

**Enterprise Systems:  
Supply Chains, ERP, CRM & KM**

**Information Technology for Management  
*Improving Performance in the Digital Economy***

**7<sup>th</sup> edition  
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# Chapter Outline

- 3.1 Essentials of Enterprise Systems and Supply Chains
- 3.2 Supply Chain Management and Its Business Value
- 3.3 Enterprise Resource Planning (ERP) Systems
- 3.4 Customer Relationship Management (CRM)



**Figure IT7eU**



- **Problems** – Running out of gasoline at individual pumps; tanks full & aborted delivery. Supply issues are serious.
- **Solution** – Move to demand driven. Electronic monitors in pumps. Real-time oil levels transmitted to corporate DSS-based controls. ERP transmits levels from all major customers.
- **Results** – Improved decision making all levels. Increased profit. Increased responsiveness & efficiency overall. Less inventory.

## ***3.1 Essentials of Enterprise Systems and Supply Chains***

# Enterprisewide Systems

- [ERP](#) - designed to coordinate all the resources, information, and activities needed to complete business processes such as [order fulfillment](#) or [billing](#).
- Extended ERP – also supports business partners, & most common form.
- [CRM](#) - software is used to support these processes; information about customers and customer interactions can be entered, stored and accessed by employees in different company departments.

*Source: wikipedia.org*

# Enterprisewide Systems – cont'd

- [Knowledge Management Systems](#) (KM) - refers to a (generally [IT](#) based) system for [managing knowledge](#) in organizations, supporting creation, capture, storage and dissemination of information.
- [Business Process Management](#) (BPM) - is a field of [management](#) focused on aligning organizations with the wants and needs of clients. It is a [holistic management](#) approach that promotes business effectiveness and efficiency while striving for innovation, flexibility and integration with technology.

*Source: wikipedia.org*

## Enterprisewide Systems – cont'd

- Supply Chain Management (SCM) - is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers.
- Materials Requirement Planning (MRP) - is a software based production planning and inventory control system used to manage manufacturing processes.

*Source: wikipedia.org*

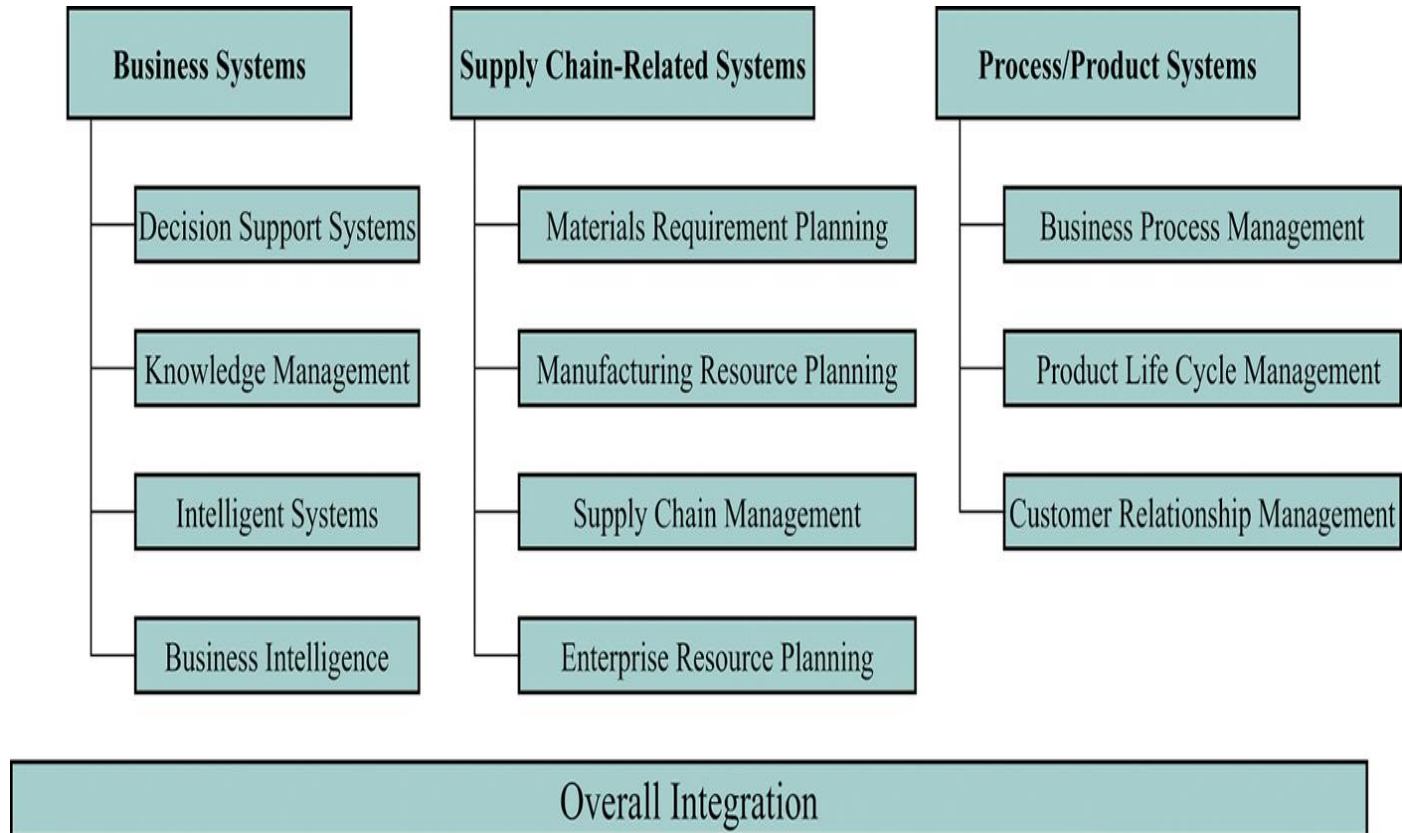


## Enterprisewide Systems – cont'd

- [Decision Support Systems](#) (DSS) - are a specific class of computerized information systems that supports business and organizational decision-making activities.
- Intelligent Systems – expert systems such as KM.
- [Business Intelligence](#) (BI) - Common functions of business intelligence applications are reporting, [OLAP](#), [analytics](#), [data mining](#), [business performance management](#), [benchmarks](#), [text mining](#), and [predictive analytics](#).

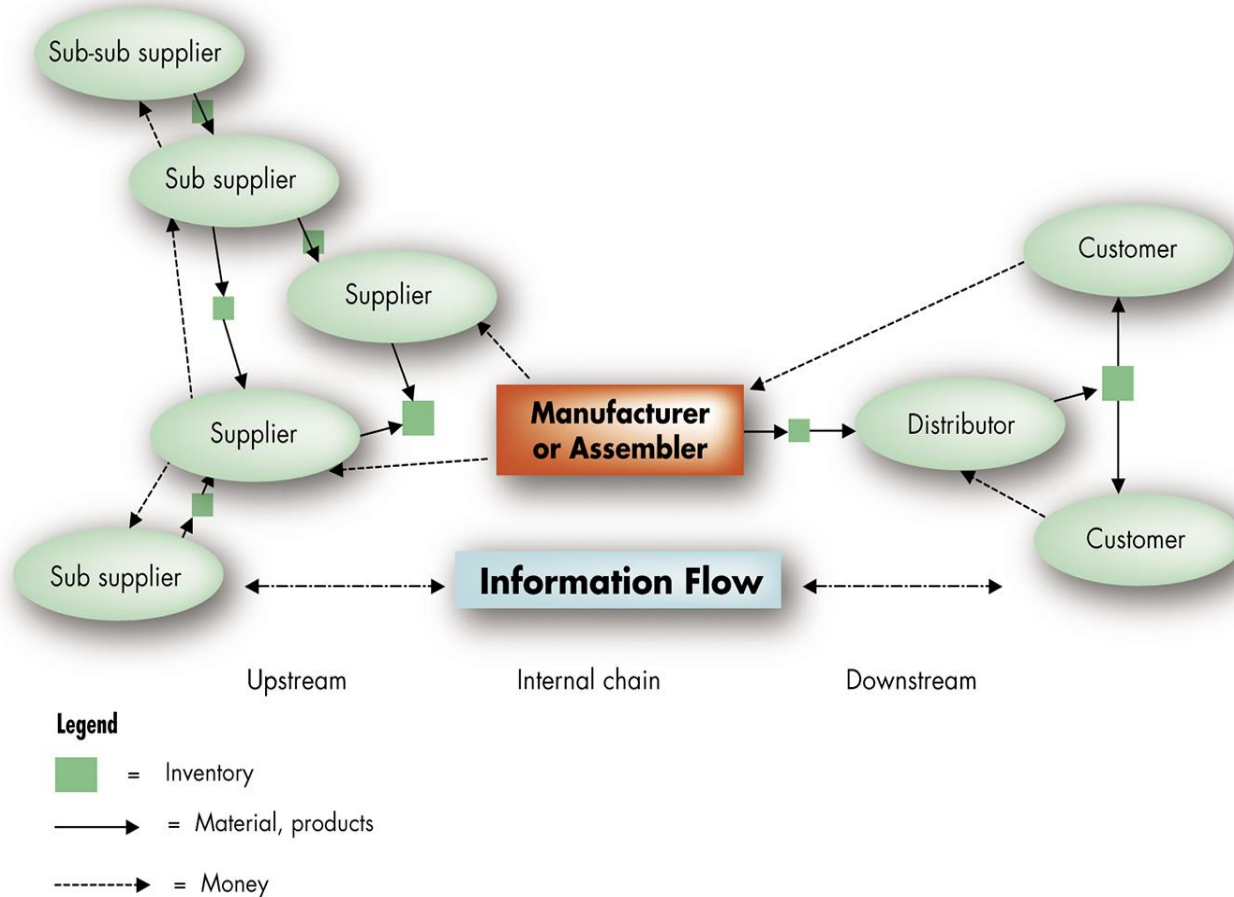
*Source: wikipedia.org*

# Figure 3.1



**Overview of enterprise system. (Source: Prepared by E. Turban and D. Amoroso.)**

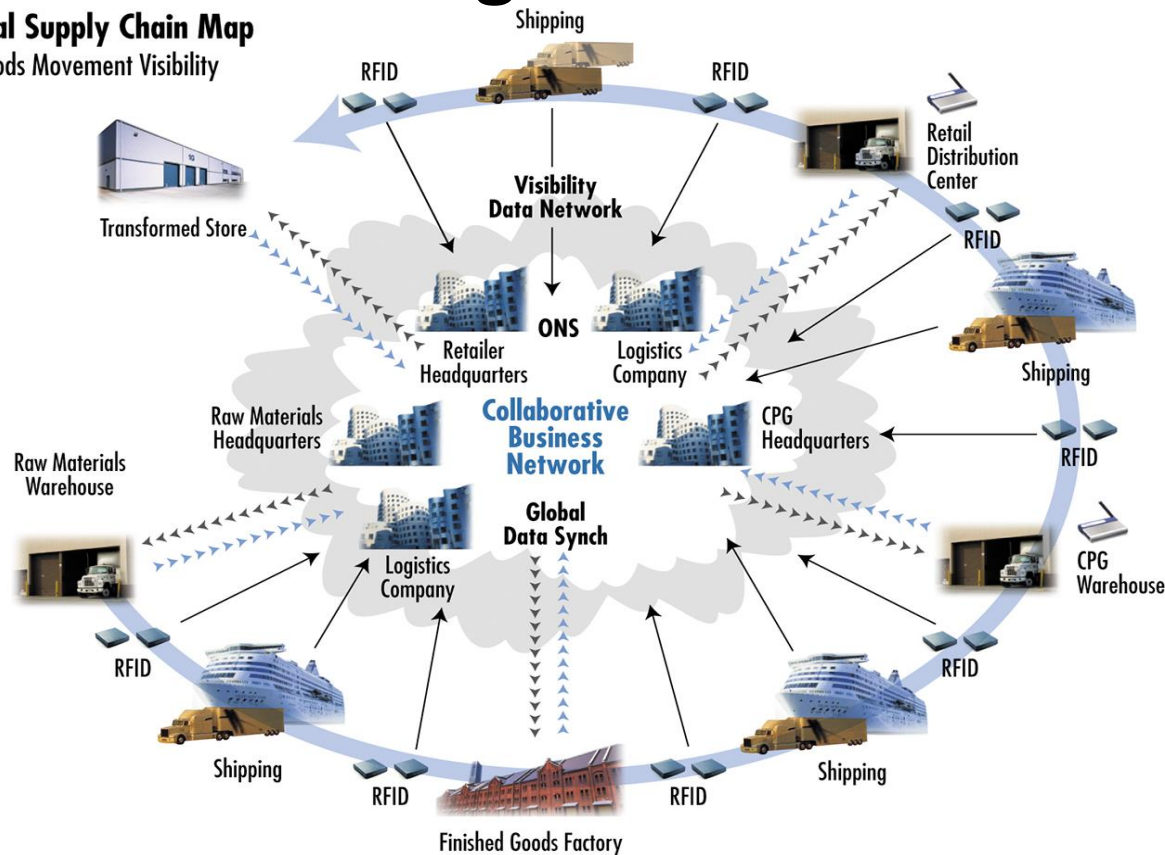
## Figure 3.2



**The structure of a typical supply chain. (Source: Drawn by E. Turban.)**

# Figure 3.3

## Digital Supply Chain Map Goods Movement Visibility



Digital supply chains. (Source: Intel, "Building the Digital Supply Chain: An Intel Perspective," Intel Solutions White Paper, January 2005, Figure 5, p. 9.)

