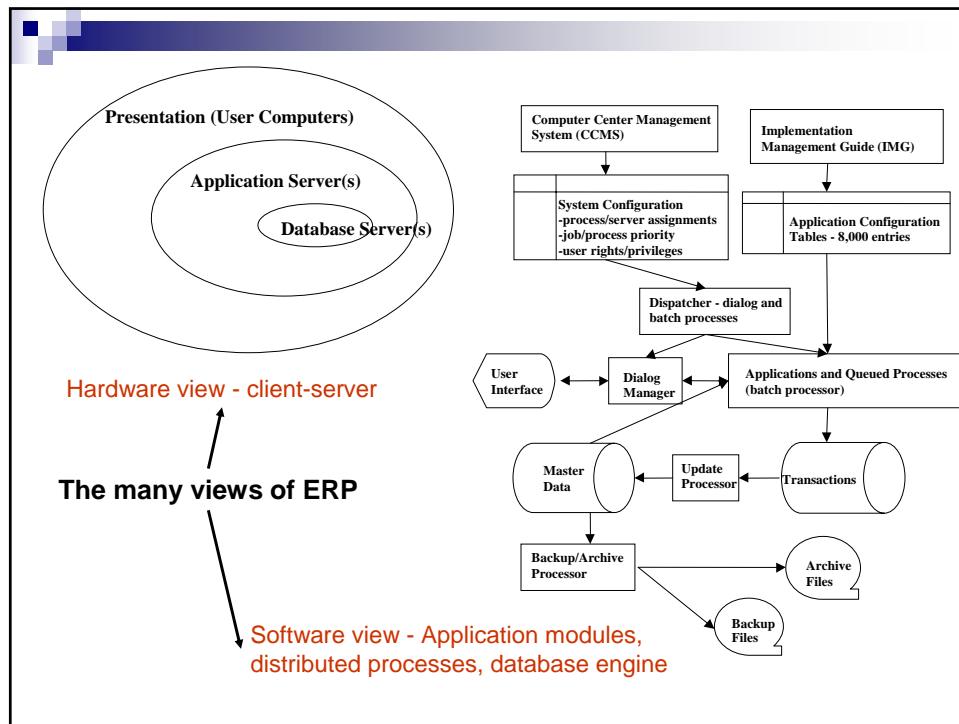# Why ERP?
A Primer on SAP
Implementation

by F. Robert Jacobs
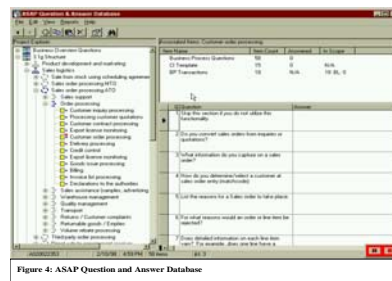and D. Clay Whybark

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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.
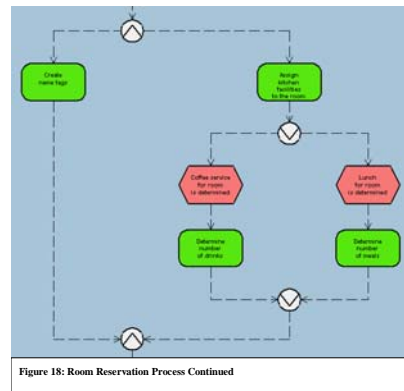
Slide 1

Presentation (User Computers)

Application Server(s)

Database Server(s)

Hardware view - client-server

The many views of ERP

Software view - Application modules, distributed processes, database engine

Computer Center Management System (CCMS)

Implementation Management Guide (IMG)

System Configuration
-process/server assignments
-job/process priority
-user rights/privileges

Application Configuration Tables - 8,000 entries

Dispatcher - dialog and batch processes

User Interface

Dialog Manager

Applications and Queued Processes (batch processor)

Master Data

Update Processor

Transactions

Backup/Archive Processor

Archive Files

Backup Files

Slide 2

Operational – ERP nuts and bolts

- Configuration

Figure 3: ASAP Opening Screen

Figure 4: ASAP Question and Answer Database

Operational – ERP nuts and bolts

- Standard Processes – for everything!

