right hand side of the page.  The ERP transactional modules include Order Management (OM), Accounts Receivable (AR/ Customer Master), Inventory (Item Master), Bills of Material (BOM), Purchasing, Accounts Payable (Supplier Master), and Costing.  On the right hand side of the figure, the Advanced Supply Chain Planning family includes Planning, Supplier Scheduling, Sourcing Rules, and Planners Workbench.

The ASCP collection plan creates the link between the ERP modules, which contain transactional data, and the Advanced Supply Chain (ASCP) functionality.  The collection

plan gathers data from the transactional side of the figure and uses this data to populate tables on the right hand side of the figure.
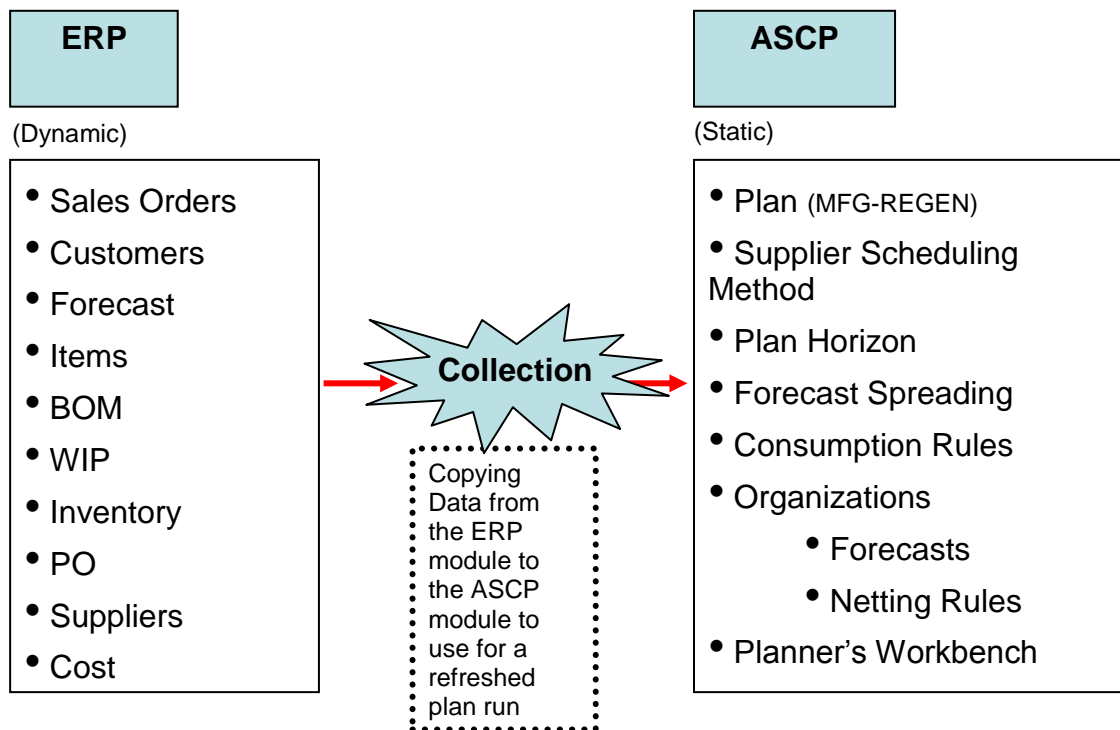
# ERP Module vs. ASCP Module

| **ERP** | **ASCP** |
|---|---|
| (Dynamic) | (Static) |

**ERP** (Dynamic)
- Sales Orders
- Customers
- Forecast
- Items
- BOM
- WIP
- Inventory
- PO
- Suppliers
- Cost

**Collection**

Copying Data from the ERP module to the ASCP module to use for a refreshed plan run

**ASCP** (Static)
- Plan (MFG-REGEN)
- Supplier Scheduling Method
- Plan Horizon
- Forecast Spreading
- Consumption Rules
- Organizations
  - Forecasts
  - Netting Rules
- Planner's Workbench