## ***3.2 Supply Chain Management and Its Business Value***

# Managing Collaboration

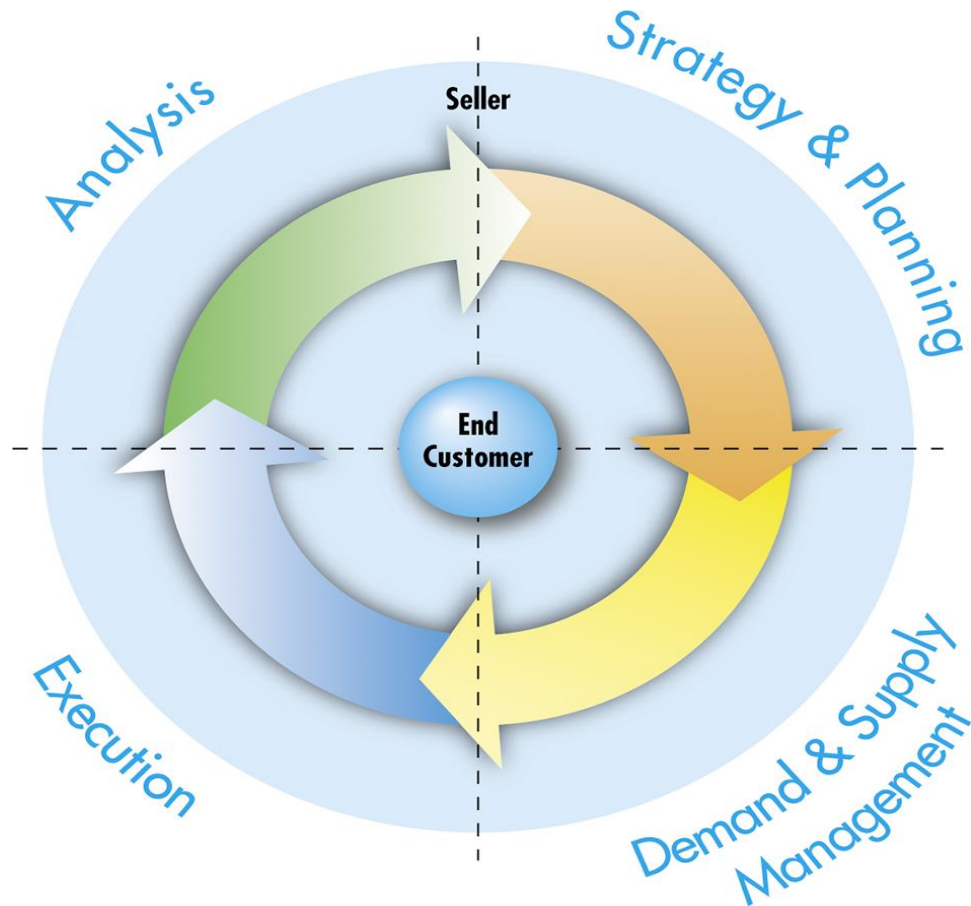
- Inventory management require coordination of all activities & links in supply chain.
- Goods move smoothly & on time from supplier to manufacturer to distributor to customer.
- Partner collaboration is key success factor.
- Sharing of information, upline & downline is essential.

[Take this tutorial from cio.com : Supply Chain Management Definition and Solutions](#)

# Collaborative Planning

- Designed to synchronize production & distribution plans & product flows.
- Optimize resource utilization over expanded capacity base.
- Increase customer responsiveness.
- Reduce inventories.

## Figure 3.4



**CPFR model. (Source: VICS.org, “Collaborative Planning, Forecasting, and Replenishment (CPFR): An Overview,” May 18, 2004, Figure 1, p.6.)**



# Vendor Managed Inventory

- Automatic information sharing.
- Reduces warehousing costs for suppliers.
- Inventory levels are monitored for trigger level for immediate shipment as needed.
- Efficient manufacturing schedules.
- All participants should share in benefits of efficiencies of scale.

# Business Value of SCM

- Effective transformation of raw materials into goods and/or services.
- Reduce uncertainty & risk.
- Improved collaboration to decrease inventory levels & cycle time.
- Improved processes & customer service.
- Increased profitability & competitiveness.



Information Integration through **EC\*ERP** System

## ***3.3 Enterprise Resource Planning (ERP) Systems***

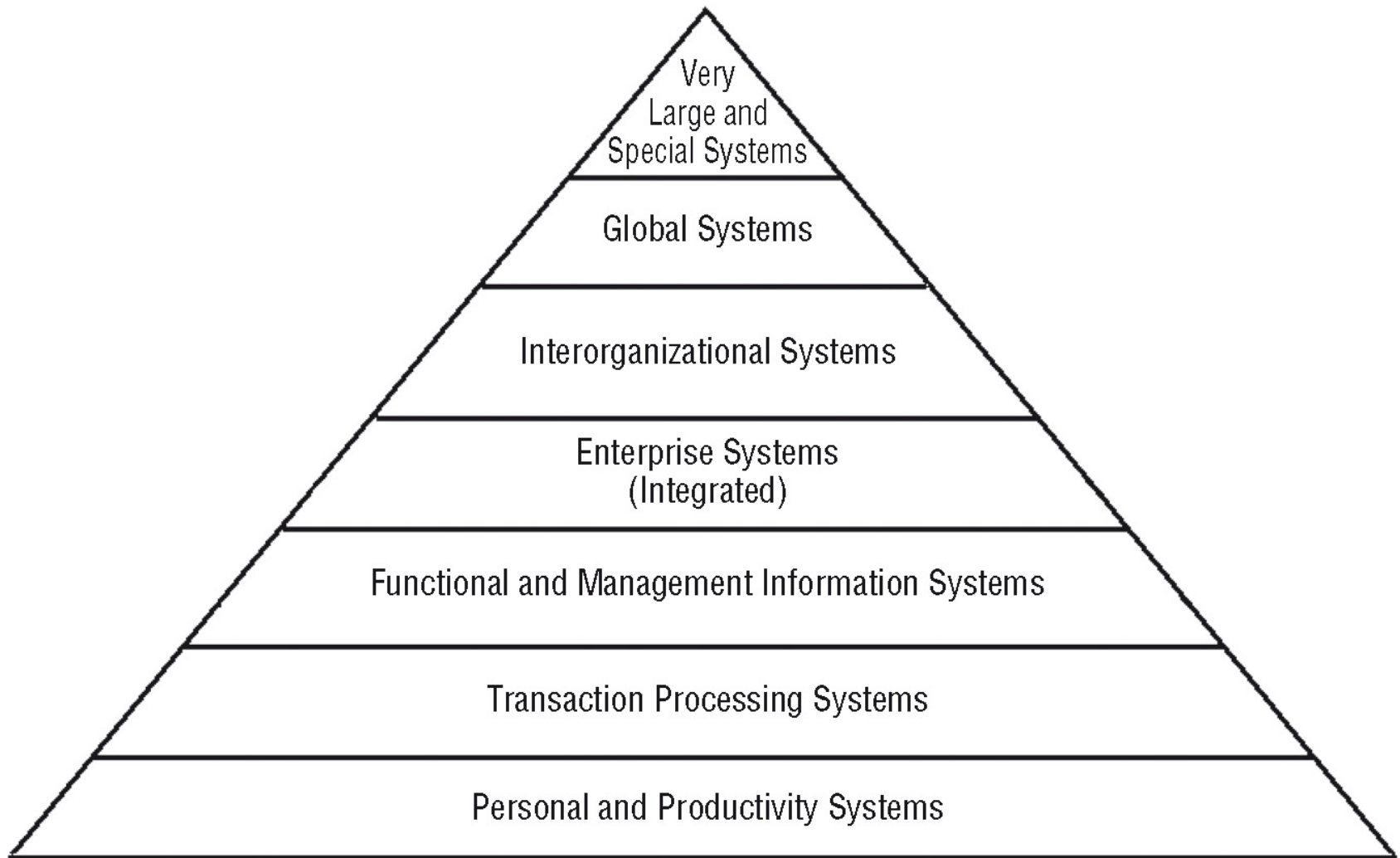
# What is ERP?

- Software integrates planning, management & use of all resources in entire enterprise.
- Comprises sets of applications that automate back-end operations (financial, inventory management & scheduling).
- Modules for cost control, accounts payable/receivable, treasury management & fixed assets.
- Benefits range from increased efficiency to improved quality, productivity & profitability.

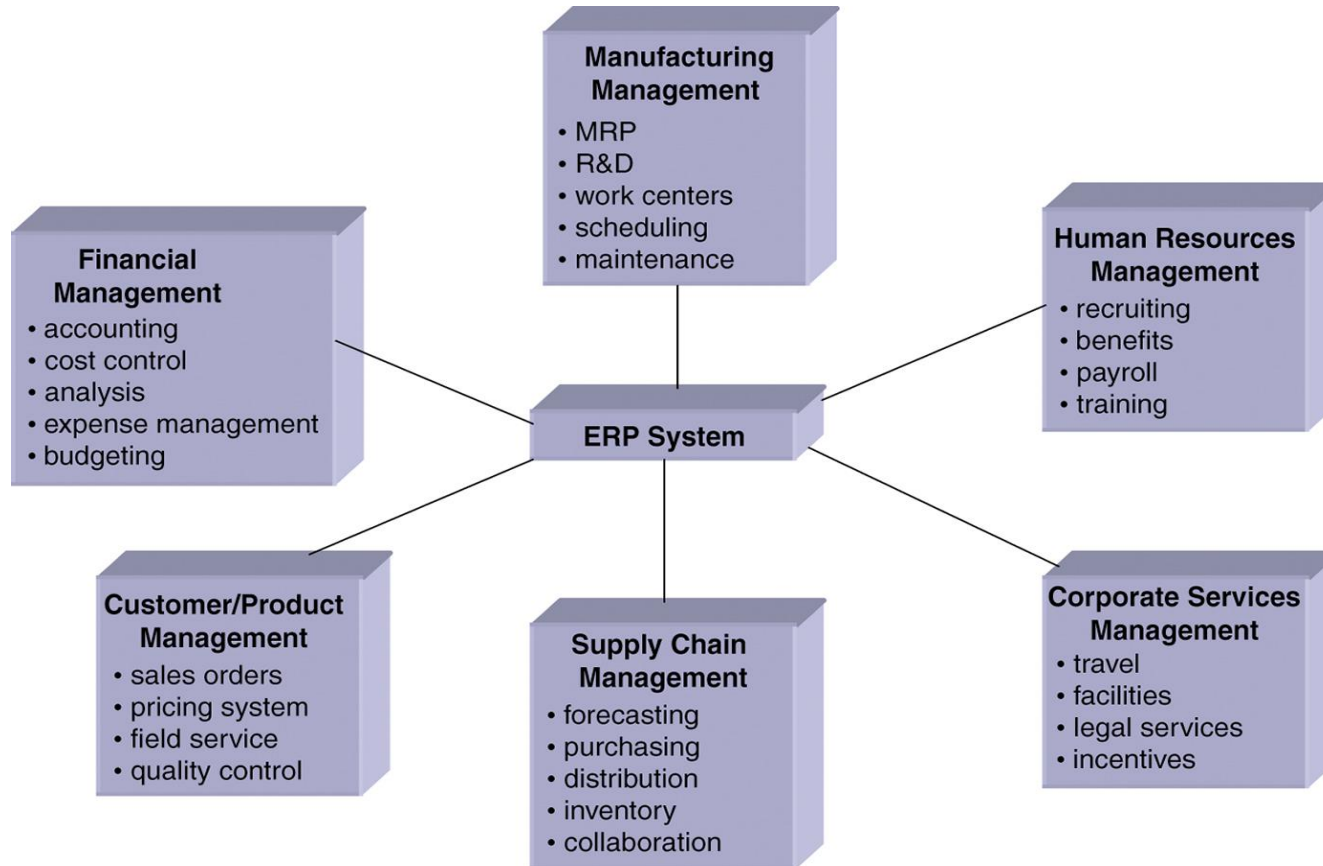
# Enterprise Resource Planning (ERP)

ERP adalah aplikasi sistem informasi manajemen **terintegrasi** untuk bisnis/organisasi yang mencakup multi fungsionalitas seperti penjualan, pembelian, produksi, gudang, akuntansi & finansial, penggajian, sumberdaya manusia, dsb.

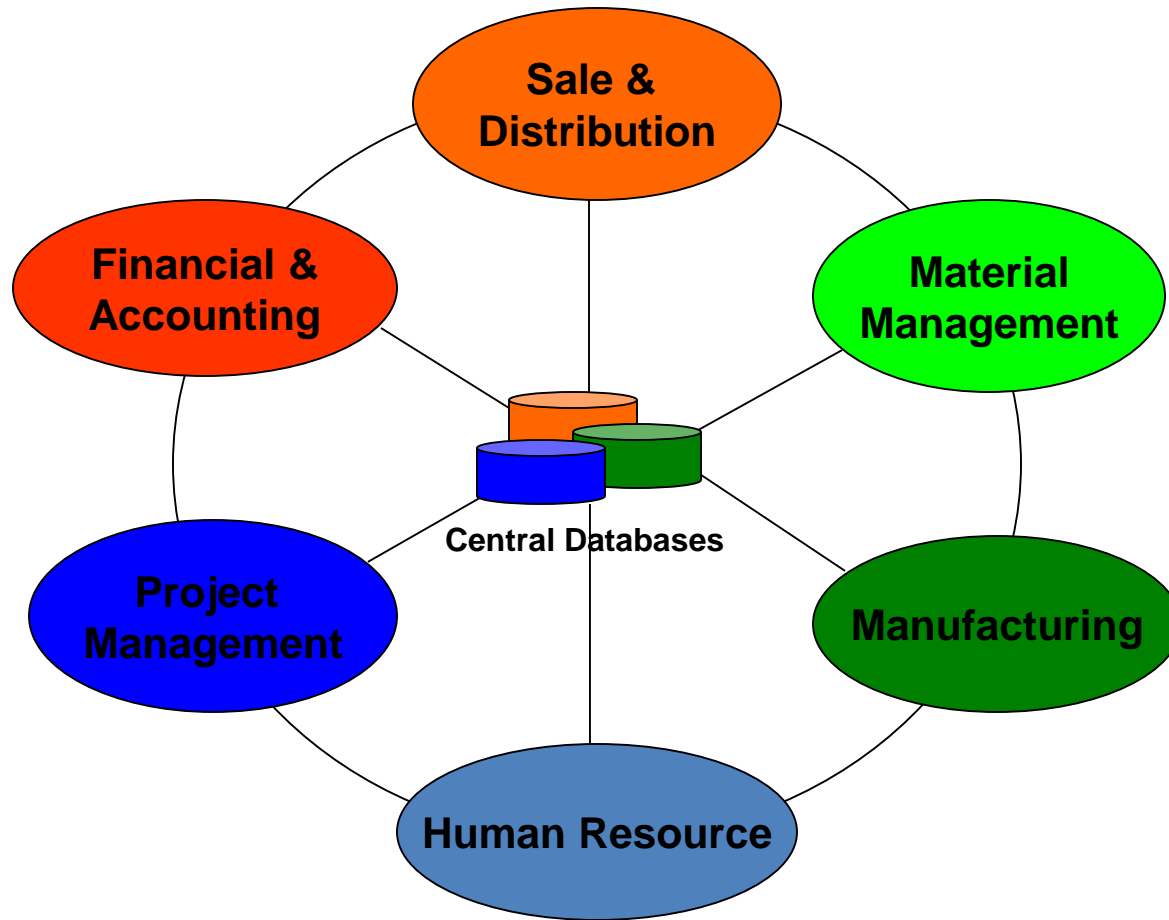
Aplikasi ERP menjadi tulang punggung (backbone/ back- office) sistem informasi manajemen untuk meningkatkan efisiensi operasi bisnis dan efektivitas pengambilan keputusan. Aplikasi ERP memiliki peran yang strategis untuk kepentingan persaingan bisnis