Figure 16: Flow Process Diagram for Reserving a Conference Room

Figure 18: Room Reservation Process Continued
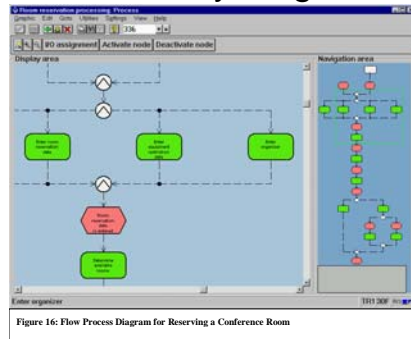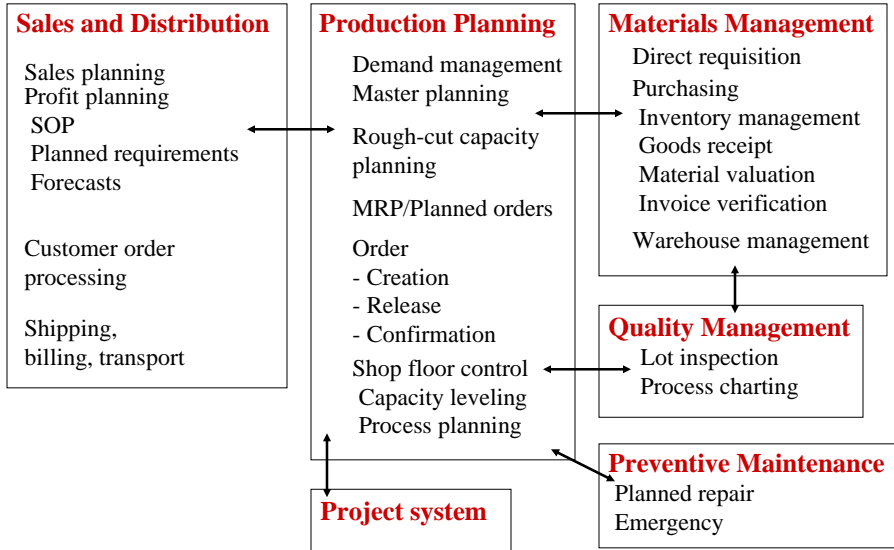

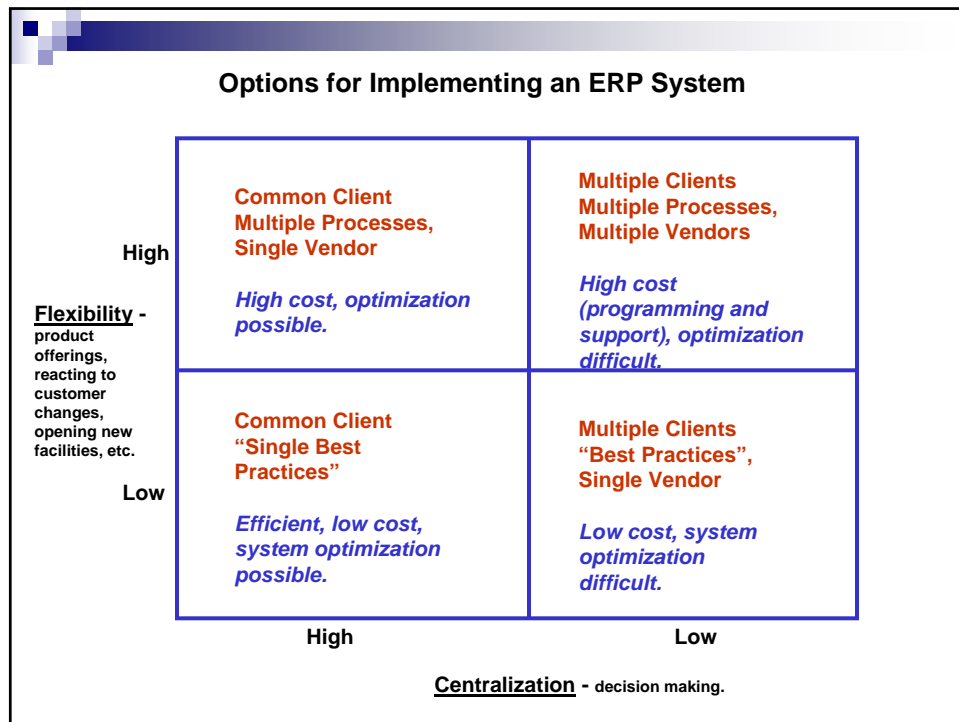# Tactical – Functional Capability

- 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

Project system

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

	Centralization →	
High **Flexibility -** product offerings, reacting to customer changes, opening new facilities, etc.	**Common Client Multiple Processes, Single Vendor** *High cost, optimization possible.*	**Multiple Clients Multiple Processes, Multiple Vendors** *High cost (programming and support), optimization difficult.*
Low	**Common Client "Single Best Practices"** *Efficient, low cost, system optimization possible.*	**Multiple Clients "Best Practices", Single Vendor** *Low cost, system optimization difficult.*
	High	**Low**

