

ENABLE INNOVATION IN ORDER FILL RATE, DSI AND OPERATIONAL EFFICIENCY FOR DEMAND DRIVEN SUPPLY CHAIN BY UPGRADING AND INTEGRATING MANUGISTICS SCPO AND COLLABORATE SOLUTION TO JDA 7.4.X SUCCESSFULLY

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Project Summary:

- Upgraded Manugistics SCPO 6.1.5 client server to JDA 7.4.x web enable solution with interface manager for hi-tech digital network printer company
- Upgraded Manugistics Network Collaborate 7.0.2 to JDA 7.4.x solution to collaborate with trading partners, supplier and VMI customers.
- Improved order fill rate to OEM customer and improves operational efficiency through demand driven planning analysis and decision support systems.
- Reduce bottleneck process constraints in the supply chain by business process reengineering and standardizing interface program
- Seamless integration with Oracle 11i and JDA solution with OWB tool.
- Enable web services oriented architecture (SOA) using OWB tools for mapping data and executing jobs through process flow
- Automate and integrate the scheduling of jobs with upgraded Appworx 7.2
- End-to-End integration provide synchronized supply and demand information for Fulfillment, Replenishment and web portal
- Successfully completed deliverables on schedule, under budget with quality
- Lower total cost of ownership.

Customer:

Xerox International Partners (XIP), established in 1991 as a joint venture between Fuji Xerox Co. Ltd. and Xerox Corporation. XIP sells digital marking engines, full-system printers and digital copiers to original equipment manufacturers for resale under the OEM brand name. The products are developed and manufactured by both companies in Japan, China, South Korea and Taiwan facilities. These products may be sold under the Xerox brand name. XIP sales and distributes the digital network printer products to OEM customer mostly in Americas, Europe, and Asia. Xerox International Partners (XIP) and Dell Inc. have entered into an agreement that will leverage Fuji Xerox's imaging technology and expertise and accelerate the growth of Dell's printing and imaging business. Under this agreement, Fuji Xerox will build on its strong patent portfolio, which is shared with Xerox Corporation, and manufacturing capabilities to

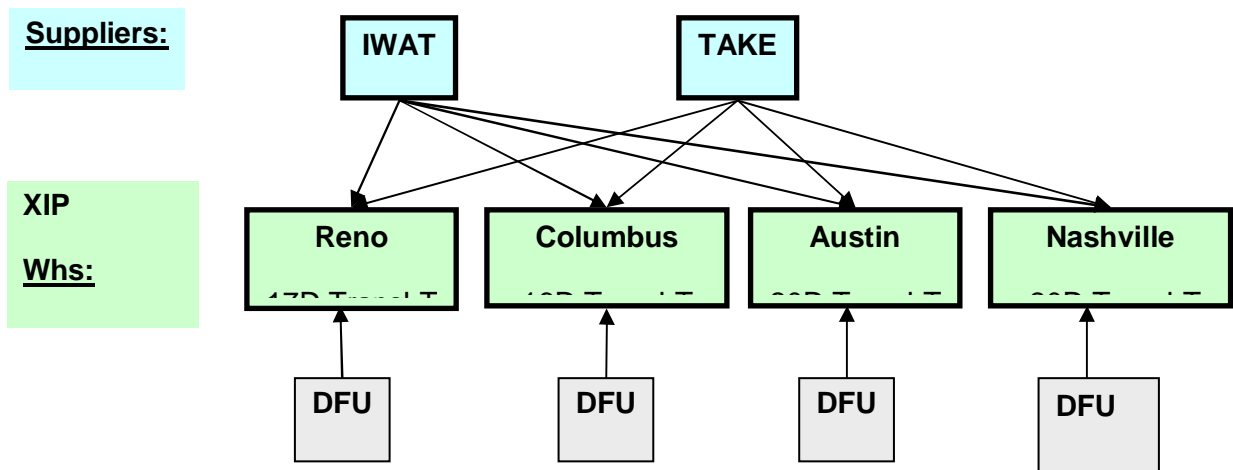
provide world-class technology based on Dell's strategy and specifications. Dell will acquire the

SUPPLY CHAIN SOLUTIONS:

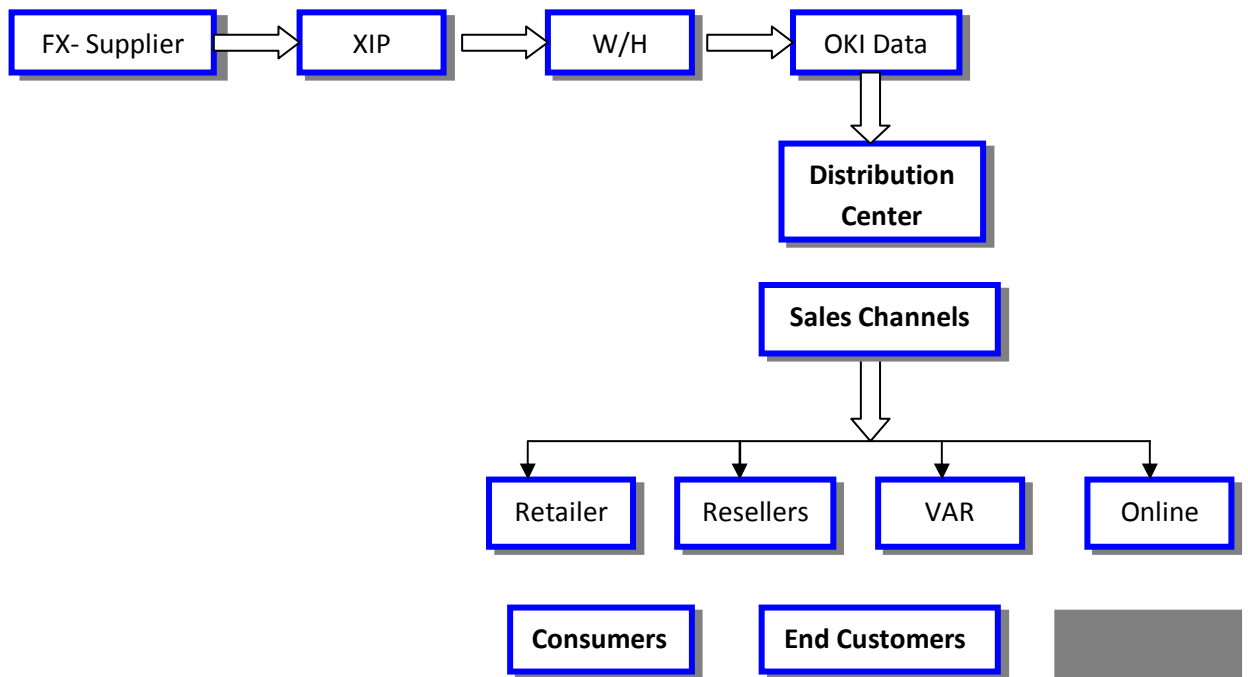
XIP fulfill two types of demand from OEM customer i.e. VMI customer and FOB Origin Customer. The VMI Customer (Dell, Lexmark) pulls the inventory from a warehouse managed by XIP near to OEM customer. XIP receives order from OEM customer (Dell, Lexmark, OKI Data, and IBM etc.) and replenish the orders from its warehouse near to the OEM customer. XIP follows a combination of make to order (MTO), Vendor Managed Inventory (VMI) and consignment supply chain model to replenish customer demand. VMI relationships allows XIP and OEM distributor to gain visibility about OEM's actual usage rather than just seeing a customer's orders. The XIP (Distributor) is then responsible for creating and maintaining the proper level of inventory. The customer PO Forecast and Sales Forecast are provided to the XIP (Vendor) via electronic data interchange (EDI). Under VMI, the distributor, not the end customer, generates the order. It also uses a consignment model where XIP owns the inventory at customer location without receiving payments until the goods are sold.

The industry specific digital printing solution can be tailor-made to help you improve the business performance, productivity and profitability. The supply chain includes the demand and supply planning processes for IOT/OPT/CRU and Spares materials. OKI Data, an OEM customer offer a full line of custom business printing solutions that increase productivity and provide a low total cost of ownership. It targets customer in Retail, Healthcare, Government, Education, Financial Services and other vertical industries by acquiring printing solution from XIP. B930 series from OKI printing solutions puts it all for demanding users.

North America Network: The following network represents the supply chain network for a VMI customer.



OEM Customer Sales Channels: The following network represents physical inventory flow from a supplier to a FOB or DDU Origin Customer.