**Figure 4**

The ASCP collection plan takes parameters established in the ASCP module, such as plan horizon, forecast spreading, consumption rules, netting rules, and "analyzes" the data across the various inventory organizations defined to the system. ASCP seeks to balance supply and demand across the inventory organizations.  If the item is a "make" item and sourced from one of the manufacturing plants, the ASCP Engine will create demand for these items in the manufacturing organization(s).  If the item is a "buy" the ASCP Planning Engine will create Requisitions and Planned Orders based upon the specific planning horizon defined to the system.  If the planning horizon is defined as 52 weeks, in 4-week buckets, the ASCP Planning Engine will create Planned Orders for each of the 13 4-week supplier material supply buckets.  Depending upon how lead times are defined to the system (either at the item level or on the ASL), and according to how the ASCP and Purchasing profile options are defined, if a Blanket Purchase Order has been defined for this item and the Supplier is an "approved" or "preferred supplier"

on the ASL, the ASCP Planning Engine will automatically create releases against the blanket PO for transmittal to the supplier via EDI or XML.  The entire purchasing process from demand creation to supply and transmittal of the PO to the supplier is automated.
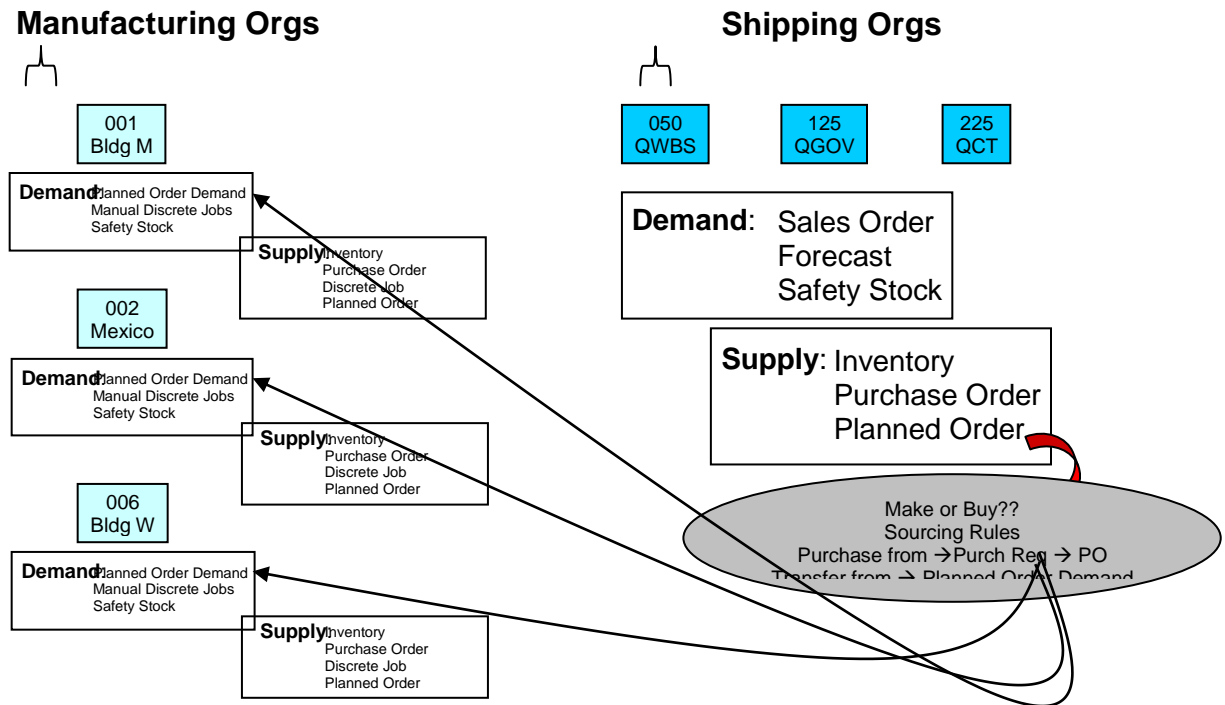
# ASCP Supply / Demand Creation



**Figure 5**

Figure 5 illustrates this process by which "shipping organizations" or customer facing sales organizations create demand by entering sales orders or forecasts. Replenishment of safety stock may also create demand.

ASCP nets available supply according to the parameters defined to the system and, depending upon the resulting material requirements, creates a "demand signal" to the manufacturing organizations (in the diagram, defined as Building M '001,' the shelter operation in Mexico '002' or Building W, '006.'   In the scenarios given above, the customer facing shipping organizations do not independently source items directly from outside suppliers; all supply is sourced from the manufacturing organizations as either a "make" or a "buy" item.

