Chapter -3

Enterprise Management Systems

Information System *(CT 751)* **BCT IV/II**

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Outline

- **Enterprise Management Systems**
  - Enterprise management Systems (EMS)
  - Enterprise Software: ERP/SCM/CRM
  - Information Management and Technology of Enterprise Software
  - Role of IS and IT in Enterprise Management
  - Enterprise engineering, Electronic organism, Loose integration vs full integration, Process alignment, Framework to manage integrated change, future trends

Enterprise Management System (EMS)

- Enterprise Management System (EMS) consists of several modules that enables businesses **to automate their business processes**, manage customer data, and integrate with vendors and customer systems.
- EMS is concerned with **control, monitoring and the management of IT infrastructure and applications** in order to optimize IT service delivery in Company.
- EMS is wide information system **designed to coordinate all the resources, information and activities** needed to complete business processes.

Enterprise Management System (EMS)

- Enterprise Management System (EMS) is made up of :
- Enterprise Resource Planning. (ERP)
- Supply Chain Management(SCM)
- Customer Relationship Management (CRM)
- The crucial component of EMS is the ERP which controls the support systems like;
  - **EDI**:-*Electronic Data Interchange*.
  - **AMS**:-*Attendance Management System*.
  - **DMS**:-*Document Management System*.
  - **CMS**:-*Communication management system*.
  - **SMS**:-*Security management system*.

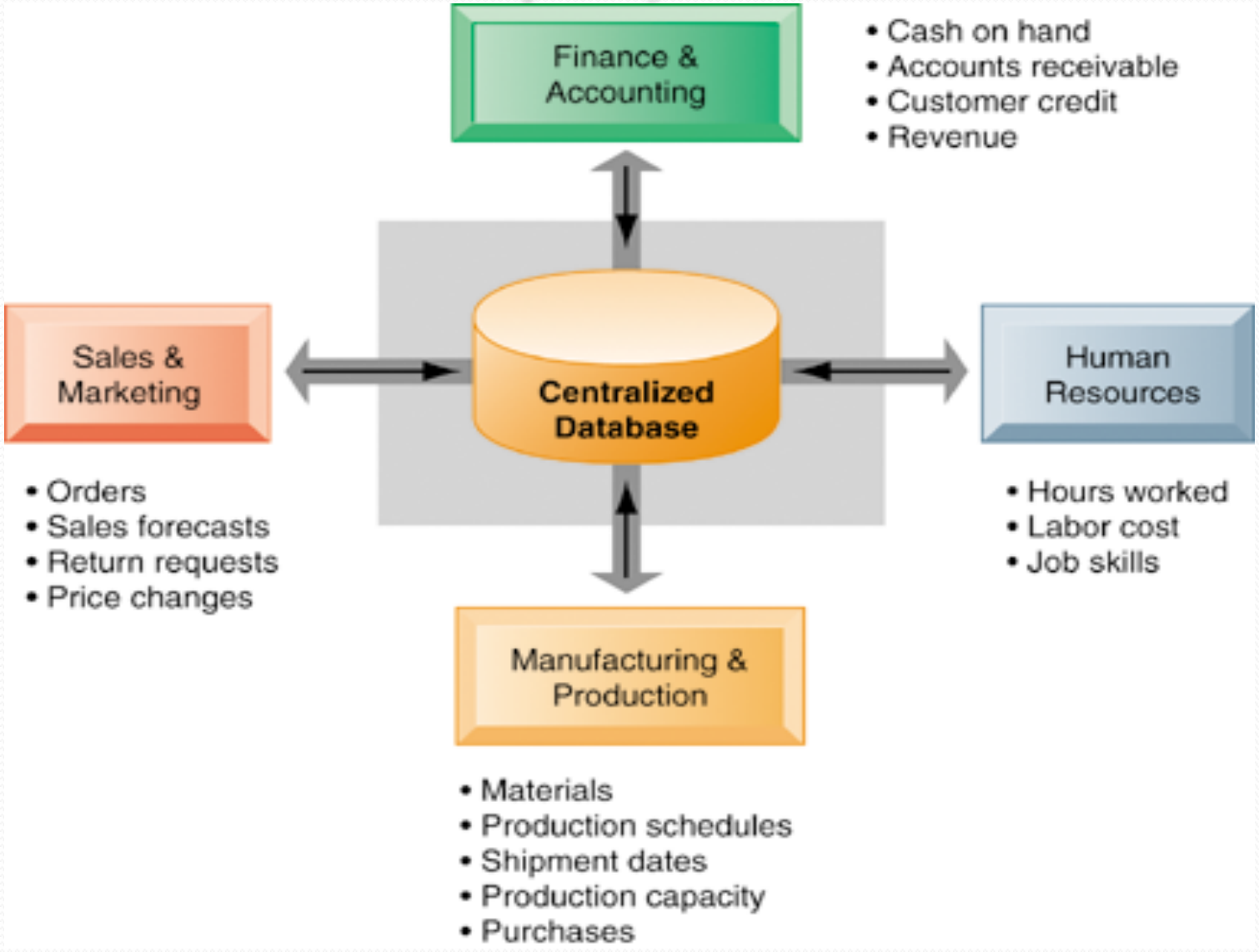
Enterprise Software

- Enterprise software is any software used in large organizations (whether business or government).
- It is considered to be an essential part of a computer-based information system, and it provides business-oriented tools such as online payment processing and automated billing systems.
- The focus of enterprise software is on **resource management** within constraints **to maximize the return on investment.**
- These data are then stored in a unified database, which are the key for the success of this software solution.
- **Enterprise software is also referred to as enterprise application software.**

