Why ERP? A Primer on SAP Implementation

by F. Robert Jacobs and D. Clay Whybark

Session Goals and Outline

- Provide a framework for understanding the value of Enterprise Resource Planning (ERP).
- The framework spans operational (nuts and bolts of the hardware and software) through tactical (how work is done) to strategic issues.
The many views of ERP

Hardware view - client-server

Software view - Application modules, distributed processes, database engine

Operational – ERP nuts and bolts

- Configuration
Operational – ERP nuts and bolts

- Standard Processes – for everything!

Tactical – Functional Capability

- Within functional integration – typical features
- Cross-functional integration
- Supply chain integration
- Decision support
Tactical – Within function integration – relationship between modules

Sales and Distribution
- Sales planning
- Profit planning
- SOP
- Planned requirements
- Forecasts
- Customer order processing
- Shipping, billing, transport

Production Planning
- Demand management
- Master planning
- Rough-cut capacity planning
- MRP/Planned orders
- Order
  - Creation
  - Release
  - Confirmation
- Shop floor control
- Capacity leveling
- Process planning

Materials Management
- Direct requisition
- Purchasing
- Inventory management
- Goods receipt
- Material valuation
- Invoice verification
- Warehouse management

Quality Management
- Lot inspection
- Process charting

Preventive Maintenance
- Planned repair
- Emergency

Operational Issues

- Configuration – 8,000 switches to set!
- How much do we customize?
  - Do we customize within the ERP system or link stand alone applications to the ERP system?
- Should we use the same configuration for all of our facilities?
Options for Implementing an ERP System

<table>
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<tr>
<th>Flexibility - High</th>
<th>Flexibility - Low</th>
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<td><strong>Centralization</strong> - decision making.</td>
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<td><strong>Flexibility</strong> - High</td>
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<td>product offerings, reacting to customer changes, opening new facilities, etc.</td>
<td>Common Client Multiple Processes, Single Vendor</td>
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<td>Multiple Clients Multiple Processes, Multiple Vendors</td>
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<td>High cost, optimization possible.</td>
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<td>High cost (programming and support), optimization difficult.</td>
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<td>Efficient, low cost, system optimization possible.</td>
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<td>Low cost, system optimization difficult.</td>
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Operational Issues

- **Implementation**
  - Plan vanilla to start.
  - Populating the data and integrity
  - When are the modifications made?
  - Phased rollout or cut over.
  - What about add-ons? Are they necessary?
Tactical – Supply Chain View

- Supply Chain coordination before and after ERP
  - Next 4 slides

Conventional Multi-Echelon Supply Chain

Features:
- Independent systems to manage the interaction between players in the supply chain.
- Great operational flexibility
- Problems - hedging, forecasting uncertainty, visibility limited. Beer Game type dynamics.
Process View of a Conventional Multi-Echelon Supply Chain

Roles with decentralized system:
- Change Planning and Implementation
- Sales and Operations Planning
- Product and Service Delivery

Update local system according to changes - new products, costs, distribution centers, customers, etc.

Forecast demand and plan production

Receive orders from Vendors

Place orders with Vendors

Receive orders from distribution, retail and commercial customers

Ship orders to distribution, retail and commercial customers

Update local system according to changes - new products, prices, customers, etc.

Forecast demand and plan distribution

Forecast demand and plan distribution

Multi-Echelon Supply Chain with ERP System

Tiered Suppliers

Intra-Company Fabrication

ERP System

Web Order Processor

Features:
- Integrated information
- System optimization possible
- Problems - inflexible - need a much more formal infrastructure to support the system.

Assembly

Distribution

Retailers

Distributors

Consumers

Commercial Buyers

Information Flow

Material Flow
Tactical Issues

- Different roles – especially when much of the decision making is centralized.
- Efficient use of data – how many times do you need to enter the same data for different jobs/tasks.
- Training issues – how do we get people to use the new system.
- Many other issues – security, sharing data, mutual (collaborative) decision making, etc.
Strategic Issues

- What are compelling reasons to do this?
  - Is it a “qualifier” in certain industries?
  - Are the efficiencies real?

- How much are we willing to change the organization?
  - Are these practices really better than what we are currently doing?

- Do we lose or gain a strategic advantage?
  - If everyone is doing this, how can we gain an advantage?