## Supply and Demand Creation

### Supply Demand View

D: Org 225 – Sales Order/Forecast  **10-V6991-210 (1)**

S: Org 225 – Planned Order  **10-V6991-210**

D: Org 006 – Planned Order Demand  **10-V6991-210 (2)**

S: Org 006 – Planned Order  **10-V6991-210**

D: Org 006 – Planned Order Demand **20-V9900-1 (3)**

S: Org 006 – Planned Order **20-V9900-1**

D: Org 001 – Planned Order Demand **20-V9900-1**

S: Org 001 – Planned Order **20-V9900-1**

### Figure 6

In figure 6 above, **(1)** the Sales Order for a top level assembly, "10-V6991-210," creates a Planned Order in shipping organization 225, **(2)** which is in turn sourced to manufacturing organization 006 in the form of a "planned order demand."  The "planned order demand" in '006' is 'pegged' to a planned work order in '006, ' **(3)** which in turn creates demand for the manufacture of a sub-assembly, or a '20-V9900-1" which is sourced from manufacturing org '001.'

This process of demand creation, supply aggregation, and creation of Planned Orders to satisfy material demand is the core functionality of the ASCP Engine.  In each step in the process, demand creates material supply through the creation of a Planned Order, which results in demand against the next level supply in the supply chain.   At each stage, available supply is 'pegged" or identified to demand.
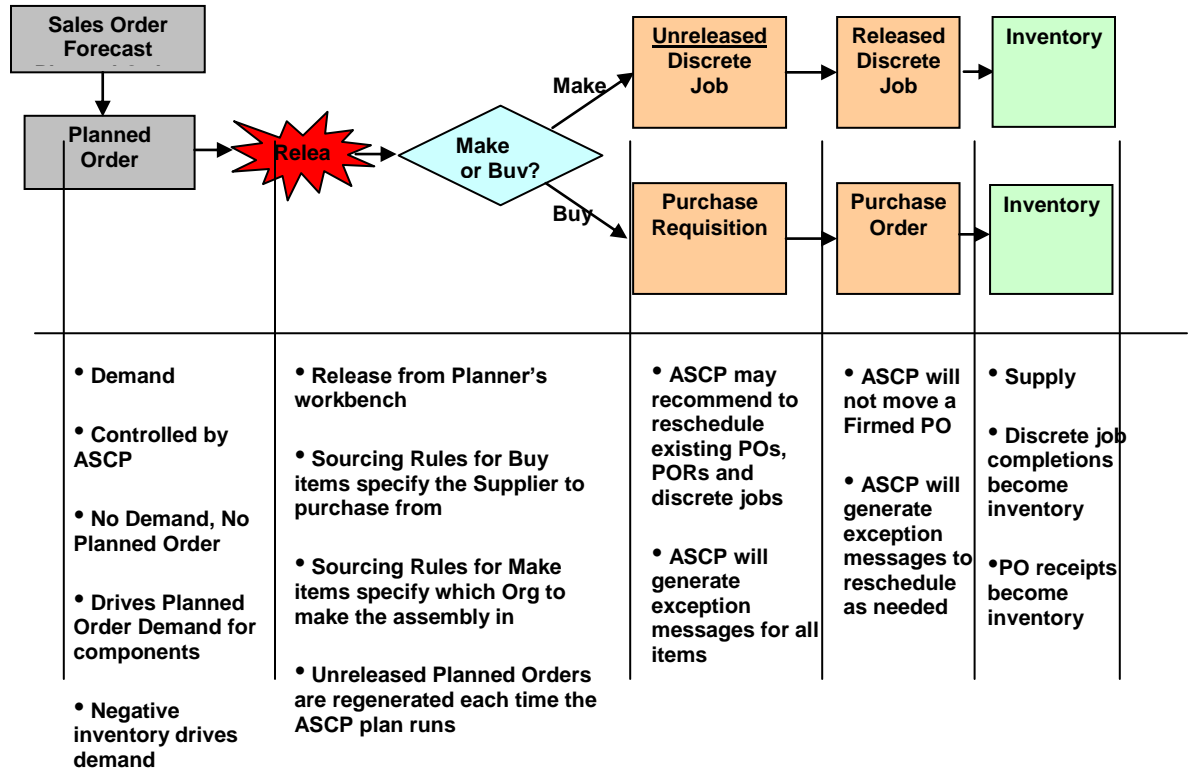
**Planned Order Life Cycle**