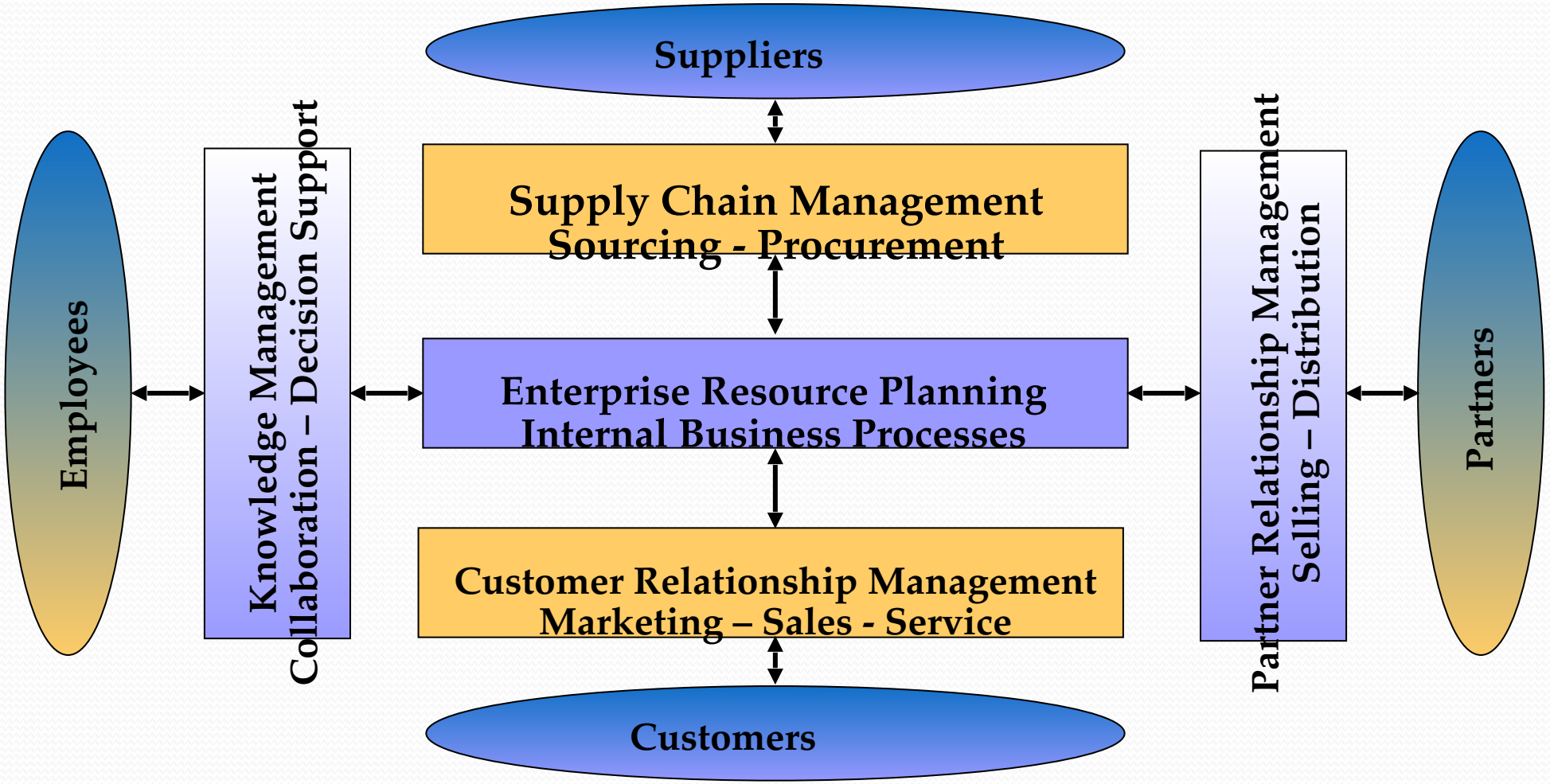
Enterprise Systems

Enterprise systems feature a set of integrated software modules and a central database that enables data to be shared by many different business processes and functional areas throughout the enterprise

How Enterprise Systems Work



Enterprise Systems Architecture



Enterprise Resource Planning (ERP)

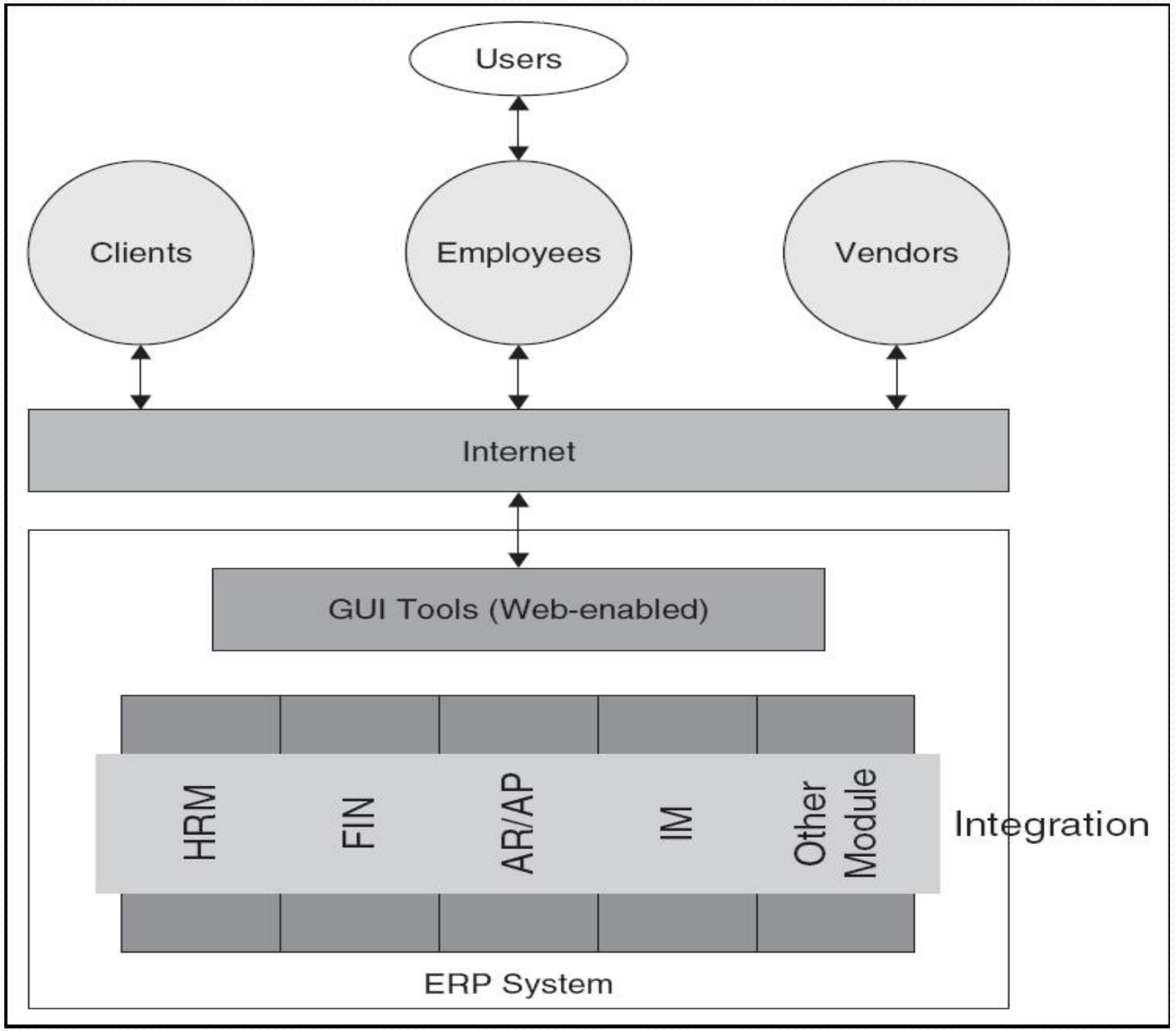
- ERP is business process management software that allows an organization to use a system of integrated applications to manage the business and automate back office functions.
- ERP software integrates all aspects of an operation, including product planning, development, manufacturing processes, sales and marketing.
- Some of ERP's functions include:
  - Bookkeeping & Accounting
  - Human Resource Management
  - Planning Production
  - Supply Chain management`