## Figure 3.5

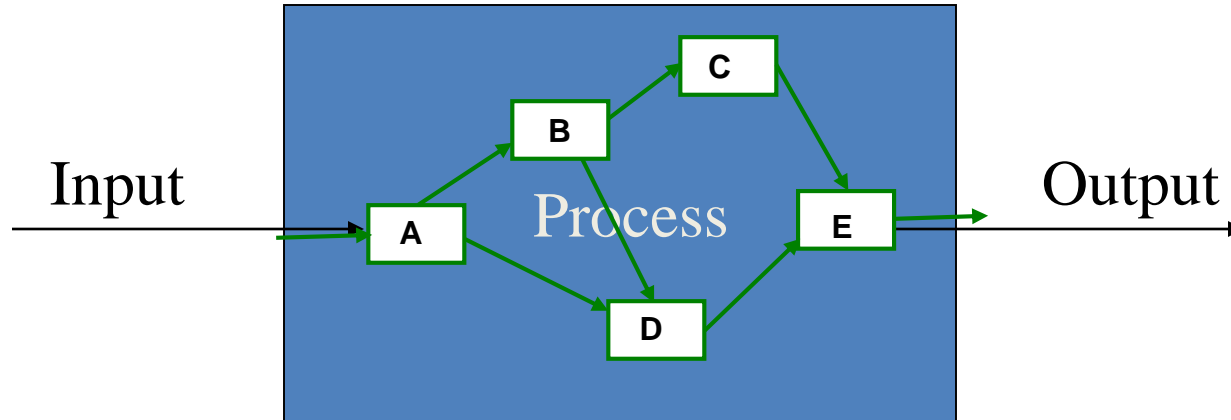


**ERR application modules. (Source: Prepared by D. Amoroso.)**





# Kekuatan ERP → Integrated



Interaksi / interelasi  
(Konsep Sistem)

# Aplikasi ERP populer (para pemain)

- SAP (mySAP)
- BAAN
- Oracle
- JD Edwards (telah diakuisisi Oracle)
- Peoplesoft (telah diakuisisi Oracle)
- Compiere (Opensource)
- dll.

# Modul ERP (tipikal mySAP) :

(Source : mySAP)

- mySAP Financials
- mySAP Human Resource
- mySAP Order Fulfillment
- mySAP Procurement
- mySAP Planning
- mySAP Manufacturing
- **mySAP Technology Administration**
- **mySAP Technology ABAP Workbench**
- mySAP Plant Maintenance
- mySAP Project Management

# Contoh MySAP

SAP Session Handling - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites History

Address http://sap.frogdesign.com/workplace\_demo/index.html

mySAP.com Home Edit Help Log Off

Document Title

Channels

- Homeview
- Directories and Travel
- Amazon.com
- Map and Jukebox
- Mixed Media

Favorites

Header

2 MSFT -1/16 MACR +1 1/2 MSFT -1/16 MACR +1 1/2 MSFT -1/16 M

Stocks Mixed Mid-Morning

Stocks remained mixed as interest rate fears weighed down the tech-heavy NASDAQ. CSCO warned of reduced sales ahead of earnings further spooking investors. Yada, Yada, Yada.

Full Story

Header

Convert From

USD United States Dollars

EUR Euro

CAD Canada Dollars

GBP United Kingdom Pounds

DEM Germany Deutsche Marks

Convert To

USD United States Dollars

EUR Euro

CAD Canada Dollars

GBP United Kingdom Pounds

DEM Germany Deutsche Marks

Enter Initial Amount 100

Convert

Results

100 EUR = 136.676 CAD

Header

Stock Watch

Market Overview US Markets

DJIA 10,485.93 +36.66

NASDAQ 3,179.20 +14.65

SP500 1,379.35 -2.5

NYSE 3,041.65 +1.74

Enter symbol or company name Get Quote

Header

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Header

Daily Calendar

<< August 2001 >>

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

7:00

8:00

9:00 Meeting with Hartmut in Capitol Conference Room

10:00

11:00

12:00 Lunch with Heinz Willumeit

1:00

> on

Archivo Editar Vista Datos Ir a Módulos Herramientas Ventana Ayuda

Menú principal

Plateria 100% Mexicana SA de CV manager

Módulos Arrastrar y vincular Menú de usuario

- Gestión
- Finanzas
- Oportunidades de Ventas
- Ventas - Clientes
- Compras - Proveedores
- Socios de Negocios
- Gestión de Bancos
- Inventario
- Producción
- MRP

Datos maestros socio de negocios

Código

Nombre

Nombre extranjero

Grupo

Moneda

Pedidos

Oportunidades

Lista de Socios de negocios

Buscar

Mantener visible la ventana

#	Código SH	Nombre de socio de negocios	Saldo SH
5	C0005	Joyería FIFAN/NT	269,742
6	C0006	Swatch	3,617,471
7	CL1111	Cliente Mostrador	(
8	CL30001	Cliente Importado	(
9	L0001	Joyería La Perla	(
10	L0002	Joyería y Relojes Nacional	(
11	L0003	Joyería Esmeralda	(
12	L0004	Prospecto Importado	(
13	PRO001	Proveedor Importado	(
14	V0001	Plata 999 SA de CV	-226,131

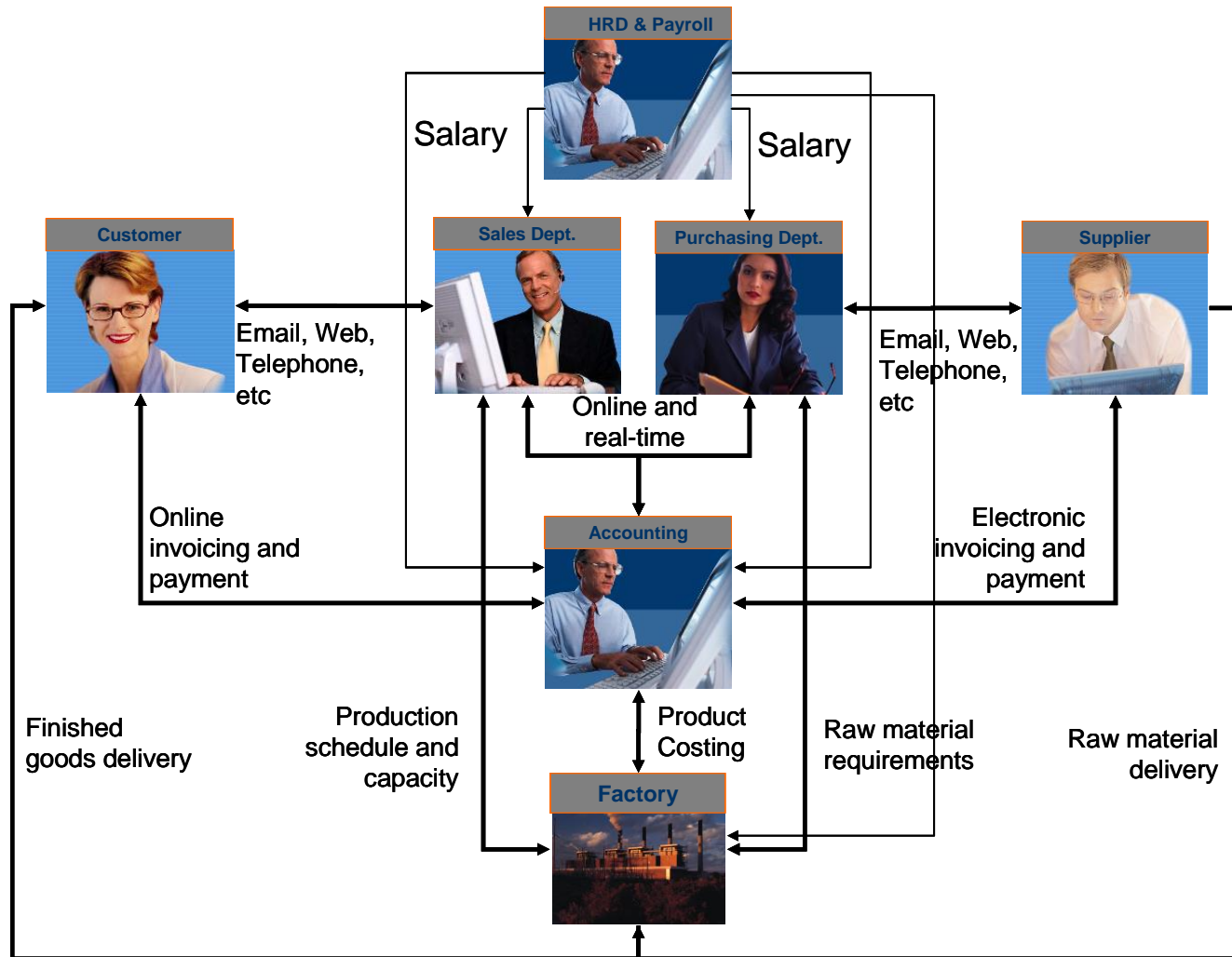
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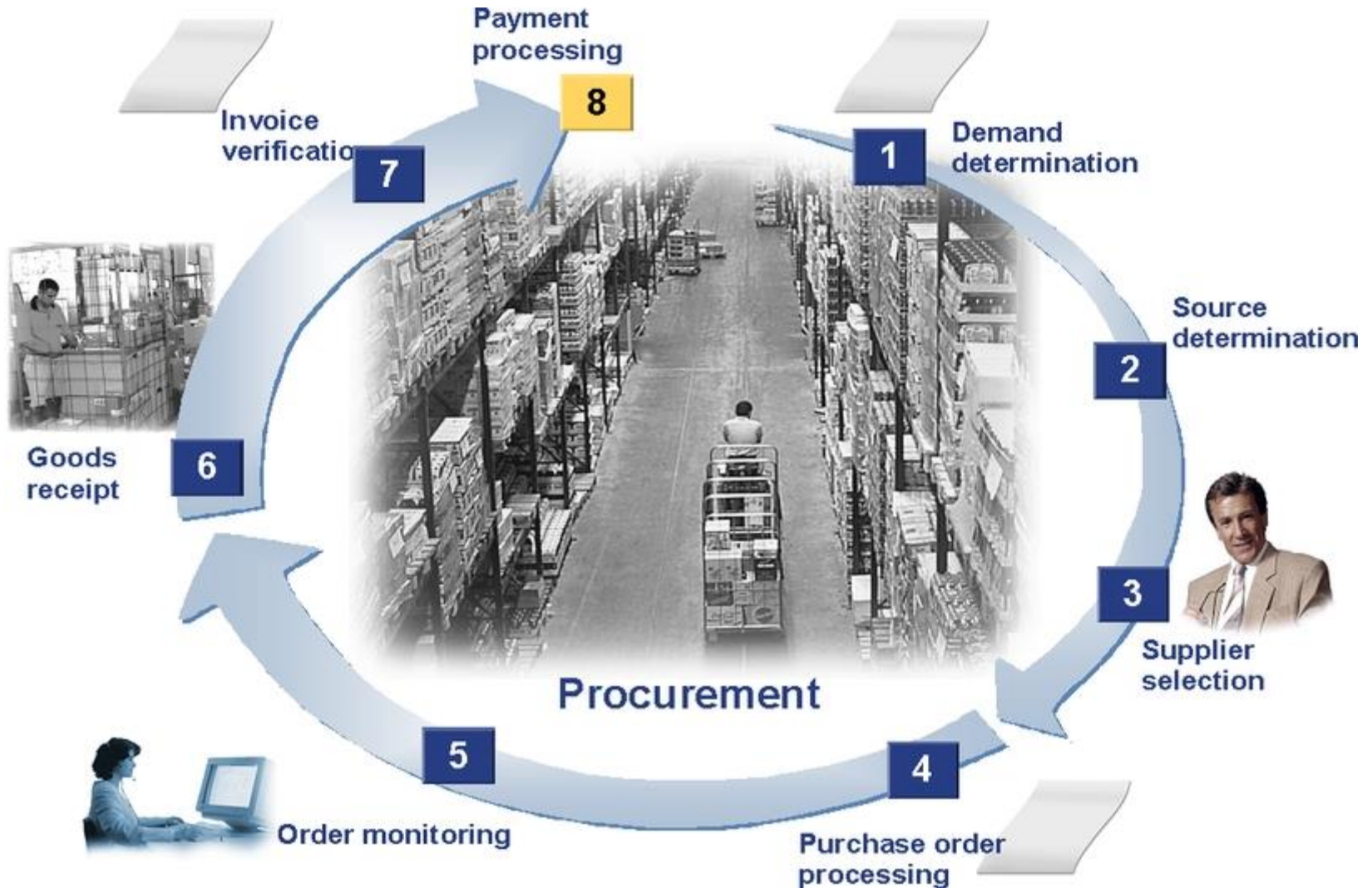
SAP One