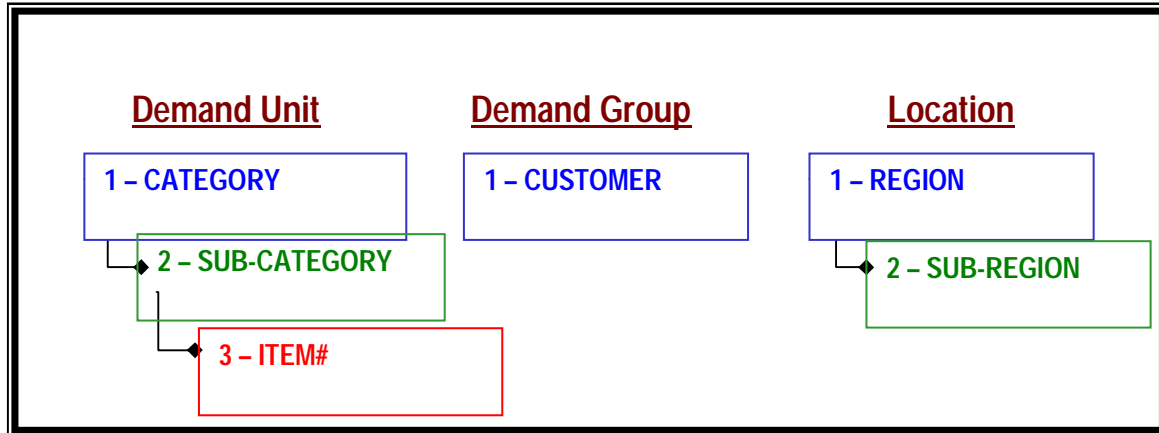


JDA Supply Chain solutions improve the order fill rate, operational efficiency of XIP and enable the collaboration with supplier, customers and trading partners. JDA acquires Manugistics Supply Chain solutions and plans to establish itself as a leading, vertically focused global supply chain software provider for manufacturers, wholesalers, distributors and retailers. The Supply Chain Planning and Optimization (SCPO) suite of products is a web-based decision-support system that provides tools for planning and controlling manufacturing and distribution operations. SCPO is supported by the JDA Foundation software, which provides common security administration and a central launch point for the applications.

JDA Fulfillment optimizes inventory and replenishment planning to create time-phased inventory plans that respect multiple time horizons-days, weeks, and months-and that recognize the interdependencies of the network on customer service and inventory investment. Collaborate is a real-time supply-chain collaboration tool that enables manufacturers and their suppliers to share information about inventories, production demand, and parts availability. With JDA Collaborate, trading partners can Collaborate on supply chain issues, share business plans and supply chain information, and use electronic messaging within and between their enterprises. Consensus forecasting-Perform basic analysis of multiple

forecast streams, revenue, and market data, and basic calculations for developing a consensus forecast number.

Forecast Levels:



Monthly Process Steps:

The monthly process steps are as follows for supply chain.

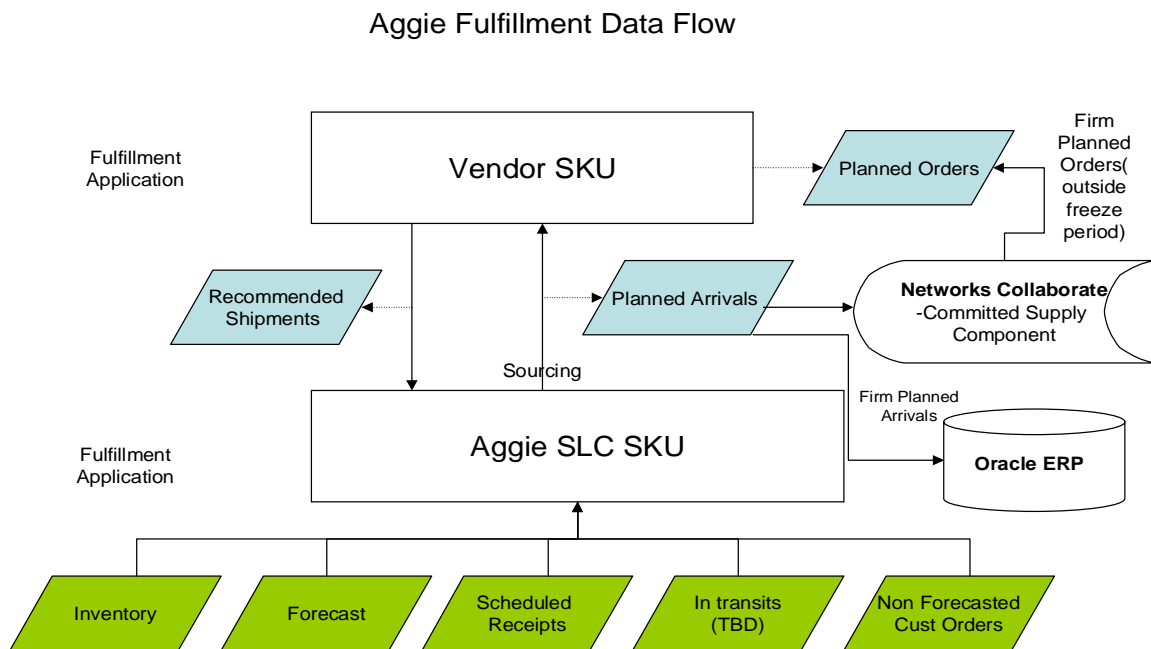
IOT/OPT/CRU

Process	Major Sub-Process	Sub-Process Description
Forecast - Customer Forecast		
	Generate Forecast (Aggies)	Aggies generates forecast using their planning systems
	Receive Forecast	Receive forecast from Aggies and import into planning system
	Validate Forecast	Compare with previous forecast to confirm any major discrepancies with Aggies
Plan - XIP Plan		
	Gather forecast information	Gather inventory, pull, long-range and promotional information from Aggies
	Generate Supply Plans	Aggregate demand, and apply statistical analysis and promotional mechanisms to define supply plan at the FX factory
	Determine Supply Adjustments	Determine net changes to supply plan and potential constraints to confirm net planned changes required on FX
	Publish planned production requirements to FX	Enable revised production requirements to be viewed by FX to provide supply response
Collaboration - FX/XIP Demand/Supply Collaboration		
	Obtain FX Supply Commit	Confirm changes are within flexibility and address exceptions
	Confirm XIP Impact	Understand the potential business and cost impact of new forecast
	Determine Recommended Changes	Confirm potential changes to forecast based on statistical direction and known supply availability/constraints
	Internal Interlock (Exception)	Confirm with XIP management any major changes to be communicated to Aggies
	Update system Plan(s)	Update planning system to reflect agreed changes and align with Aggies
	Supply Commit to Aggies	Publish supply commitment to the customer
DSI and Flexibility		
	Manage DSI	Monitor inventory levels and plan to achieve DSI targets
	Account for Flexibility	Include acceleration / reschedule flexibility requirements in planning calculations and monitor
Production Authorization		
	Calculate Production Quantity	Production quantity requirements calculated based on SLC on-hand in transit and production capacity
	Release Purchase Order (FXPS)	Release initial PO for appropriate Quantities
	Change Purchase Order (FXPS)	Update Purchase order/Production based on revised data
	Monitor Status	Confirm no major production issues that could impact shipment plans
Other Factors		
	Calendar Timing	Can the D/S process be completed within the cycle times required by Aggies
	TAA Fulfillment	How will TAA orders be managed through the planning process

Demand/Supply Planning Sub-Processes

In the US, Aggies will publish weekly forecast to Value Chain. Time buckets are daily (0 – 2 weeks), weekly (3 – 13) weeks, and monthly (beyond 13 weeks). XIP planning solution must have same buckets, as the supply commitment must be reported back to Aggies Supply Demand worksheet in these time buckets for a thirteen week period. XIP will pull the weekly forecast file from Aggies Value Chain system. XIP personnel can subscribe to the Value Chain folder, Demand/AMF (or EMF), which is where the MRP file will be uploaded. Manugistics will generate Planned Arrivals at each SLC via the Forecast, Plan, Collaborate process (flow and description above). The XIP Buyer must have the ability to manually convert the Planned Arrivals (PA) for each SLC to Firm Planned Arrivals (FPA) in Manugistics. The FPAs drive Purchase Order (PO) generation in Oracle.