Enterprise Resource Planning (ERP)

- ERP integrates all the departments and functions across an organization into a single infrastructure that serves the needs of each department in organization.
- ERP systems replace an assortment of systems that typically existed in organizations. (Accounting, HR, Materials Planning, Transaction Processing, etc.).

ERP Components

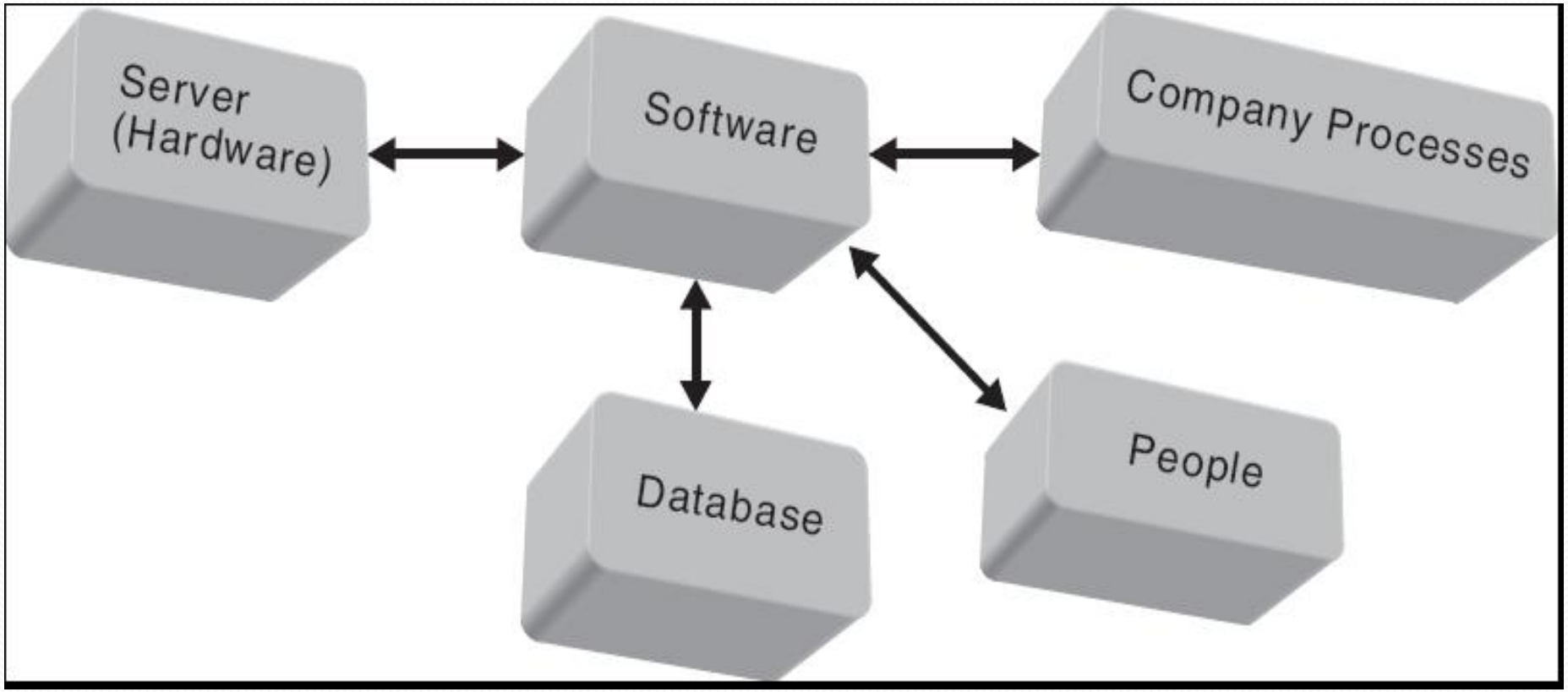
Integrated Systems - ERP



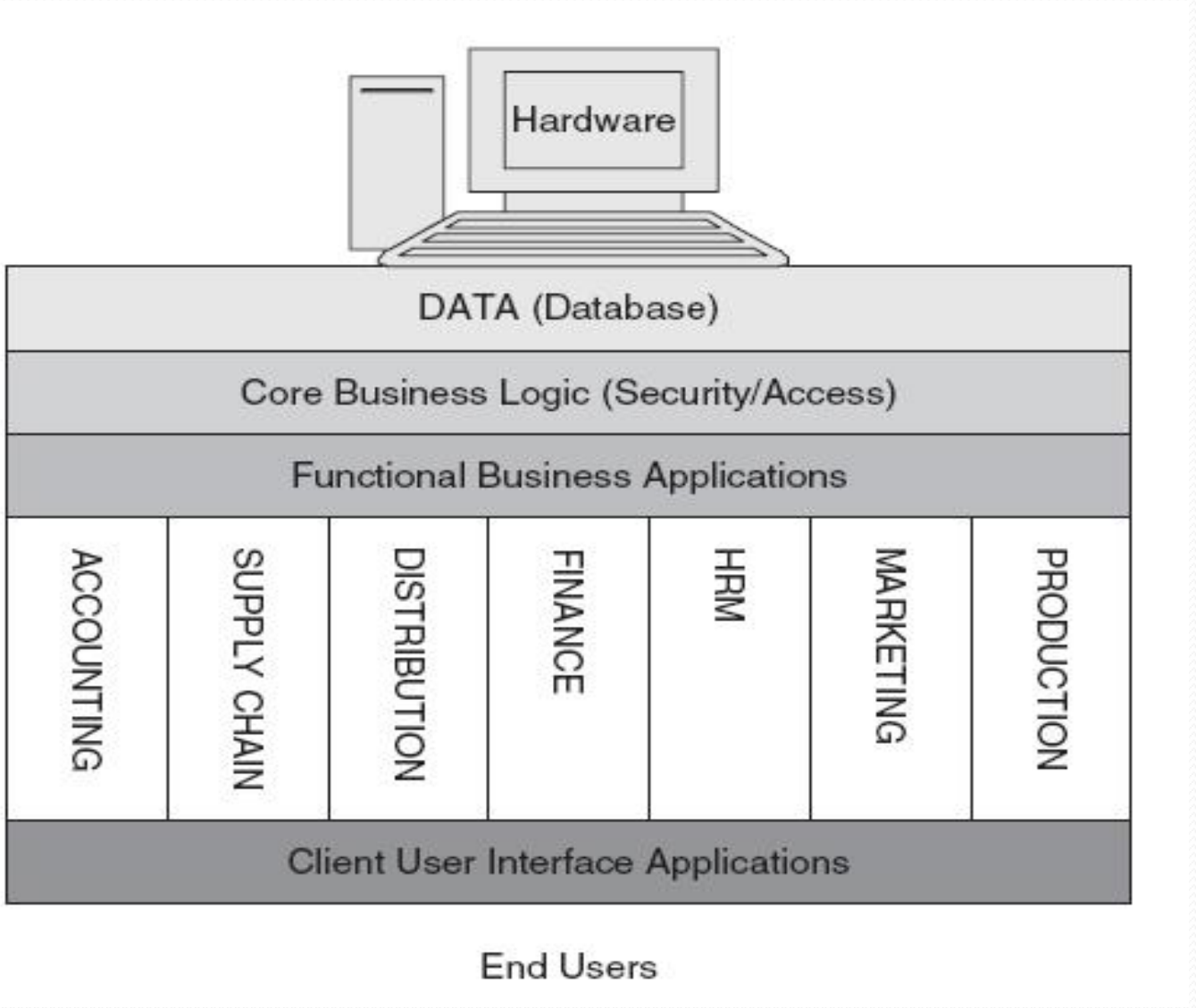
An ERP system consists of:

Hardware	Servers and peripherals
Software Process	Operating systems and database
Information	Organizational data from internal and external sources
Process	Business processes, procedures, and policies
People	End users and IT staff

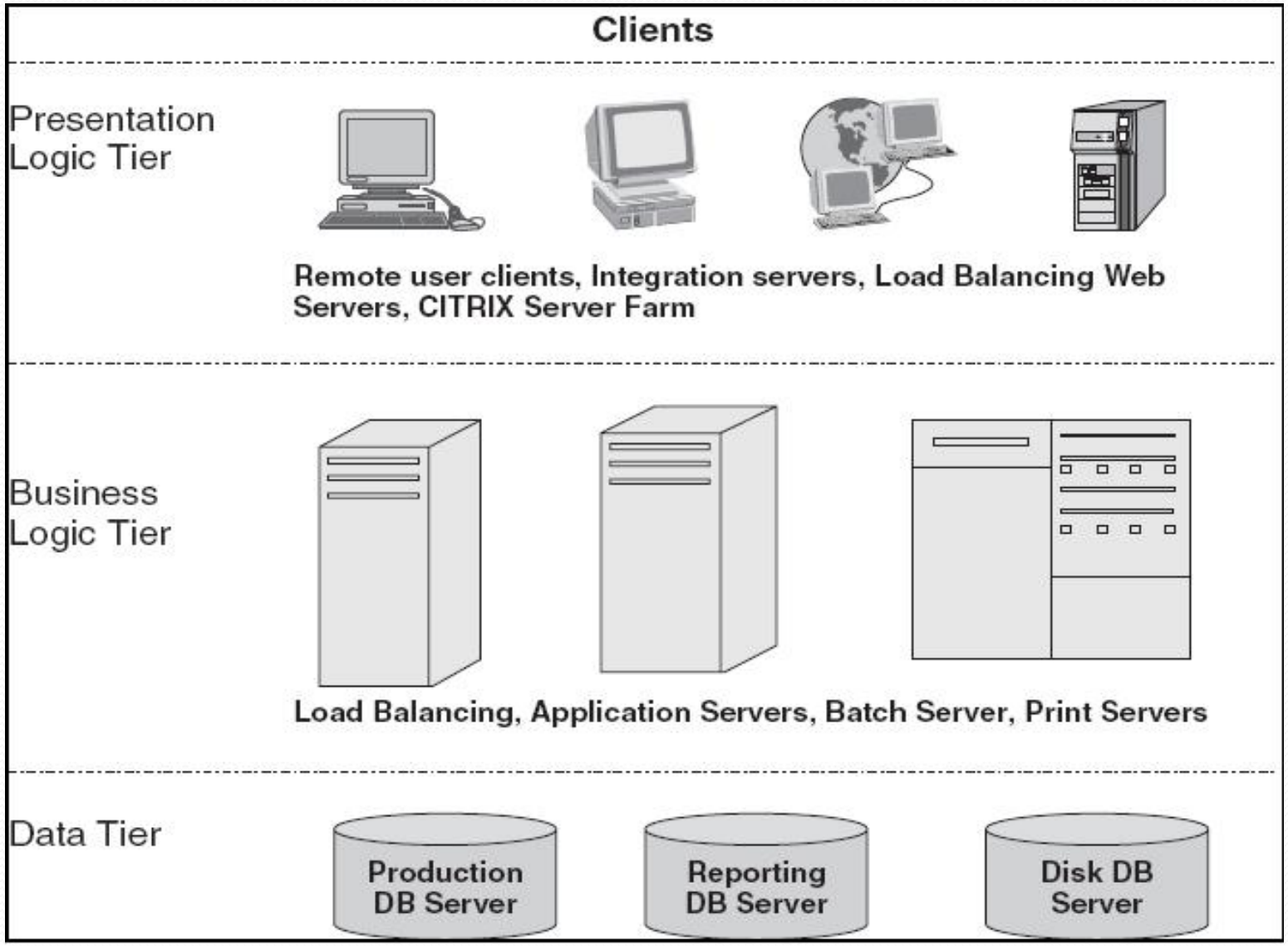
An ERP system consists of:



Logical Architecture of an ERP System



Tiered Architecture Example of ERP System



System Benefits of an ERP System

- **Integration of data and applications** across functional areas .
- I**mprovements** in maintenance and support.
- **Consistency** of the user interface across various applications .
- **Security of data and applications** is enhanced.
- **Increasing agility** of the organization in terms of responding to changes in environment for growth and maintaining market share.
- **Information sharing** helps collaboration between units.
- Linking and exchanging information in real-time with supply-chain partners **improves efficiency.**
- **Better customer service** due to quicker information flow across departments.
- **Efficiency of business processes are enhanced** due to the re-engineering of business processes.
- **Improved decision-making process** within the company.

