

Full Life Cycle SAP R/3 Manufacturing Implementation



Hitachi Home Electronics Consumer Electronics

Hitachi Home Electronics America Inc (HHEA), a subsidiary of Hitachi America Ltd (HAL) is in business of manufacture and sale of Consumer Electronic Products like CRT Projection TV, Plasma TV, LCD Projection TV, DVD Camcorders and LCD Projectors. HHEA is a niche player in high end TV segment having more than 500 employees in US and Mexico has a turnover of more than US\$750 millions.

HHEA manufacturing facility for TVs consists of TV assembly plant, Chassis plant and Cabinet plant located at Tijuana, Mexico. Today, Hitachi Electronics is one of the leading home electronic products company in US.

Methodology

The project involved identifying and defining the best business practices applicable to HHEA through business blueprint workshops. The objective of these workshops was to define and design the appropriate solutions for HHEA business processes. ASAP project management methodology was used extensively.

The salient features are:

- Identifying and defining the objectives of the blueprint workshops with Business Process Owners in US/Mexico.
- Conducting the Blueprint workshops that resulted in identification of various business scenarios.
- Preparing presentations and demos in SAP R/3 test environment
- Define standards, guidelines and specifications for the configuration and project implementation.
- Define the functional specifications for custom transactions, custom reports and Queries
- Designing SAP interfaces to non SAP legacy systems.
- Offshore development of ABAP objects from Center of excellence at Hyderabad by coordinating with onsite team in US

The Challenge

This project had its own High-tech manufacturing complexities and challenges, such as:

- Short product life cycle – Frequent model changes
- Discrete manufacturing using Production lots
- Challenges of Special Bill of Materials requirements
- Heavy use of Engineering Change Management (ECN)
- Production and Supply Chain Optimization with frequent Product Design changes
- Customized Notifications in Quality Management
- Interfacing with multiple non-SAP Design and Planning systems
- EDI interface with vendors.
- RF scanning in production/assembly lines, Inventory Management, Warehouse management and Shipping.
- Integration of heterogeneous systems to provide information to management on critical areas related to Production and Supply Chain
- Elimination of multiple isolated legacy systems like BPCS, MAX, Access Database
- Compliance with the SOX requirement and Management of Internal Controls (MIC)
- Adoption of High Tech Industry Best Practices
- Production Plants in Mexico
- Engineering and Design control in Japan
- Dealing with diverse groups of employees
- Training of users in Mexico - Combination of onsite class room training and net meetings / conference calls
- Adoption to the new SAP working environment
- Information flow between SAP and non-SAP systems
- Master Data conversion from legacy systems
- Issue management / Testing / Sign off / GO Live / Post GO Live support

Intelligroup's Solution

The following Applications / Modules / Functionalities have been implemented at HHEA:

Production Planning - Discrete

- Production Lot Planning – This allows the dependant components to be hard pegged to parent production lot of TV
- Demand Management with Production Lots
- WBS Routings in Chassis plant
- Close integration of Production Lots, BOMs, ECNs and Planned/Production Orders with Material Requirements Planning (MRP)
- Cross Plant MRP – TV Final assembly plant generates requirements of TV Cabinets on Cabinet plant
- Engineering Change Management (ECN) with Parameter Effectivity
- Manufacturing execution
 - Production Orders linked to Production Lots
 - ECN application possibility till the release of Production Orders
 - Minimum lead time between Order release and actual execution of Orders
 - Kitting of components in advance
 - Confirmation of Production orders by RF scanning

Quality Management

- Quality in procurement
- Inspection Lots for all Purchase parts
- Approval based on key characteristic
- In process inspection
- Custom Notifications

Materials Management

- Procurement of Components
- Electronic Data Interface
- FTP based procurement
- Sub contracting of Sub assemblies in Mexico
- Inventory management
- Stock transfer between plants
- Logistic Invoice Verification

Warehouse Management

- RF Interface for warehouse movements
- Kitting of components for Production Lots
- Pick-list determination for Production Orders
- Custom transactions for the above

