ERP and SAP

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Presentation Overview

• Business Challenges
• Introduction to ERP
• Introduction to SAP
• Sales & Distribution
• Materials Management
• Production Planning
• Financial Accounting
• Controlling
Challenges – Senior Management

• How much AR is more than 180 days old?
• Today’s total Sales Orders and Collections across North America?
• Is the Sales from West going up / down compared to the same time last year?
• How much did we Purchase this year from “X” globally?
• How much “fast-moving” inventory do we have at the New Mexico Warehouse?
• “Inventory Turnaround Time” for class A items?
• How much is today’s “Production Batch cost”?
• Can my Cash-On-Hand last me for 15 days w/out overdraft?
MRP – MRP II – ERP

Production planning within MRPII.

<table>
<thead>
<tr>
<th>Decade</th>
<th>Concept</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Inventory control systems (ICS)</td>
<td>Forecast and inventory management</td>
</tr>
<tr>
<td>60</td>
<td>Material requirement planning (MRP)</td>
<td>Requirement calculations based on bill-of-material (BoM)</td>
</tr>
<tr>
<td>70</td>
<td>Manufacturing resource planning (MRP II)</td>
<td>Closed-loop planning and capacity constraints</td>
</tr>
<tr>
<td>80</td>
<td>Computer-integrated manufacturing (CIM)</td>
<td>Automation, enterprise models</td>
</tr>
<tr>
<td>90</td>
<td>Enterprise resource planning (ERP)</td>
<td>Integrated processes</td>
</tr>
</tbody>
</table>

ERP in retrospect
ERP

- Integrates internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service, etc.
- ERP systems automates activity with an integrated software application.
- The purpose is to facilitate the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders.
Supply Chain Management

- defined as a set of **three or more entities** (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer
- Transaction flows from Supplier to Customers and vice versa
- Capture GL transactions underneath
Revenues

ERP application revenue estimate, 2006–2011

Source: AMR Research, 2007
## Vendor landscape

<table>
<thead>
<tr>
<th>Sample Vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tier I</strong></td>
</tr>
<tr>
<td>SAP</td>
</tr>
<tr>
<td>Oracle</td>
</tr>
<tr>
<td>Oracle eBusiness Suite</td>
</tr>
<tr>
<td>Oracle JD Edwards</td>
</tr>
<tr>
<td>Oracle Peoplesoft</td>
</tr>
<tr>
<td>Microsoft Dynamics</td>
</tr>
<tr>
<td><strong>Tier II</strong></td>
</tr>
<tr>
<td>Epicor</td>
</tr>
<tr>
<td>Sage</td>
</tr>
<tr>
<td>Infor</td>
</tr>
<tr>
<td>IFS</td>
</tr>
<tr>
<td>QAD</td>
</tr>
<tr>
<td>Lawson</td>
</tr>
<tr>
<td>Ross</td>
</tr>
<tr>
<td><strong>Tier III</strong></td>
</tr>
<tr>
<td>ABAS</td>
</tr>
<tr>
<td>Activant Solutions Inc.</td>
</tr>
<tr>
<td>Baan</td>
</tr>
<tr>
<td>Bowen and Groves</td>
</tr>
<tr>
<td>Compiere</td>
</tr>
<tr>
<td>Exact</td>
</tr>
<tr>
<td>Netsuite</td>
</tr>
<tr>
<td>Visibility</td>
</tr>
<tr>
<td>Blue Cherry</td>
</tr>
<tr>
<td>Exact</td>
</tr>
<tr>
<td>HansaWorld</td>
</tr>
<tr>
<td>Intuitive</td>
</tr>
<tr>
<td>Syspro</td>
</tr>
</tbody>
</table>
Market share by Vendor

Vendor Market Share in 2010

- Tier III and Others: 36%
- Oracle: 10%
- SAP: 24%
- Tier II: 11%
- Microsoft Dynamics: 11%
Revenue by ERP Vendor

Source: AMR Research, 2007
## Implementation Cost

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Average Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle</td>
<td>$5.0 million</td>
</tr>
<tr>
<td>SAP</td>
<td>$6.7 million</td>
</tr>
<tr>
<td>MS Dynamics</td>
<td>$1.8 million</td>
</tr>
<tr>
<td>Tier II</td>
<td>$3.1 million</td>
</tr>
<tr>
<td>Tier III/Other</td>
<td>$1.1 million</td>
</tr>
</tbody>
</table>