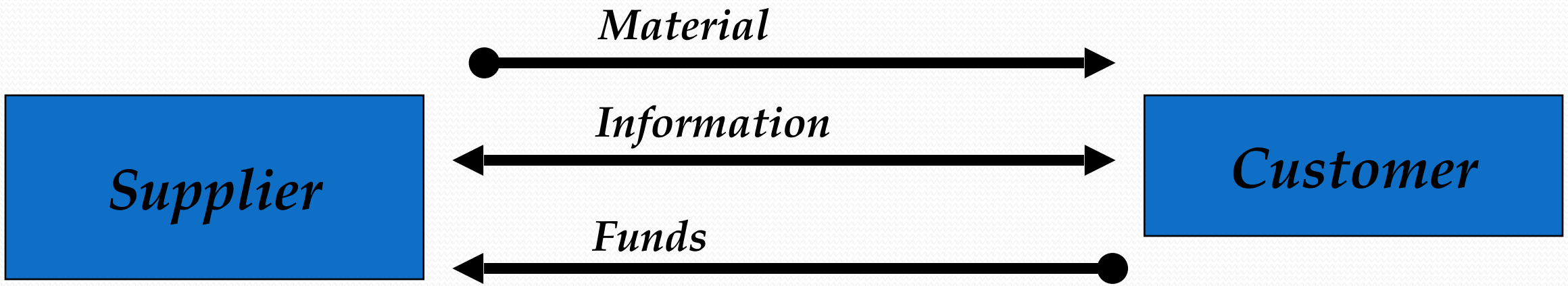
Disadvantages ERP System

- **Complexity** of installing, configuring, and maintaining the system requires specialized IT staff, hardware, and network facilities.
- **Consolidation of** IT hardware, software, and people resources can be cumbersome and difficult to attain.
- Data conversion and transformation from an old system to a new one can be a **tedious and complex process.**
- **Retraining of all employees** with the new system can be costly and time consuming.
- Change of business roles and department boundaries can create **disruption and resistance to the new system.**
- The high cost of implementation and maintenance. (**High initial investment**).
- Integration with other applications in the enterprise needed.

Supply Chain

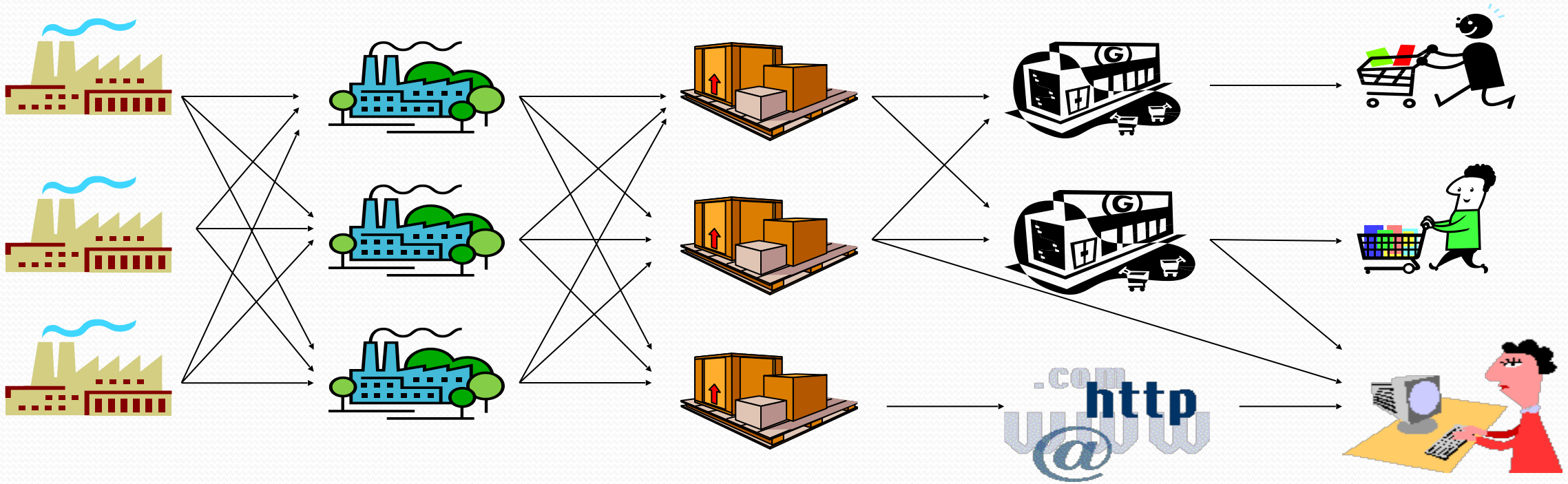
- A **supply chain** is the system of organizations, people, activities, information and resources involved in moving a product or service from supplier to customer.
- Supply chain activities **transform raw materials and components into a finished product** that is delivered to the end customer.
- "Supply Chain management deals with the control of materials, information, and financial flows in a network consisting of suppliers, manufacturers, distributors, and customers" (Stanford Supply Chain Forum Website)

Flows in a Supply Chain



The flows resemble a chain reaction.