# Proses bisnis tipikal (yang disederhanakan) dari sebuah bisnis modern (Souce : mySAP)



# mySAP ERP Procurement

(source Genovate-SAP)



## Mini Case : mySAP (1)

### Contoh kasus mySAP Order Fullfilment

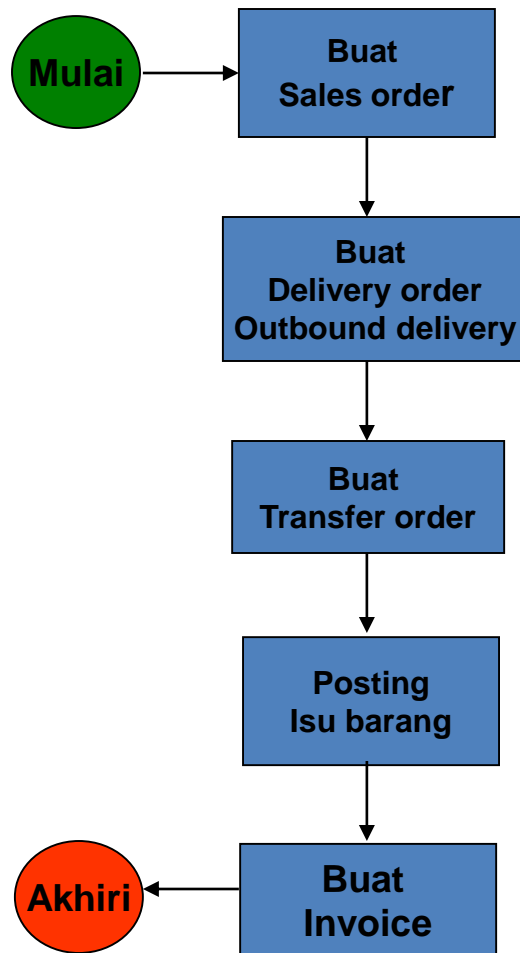
**Anda bekerja sebagai *sales executive* di perusahaan penjual komputer yang saat ini telah mengimplementasikan aplikasi mySAP ERP.**

**Pagi ini anda menerima order dari salah satu customer (Mr.X) order 3 flat monitor untuk 3 server barunya.**

**Gunakan user name dan password untuk login ke sistem mySAP dan lakukan beberapa tugas berikut : buat sales order, delivery order, dan billing.**

# Mini Case : mySAP (2)

## Diagram skenario proses bisnis



Permintaan dari customer ke perusahaan untuk mengirim sejumlah barang (products) atau menyediakan layanan pada waktu tertentu.

Segera setelah dipastikan hari material tersedia atau hari jadwal pengiriman, waktu penjadwalan telah ditetapkan.

Pada saat anda membuat outbound delivery, anda telah memulai (memicu) aktivitas pengiriman seperti pengambilan barang dan penjadwalan transpor

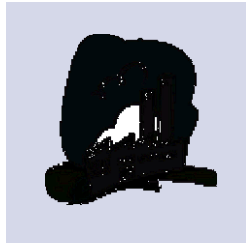
Jika barang telah dikeluarkan dari warehouse dan siap untuk dikirim

Billing merupakan tahapan proses akhir untuk transaksi bisnis (Sales and Distribution). Pembuatan invoice berdasar deliveries atau service, menerbitkan memo kredit dan debit, pembatalan transaksi billing, fungsi pricing, menerbitkan rebates, transfer data billing ke modul Financial Accounting (FI)



# Evolusi Bisnis (Source : mySAP)

# Enterprise Resource Planning



- Cost reduction and efficiency through integration of business processes

## Inter-Enterprise Co-operation



- Improved effectiveness through cooperation along the supply chain

## e-Community Collaboration



- Value creation through collaboration within business communities

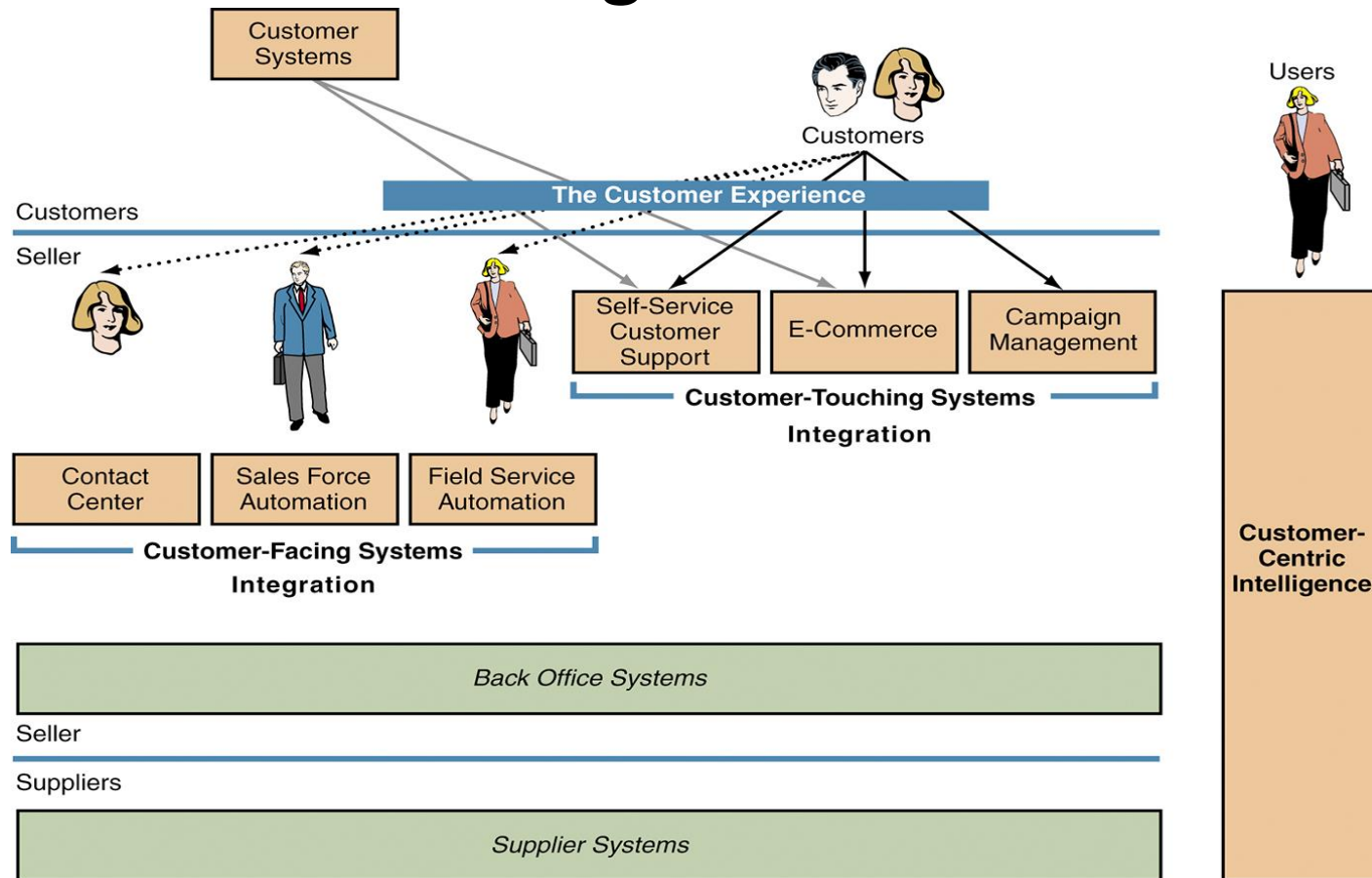
# ERP – Lease or Buy?

- Self-develop an integrated system, either linking together existing functional packages or by programming a new custom-built system.
- Purchase commercially available product (often quicker &/or less expensive). Leading vendor is SAP. Oracle & Computer Associates also make similar products.
- Lease from application service providers (ASP) to get the best modules of different vendors.
- Lease will typically be least expensive option making it more affordable by even small firms.

# ***Critical Success Factor of ERP Implementation***

## ***3.4 Customer Relationship Management (CRM)***

# Figure 3.6



**CRM applications. (Source: Patricia Seybold Group, An Executive's Guide to CRM, March 21, 2002.)**

# CRM Business Strategy

- Customers are the core of the business.
- Success depends upon company effectively managing relationships with customers.
- It is a business strategy to select & manage customers to optimize long-term value.
- Requires a customer-centric business philosophy & culture to support effective marketing, sales & services processes.
- Idea is simple – treat different customers differently as their needs are different & their value to the company may be different.

***Check out this tutorial at [cio.com](http://cio.com) for more: Customer Relationship Management***

# Classification of CRM Applications

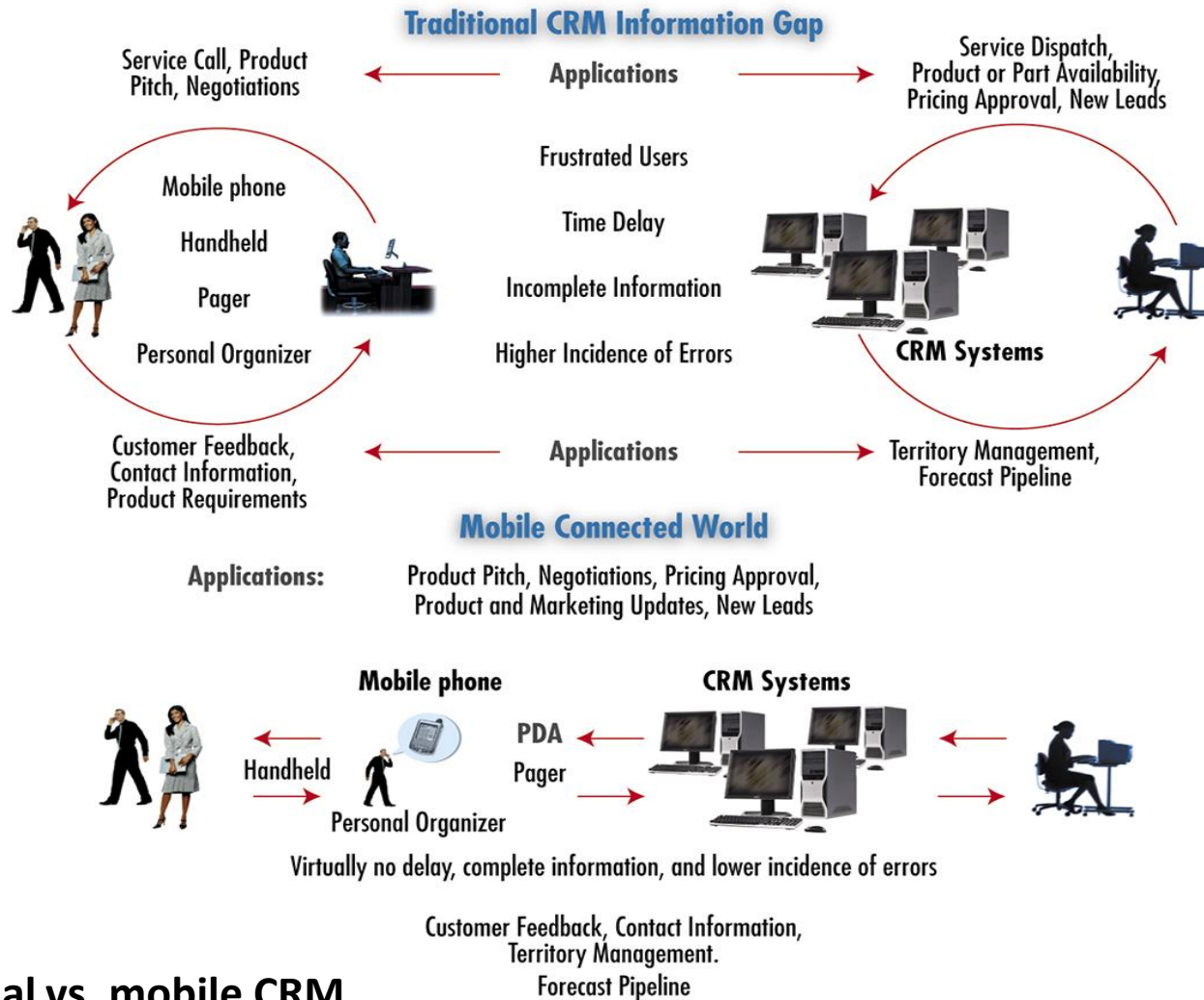
- Customer-facing – include all areas where customers interact with company (call centers, help desks, sales force automation).
- Customer-touching – customers interact with the applications (self-service, campaign management, general purpose e-business applications).
- Customer-centric intelligence – analyze results of operational processing & use results to improve CRM applications.
- Online networking – methods that provide the opportunity to build personal relationships (chat rooms & discussion lists).

# Tools for Customer Service

- Personalized web pages used to record purchases & preferences.
- FAQs commonly used for dealing with repetitive customer questions.
- Email & automated response
- Chat rooms
- Live chat
- Call centers



# Figure 3.7



**Traditional vs. mobile CRM.**

# Issues Related to CRM Failures

- Difficulty in measuring intangible benefits.
- Failure to identify & focus on specific business problems that the CRM can solve.
- Lack of active senior management sponsorship.
- Poor user acceptance.
- Trying to automate poorly defined business process.