| | | | | |
|---|---|---|---|---|
| • **Demand** | • **Release from Planner's workbench** | • **ASCP may recommend to reschedule existing POs, PORs and discrete jobs** | • **ASCP will not move a Firmed PO** | • **Supply** |
| • **Controlled by ASCP** | • **Sourcing Rules for Buy items specify the Supplier to purchase from** | | • **ASCP will generate exception messages to reschedule as needed** | • **Discrete job completions become inventory** |
| • **No Demand, No Planned Order** | • **Sourcing Rules for Make items specify which Org to make the assembly in** | • **ASCP will generate exception messages for all items** | | •**PO receipts become inventory** |
| • **Drives Planned Order Demand for components** | • **Unreleased Planned Orders are regenerated each time the ASCP plan runs** | | | |
| • **Negative inventory drives demand** | | | | |

## Figure 7

This process is further illustrated in Figure 7. In Figure 7, the Sales Order or the Forecast creates the Planned Order, which in turn drives Planned Order demand for component parts identified in the Bill of Material. As the Planned Orders are released from the Planners Workbench, Planners Workbench identifies the item as either a "make" or a "buy" item and the item is sourced, using sourcing rules, to a manufacturing organization or, at the end node in the supply chain, to an outside supplier. In the case in which the item is a 'make' item, a work order is created, which in turn must be released so that the manufacturing process can begin, and supply (inventory) created. In the same way, if an item is a 'buy' item, ASCP will create a release against a Blanket PO (if a blanket PO with that item exists) or a Planned Order (if the Blanket PO does not exist). During this process, depending upon a specific item's lead time, and the percentage of compression allowed on a specific item, Planners Workbench will make recommendations to the Planners and Buyers with regards to specific work orders and Purchase Orders. Where compression time allows a PO to be created outside of the normal lead time defined for a specific item, Planners Workbench will seek to "bring in" the PO in order to match the scheduled delivery date for a specific item 'pegged' to a

specific Sales Order.  In cases in which Planners Workbench is not able to resolve the discrepancy between the planned ship date for a specific Sales Order and the available supply, Planners Workbench will make recommendations to "push out" the scheduled delivery date on the Sales Order or "bring in" the planned material receipt date on a PO.

# Discrete Job Contributors

**Assembly:**  Item to be stocked at completion of Discrete Job

**BOM:**  Creates the Discrete Jobs Parts List

**Routing:**  Applies the Discrete Jobs Lead Time

**Supply Type:**  Dictates how components are issued to the Job

A) **Push** = issue components to job at job start
B) **Assy Pull** = backflush components at job completion
C) **Bulk** = 'as required' components, no issue
D) **Operation Pull** = not in use in phase 2

**WIP Acct Class**:  Abbreviation that contains accounting information for the discrete job

**Figure 8**

# Using Planners Workbench
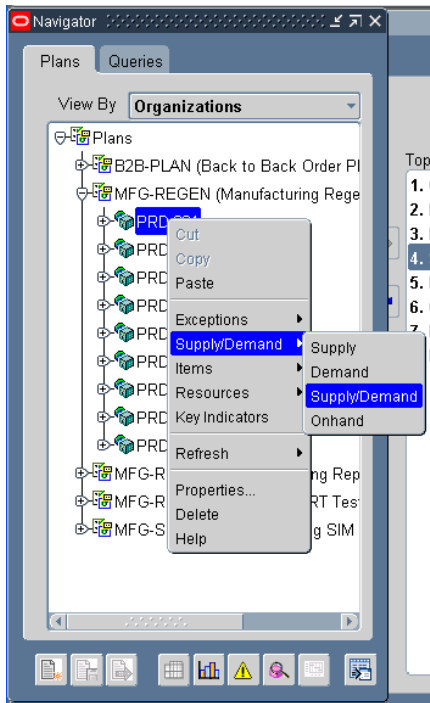


Right click over the plan or organization, select Supply/Demand and Supply/Demand

## Figure 9

Planners Workbench makes use of expandable folders to allow users to drill down to successive levels of detail.  At the highest level, Planners Workbench presents users with each of the ASCP Plans that have been defined by the Master Scheduler.  On the Planners Workbench menu illustrated in Figure 9, the user has selected the MFG-REGEN Plan, the Supply/Demand function, and "Show Supply/Demand" menu.