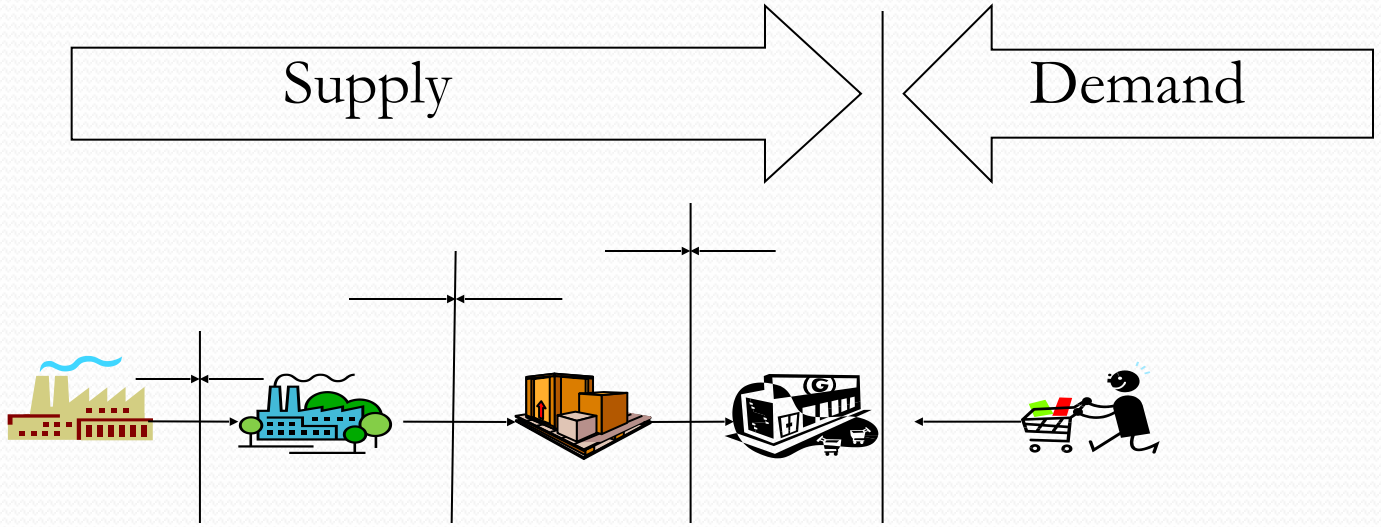
Supply Chain



Supply Chain Management

Supply Chain Management is:

The design and management of processes across organizational boundaries with the goal of matching supply and demand in the most cost effective way.



Mission impossible: Matching Supply and Demand

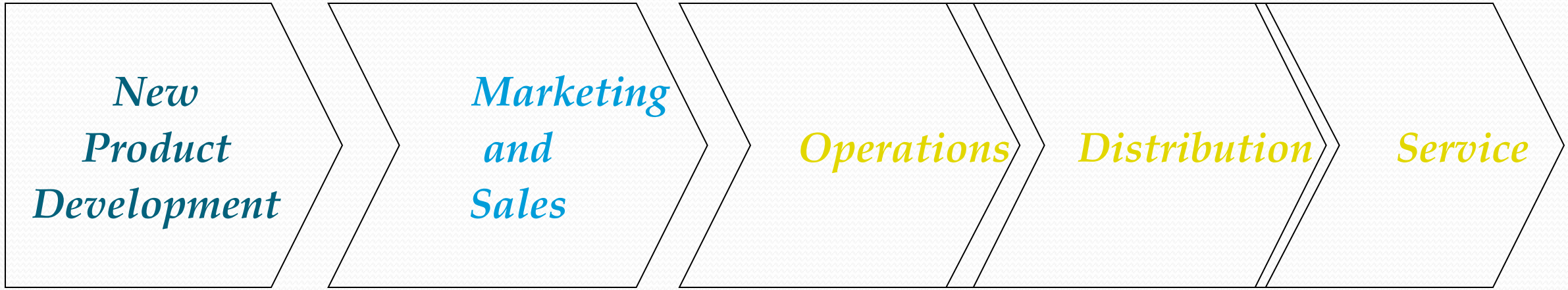
Linking SC and Business Strategy

Competitive (Business) Strategy

Product Development Strategy
-Portfolio of products
-Timing of product introductions

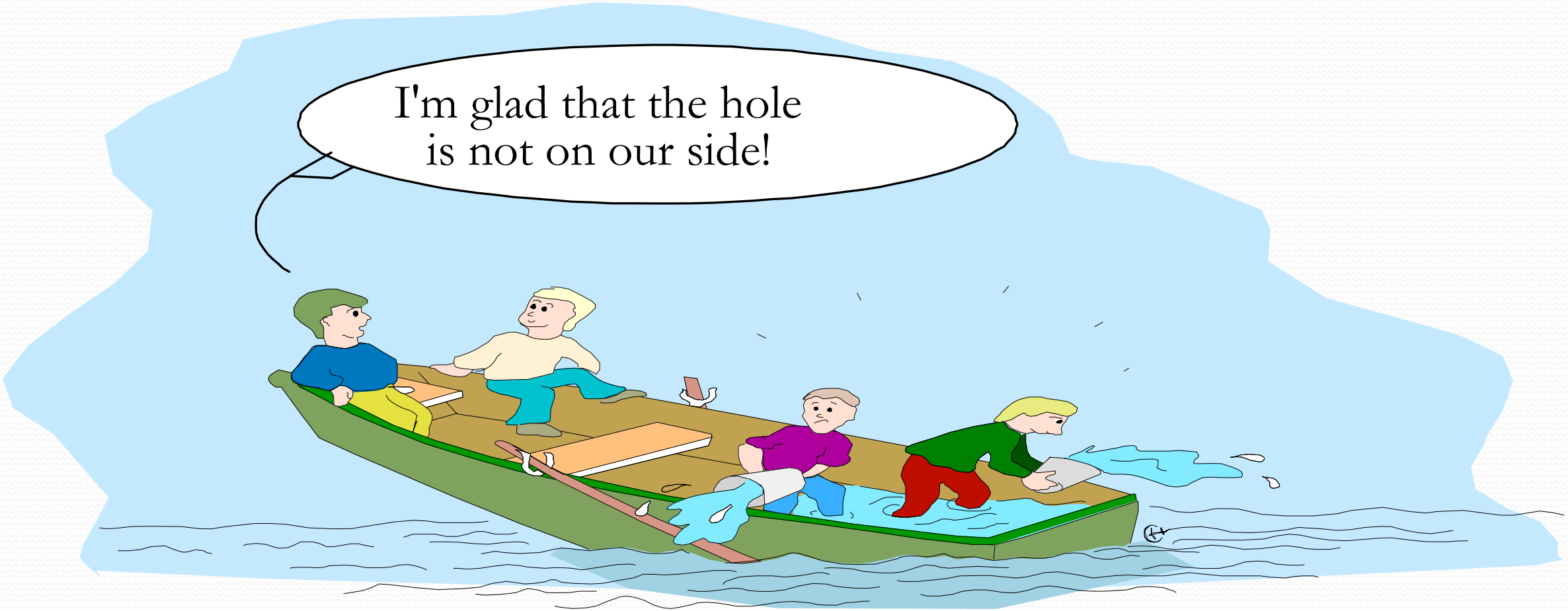
Marketing Strategy
-Frequent discounts
-Coupons

Supply Chain Strategy



Finance, Accounting, Information Technology, Human Resources

Losing Sight of the Common Objective



Why so Difficult to Match Supply and Demand?