# Table 3.1

**TABLE 10.1**      How to Implement CRM to Avoid Its Failure

- Conduct a survey to determine how the organization responds to customers.
- Carefully consider the four components of CRM: sales, service, marketing, and channel/partner management.
- CRM includes the analytical aspects of understanding your customers, their buying habits, and the reasons they make the decisions they do. Survey how CRM accomplishments are measured; use defined metrics. Make sure quality, not just quantity, is addressed.
- Consider how CRM software can help vis-à-vis the organization's objectives.
- Decide on a strategy: refining existing CRM processes, or reengineering the CRM.
- Evaluate all levels in the organization but particularly frontline agents, field service, and salespeople. Strong executive sponsor support is necessary for getting people to change how they do their jobs and to adopt a CRM culture.
- Prioritize the organization's requirements as one of the following: *must*, *desired*, or *not so important*.
- Select appropriate CRM software. There are more than 60 vendors. Some (like Salesforce.com, Microsoft) provide comprehensive packages; others provide only certain functions. Decide whether to use the best-of-breed approach or to go with one vendor. ERP vendors (e.g., Oracle and SAP) also offer CRM products.

*Source:* Compiled from DeFazio (2002) and Mochal and Pace (2006).

# Business Value of CRM

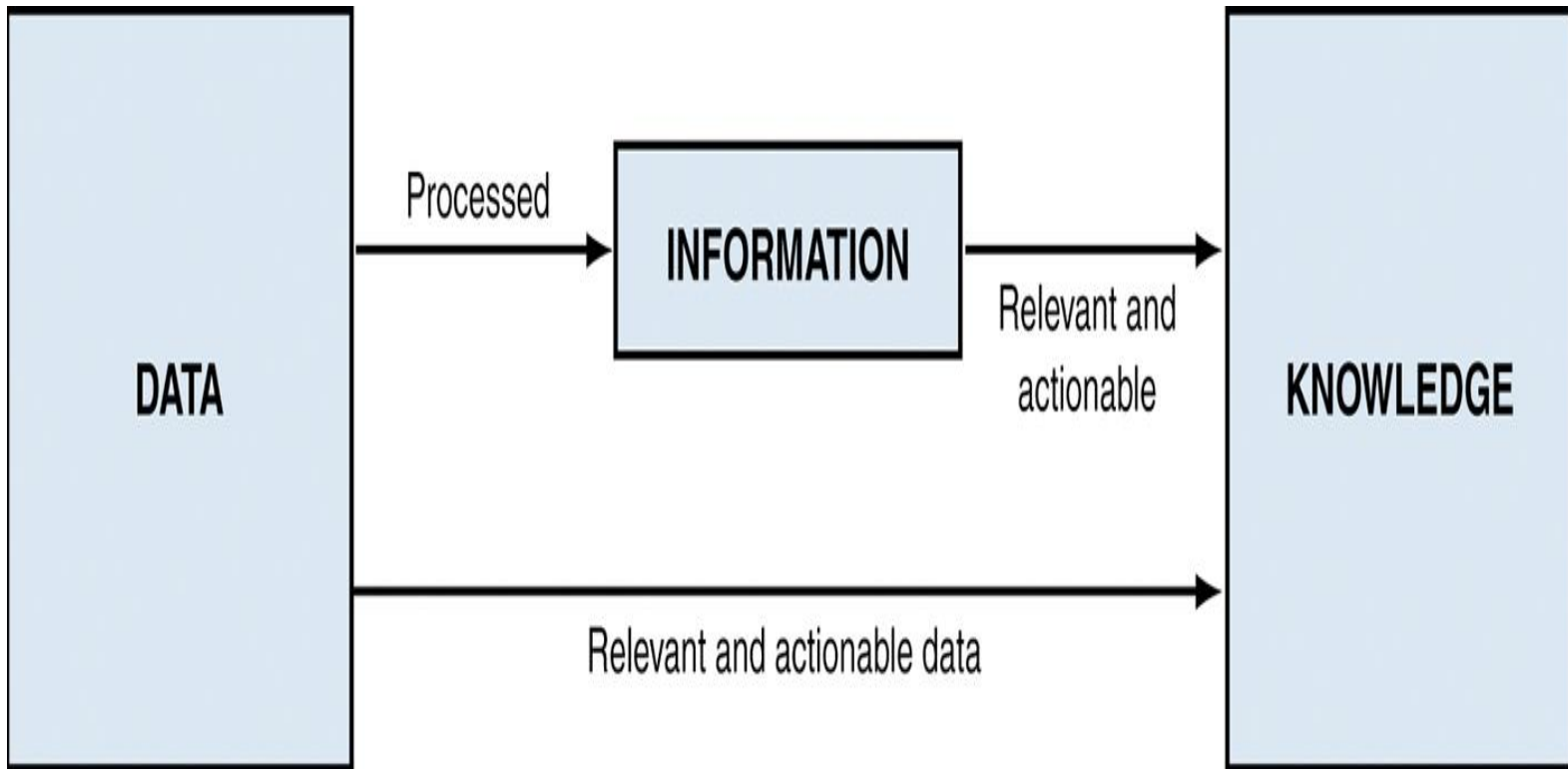
- Increase in staff productivity.
- Cost avoidance.
- Increased revenue.
- Margin increases.
- Reduced inventory costs.
- Increased customer satisfaction.

# Risks of e-CRM

- Taking on more than can be delivered.
- Getting over budget & behind schedule.
- Poor user adoption.
- Expensive maintenance & support.
- Isolation.
- Garbage in-garbage out.
- Failure to measure success.

## ***3.5 Knowledge Management and IT***

## Figure 3.8



**Data, information, and knowledge.**

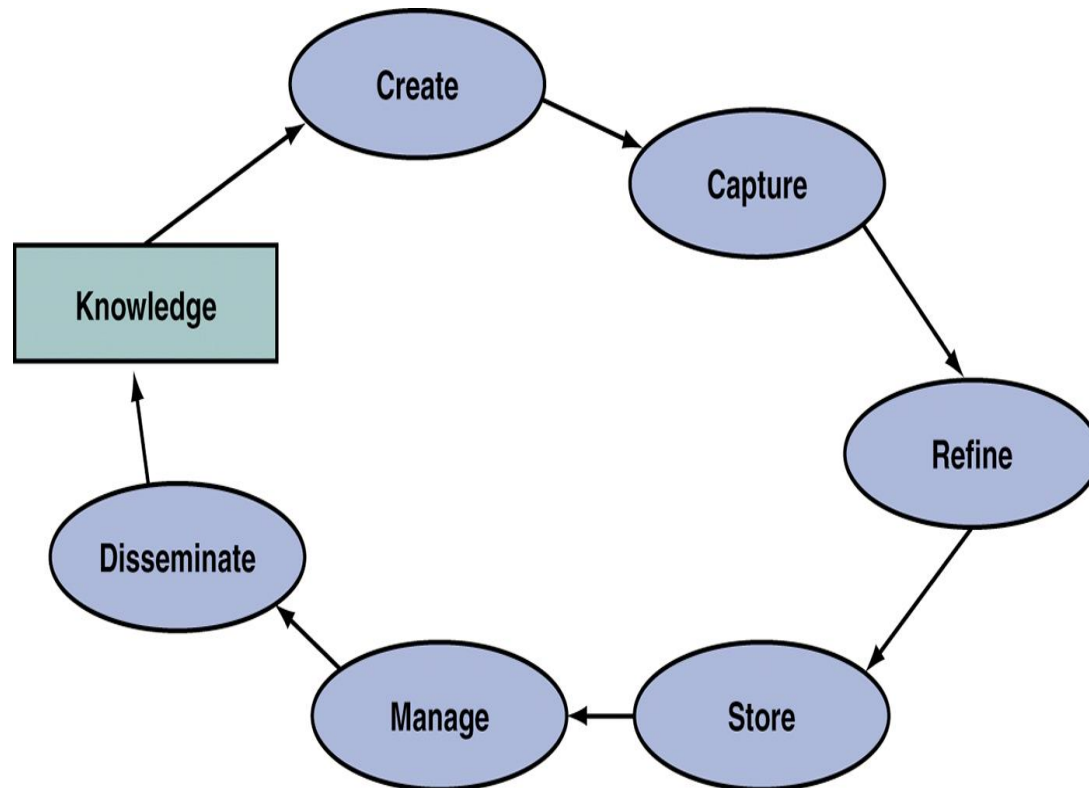
# Knowledge

- Information that is contextual, relevant & actionable.
- Extraordinary leverage & increasing returns.
- Fragmentation, leakage & the need to refresh.
- Uncertain value.
- Uncertain value of sharing.
- Rooted in time.
- Intellectual capital (intellectual assets) is another term used for knowledge; an implied financial value to knowledge.



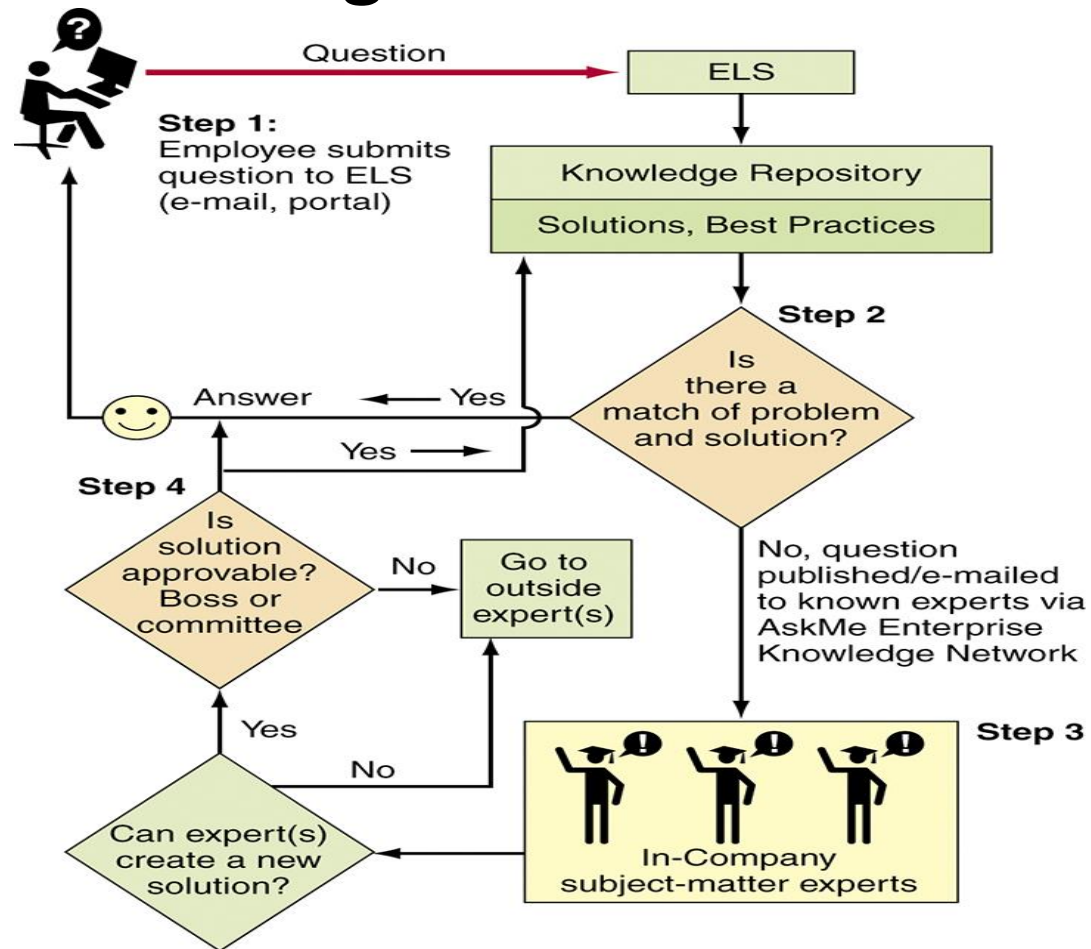
- ***Problem*** – need to keep large employee base up-to-date & ahead of competitors & clients. Spread lessons learned so not to repeat mistakes.
- ***Solution*** – implemented knowledge management system.
- ***Results*** – early problems, however, initiated modifications to rate usefulness of knowledge.

## Figure 3.9



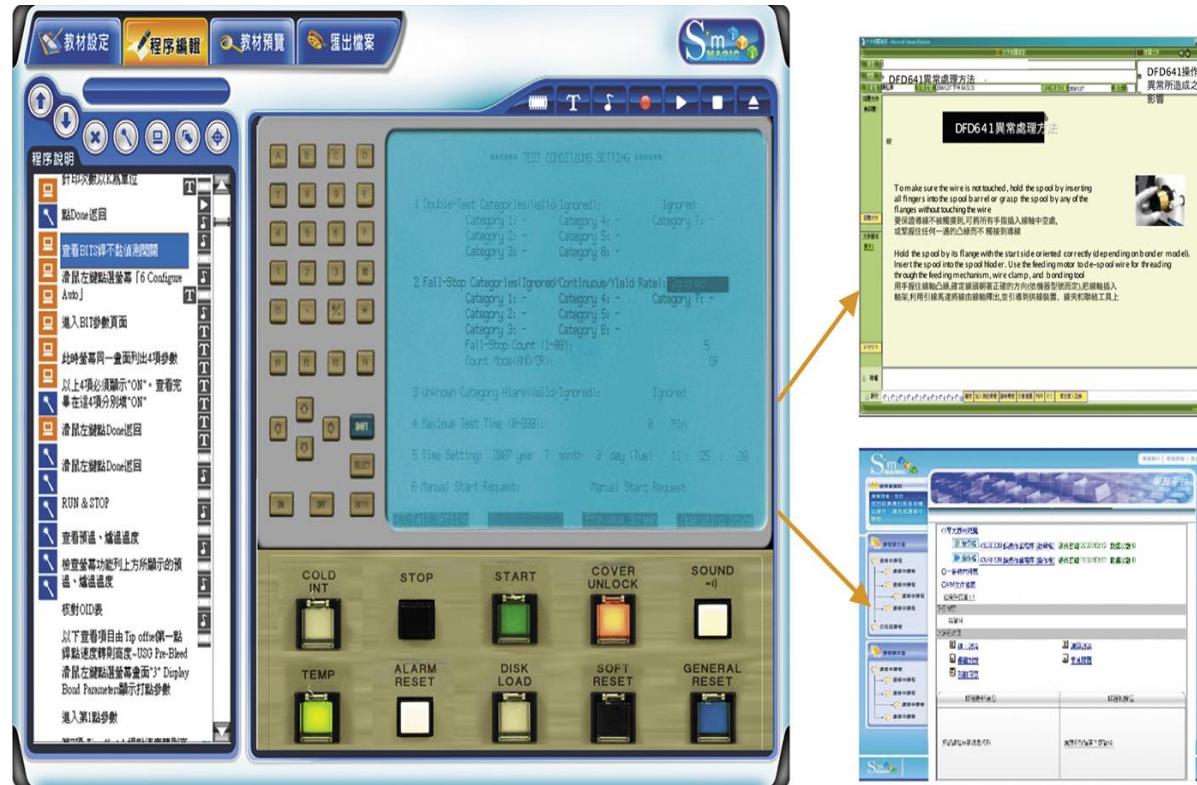
**The knowledge management system cycle.**

# Figure 3.10



Expert location system of AskMe Corp. (Source: Drawn by E. Turban.)