The Planners Workbench displays each of the Planners Orders created, as well as any notification associated to that planned order, such as "bring in" or "push out" as discussed earlier.  Users are able to narrow the display results by entering search criteria, as illustrated in Figures 10 and Figure 11.  In Figure 10, the user enters the Boolean logic, by which he/she would like to narrow search results, identifying the specific search criteria to select Planned Orders.  Once the Planners Orders are selected, the user can take further action on the Planned PO including releasing the Planned PO to create a Release against a Blanket PO, if the Blanket PO exists or changing the scheduled receipt date (in the case in which the notification suggests that a scheduled ship be moved in or out, and so on. Figure 10 and 11 illustrates the query process used to identify specific Planned Orders and highlight the selection criteria available.

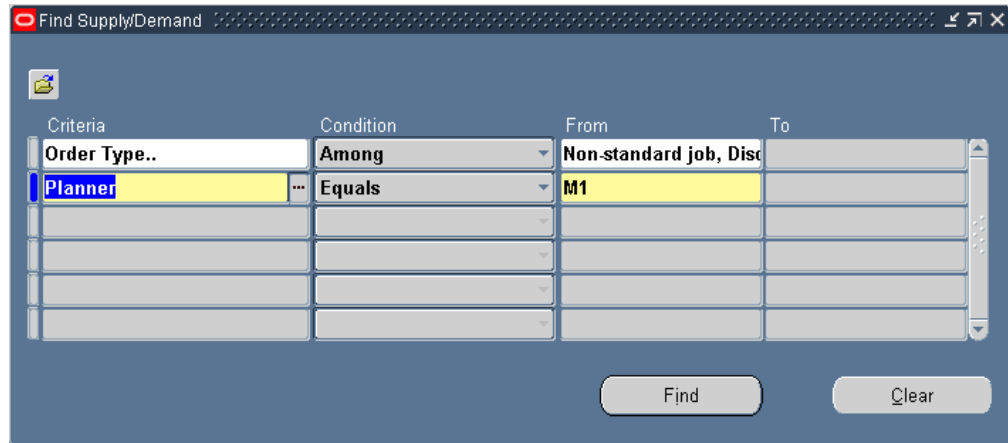Enter your search criteria to limit the data in your query:



**Figure 10**

You can search for the following Criteria:

| | | |
|---|---|---|
| BOM | New Date | Selected for Release |
| Buyer | New Qty | Source Organization |
| Category | Old Due Date | Source Supplier |
| Compression Days | Old Order Quantity | Suggested Dock Date |
| Day from Today | Order Number | Suggested Due Date |
| Demand Satisfied Date | Order Priority | Suggested Order |
| Disposition Status Type | Order type | Date |
| Firm | Organization | Suggested Start Date |
| First Unit Start date | Original Item | Supplier |
| Implemented Quantity | Po Line No | Task |
| Item | Planner | Using Assembly |
| Last Unit Completion Date | Planning Group | VMI Flag |
| Last Unit Start Date | Project | WIP Supply Type |
| Lending Project Number | Quantity in | |
| Lending Task | Process | |
| Line | Primary Supplier | |
| MRP Planning Method | Repetitive | |
| Make or Buy | Standard Cost | |
| | WIP Supply Type | |
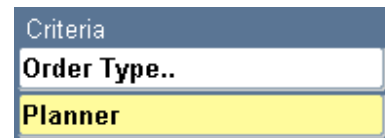


**Figure 11**

Planners Workbench allows user to search for Planned and/or Firmed PO's according to any number of search criteria, which can be captured and saved by the buyer-user. This "saved query" functionality allows buyers to easily manage their PO workload.