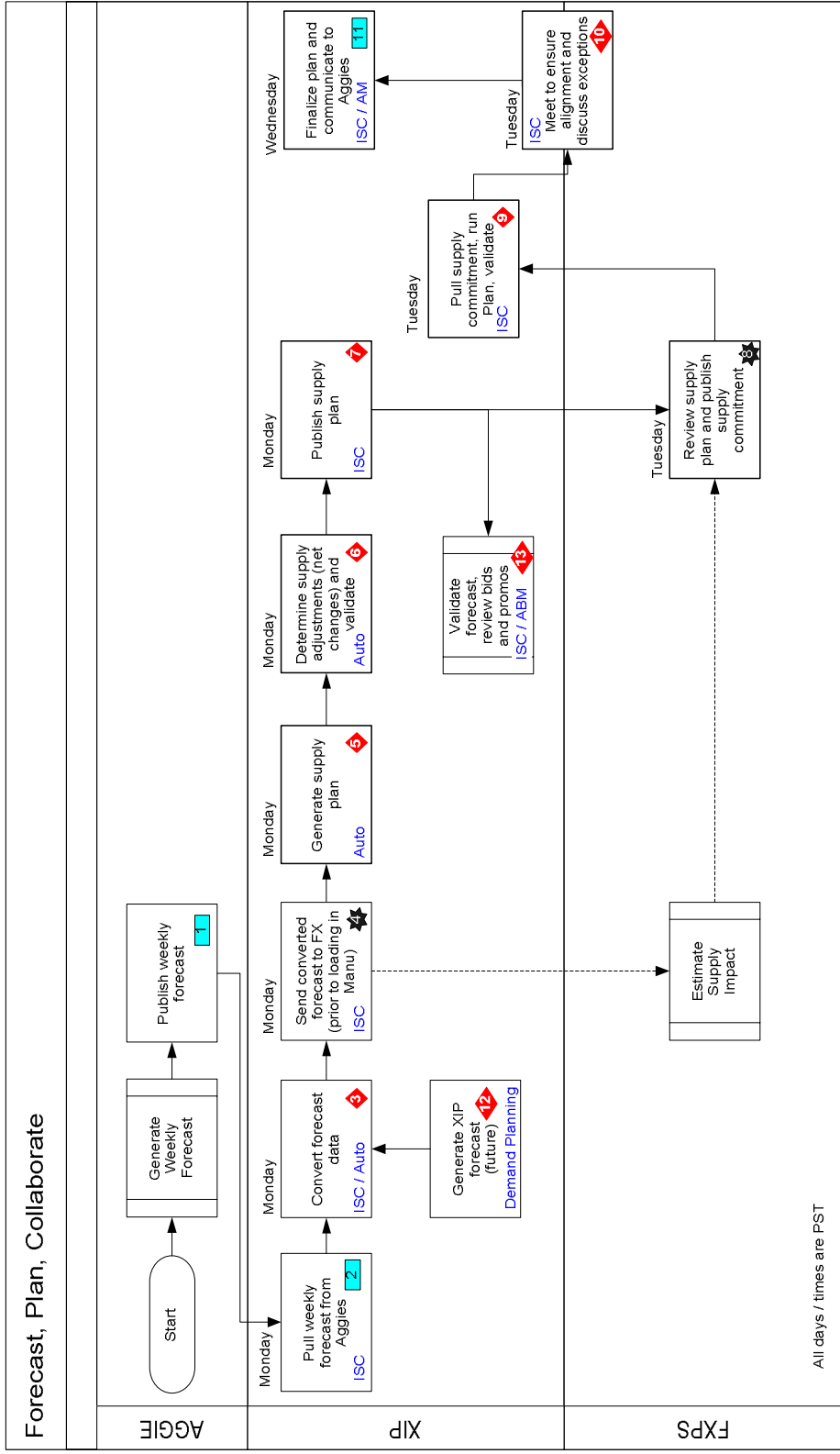
Fulfillment Flow Design



Sequence Process Steps:

1. Publish Weekly Forecast →
2. Pull Forecast →
3. Convert Forecast Data →
4. Send Forecast to FX →
5. Generate Supply Plan →
6. Determine Supplier Adjustment →
7. Publish Supply Plan →
8. Review Supply Commit →
9. Pull Supply Plan, Run Plan and Validate →
10. Review the Exceptions and Align →
11. Communicate to Customer →
12. Generate XIP Forecast →
13. Validate Forecast and promotions →
14. Generate Planned Arrivals →
15. Convert to Firm Planned Arrivals →
16. Generate PO (Product Authorization)

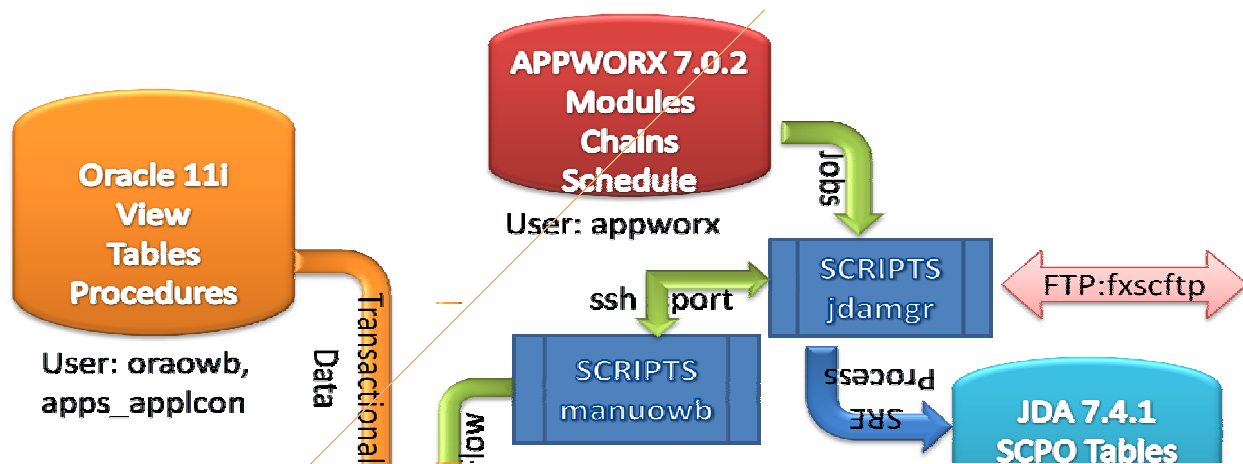
Process Flow — Forecast, Plan, Collaborate



SYSTEMS OVERVIEW:

XIP runs its daily operation using Oracle E-business 11.5.10 and gather transactional data for further processing downstream processes to support supply chain planning. The supply chain and planning optimization (SCPO) application version 6.1.5 is used to manage demand planning and fulfillment functionality. SCPO is a client/server desktop tool supported in Window platform. Network collaborate 7.0.2 is a web based application used for collaboration with trading partners. The transactional systems and planning systems are integrated fully using Web connect tools and batch jobs. The batch jobs are written in the scripting language and running in Unix operating system. Appworx scheduling tool is used to run the daily, weekly, monthly and on-demand jobs to support Manugistics supply chain solution.

Due to changes in the supply chain application technology, robust integration interface, webworks foundation, new functionality, maintainability, and web user interface, XIP decided to upgrade the existing systems to JDA solution 7.4.1. This gives us a window of opportunity to enhance the bottleneck operation through business process reengineering and improve the performance by adapting to the new technology. Most of the batch jobs are replaced by database driven architecture using Oracle Warehouse Builder (OWB) tool. The system architecture diagram describes the relationship between systems and information flow.



OWB:

Oracle Warehouse Builder (OWB) is Oracle's comprehensive tool for ETL (extract, transform and load), fully integrated relational and dimensional modeling, data quality, data auditing, and full life cycle management of data and metadata. It supports data integration and metadata management activities including:

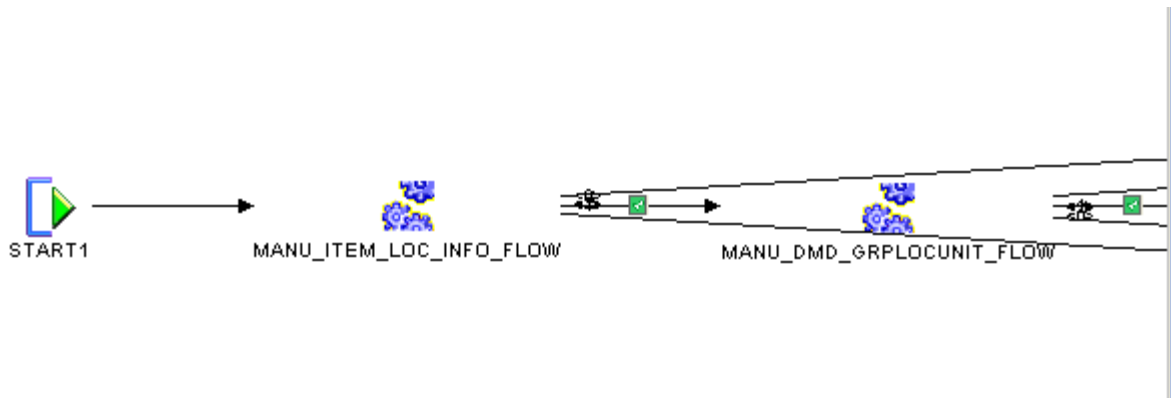
- Extraction, transformation, and loading (ETL) for data warehouses
- Consolidating data from heterogeneous data sources
- Migrating data from legacy systems
- Data modeling of relational and dimensional structures
- Designing and managing corporate metadata
- Data cleansing for maximizing information quality
- Data profiling and data quality auditing

Warehouse Builder depends on infrastructure in the Oracle Database 10g including calling external Web Services. Oracle Warehouse builder is the only enterprise Business Intelligence integration design tool that manages the full life-cycle of data and metadata for the Oracle database. Warehouse Builder consists of these components: Design Center, Repository Browser, OMB Plus and Administration Tools. The Design Center is the main client application of Warehouse Builder. It provides easy-to-use graphical interfaces that enable you to design, deploy, create, and monitor your data systems. Using the Design Center, you can access the entire set of Warehouse Builder components including the following:

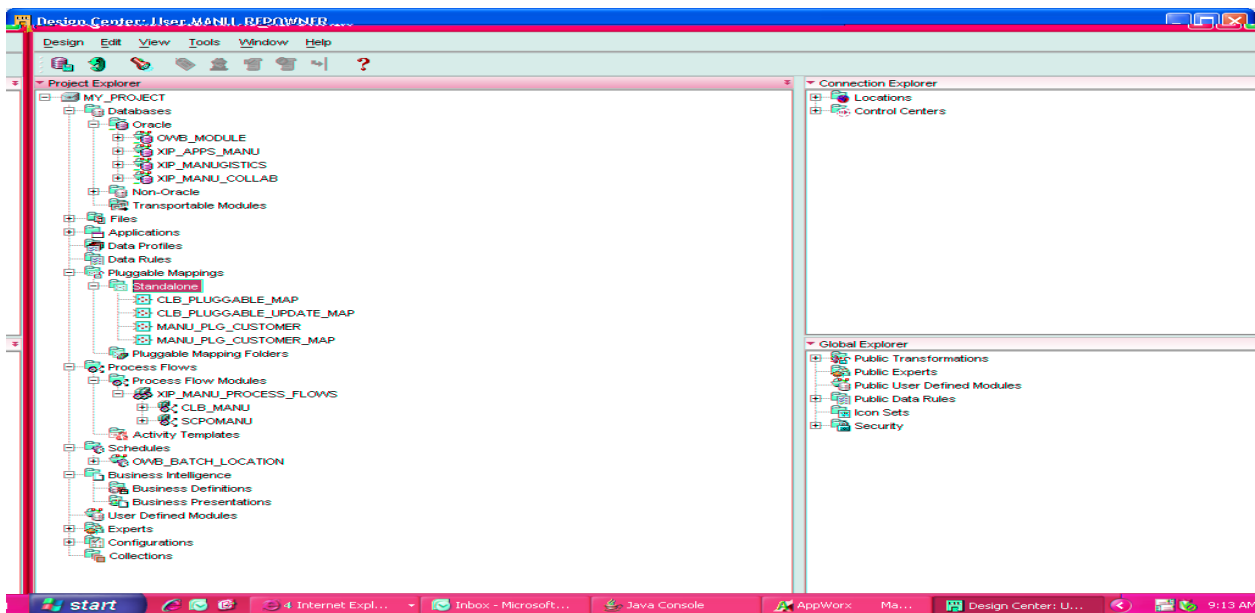
- Data Object Editor,
- Map Editor,
- Process Flow Editor,
- Control Center manager,
- Metadata change Manager and
- Expert Editor.

The Repository Browser is the reporting tool for viewing the data and metadata stored in the Warehouse Builder Repository. You can view lineage and impact reports as well as runtime data that records information about deployment and ETL jobs. OMB Plus is the scripting language that Warehouse Builder uses to create and edit metadata objects. You can access all of the functions available from the Design Center graphical interface. Refer to the Oracle Warehouse Builder Scripting Reference for more information. Administration Tools Utilities are provided for starting and stopping the local Control Center Service and the Repository Browser Listener.

Mappings describe a series of operations that extract data from sources, transform it, and load it into targets. They provide a visual representation of the flow of the data and the operations performed on the data. When you design a mapping in Warehouse Builder, you use the Mapping Editor interface. A process flow describes dependencies between Warehouse Builder mappings and external activities such as email, FTP, and operating system commands. If the mapping completes successfully, Warehouse Builder sends an email notification EMAIL_SUCCEED and launches another process flow SUBPROC1. If the mapping fails, Warehouse Builder sends an email EMAIL_FAIL and ends the process flow.



You can apply schedules to mappings and process flows that you want to execute in an Oracle database, version 10g or higher. When you are in the development phase of using Warehouse Builder, you may not want to schedule mappings and process flows but rather start and stop them immediately from a Control Center



XIP_MANU_PROCESS_FLOWS

- CLB_MANU
 - CLB_CELL_VERSION_DELETE_FLOW
 - CLB_DEL_PREV_MONTH_FLOW
 - CLB_MANU_CUST_ACTUAL_SHIP_FLOW
 - CLB_MANU_CUST_FCST_APP_FLOW
 - CLB_MANU_CUST_FCST_FLOW
 - CLB_MANU_CUST_NEEDBY_DATE_FLOW
 - CLB_MANU_CUST_OH_FLOW
 - CLB_MANU_CUST_PO_PROMISE_DATE
 - CLB_MANU_CUST_PRYR_ACT_SHIP
 - CLB_MANU_CUST_SALES_FCST_FLOW
 - CLB_MANU_CUST_XIP_OH_FLOW
 - CLB_MANU_DELE_CELL_VERSION
 - CLB_MANU_FX_ACTUAL_SHIP_FLOW
 - CLB_MANU_PLANNING_FLOW
 - CLB_MANU_SKU_SNAPSHOT_FLOW
 - CLB_MANU_XIP_ACTUAL_SHIP_FLOW
 - CLB_MANU_XIP_OH_FLOW
 - CLB_MANU_XIP_PRYR_ACT_SHIP
 - CLB_MOVE_BSLN_FCST_FLOW
 - CLB_MOVE_CONCENSUS_FCST_FLOW
 - CLB_MOVE_CUSTPO_FCSTFACT_ARCH
 - CLB_MOVE_CUSTPO_FCST_ARCH
 - CLB_MOVE_CUSTPO_FCST_FACT
 - CLB_MOVE_CUSTPO_FCST_FLOW
 - CLB_MOVE_CUSTSALES_FCST_FACT
 - CLB_MOVE_CUSTSALES_FCST_FLOW
 - CLB_MOVE_LEXSUPPL_FCST_FLOW
 - CLB_MOVE_LEX_SUPPLIER_COMMIT
 - CLB_MOVE_LEX_SUPPLIER_FCST

- Mappings
 - OWB_MODULE
 - XIP_APPS_MANU
 - XIP_MANUGISTICS
 - XIP_MANU_COLLAB
- Transformations
 - OWB_MODULE
 - XIP_APPS_MANU
 - XIP_MANUGISTICS
 - XIP_MANU_COLLAB
- Public Transformations
 - Custom
 - Pre-Defined
- Data Auditors
 - OWB_MODULE
 - XIP_APPS_MANU
 - XIP_MANUGISTICS
 - XIP_MANU_COLLAB
- Process Flows
 - XIP_MANU_PROCESS_FLOWS**
- Activity Templates

Control Center: DEFAULT_CONTROL_CENTER

File Edit View Window Help

View: All Objects

MY_PROJECT

- LEX_FCST_LOCATION1
- OWB_BATCH_LOCATION
- OWB_LOCATION
- OWF_MGR_LOCATION
- XIP_APPS_MANU_LOCATION
- XIP_CLB_WATERFALL_LOCATION
- XIP_CLB_WATERFALL_LOCATION1
- XIP_FX_DATA_LOCATION
- XIP_MANUGISTICS_LOCATION
- XIP_MANU_PROCESS_FLOWS_LOC
- Collections

Object Details

Details History

Object	Design Status	Deploy Action	Deployed	Deploy St
CLB_CELL_VERSION_DELETE_MAP	Unchanged	None	6/10/08 1:58 PM	Success
CLB_MANU_PL_CUSTSALES_FCST_MAP	Unchanged	None	6/10/08 1:58 PM	Success
CLB_MANU_PL_CUST_ACTUAL_SHIP	Unchanged	None	6/10/08 1:59 PM	Success
CLB_MANU_PL_CUST_FCST_APP_MAP	Unchanged	None	6/10/08 1:58 PM	Success
CLB_MANU_PL_CUST_OH_MAP	Unchanged	None	6/10/08 1:58 PM	Success
CLB_MANU_PL_CUST_PO_NEEDBY	Unchanged	None	6/10/08 1:58 PM	Success
CLB_MANU_PL_CUST_PO_PROMISE	Unchanged	None	6/10/08 1:58 PM	Success
CLB_MANU_PL_CUST_PRYR_ACT_SHIP	Unchanged	None	6/10/08 1:58 PM	Success

Control Center Jobs

Number of Days: 7 Number of Items: 10

Job	Id	Status	Finished	Owner
MANU_PROCESS_DAILY	2339300	!!!		MANU_REP...
MANU_PROCESS_DAILY	2323032	✗	7/16/08 4:59 PM	MANU_REP...
CLB_SCPO_SKUPROJ...	2322908	✓	7/16/08 10:19 AM	MANU_REP...
MANU_PROCESS_DAILY	2321997	✗	7/16/08 11:48 AM	MANU_REP...
MANU_PROCESS_DAILY	2320883	✓	7/17/08 4:10 AM	MANU_REP...
CLB_SCPO_SKUPROJ...	2320765	✓	7/16/08 4:05 PM	MANU_REP...
CLB_SCPO_PLAN_PRO...	2320750	✓	7/16/08 3:56 PM	MANU_REP...
CLB_SCPO_PUB_FCST...	2320725	✓	7/16/08 3:53 PM	MANU_REP...
MANU_CUST_FCST_FL...	2320710	✓	7/16/08 3:50 PM	MANU_REP...