- Uncertainty in demand and/or supply
- Changing customer requirements
- Decreasing product life cycles
- Fragmentation of supply chain ownership
- Conflicting objectives in the supply chain
- Conflicting objectives even within a single firm
  - **Marketing/Sales wants**: more finished goods inventory, fast delivery, many package types, special wishes/promotions
  - **Production wants:** bigger batch size, depots at factory, latest ship date, decrease changeovers, stable production plan
  - **Distribution wants:** full truckload, low depot costs, low distribution costs, stable distribution plan

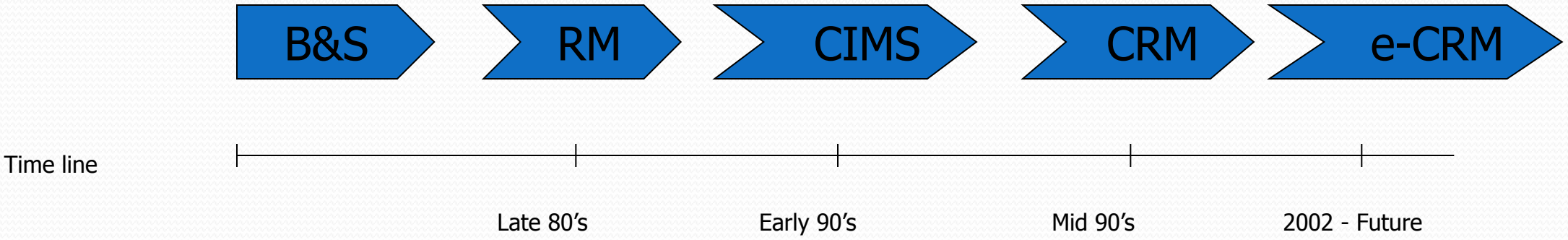
Customer Relationship Management (CRM)

- Customer Relationship Management is a strategy for managing all your company's interactions with current and prospective customers.
- CRM formation of ***bonds*** **between a company and its customers.**
- CRM enables your company to increase productivity, close more business, and improve customer satisfaction and retention.

Customer Types

- *Platinum* Heavy, reliable users, not price-sensitive, try new products, **loyal**
- *Gold* Large users who push for price breaks, shop around and not so loyal
- *Iron* Low volume or intermittent users; cost to serve them is quite high
- *Lead* Demanding, want special attention but don't buy much and show no loyalty

History of CRM



B&S – Buying & Selling

RM – Relationship Marketing

CIMS – Customer Information Management Systems

CRM – Customer Relationship Management

e-CRM- A subset of CRM that focuses on enabling customer interactions via e-channels (The web, email and wireless)

Definitions

- "CRM is a business strategy with outcomes
  - that optimise profitability, revenue and **customer satisfaction**
  - by **organizing** around customer segments,
  - **fostering customer-satisfying behaviors** and
  - implementing **customer-centric processes."**
- "CRM is a strategy
  - used to learn more about **customers' needs and behaviors**
  - in order to **develop stronger relationships with them."**

Underpinning Theory

- Customers have many points of contact with an organization
- **Retaining customers is far most cost effective than recruiting new ones**
- Some customers are more profitable than others
  - The "80/20" rule
  - For most firms, 80 percent of *profit* comes from 20 percent of customers
- Use of Technology

Three phases of CRM

- **Acquiring New Relationships**
  - Acquire new customers by promoting your company's product and services.
- **Enhancing Existing Relationships**
  - Enhance the relationship by encouraging excellence in cross-selling and up-selling, there by deepening and broadening the relationship.
- **Retaining Customer Relationships**
  - Retention focuses on service adaptability – *delivering not what the market wants but what customers want.*

Steps to improve CRM

1. Build a database
2. Analyze, define types, profitability
3. Customer selection
4. Activities to delight selected customers
5. Analyze again to see how we're doing

Customer Relationship Management Strategy

Organize the company around customer segments

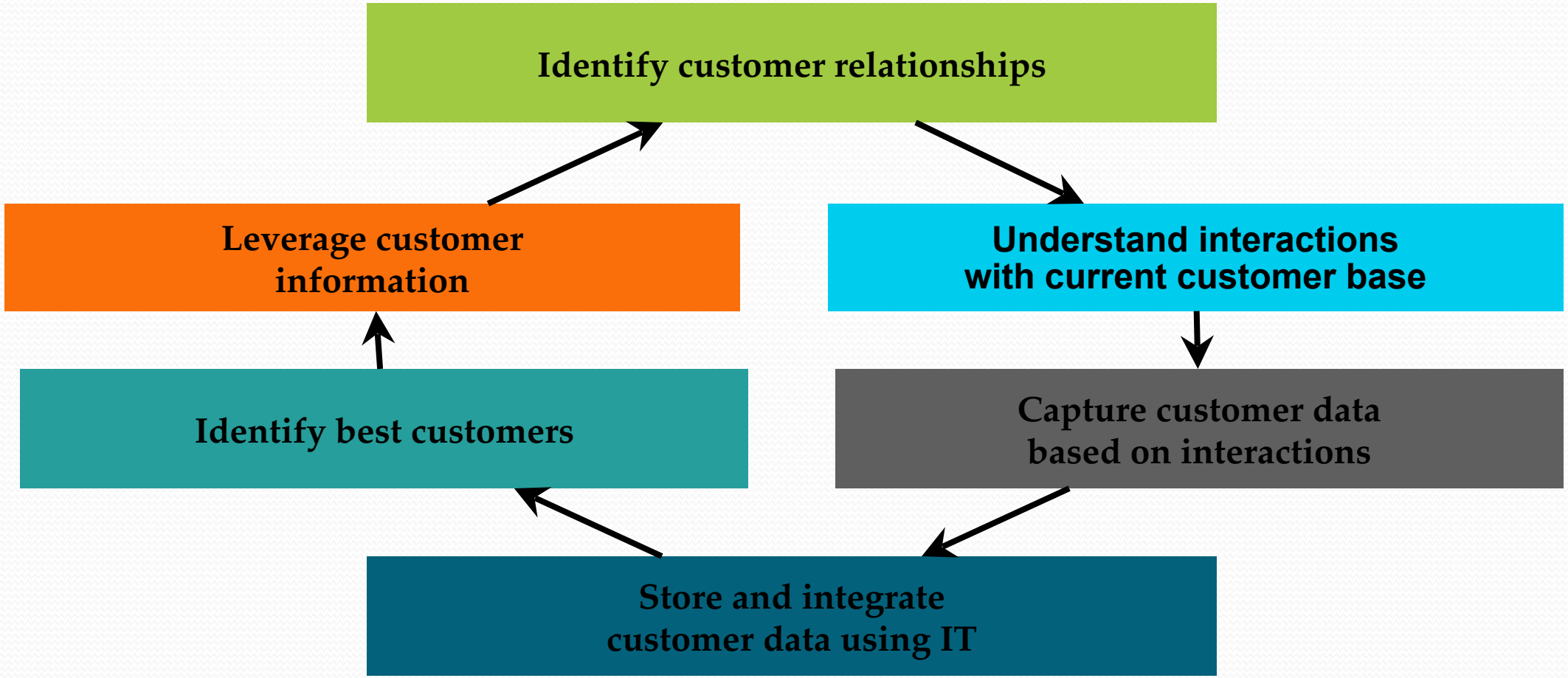
Encourage and track customer interaction with the company