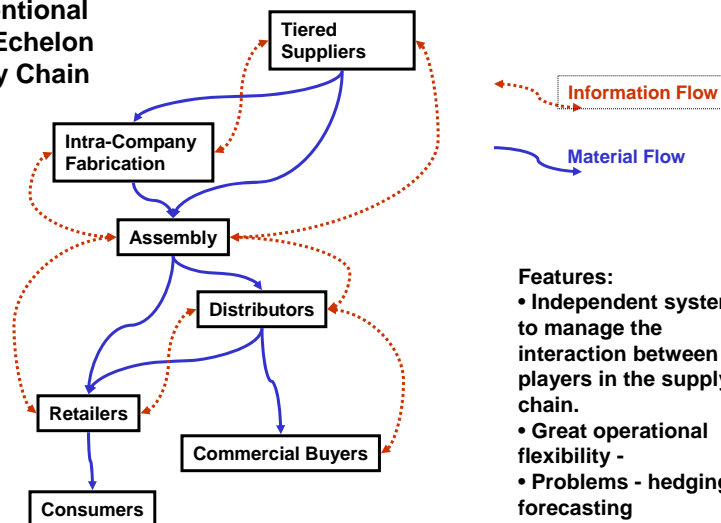**Centralization -** decision making.

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?
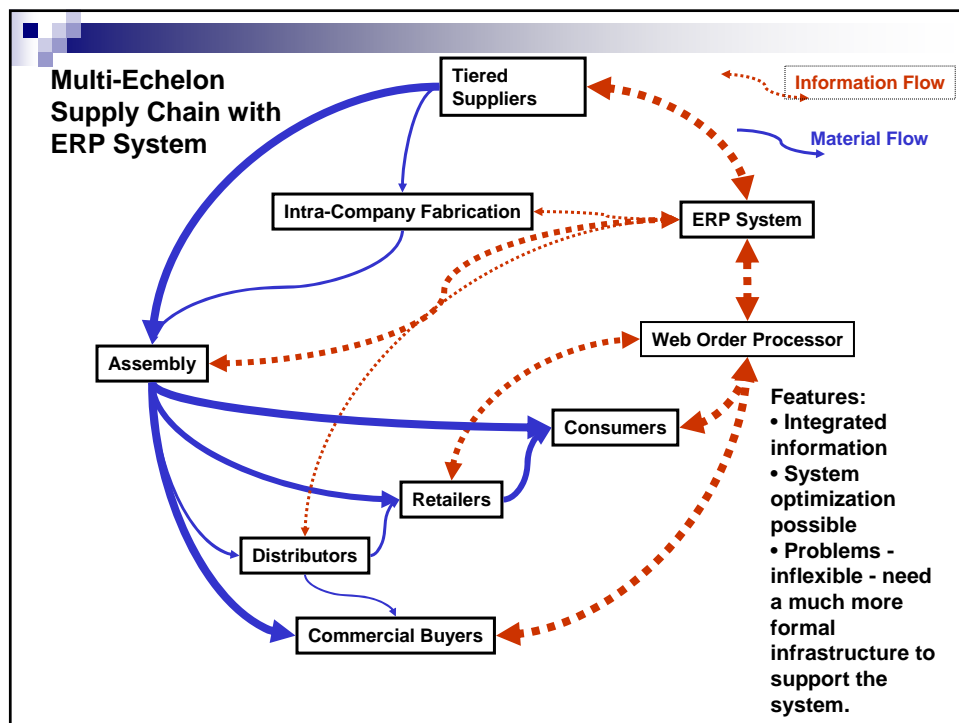
Tactical – Supply Chain View

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

Conventional Multi-Echelon Supply Chain

Tiered Suppliers

Intra-Company Fabrication

Assembly

Distributors

Retailers

Commercial Buyers

Consumers

Information Flow

Material Flow

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

Receive orders from Vendors

Place orders with Vendors

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

Forecast demand and plan production

Receive orders from distribution, retail and commercial customers

Receive orders from customers

Ship orders to distribution, retail and commercial customers

Place orders with assembly

Assembly

Receive orders from assembly, etc.

Forecast demand and plan distribution

Distribution

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

Ship orders to customers

Multi-Echelon Supply Chain with ERP System

Tiered Suppliers

Information Flow

Material Flow

Intra-Company Fabrication

ERP System

Assembly

Web Order Processor

Consumers

Retailers

Distributors

Commercial Buyers

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

Process View of ERP

Execute Business Strategy
- Global Business
- Change Project Scheduling

Receive and
Commit to Order

Receive and
Process Payment

Change Information
in Systems

Sales and Operations
Planning (Global) - SAP-APO

Secure Suppliers for
Services, Materials,
and Contract Manufacturing

Move, Store, and
Deliver Product

Change
Production
Facilities

Order, Receive, and Store
Purchased Material

Manage
Production

Roles when using centralized ERP:
• **Change Planning and Implementation**
• **Sales and Operations Planning**
• **Product and Service Delivery**

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?