Deployment Execution Scheduled

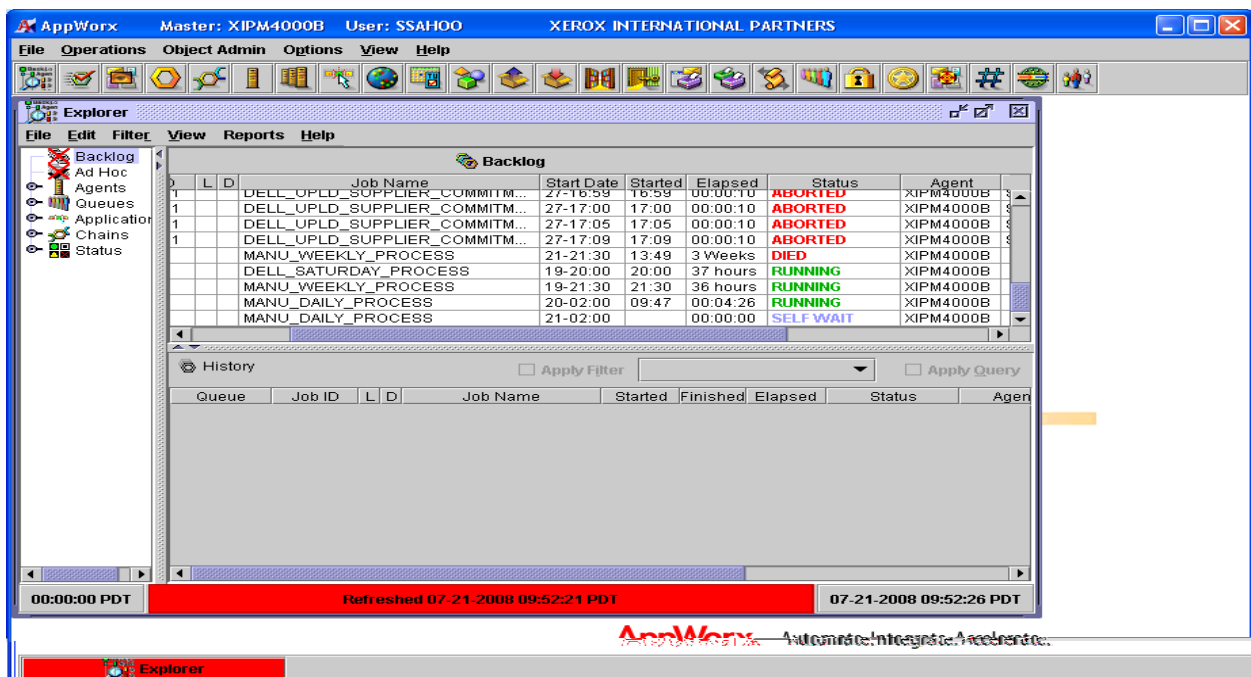
start

Internet ... Inbox - Micr... 2 Java(TM)... javaw My Documents Microsoft Word 9:21 AM

APPWORX Scheduling:

AppWorx is a registered trademark of UC4 Software, Inc. AppWorx version 7.0 has always been known for its industry leading and innovative capabilities in scheduling applications across enterprises. UC4 Software, a leading global provider of workload automation and IT process optimization solutions acquired Appworx to provide true enterprise scheduling, both within and beyond the Oracle environment. UC4 solutions can centrally manage the processing of that event throughout its life-cycle, spanning web-based, custom and packaged applications, triggering dependent tasks based on business application events and data states as well as clock, calendar and system-based criteria. It was a great opportunity to upgrade Appworx Scheduling tool from 6.x to 7.x to support supply chain solution. Agents-an instance of AppWorx, is installed on each machine where jobs are executed. An agent can be a master's local agent, a remote agent, or an application-specific agent such as Oracle Applications, SAP, or PeopleSoft.

Modules and Chains are the basic building block in AppWorx. For each program you want to run (for example: FTP, application, database load), you must create a module. A module contains all the information required to execute a program and handle its output. Modules are run both individually and as components of AppWorx chains. If you change a module definition, the change is applied to every chain that includes it. Chains can include one or more components (modules and other chains), general scheduling information for the chain, and specific eligibility for each of its components, and conditions that must be met for each component to run.



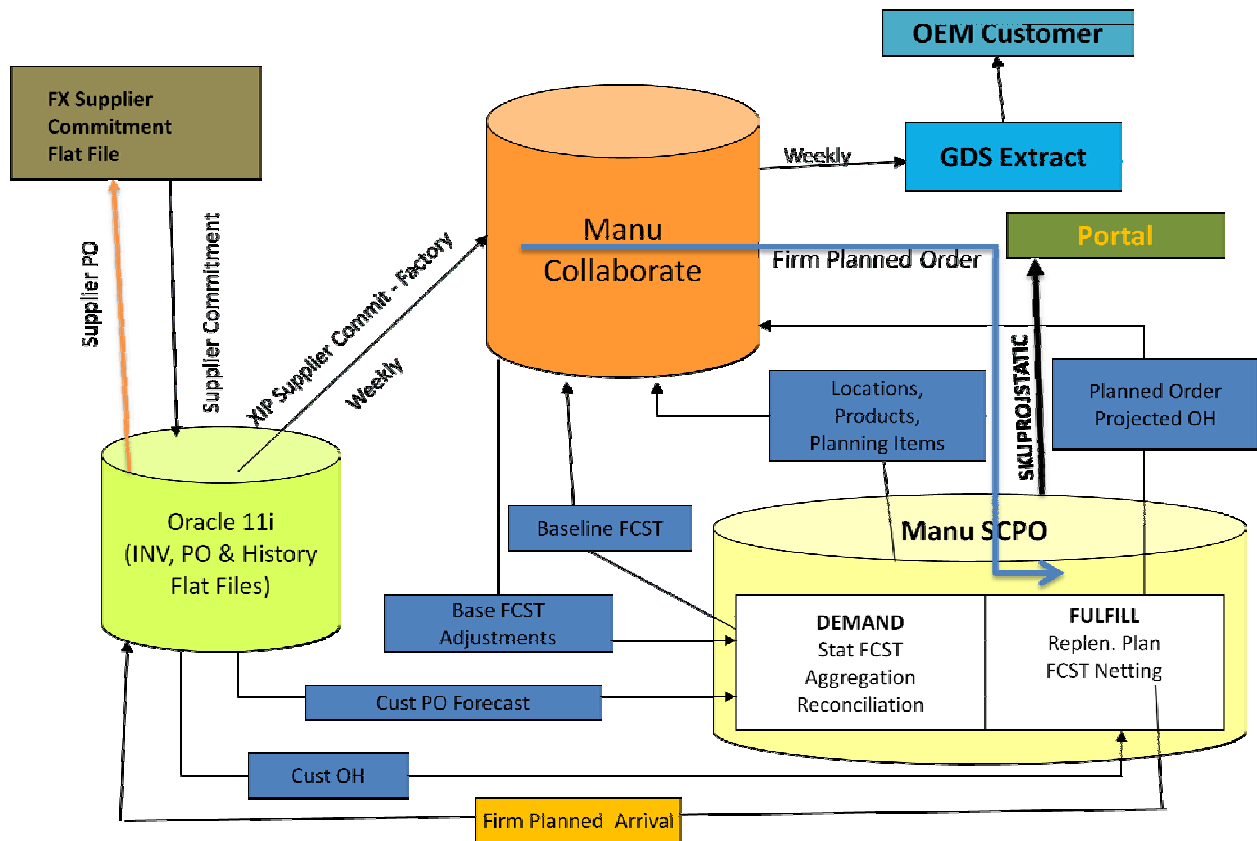
The screenshot displays the AppWorx Explorer application window. The title bar indicates the Master is XIPM4000B, the User is SSAHOO, and the system is XEROX INTERNATIONAL PARTNERS. The interface includes a menu bar (File, Operations, Object Admin, Options, View, Help) and a toolbar with various icons. The main area is divided into two panes: 'Backlog' and 'History'. The 'Backlog' pane shows a table of jobs with columns for Job Name, Start Date, Started, Elapsed, Status, and Agent. The 'History' pane is currently empty. The status bar at the bottom shows the time as 00:00:00 PDT and a refresh timestamp of 07-21-2008 09:52:26 PDT.