Sales and Distribution

- Sales order - Standard orders – TVs
- Sales order – OEM orders
- Sales order – Service orders
- Inter-Company Billing
- Credit / Debit notes
- Credit management
- ATP Checks
- Sales return from customers
- Shipments
- Proforma/Customs invoice

Financial Accounting

- General ledger
- Accounts payable
 - Electronic Data Interface
 - FTP Invoice Processing
- Accounts receivable
- Inventory Valuation

Controlling

- Cost center accounting
- Profit center accounting (Product Line wise Segmental Reporting)
- Product Cost Planning (with additive cost estimates)
- Cost Object Controlling
 - Production Lots
 - Valuated Sales Order Stock
- Revenue and cost planning
- Reporting (including Product Cost Summarizations and Comparison with Budget Cost)

Interfaces

SAP - MOSES interface: Engineering data base i.e., BOMs and ECNs are being maintained in a separate system called MOSES and is to be maintained in sync with Hitachi parent system in Japan. MOSES creates substantial number of ECNs and these are to be applied to BOMs and Production orders in SAP. This was a major challenge and a two way interface was developed to transfer BOMs, and then maintaining BOMs with latest ECN data in SAP on a daily basis.

- ECNs by date effectivity are applied to Material BOMs
- ECNs by parametric effectivity i.e., by TV set numbers are applied to WBS BOMs
- Price/Cost information of components and parts from SAP to MOSES
- Tooling procurement details

SAP - APS interface: Demand and Sales projections data is being maintained in APS, a non SAP system. APS in turn carries out the scheduling and creates a demand file for SAP Demand management. Demand is being created in SAP for every TV model with required dates on daily basis. This interface was automated using FTP protocol.

- This is a two way interface and Demand, Planning and Production information, Inventory information, Purchase information is being fed back to APS system for subsequent processing in APS after MRP Run every night.

RF Scanning: Custom transactions were developed in Production, Warehouse, and Quality and Shipping areas.

- Scanning – Serial # in Chassis plant
- Scanning in warehouse
- Scanning of finished TV sets in production line
- Scanning of finished TV sets in Quality inspection area
- Scanning of finished TV sets in HTS shipping area

All scanning transactions were automated and triggers relevant SAP transactions like Transfer postings, Order confirmations, Goods movements etc., periodically in the background.

Go-Live : Two full end to end cycles of Integration testing and one cycle of Dry Run were carried out along with Business Process Owners (BPOs) and Power users prior to GO Live. Intelligroup team worked at different HIMEX manufacturing facilities supporting 450 active users on SAP with help of business Power users. Special War-room was setup at Mexico to facilitate recording of support issues on Intelligroup proprietary Synergy support software and use of bilingual speaking (English and Spanish) help desk.

Post Go-Live: All the Go-Live issues were resolved and day to day issues are now being handled by the onsite /offshore support team.

Information Systems: Hitachi specific custom reports were developed to meet operational and management requirements.

Benefits:

- Minimum lead time between ECN application and actual manufacturing, results in minimizing the disruption of production schedules
- RF scanning eliminated manual activities in Production, Warehouse and Shipping areas and facilitates real-time update of Production and Consumption figures
- Custom designed Quality notifications facilitate cost monitoring of rejections
- Product line wise Segmental Reporting helps in better decision making and gives more transparency in the Financial Reporting. The Product line mainly includes Projection TV's, Plasma TV, LCD TV, LCD Monitors, TV Accessories.
- Financial Period Hard Closing made possible in 2-3 business working days instead of 7-10 days.
- Product Costing Tool helps in Analyzing Cost Component wise comparison of Actual Cost v/s Budgeted Cost. Helps in reviewing and setting realistic Standards
- SAP Inherent and Customized Internal Controls helped in adherence to SOX requirements
- Real-time Accounting of Financial transactions lead to more transparency of Financial Statements at any given point in time rather than only at the month end

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