# Figure 3.11



**KM and e-learning (SimMAGIC). (Source: Courtesy of HamStar Technology LTD.)**

## ***3.6 Managerial Issues***

# Major Managerial Issues

- Ethical – responsibilities to employees as business needs change.
- How much to integrate – risk.
- Role of IT – support & strategic.
- Organizational adaptability – software versus existing processes.
- Going global – complicate existing processes.
- Customer is king/queen – key success factor.

# ***Business Intelligence***



- **Problems** – declining market. Saturation of existing market.
- **Solution** – wireless capabilities to provide managers with data that are analyzed immediately to provide actionable feedback to maximize sales.
- **Results** –gained decisive edge & outsmarted its rivals. Data used as strategic weapon.



# Table 3.1

TABLE 12.1		Anheuser-Busch Financials		
	2007	2006	2005	
Revenue*	\$16,685.7	\$15,717.1	\$15,035.7	
Net Income*	\$2,115.3	\$1,965.2	\$1,839.2	
Net Profit	12.7%	12.5%	12.2%	
Employees	30,849	30,183	31,485	
• One-Year Sales Growth: 6.2%				
• One-Year Income Growth: 7.6%				
*Millions of U.S. dollars.				

## ***3.1 The Need for Business Intelligence (BI)***

# (E)xtract (T)ransform (L)oad Tools

- E – involves tools for extracting the data from source systems (silos).
- T – involves converting (transforming) the data into standardized formats.
- L – involves loading & integrating data into a system (such as a data warehouse).

*Check out this great article for much, much more about the topic –*  
[ETL: Extract - Transform - Load \(and data management and integration\)](#)

# Risks with Disparate Data

- Responsiveness requires intelligence which requires trusted data & reporting systems.

**\* Data that are too late**

**\* Data that are wrong level of detail-too much or too little**

**\* Directionless data**

**\* Unable to coordinate with departments across enterprise**

**\* Unable to share data in a timely manner**

- Silos arise creating decisions based upon inaccurate, incomplete, possibly outdated data.

## Table 3.3

TABLE 12.3 BI Functions and Features		
Reporting and Analysis	Analytics	Data Integration
Enterprise reporting and analysis	Predictive analytics	ETL (extract, transformation, load)
Enterprise search	Data, text, and Web mining	EII (enterprise information integration)
Scorecards	OLAP (online analytic processing)	
Dashboards		
Visualization tools		

# Business Intelligence Technologies

- 1990s primarily associated with back office workers & operations such as accounting, finance & human resources.
- 2000s expanded to enterprise data to include needs of managers & executives.
- Vendors offered advanced analytic, decision support, easy-to-use interfaces, & improved data visualization tools. Web-based delivery became common-place.
- Evolved from reporting to predicting.

# BI Vendors

Business intelligence – *BIG* business



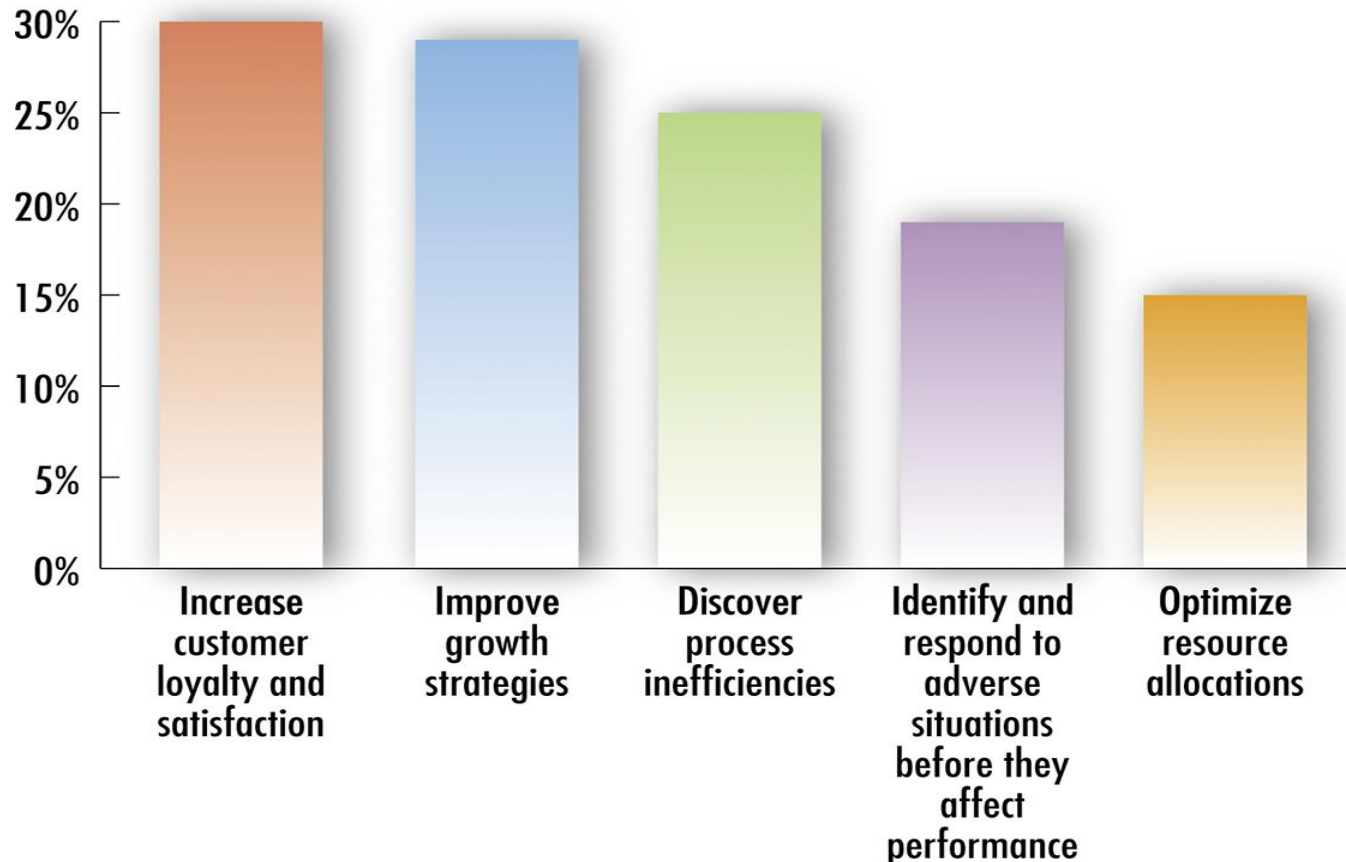
# Power of Predictive Analytics, Alerts & DSS

- Real-time view of the data
- Reactive to proactive with respect to future
- Improved data quality
- Shared, common vision of business activity benefitting key decision makers across enterprise
- Simple to view KPIs
- Informed, fast decision making
- Complete, comprehensive audit trails



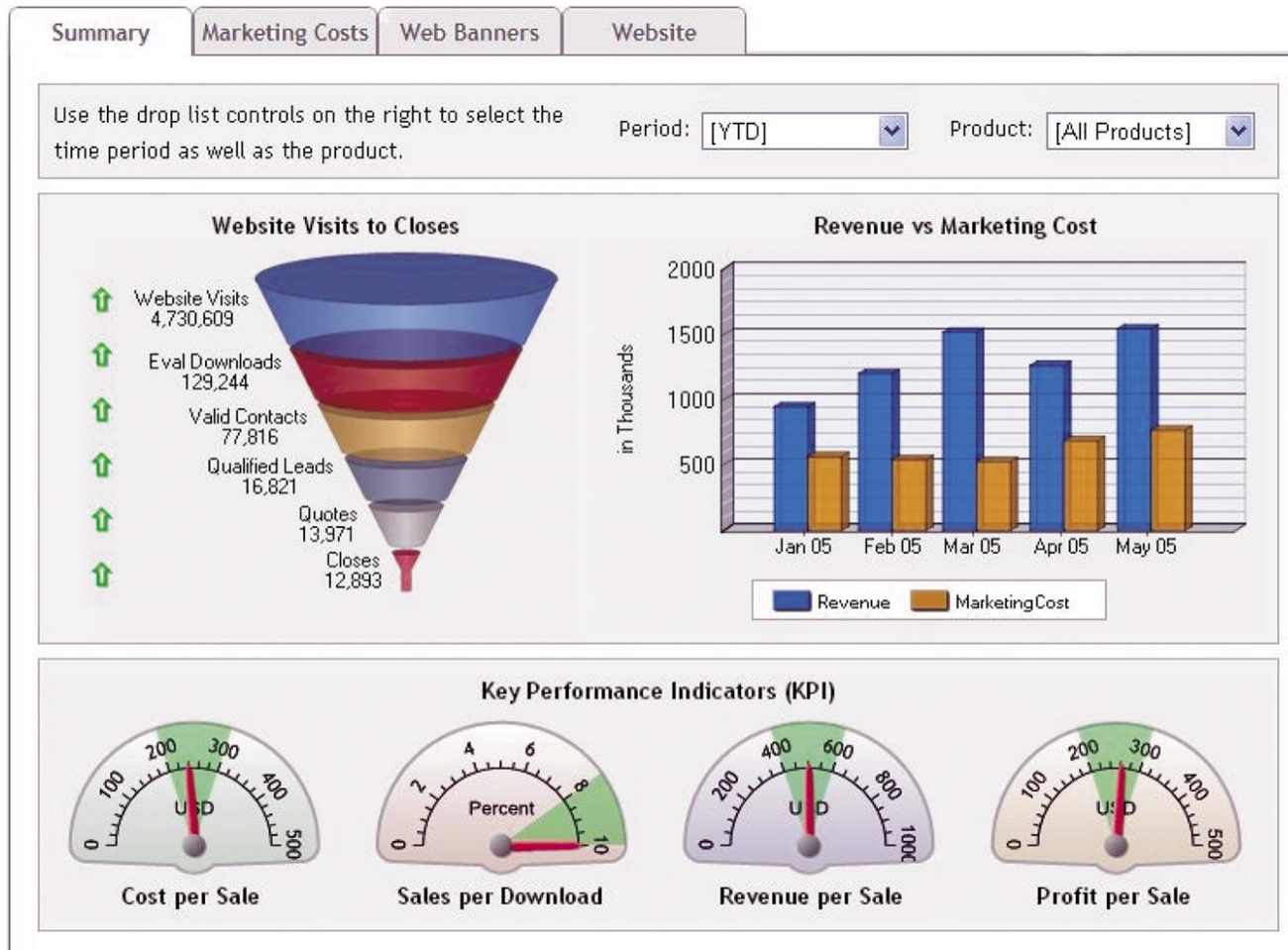
# Figure 3.1

**Top five business pressures driving adoption of predictive analytics**



**Top five business pressure driving the adoption of predictive analytics. (Data from Aberdeen Group.)**

# Figure 3.3



Click [here](#) for a plethora of dashboard examples! Sample performance dashboard.

# Table 3.2

TABLE 12.2		Strategic, Tactical, and Operational BI: Business Focus and Users		
	Strategic BI	Tactical BI	Operational BI	
Primary Business Focus	To achieve long-term enterprise goals and objectives	To analyze data; deliver alerts and reports regarding the achievement of enterprise goals	To manage day-to-day operations	
Primary Users	Executives, analysts	Executives, analysts, line-of-business managers	Line-of-business managers, operations	
Measures	Measures are a feedback mechanism to track and understand how the strategy is progressing, and what adjustments need to be made to the plan.	Measures are a feedback mechanism to track and understand how the strategy is progressing, and what adjustments need to be made to the plan.	Individualized so each line manager gets insight into performance of his or her business processes.	
Time Frame	Monthly, quarterly, yearly	Daily, weekly, monthly	Immediately, intra-day	
Data Types or Uses	Historical, predictive	Historical, predictive modeling	Real time or near-real time	