Queue	Job ID	L	D	Job Name	Started	Finished	Elapsed	Status	Agent
				DELL_UPLD_SUPPLIER_COMMITM...	27-16:39	16:39	00:00:10	ABORTED	XIPM4000B
	1			DELL_UPLD_SUPPLIER_COMMITM...	27-17:00	17:00	00:00:10	ABORTED	XIPM4000B
	1			DELL_UPLD_SUPPLIER_COMMITM...	27-17:05	17:05	00:00:10	ABORTED	XIPM4000B
	1			DELL_UPLD_SUPPLIER_COMMITM...	27-17:09	17:09	00:00:10	ABORTED	XIPM4000B
				MANU_WEEKLY_PROCESS	21-21:30	13:48	3 Weeks	DIED	XIPM4000B
				DELL_SATURDAY_PROCESS	19-20:00	20:00	37 hours	RUNNING	XIPM4000B
				MANU_WEEKLY_PROCESS	19-21:30	21:30	36 hours	RUNNING	XIPM4000B
				MANU_DAILY_PROCESS	20-02:00	09:47	00:04:26	RUNNING	XIPM4000B
				MANU_DAILY_PROCESS	21-02:00		00:00:00	SELF WAIT	XIPM4000B

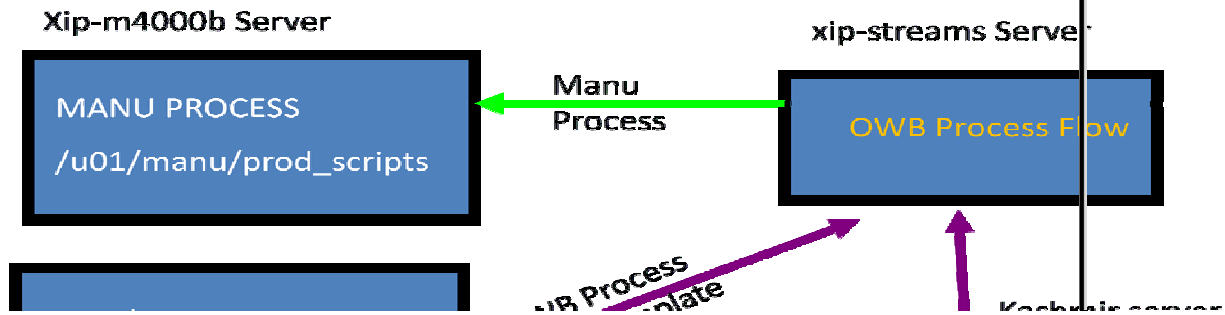
Integrated Information Flows:

Oracle 11i is uniquely positioned to provide the transactional data for the supply chain planning. The information flows are integrated across the supply chain for visibility and sharing with trading partners. The OEM customer PO forecast or Sales forecast is received in a flat file and loaded into Oracle 11i. These forecasts are transformed into recommended shipments and planned arrivals during the planning process. The SKU projection data are analyzed using plan analysis tool.

JDA Collaborate tool is used for importing various components from SCPO for collaboration. The planned orders are firmed up in the Collaborator to create supplier forecast. This supplier forecast is matched up with the supplier commitment from factory. The PO is created against FX supplier to get the firm commitment to meet customer demand.



The process flows are scheduled by executing batch job scripts through Appworx scheduler. This calls the OWB process flows which in turns run the daily data extraction from Oracle transactional system and execute Manu process to generate plan, recommended shipments and sku projections for further analysis by the planner. The systems are remotely integrated via secure shell between the host systems to transfer information through a scheduling tool.



Business Challenges:

It was very challenging to upgrade from 6.1.5 a client server to 7.4.x web enable platform due to multiple versioning steps, web technology, changes to database table structures, data definitions, webworks foundations and integration interface manager. The entire batch UNIX scripts programming language were completely reengineered and replaced by Oracle Warehouse Builder (OWB) tool that provides unique and enormous challenge to cross.

- Upgrading from 6.1.5 to 7.4.1 needs lots of planning, reengineering and upgrading with multiple versioning steps
- Integration Interface using IGPMGR (SCPO and Network Collaborate) that replaces Web Connect tool.
- Data definition changes are inconsistent posed a challenge during upgrade process
- Application foundation is changed to Web based (3 tier) enabling a common security architecture for SCPO and Collaborate applications
- Users from SCPO and Collaborate were merged with one user and roles are added to operate effectively
- New Search functionality was not upgraded successfully, needed a custom solution to migrate with proper security for the current business requirements
- Reengineering the business process to develop maps and flow using OWB tool to support SOA architecture and reduce cycle time.

- Lack of testing by the Application vendor caused more testing at our end and fixing the defects during the migration
- Performance issue with SRE foundation, Export process and Database objects during the process request
- Availability of the System hindered development and system testing cycle due to hardware configuration
- Integration testing scenario between Trading partners, supplier and customers took longer time than anticipated

Solutions:

Nuonus conducted a full-scale study and documented as-is processes, to-be processes, operational procedures and information flows between various disparate systems of XIP. Major features of JDA SCPO and Collaborate solutions were exploited to offer a best-fit solution with a user friendly web interface. The solution was designed and developed using Oracle Warehouse Builder tool to enable web services and low cost of ownership. The system configurations, technical interfaces and functional setups for JDA supply chain solutions were clearly identified with fewer customizations to accommodate business requirements. The pilot was conducted to show the fitment and Gaps of JDA solution for each business requirement and make the application user-friendly and maintainable. The upgrade process was improved by adding post-migration steps for searches and filters based on the security features. The Appworx scheduling tool was also upgraded to leverage the new features and functionality. Each activity of the project were carefully planned following best practices of project management and executed with minutest precision not to disturb Client operations.

Working with Plan Analysis Tool:

Plan Analysis tool allows you to review distribution plans for products in your supply chain. You can view the demand and supply for products at various levels of detail, from total demand, total supply, and projected on hand, to detailed components of that demand or supply.

- You can view multiple SKUs at the same time.
- The target SKU and that are related to it (Destinations) are displayed in the same page
- You can drilldown on one SKU from one level of detail to another using Pegging capability.
- You can edit the Planned Arrival for Destination and save it for further processing
- View the critical information in the Header Page and in a grid or graph
- Display data based on Calendar, start date and time horizon
- Add expression to summarize the data
- Add Comments to a specific record
- Export the data for reporting

Plan Analysis :XIP Weekly Plan

Scenario: Live Search: Select Multiple

Properties Export Related Pages

Previous Go To Next

Calendar: DELL_WEEKF Start date: 11/03/08 Duration: 180D

675K3485X @ TAKE | DESC: Cartridge Assy-8k_K | U_PROD_FAMILY(SKU): V767

	11/03/08	11/08/08	11/15/08	11/22/08	11/29/08	12/06/08	12/13/08	12/20/08	12/27/08	01/03/09	01/10/09	01/17/09	01/24/09	01/31/09	02/07/09	02/14/09	02/21/09	02/28/09
Total Demand	0	0	1,144	1,107	1,604	1,856	1,520	2,444	5,475	4,982	5,234	4,982	4,982	5,150	5,066	4,562	3,359	3,204
FirmPlanOrder	0	0	2,100	2,100	2,100	4,788	5,040	5,040	5,040	5,040	5,292	4,788	5,292	5,544	5,544	5,460	5,460	4,620
RecShip	0	0	2,100	2,100	2,100	4,788	5,040	5,040	5,040	5,292	4,788	5,292	5,544	5,544	5,460	5,460	4,620	

Destinations and parents Ultimate destinations and parents

675K3485X @ XIPCPH | ON HAND: 66 | DmdToDate(SKUDemandParam): 2

	11/03/08	11/08/08	11/15/08	11/22/08	11/29/08	12/06/08	12/13/08	12/20/08	12/27/08	01/03/09	01/10/09	01/17/09	01/24/09	01/31/09	02/07/09
Total Demand	6	10	10	10	5	5	5	5	5	5	5	5	5	5	5
RecArriv	0	0	0	0	0	0	0	0	0	84	0	0	0	0	0
ConstrProjOH	65	58	49	39	29	24	19	14	9	4	83	78	73	68	63
ConstrCovDur	65D	61D	54D	47D	40D	33D	26D	19D	12D	5D	3650D	3650D	3650D	3650D	3650D

675K3485X @ XIPLIM | ON HAND: 54 | DmdToDate(SKUDemandParam): 0

	11/03/08	11/08/08	11/15/08	11/22/08	11/29/08	12/06/08	12/13/08	12/20/08	12/27/08	01/03/09	01/10/09	01/17/09	01/24/09	01/31/09	02/07/09
Total Demand	6	10	10	10	5	5	5	5	5	5	5	5	5	5	5
RecArriv	0	0	0	0	0	0	84	0	0	0	0	0	0	0	0
ConstrProjOH	53	47	37	27	17	12	7	86	81	76	71	66	61	56	51

Decision Support Workbench:

The Decision Support Workbench provides you with tools that aid in quick and effective decision making during the Demand Planning process. It provides you with a single platform that allows you to view and manipulate the required data in a single place. The Decision Support Workbench has been logically divided into tabs, based on the data to be viewed. The main tabs are the Demand Workbench, and DFU Information. You can access the features and data relevant to you by clicking the tabs. The Demand application offers users much flexibility in developing and analyzing a forecast. User defined Data Streams extends this ability even further by enabling you to analyze inputs other than the standard nine forecast types.