2010 Panorama Consulting Group LLC
ERP Failures (2010)


- New York's CityTime 'disaster' - CityTime, an effort by New York City to modernize its payroll system, is more of an ERP "project failure of the decade" - originally budgeted at around US$60 million, but has since ballooned to a colossal $700 million-plus

- BSkyB (BSY) gets £318 million settlement from Hewlett-Packard/EDS (HPQ) - A court found that HP's EDS division had lied about how long it would take to finish the project, which was started in 2000 and originally budgeted at £48 million. BSkyB fired EDS in 2002 and completed the job itself, but costs ultimately quintupled.

- Marin County's "rip and replace" - Marin County sued system integrator Deloitte Consulting in connection with the system earlier this year, saying Deloitte used the project as "a trial-and-error training ground"

- SAP settles with Waste Management - One of the ugliest ERP project legal battles in memory came to an end in May, when SAP reached a settlement with trash hauler Waste Management. Waste Management originally sued SAP for fraud in March 2008 over an allegedly failed implementation of its ERP software. The company claimed it suffered significant damages, including more than US$100 million it spent on the project, as well as more than $350 million for benefits it would have gained if the software had worked as intended.
Hershey Foods Corporation (1999)

- One of the largest known project failures linked to an ERP system
- SAP was implemented in a short amount of time
- The big bang approach was elected as a cutover strategy
- Hershey lost large amounts of revenue during a high season (Halloween) because they could not fulfill orders in time, even though the inventory was available.
- The software was not the issue
- The processes were mapped in a poor manner
- This is more of a Project failure than an ERP failure
Hershey Income Statement

## Hershey Foods Corporation – Statement of Income

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Sales</strong></td>
<td>4,220,976</td>
<td>3,970,924</td>
<td>4,435,615</td>
<td>4,302,236</td>
</tr>
<tr>
<td><strong>Costs and Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Sales</td>
<td>2,471,151</td>
<td>2,354,724</td>
<td>2,625,057</td>
<td>2,488,896</td>
</tr>
<tr>
<td>Selling, marketing and administrative</td>
<td>1,127,175</td>
<td>1,057,840</td>
<td>1,167,895</td>
<td>1,183,130</td>
</tr>
<tr>
<td>Gain on sale of business</td>
<td>(243,785)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Costs and Expenses</strong></td>
<td>3,598,326</td>
<td>3,168,779</td>
<td>3,792,952</td>
<td>3,672,026</td>
</tr>
<tr>
<td>Income before Interest and Income taxes</td>
<td>622,650</td>
<td>802,145</td>
<td>642,663</td>
<td>630,210</td>
</tr>
<tr>
<td>Interest expense net</td>
<td>76,011</td>
<td>74,271</td>
<td>85,657</td>
<td>76,255</td>
</tr>
<tr>
<td>Income before income taxes</td>
<td>546,639</td>
<td>727,874</td>
<td>557,006</td>
<td>553,955</td>
</tr>
<tr>
<td>Provision for income taxes</td>
<td>212,096</td>
<td>267,564</td>
<td>216,118</td>
<td>217,704</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>334,543</td>
<td>460,310</td>
<td>340,888</td>
<td>336,251</td>
</tr>
</tbody>
</table>

Success with ERP
Functional Modules

Vendors Function:
- Vendor Masters
  - Vendor/Material Analysis
- Vendor Quality
- Vendor Rating
- Vendor Payments
- Vendor Credit Status
- Vendor Reports
- Vendor Ledger

Customers Function:
- Customer Masters
- Sales Order Processing
- Order Deliveries
- Sales Invoices
- Customer Receipts
- Dealers Commission
- Sales Forecasting
Functional Modules Contd.

Accounting Function
- General Ledger
- Fixed Assets
- Financial Statements
- Cash Flow Statements
- Product Costs
- Profitability Analysis
- Management Information System
- Balance Sheet Analysis
- Yearly Financial Statements

Materials Function:
- Material Masters
- Purchase Requisitions
- Purchase Orders
- Non-Stock Items
- Pricing
- Quality Control
- Purchase Ledger
- Inventory Control
- Tools and Gauges
Presentation Overview

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What is SAP?