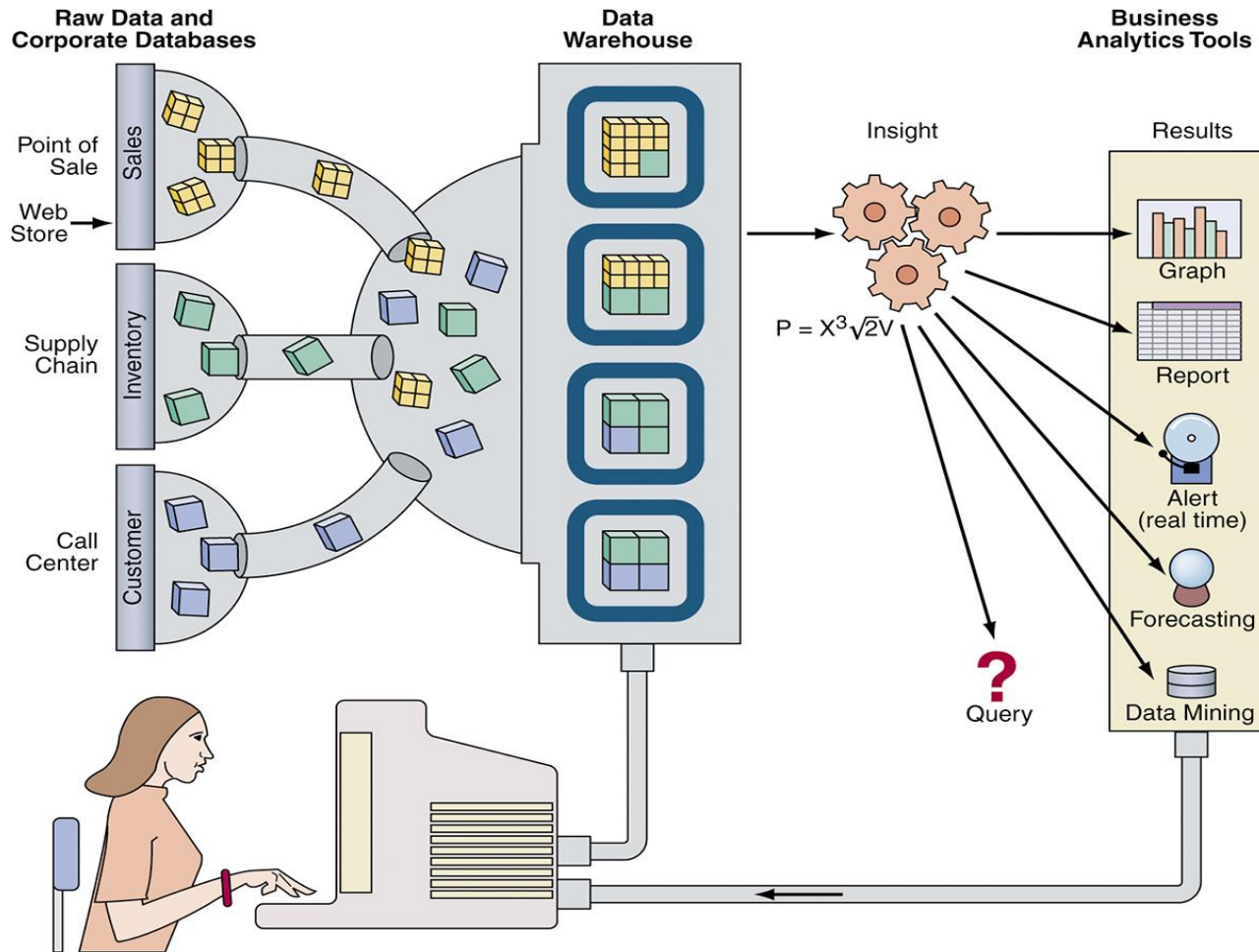
Sources: Adapted from Greisdorf (2007) and Imhoff (2006)

# Figure 3.4



**Basic BI components.**

# Figure 3.5



**How a BI system works.**

# Business Intelligence Solutions

- Must be able to access enterprise data sources such as TPS, e-business & e-commerce processes, operational platforms & databases.
- Needed for real-time decision making.
- Enhanced operational understanding capabilities.
- Improved cost control & customer relationship management.

## ***3.2 BI Architecture, Reporting, and Performance Management***

# Data Extraction & Integration

- Many sources such as OLAP, ERP, CRM, SCM, legacy & local data stores, the Web all lacking standardization & consistency.
- ETL tools provide data for analyses to support business processes.
- Central data repository with data security & administrative tools for information infrastructure.



# Enterprise Reporting Systems

- Provide standard, ad hoc, or custom reports.
- 95% of Fortune 500 rely on BI to access information & reports they need.
- Reduces data latency.
- Decreases time users must spend collecting the data; increases time spent on analyzing data for better decision-making.

# Dashboards & Scorecards

- Dashboards are typically operation & tactical in application & use.
- Scorecard users are executive, manager, staff strategic level in application & use.

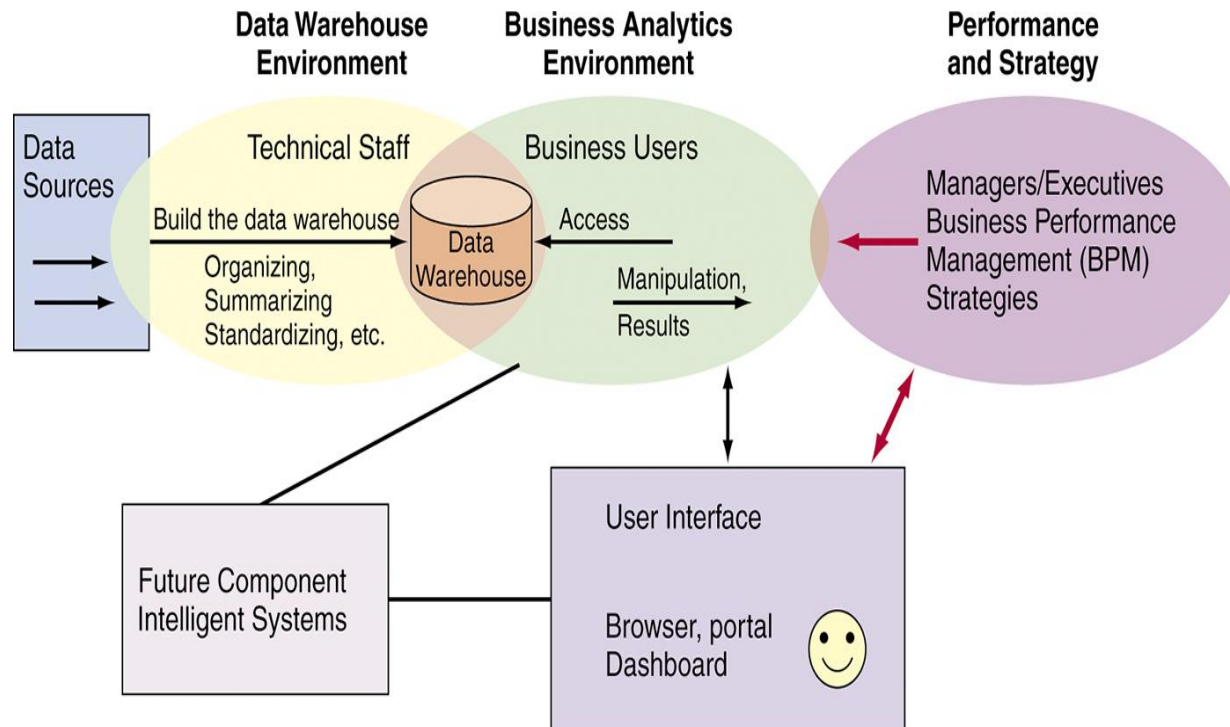
# Table 3.4

TABLE 12.4	Digital Dashboards Capabilities
Capability	Description
Drill-down	Ability to go to details at several levels; can be done by a series of menus or by query.
Critical success factors (CSFs)	The factors most critical for the success of business. These factors can be organizational, industry, departmental, etc.
Key performance indicators (KPIs)	The specific measures of CSFs.
Status access	The latest data available on KPI or some other metric, ideally in real time.
Trend analysis	Short-, medium-, and long-term trend of KPIs or metrics, which are projected using forecasting methods.
Ad-hoc analysis	Analyses made any time, upon demands and with any desired factors and relationships.
Exception reporting	Reports that highlight deviations larger than certain thresholds. Reports may include only deviations.

# Business Performance Management

- Requires methods to quickly & easily determine performance versus goals, objectives & alignment strategies.
- Relies on BI analysis reporting, queries, dashboards & scorecards.
- Objective is strategic – to optimize overall performance of an organization.

# Figure 3.7



**Business performance management (BPM) for monitoring and assessing performance.**

# Table 3.5

TABLE 12.5 Business Value of BI Analytical Applications		
Analytical Application	Business Questions	Business Value
Customer segmentation	What market segments do my customers fall into and what are their characteristics?	Personalize customer relationships for higher customer satisfaction and retention.
Propensity to buy	Which customers are most likely to respond to my promotion?	Target customers based on their need to increase their loyalty to your product line. Also, increase campaign profitability by focusing on those most likely to buy.
Customer profitability	What is the lifetime profitability of my customers?	Make business interaction decisions based on the overall profitability of customers or customer segments.
Fraud detection	How can I detect which transactions are likely to be fraudulent?	Quickly detect fraud and take immediate action to minimize cost.
Customer attrition	Which customers are at risk of leaving?	Prevent loss of high-value customers and let go of lower-value customers.
Channel optimization	What is the best channel to reach my customers in each segment?	Interact with customers based on their preference and your need to manage cost.

Source: Ziama and Kasher (2004). Courtesy of Teradata, division of NCR Corp.

## ***3.3 Data, Text, and Web Mining and BI Search***

# Text-Mining

- Content that is mined include unstructured data from documents, text from email messages & log data from Internet browsing.
- May be major source of competitive advantage.
- Needs to be codified with XML & extracted to apply predictive data mining tools to generate real value.
- Comprises up to 80% of all information collected.

Click link for an informative article in cio.com – [\*\*Text Analytics: Your Customers are Talking About You\*\*](#)

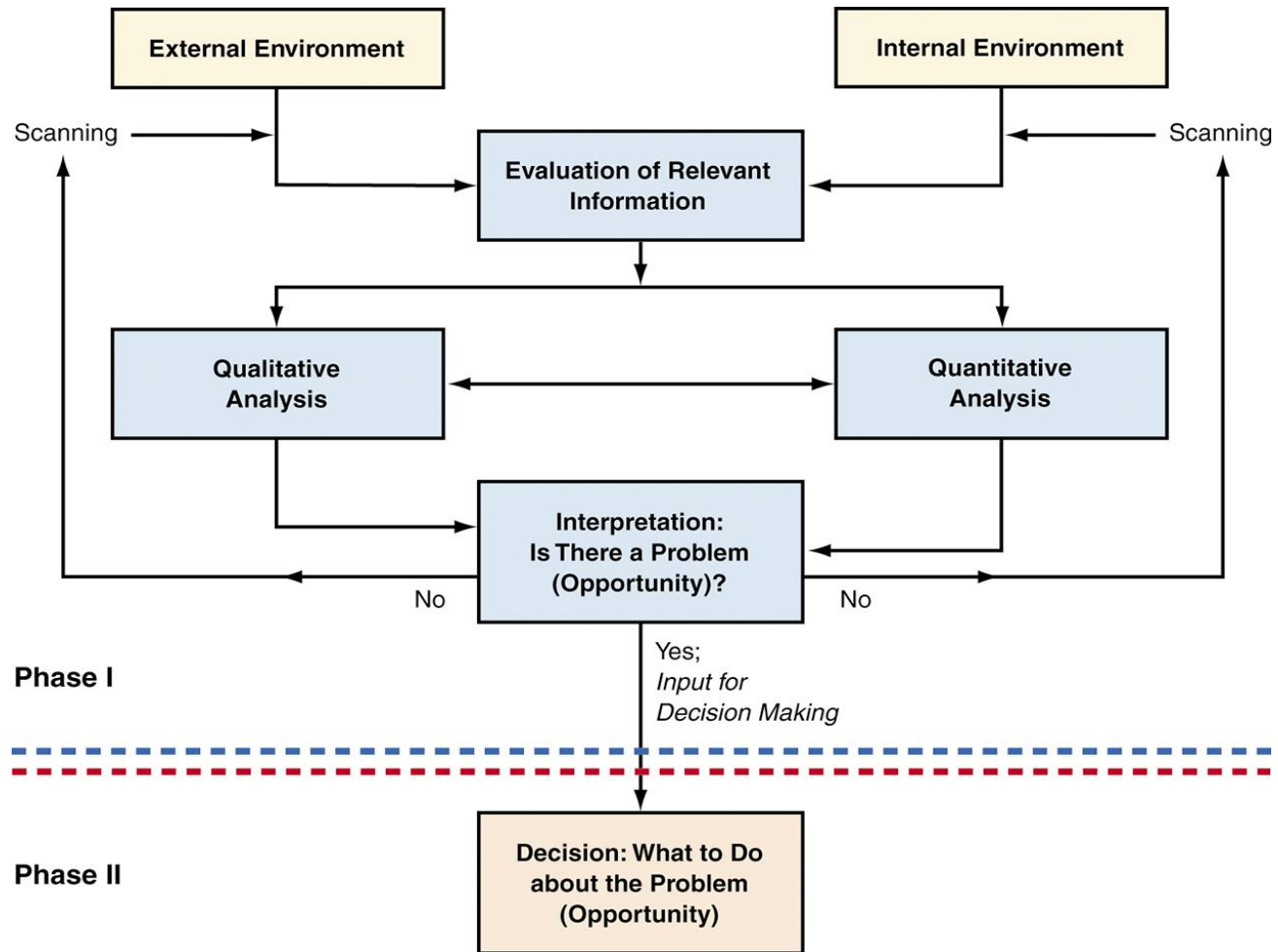


# Advantages & Disadvantages of Data Mining

- Tools that are interactive, visual, understandable, & work directly on data warehouse of organization.
- Simpler tools used by front line workers for immediate & long-term business benefits.
- Techniques may be too sophisticated or require extensive knowledge & training.
- May require expert statistician to utilize effectively, if at all.

## ***3.4 Managers and Decision Making Processes***

# Figure 3.8



**Manager's decision role.**

# Managers Need IT Support from DSS Tools

- Scenarios, alternatives & risks are many.
- Time is always critical consideration & stress level is high.
- Requires sophisticated analysis.
- Geographically dispersed decision makers with collaboration required.
- Often requires reliable forecasting.