The Demand Workbench graph is based on the data in the Demand Workbench grid. This interactive graph allows you to modify the data by right-clicking the required data point and adding the necessary Override, Lock, DDE, Target, or Mean value adjustment. The data in the grid is automatically updated to reflect the change in the graph. The Forecast grid is part of the Demand Workbench grid and displays the time-phased forecasting values across periods.

Decision Support Workbench

Save Manager | Quick Search | Search Manager | DFUPROMPT

Demand Workbench		DFU Information							
DmdUnit	Description	DmdGroup	Loc	Model	Demand Post Date	Demand Calendar	Hist		
1 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	ASSESSMENT	10/18/08	Details			
2 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_PO_FCST	10/18/08	Details			
3 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SALES_FCST	10/18/08	Details			
4 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_CROS	10/18/08	Details			
5 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_FOR	10/18/08	Details			
6 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_LEW	10/18/08	Details			
7 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_MLR	10/18/08	Details			
8 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_MLRll	10/18/08	Details			
9 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	XIP_SHIP_CROS	10/18/08	Details	6		
10 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	XIP_SHIP_DEFAULT	10/18/08	Details	6		
11 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	XIP_SHIP_FOR	10/18/08	Details	6		

DmdUnit	Description	DmdGroup	Loc	Model	MSE	Symmetric MAPE	Level	Mean
1 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	ASSESSMENT				
2 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_PO_FCST				
3 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SALES_FCST				
4 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_CROS				
5 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_FOR				
6 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_LEW				
7 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_MLR				
8 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	CUST_SHIP_MLRll				
9 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	XIP_SHIP_CROS				
10 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	XIP_SHIP_DEFAULT	66723	0	2487	
11 675K3485X	Cartridge Assy-8k_K	DELL	OHIO	XIP_SHIP_FOR	66723	0	2487	

JDA : Decision Support Workbench - Windows Internet Explorer

http://xip-manuprod.xip.net:7001/dsworkbench/ControllerServlet?frame=workbench&Listing=Decision+Support+Workbench

File Edit View Favorites Tools Help

JDA : Decision Support W... X Introduction to AppWorx

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Decision Support Workbench

Save Manager | Quick Search | Search Manager | BESTPICKPUBLISH

Demand Workbench

Graph type: Forecast Quality

Mad / Mean

Mean

Graph type: Serial Correlation

Durbin-Watson Statistic

Mean

History and Forecast Year Over Year

Done Internet 100%

Working with Collaborate Worksheet:

Collaborate is a real-time supply-chain collaboration tool that enables manufacturers and their suppliers to share information about inventories, production demand, and parts availability. With JDA Collaborate, trading partners can collaborate on supplier forecast, supplier commitment, share business plans and supply chain information between their enterprises.

The collaborate process steps are outlined for trading partners and OEM Customers.



A weekly batch job will copy the XIP Supplier Commitment – Factory components as Firm Planned Order (FPA) into SCPO for initiating the PO upload process. The day of supply inventory (DSI) is calculated based on the constraint project on hand and PO forecast by the OEM customer. DSI is one of the key measures to manage inventory position at the hub and safety stock to hedge the CRU demand.

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JDA Software Group

Collaborate Worksheet

[Search](#)

[View](#) | [Planning](#) | [Worksheet](#) | [Setup](#)

Active Measurement: Each / Unit

Worksheet Properties

User Views: XIP-FX Collaboration (FX) | **View:** No data | **Calendars:** Weekly DELL

Versions: Current | **Partner:** IWAT

Hierarchies: Supplier->Cust->Category->Prod->Supplier PC | **Aggregation:** On

Actions | All

Supplier Name

- IWAT
- SPC
- TAKE

		All														
<input checked="" type="checkbox"/>	Supplier Name	Enterprise	Version	Component	9/27/08	10/4/08	10/11/08	10/18/08	10/25/08	11/1/08	11/8/08	11/15/08	11/22/08	11/29/08	12/6/08	12/13/08
<input checked="" type="checkbox"/>	XIP		0	FX Actual Ships - Factory	1,019	0	320	239	882	0	0	0	0	0	0	0
<input type="checkbox"/>	TAKE	XIP	0	XIP Actual Ships - Factory	61,578	62,671	54,374	60,723	52,114	12,484	0	0	0	0	0	0
<input type="checkbox"/>		XIP	0	Cust PO Forecast - Factory	21,938	21,938	21,938	21,938	21,938	58,845	58,813	58,598	58,568	66,562	66,544	6
<input type="checkbox"/>		XIP	0	Cust PO Forecast (-1w) - Factory	22,017	22,017	22,017	22,017	60,862	59,763	59,730	59,708	59,688	72,157	65,947	6
<input type="checkbox"/>		XIP	0	XIP OH - Factory	353,053	0	0	0	339,833	332,898	0	0	0	0	0	0
<input type="checkbox"/>		XIP	0	Supplier Intransit - Factory	0	0	1,260	0	0	55,703	46,426	30,153	16,240	4,755	0	
<input type="checkbox"/>		XIP	0	XIP Sched Rec - Factory	0	0	0	0	0	16	0	600	22,350	42,731	58,463	2
<input type="checkbox"/>		XIP	0	XIP ConProj OH - Factory	0	0	0	0	0	346,057	341,957	311,923	274,297	255,874	245,977	27
<input type="checkbox"/>		IWAT	0	Dell DSI - Factory	0	0	0	0	0	30	29	27	23	19	18	
<input type="checkbox"/>		XIP	0	XIP SS - Factory	0	0	0	0	0	86,070	86,025	85,907	82,269	82,205	80,999	7
<input type="checkbox"/>		XIP	0	Supplier Sched Ship - Factory	0	16	0	0	12,528	48,698	54,259	32,565	0	0	0	
<input type="checkbox"/>		XIP	0	XIP Planned Orders - Factory	0	0	0	0	0	0	1,005	85,730	40,393	39,159	45,381	4
<input type="checkbox"/>		XIP	0	XIP Supplier Forecast - Factory	0	0	0	0	0	0	0	52170	48267	47929	76749	6
<input type="checkbox"/>		XIP	0	XIP Supplier Forecast (-1w) - Factory	0	0	0	0	0	0	59,584	52,170	47,142	50,179	76,749	6
<input type="checkbox"/>		XIP	0	XIP Supplier Commitment - Factory	0	0	0	0	0	0	0	52170	48267	47929	76749	6
<input type="checkbox"/>		XIP	0	XIP Supplier Commitment (-1w) - Factory	0	0	0	0	0	0	57,739	50,385	48,432	49,279	75,729	6
<input type="checkbox"/>		XIP	0	FX Actual Ships - Factory	30,437	68,568	42,450	49,018	35,752	0	0	0	8,280	0	0	0

The actual shipments, customer PO forecast, constraint on hand and days of supply of inventory (DSI) are shared using collaborate worksheet. The customer Forecasts are also shared with supplier for a better visibility and managing the cash flow based on the FOB shipment.

JDA : Collaborate Worksheet - Windows Internet Explorer

http://xip-manuprod.xip.net:7001/collaborate/ControllerServlet?frame=worksheet

File Edit View Favorites Tools Help

Tools

Active Measurement: Each / Unit

Worksheet Properties

User Views: XIP-FX Collaboration (FX) View: Aggregate Calendars: Weekly DELL

Versions: Current Partner: IWAT

Hierarchies: Supplier->Cust->Category->Prod->Supplier PC Aggregation: On

Actions All > TAKE

Customer name	Enterprise	Version	Component	9/27/08	10/4/08	10/11/08	10/18/08	10/25/08	11/1/08	11/8/08	11/15/08	11/22/08	11/29/08	12/6/08
Total	XIP	0	XIP Actual Ships - Factory	61,578	62,671	54,374	60,723	52,114	12,494	0	0	0	0	0
	XIP	0	Cust PO Forecast - Factory	21,938	21,938	21,938	21,938	21,938	58,645	58,613	58,596	58,568	66,562	66,544
	XIP	0	Cust PO Forecast (-1w) - Factory	22,017	22,017	22,017	22,017	60,952	59,763	59,730	59,708	59,688	72,157	66,544
	XIP	0	XIP OH - Factory	353,053	0	0	0	339,833	332,896	0	0	0	0	0
	XIP	0	Supplier Intransit - Factory	0	0	1,260	0	0	55,703	46,426	30,153	16,240	4,755	0
	XIP	0	XIP Sched Rec - Factory	0	0	0	0	0	16	0	600	22,350	42,731	58,483
	XIP	0	XIP ConProj OH - Factory	0	0	0	0	0	346,057	341,957	311,923	274,297	255,874	245,874
	IWAT	0	Dell DSI - Factory	0	0	0	0	0	30	29	27	23	19	0
	XIP	0	XIP SS - Factory	0	0	0	0	0	86,070	86,025	85,907	82,269	82,205	80,999
	XIP	0	Supplier Sched Ship - Factory	0	16	0	0	12,528	48,698	54,259	32,565	0	0	0
	XIP	0	XIP Planned Orders - Factory	0	0	0	0	0	0	1,005	85,730	40,393	39,159	45,311
	XIP	0	XIP Supplier Forecast - Factory	0	0	0	0	0	0	0	52,170	48,267	47,929	76,749
	XIP	0	XIP Supplier Forecast (-1w) - Factory	0	0	0	0	0	0	59,584	52,170	47,142	50,179	76,749
	XIP	0	XIP Supplier Commitment - Factory	0	0	0	0	0	0	0	52,170	48,267	47,929	76,749
	XIP	0	XIP Supplier Commitment (-1w) - Factory	0	0	0	0	0	57,739	50,385	46,432	49,279	75,729	0
	XIP	0	FX Actual Ships - Factory	30,437	68,568	42,450	49,018	35,752	0	0	0	8,280	0	0