## Conditions:

Equals
Is Not
Less Than
At Most
At least
Greater than
Between
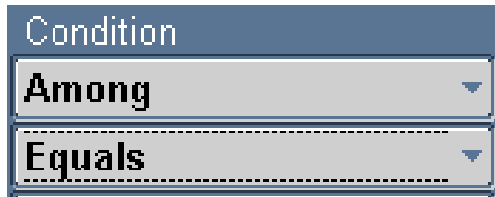Outside
Is Empty
Is Entered
Among
Starts With
Days from Today



### Figure 12

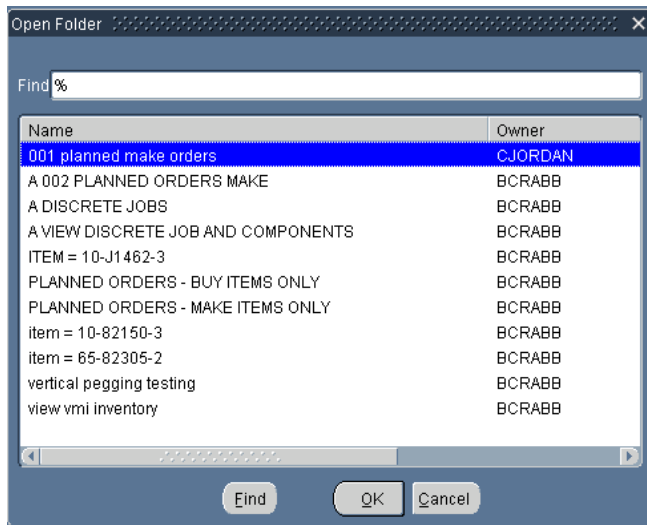Figure 12 further illustrates the Planners Workbench selection functionality.



### Figure 13

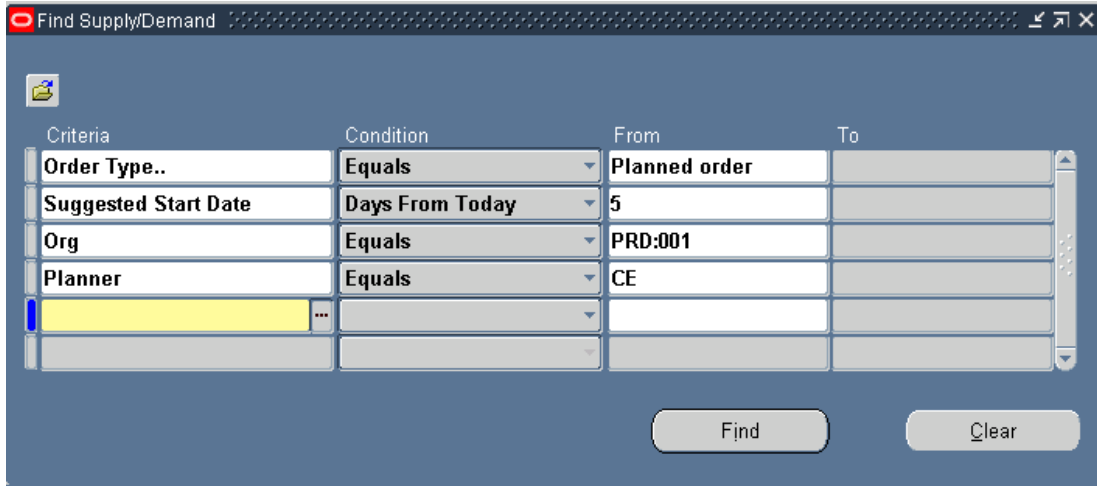Figure 13 illustrates the use of folder technology in Planners Workbench.