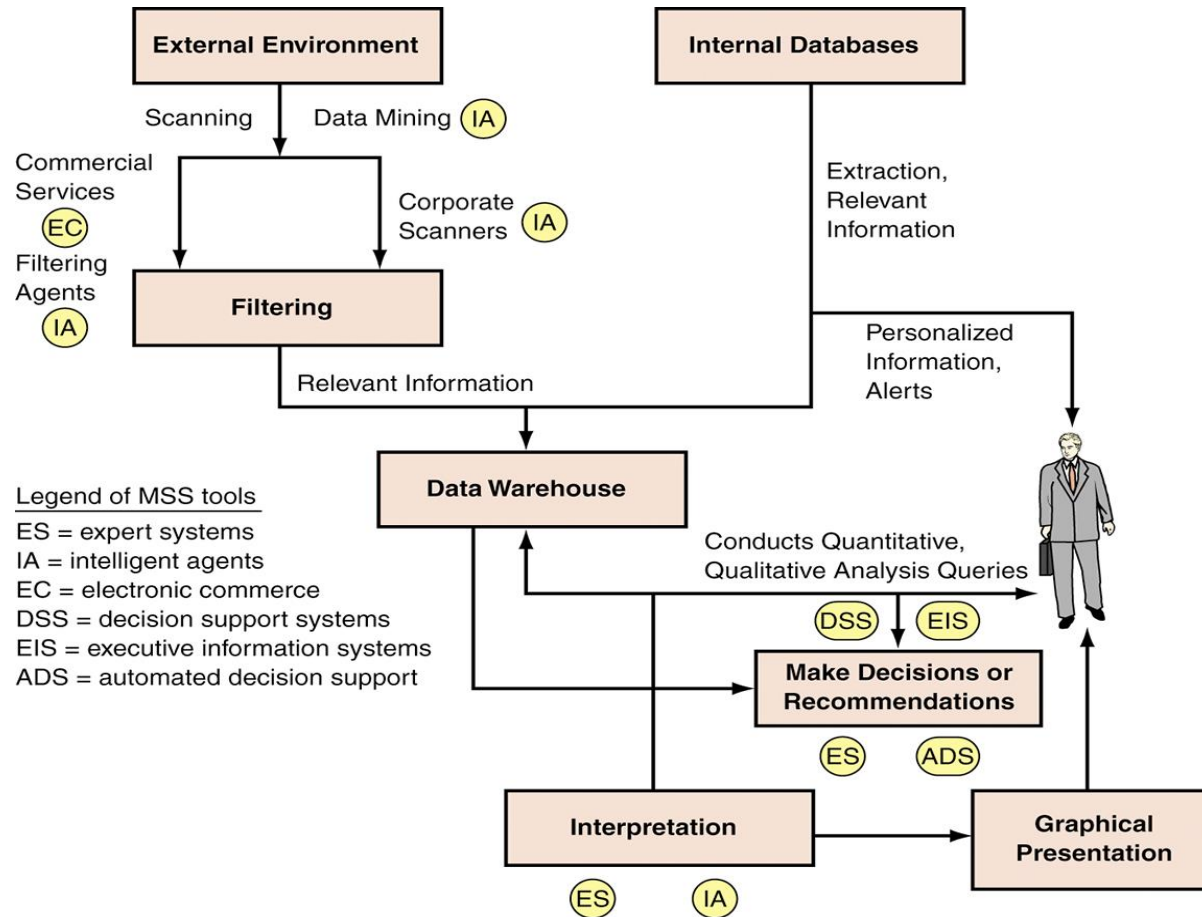
# Automating Manager's Job

- Routine decisions by mid-level managers (frontline employees) may be automated fairly easily & frequently.
- Automation of routine decisions leaves more time for supervising, training & motivating nonmanagers.
- Top level managerial decision making is seldom routine & very difficult to automate.

# IT Available to Support Managers (MSS)

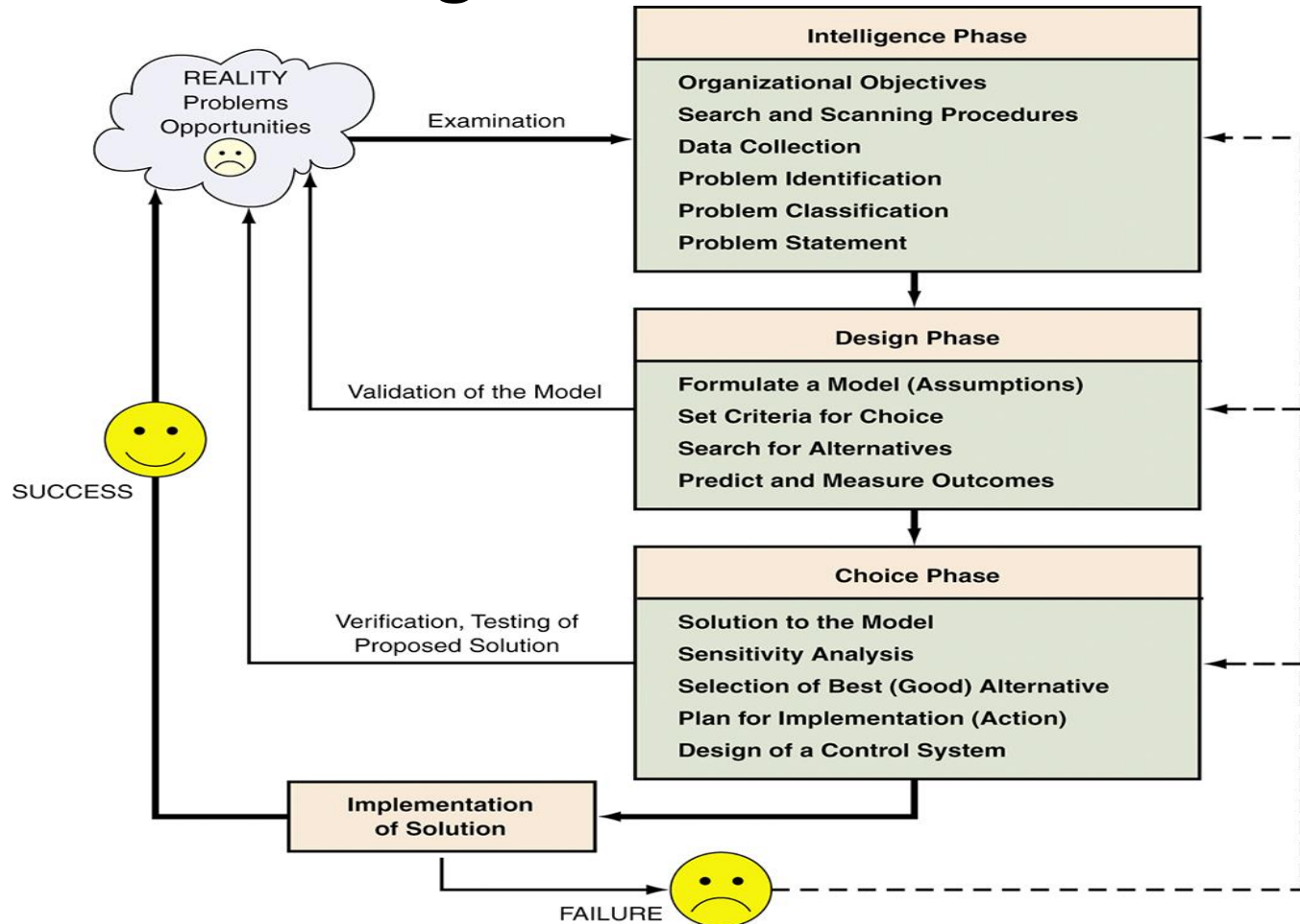
- DSS - indirect support – discovery, communication & collaboration with web facilitation.
- DSS – provide support primarily to analytical, quantitative types of decisions.
- ESS – early BI – supports informational roles of executives.
- GDSS – supports managers & staff working in groups, remotely or closely.
- Common devices – PDAs, Blackberrys, iPhones.

# Figure 3.9



**IT support for decision making.**

# Figure 3.10



**Phases in the decision-making process.**



# Decision Modeling & Models

- Decision model – simplified representation, or abstraction of reality.
- Simplicity is key.
- Based upon set of assumptions.
- Requires monitoring & adjustment periodically as assumptions change.
- Modeling – virtual experiments reduce cost, compress time, manipulate variables, reduces risk.

# Framework for Computerized Decision Analysis

- Structured – routine & repetitive problems.
- Unstructured – lots of uncertainty, no definitive or clear-cut solutions.
- Semistructured – between the extremes.  
Most true DSS are focused here.

## ***3.5 Decision Support Systems***

# DSS & Managers

- Need new & accurate information.
- Time is critical.
- Complex organization for tracking.
- Unstable environment.
- Increasing competition.
- Existing systems could not support operational requirements.

## Table 3.6

**TABLE 12.6**

**Capabilities of a DSS**

A DSS provides support for decision makers at all management levels, whether individuals or groups, mainly in semistructured and unstructured situations, by bringing together human judgment and objective information.

A DSS supports several interdependent and/or sequential decisions.

A DSS supports all phases of the decision-making process—intelligence, design, choice, and implementation—as well as a variety of decision-making processes and styles.

A DSS is adaptable by the user over time to deal with changing conditions.

A DSS is easy to construct and use in many cases.

A DSS promotes learning, which leads to new demands and refinement of the current application, which leads to additional learning, and so forth.

A DSS usually utilizes quantitative models (standard and/or custom made).

Advanced DSSs are equipped with a knowledge management component that allows the efficient and effective solution of very complex problems.

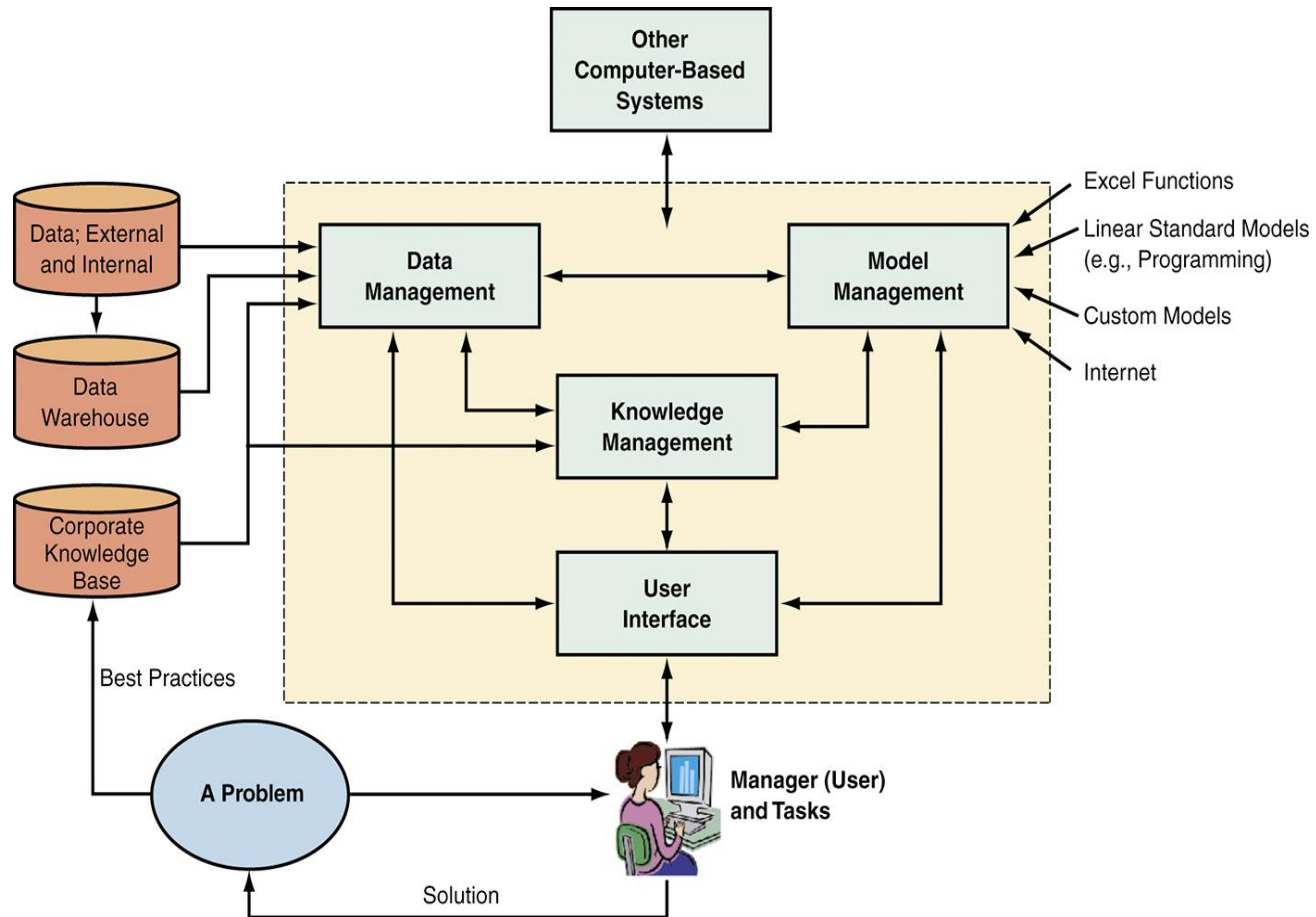
A DSS can be disseminated for use via the Web.

A DSS allows the easy execution of *sensitivity analyses*.

# Characteristics & Capabilities - DSS

- Sensitivity analysis for “what if” & goal-seeking strategy setting. Increases system flexibility & usefulness.
- Basic components – database, model base, user interface, users & knowledge base.

# Figure 3.11



**Conceptual model of DSS and its components.**

## ***3.6 Automated Decision Support (ADS)***



# ADS

- Rule-based systems with automatic solutions to repetitive managerial problems.
- Closely related to business analytics.
- Automating the decision-making process is usually achieved by capturing manager's expertise.
- Rules may be part of expert systems or other intelligent systems.

# Characteristics & Benefits of ADS

- Rapidly builds business rules to automate or guide decision makers, & deploys them into almost any operating environment.
- Injects predictive analytics into rule-based applications, increasing their power & value.
- Combines business rules, predictive models & optimization strategies flexibly into enterprise applications.

## ***3.7 Managerial Issues***

# Why BI Projects Fail

- Failure to recognize as enterprise-wide business initiatives.
- Lack of sponsorship.
- Lack of cooperation.
- Lack of qualified & available staff.
- No appreciation of negative impact on business profitability.
- Too much reliance on vendors.