“Systeme, Anwendungen und Produkte in der Datenverarbeitung”
(English: “Systems, Applications, and Products in Data Processing”)

• SAP AG
  • Founded in Walldorf, Germany in 1972
  • World’s Largest Business Software Company
  • World’s Third-largest Independent Software Provider

• World-wide usage

• Designed to satisfy the information needs for all business sizes (small local to large all international)
  • Multi-lingual
  • Multi-currency
  • Multi-balance (parallel G/L Accounting)
Evolution of SAP

- **1992**: ERP First Mentioned
- **1995**: SAP R/3 Released in the USA
- **1996**: 1996 Davenport mega-packages
- **2000**: 2000 ERP in IS journals

- **SAP R/3 Released in the USA**
- **Strong ERP Coverage in the trade press**
SAP Enterprise Resource Planning (SAP ERP)

• Enables a company to support and optimize its business processes
• Ties together disparate business functions (integrated business solution) such as
  • Finance (Financial Accounting, Managerial Accounting, Treasury, ...)
  • Logistics (Sales, Procurement, Production, Fulfillment, ...)
  • Human Resources
  • ...
• Helps the organization run smoothly
• Real-time environment
• Scalable and flexible
SAP Components
SAP ERP Business Modules

• Collections of logically related transactions within identifiable business functions
  • MM (“Buy”)
  • PP (“Make”)
  • SD (“Sell”)
  • FI and CO (“Track”)
  • HCM
SAP ERP Core Applications

- **Logistics**
  - Sales & Distribution
  - Materials Management
  - Production Planning
  - Plant Maintenance
  - Quality Management

- **Finance**
  - Financial Accounting
  - Managerial Accounting
  - Asset Management
  - Treasury

- **Human Resources**
  - Personnel Management
  - Benefits
  - Payroll
SAP Industry Solutions

- Aerospace & Defense
- Automotive
- Banking
- Chemicals
- Consumer Products
- Defense & Security
- Engineering, Const.
- Healthcare
- High Tech
- Higher Education
- Industrial Machinery
- Insurance
- Life Sciences
- Logistics Service Prod.

- Media
- Mill Products
- Mining
- Oil & Gas
- Pharmaceuticals
- Postal Services
- Professional Services
- Public Sector
- Railways
- Retail
- Telecommunications
- Utilities
- Wholesale Distribution
Presentation Overview

- Introduction to ERP
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- Controlling
Functionality

• Sales Support
• Sales
• Shipping and Transportation
• Billing
• Credit Management
• Foreign Trade
Sales Order Process

Pre-sales Activities

No financial impact (FI)

Sales Order Entry

Check Availability

Amount owed by customer is received and Account Receivables is reduced assignment

Pick Materials

Invoice Customer

Amount owed is assigned and transferred to Account

Materials Management (MM) and Financial Accounting (FI)

Post Goods Issue

Receipt of Customer Payment

Pack Materials

Bank XXXX A/R XXXX

Invoice A/R XXXX Sales XXXX

COGS XXXX Inventory-FG XXXX

*Good Sent
### Post Goods Issue

- **COGS**: XXXX
- **INV-FG**: XXXXX

### Invoice Customer

- **A/R**: XXXX
- **SALES**: XXXXX
GL Transactions Tracking

### Payment Received

**BANK** | XXXX
---|---
**A/R** | XXXXX

### Display Document: Data Entry View

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<td><strong>Ledger Group</strong></td>
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### Co., Itm, PK, S, Account, Description, Amount, Curr., Tx

<table>
<thead>
<tr>
<th>Co., Itm, PK, S</th>
<th>Account</th>
<th>Description</th>
<th>Amount</th>
<th>Curr.</th>
<th>Tx</th>
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<tbody>
<tr>
<td>USD0</td>
<td>1 40</td>
<td>100000</td>
<td>Bank</td>
<td>15,000.00</td>
<td>USD</td>
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<tr>
<td></td>
<td>2 15</td>
<td>3149</td>
<td>Philly Bikes</td>
<td>15,000.00</td>
<td>USD</td>
</tr>
</tbody>
</table>
Production Process with SAP

- Production cycle example

Video