## Figure 14

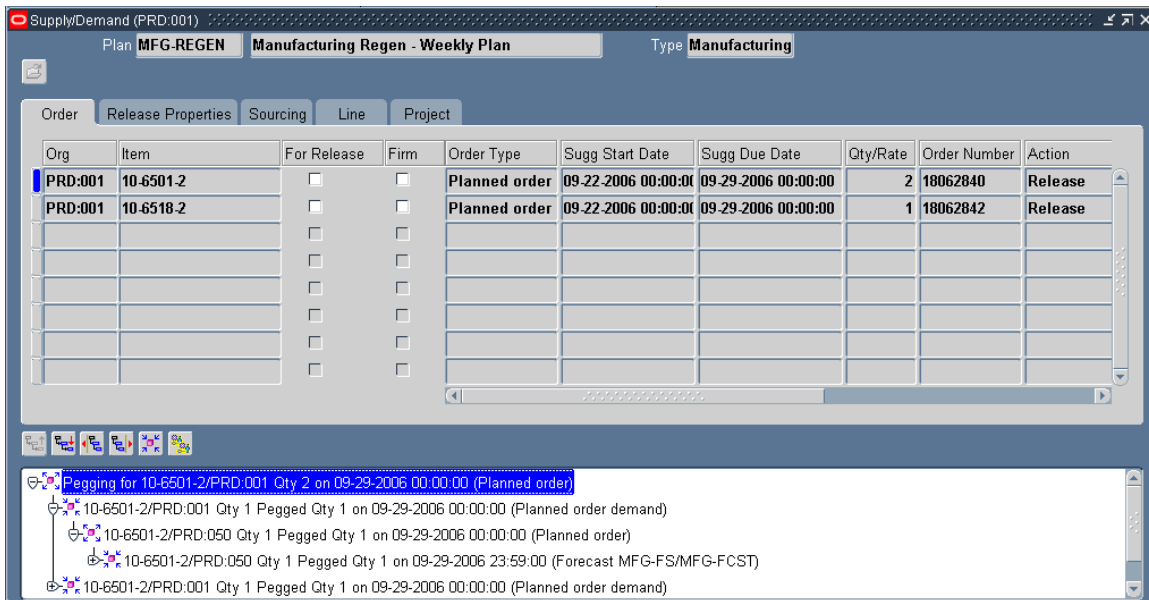Figure 14 further illustrates the Planners Workbench selection functionality.



## Figure 15

Figure 15 illustrates the Planners Workbench functionality that allows Planners or Buyers to release a Planner Order.

By releasing a Planned Order, the Buyer in effect allows ASCP to create an approved Requisition line against a Blanket PO, which in turn becomes an automatically approved Blanket PO Release.  This process of automatically releasing Planned PO's that enter the "Release Time Fence" defined to the item or the ASL lies at the heart of Oracle functionality that permits companies to automate their supply chain.

A company's global sourcing strategy should determine which suppliers are included on the Approved Supplier's List, or ASL, and in what percentage a specific commodity will be sourced from that supplier. While only one supplier can be a "primary supplier," the Approved Suppliers List (ASL) will allow any number of vendors to be entered as suppliers for any specific item.  The users determine which vendors the manufacturer will place PO's (either Planned or Firm) against, and in what percentage.  A user can enter multiple suppliers for any specific item on the ASL and a percentage of total spend for that item that should be directed to the supplier.  Suppliers must be in an "approved" versus a "pending" state to receive PO's.  When MRP/ASCP  automatically creates releases against Blanket PO's, MRP/ASCP will place PO's against the approved suppliers on the ASL according to the percentage indicated on the Approved Suppliers List.

In global sourcing, clearly, location of the vendors' manufacturing and/or distribution plants is critical, but cost and quality are key.  In developing a global sourcing strategy, at the least, companies will seek to work with companies that can guarantee minimal product quality and product delivery on a specific.  More advanced companies will seek to source from companies that share a common product development vision.  These experienced executives will look beyond current costs to longer-term prospects for a stable and educated workforce, political stability and long term shared vision.

In his paper, "116 Reasons the World is Flat," Wayne Mincey, President of the Hackett Group, say in effect that In The Hackett Group's 2005 survey of business process trends, business executives show a clear preference for the use of low-cost countries in developing either an insourcing or an outsourcing model, albeit from a current low base.



Fig. 3: Trends in sourcing strategies
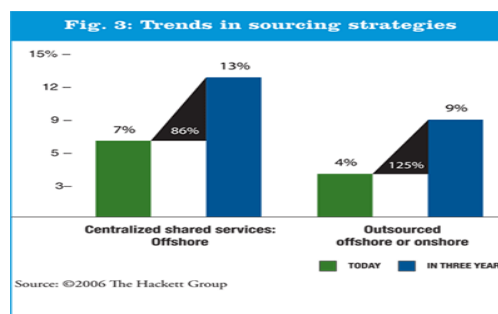
Once a company has determined its global sourcing strategy, Oracle ASCP Engine supports the processes required to support it. As globalization changes the corporate landscape, global sourcing will move beyond simply reducing costs to include a more comprehensive analysis of the company's key supplier relationships, product cost structures, the tradeoffs that result from changes in operating models, and risk.