30% Done Internet

JDA : Collaborate Worksheet - Windows Internet Explorer

http://xip-manuprod.xip.net:7001/collaborate/ControllerServlet?frame=worksheet

File Edit View Favorites Tools Help

Tools

Hierarchies: Supplier->Cust->Category->Prod->Supplier PC Aggregation: On

Actions All > TAKE

Customer name	Enterprise	Version	Component	9/27/08	10/4/08	10/11/08	10/18/08	10/25/08	11/1/08	11/8/08	11/15/08	11/22/08	11/29/08	12/6/08
	XIP	0	XIP Actual Ships - Factory	61,578	62,671	54,374	60,723	52,114	12,494	0	0	0	0	0
	XIP	0	Cust PO Forecast - Factory	21,938	21,938	21,938	21,938	21,938	58,645	58,613	58,596	58,568	66,562	66,544
	XIP	0	Cust PO Forecast (-1w) - Factory	22,017	22,017	22,017	22,017	60,952	59,763	59,730	59,708	59,688	72,157	66,544
	XIP	0	XIP OH - Factory	353,053	0	0	0	339,833	332,896	0	0	0	0	0
	XIP	0	Supplier Intransit - Factory	0	0	1,260	0	0	55,703	46,426	30,153	16,240	4,755	0
	XIP	0	XIP Sched Rec - Factory	0	0	0	0	0	16	0	600	22,350	42,731	58,483
	XIP	0	XIP ConProj OH - Factory	0	0	0	0	0	346,057	341,957	311,923	274,297	255,874	245,874
	IWAT	0	Dell DSI - Factory	0	0	0	0	0	30	29	27	23	19	0
	XIP	0	XIP SS - Factory	0	0	0	0	0	86,070	86,025	85,907	82,269	82,205	80,999
	XIP	0	Supplier Sched Ship - Factory	0	16	0	0	12,528	48,698	54,259	32,565	0	0	0
	XIP	0	XIP Planned Orders - Factory	0	0	0	0	0	0	1,005	85,730	40,393	39,159	45,311
	XIP	0	XIP Supplier Forecast - Factory	0	0	0	0	0	0	0	52,170	48,267	47,929	76,749
	XIP	0	XIP Supplier Forecast (-1w) - Factory	0	0	0	0	0	0	59,584	52,170	47,142	50,179	76,749
	XIP	0	XIP Supplier Commitment - Factory	0	0	0	0	0	0	0	52,170	48,267	47,929	76,749
	XIP	0	XIP Supplier Commitment (-1w) - Factory	0	0	0	0	0	57,739	50,385	46,432	49,279	75,729	0
	XIP	0	FX Actual Ships - Factory	30,437	68,568	42,450	49,018	35,752	0	0	0	8,280	0	0

100% Done Internet

Total XIP Forecast is derived component from the base line forecast and supplier adjustment. But, this component can not be published due to functional limitation. The XIP components "Total XIP Forecast – Published" is shared between trading partners. The out of the box solution was designed using the planning component copy process from a derived component to sharable component.

Process:Planning Component Copy

Actions + + + + Choose option set PlanCompCopy-IBM

Search Selection

*Filter enterprise: --- Select a value ---

*Filter: --- Select a value ---

Planning Component Copy Service Options

*Source component enterprise: XIP

*Source component: Total XIP Forecast

*Source component version: 0

*Destination component enterprise: XIP

*Destination component: Total XIP Forecast - Published

*Destination component version: 0

*Start date: 8/1/08
 Offset: Plus Days:

*Duration: 365 days

Publish:

Generate audit:

Generate events:

Collaborate Worksheet

Search All IBM Part DMD

View Planning **Worksheet** Setup

Active Measurement: Each / Unit

Worksheet Properties

User Views: XIP Forecast Review View: Aggregate Calendars: 3 + 12 month rolling (edit)

Versions: Current Partner: XIP

Hierarchies: Customer -> PN Latest Rev. -> Location Aggregation: Off

I

Actions + + + + All

Customer Name	Enterprise	Version	Component	7/1/08	8/1/08	9/1/08	10/1/08	11/1/08	12/1/08	1/1/09	2/1/09	3/1/09	4/1/09	5/1/09	6/1/09
IBM	XIP	0	Cust PO Forecast (-1m)	0	0	913	1,247	525	444	795	798	627	822	699	240
	XIP	0	Cust PO Forecast	0	0	913	1,247	525	444	795	798	627	822	699	240
	XIP	0	XIP Baln Forecast	0	0	913	1,247	525	444	795	798	627	822	699	240
	XIP	0	Supplier Adjustment	-2,124.1	-2,766.7	-45.6	-1604.3	-522.4	926.4	-16.6	464.3	992.5	668.4	826.4	1152.4
	XIP	0	Total XIP Forecast	-2,124.1	-2,766.7	867.4	-357.3	2.6	1,370.4	778.4	1,262.3	1,619.5	1,390.4	1,525.4	1,392.4
	XIP	0	Supplier Intransit	0	0	0	0	0	0	0	0	0	0	0	0
	XIP	0	XIP Actual Ships	336	265	536	600	0	0	0	0	0	0	0	0
	XIP	0	Total XIP Forecast (-1m)	-1,927.843	-2,667.08	867.4	-357.3	2.6	1,370.4	778.4	1,262.3	1,619.5	1,390.4	1,525.4	1,392.4
	XIP	0	Total XIP Forecast (-2m)	0	0	0	0	0	0	0	0	0	0	0	0
	XIP	0	Total XIP Forecast - Published	-1,927.843	-2,667.08	867.4	-357.3	2.6	1370.4	778.4	1262.3	1619.5	1390.4	1525.4	1392.4

Key Deliverables:

1. Strategy, design and development of the data conversion programs using ETL tool
2. Business process reengineering to extract transactional data and create maps and process flow in the OWB tools
3. Developing the process flow to sequence the supply chain information flow between SCPO and Collaborate applications for Daily, Weekly and Monthly process
4. Created process options set, flexible editor pages and searches for Demand Planning and Fulfillment of customer orders
5. Developed the XML process request for SRE batch utility, imported data into Collaborate and exported the supplier forecast for communication with supplier
6. Integrated the Appworx, OWB, secured Host and JDA systems for information flow
7. Analyzed the Appworx job schedules and recommend the sequence of the batch jobs to reduce cycle time
8. Develop time dependent components to collaborate and support business requirements
9. Development of the interfaces with integration process manager (IGPMGR)
10. Generates Forecast, Plan with Level SKU for new items, store SKU projections and collaborate with trading partners.
11. Provided out of the box solution using Planning Component Copy to circumvent the problem with publishing derived component
12. Server Consolidation using server partitioning and sharing virtual memory provided performance and cost advantage
13. Support for Production Go-Live and sustaining activities
14. Training the Super User and international user to use the tools effectively

Achievements:

XIP, a digital network printer company distributes IOT/OPT/CRU products based on the customer demand. These demand-driven forecasts allow a distributor to ensure that the right products (IOT/OPT/CRU) are in stock at the right time and in the right quantities. Buying correctly increases operating cash flows by reducing excess inventory investments. Fewer out-of-date or obsolete products will remain in the warehouse, so that less inventory is eventually written off.

By receiving timely information directly from OEM customers, constantly monitoring inventory and demand stream, XIP can better respond to unexpected customers order as a result improve fill rate. The DSI (Days of supply Inventory) measures the level of constraint projected on hand against PO

forecast. The DSI was improved based on collaboration between the supplier and demand pull signal from VMI customer. The suppliers own inventory requirements are reduced due to operational efficiency and increase level of customer satisfaction. The customer retention for XIP is improved due to trust and need for their demand is eliminated due to successful VMI program.

The visibility of published customer demands for FOB origin customer and sharing with supplier improves the net cash flow and profitability for XIP. The server consolidation strategy and sharing virtual memory between environments provided an added cost advantage during the upgrade.