Foster customer-satisfying behaviors

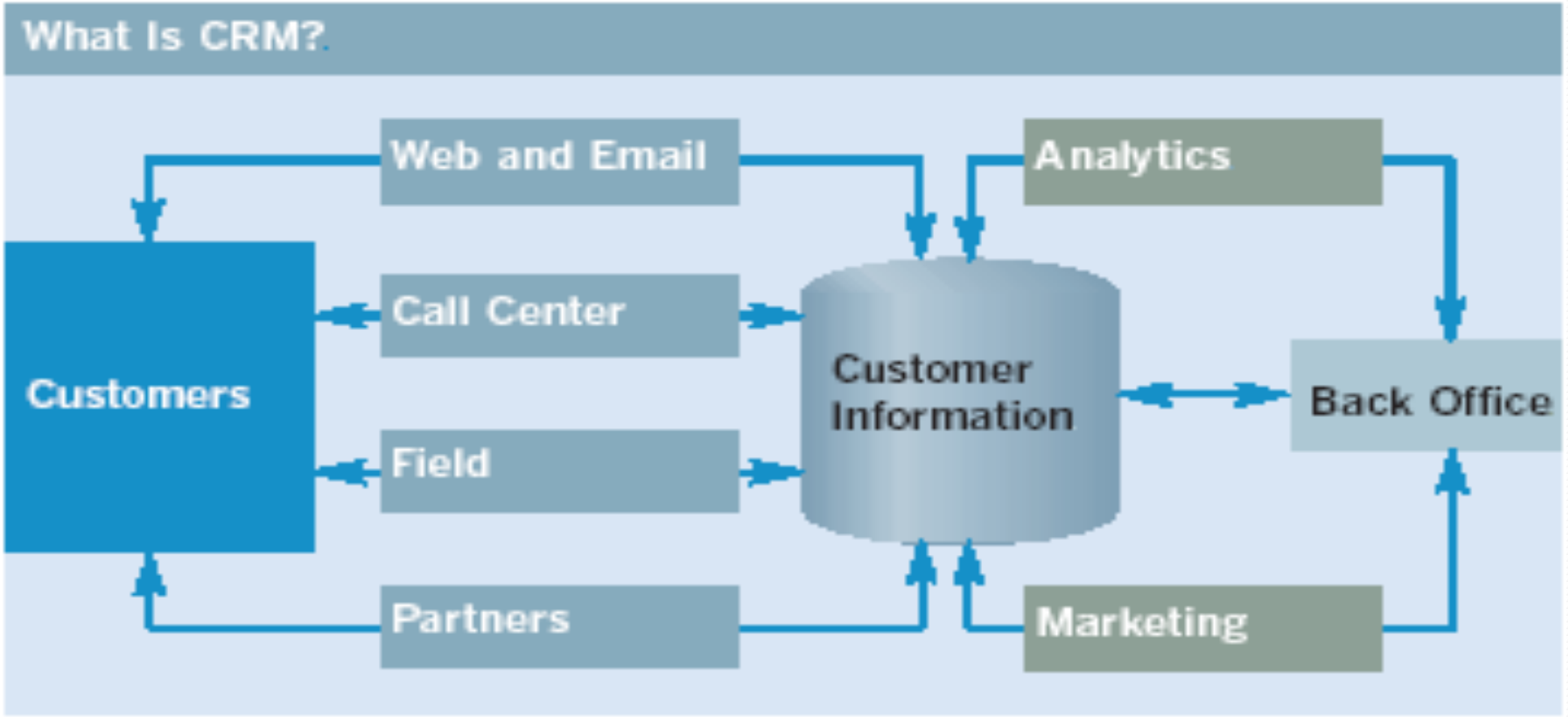
Link all processes of the company from its customers through its suppliers

Allows companies to tightly focus in on their target markets

A Simple Flow Model of the Customer Relationship Management System



Model of Customer Relationship Management



Benefits of using CRM

- Centralized customer interaction
- Improved customer support and satisfaction
- High rate of customer retention
- Increase revenue and referrals from existing customers
- Improve d products/services
- Optimized performance
- Boost new business

Successful CRM

Interaction	Occurs when a customer and a company representative exchange information and develop learning relationships

- The success of CRM can be directly measured by the effectiveness of the interaction between the customer and the organization.

Enterprise Information Management

- Enterprise information management (EIM) **is a set of business processes, disciplines and practices used to manage** the information created from an organization's data.
- EIM initiatives seek **to build efficient and agile data management** operations with capabilities for information creation, capture, distribution and consumption.
- The **goal is to provide and preserve information as** a business asset that remains secure, easily accessible, meaningful, accurate and timely.

Enterprise IT Management

- **EITM** is a strategy conceived and developed by Computer Associates International which details how organizations can transform the management of IT **in order to maximize business value.**
- Strategy for increasing the business relevance of the IT function, EITM considers the need for IT organizations to start **operating as a service-based business.**
- **Ensuring investments are prioritized according to business strategy** and that operational efficiencies can be more quickly realized and costs reduced when IT processes are integrated and automated.

Role of IT in Enterprise Management

- Enterprise IT Management was developed in response to a growing need by IT organizations to gain more value from investments made in IT capabilities, infrastructure and resources.
- EITM proposes a set of capabilities that enable IT to better govern, manage and secure the IT services delivered to the business.
- IT/IS as asset, **"strategic weapon", "nervous system"** (strategic level) Vs tool, commodity (operational level)

Enterprise Information Systems

- Enterprise information system (EIS) is a system that serves an entire enterprise or at least two functional departments in:
  - Business intelligence (BI)
  - Enterprise resource planning (ERP)
  - Knowledge management (KM)
  - Partner relationship management (PLM)
  - Business process management (BPM)
  - Customer relationship management (CRM)

Role of IS in Enterprise Management

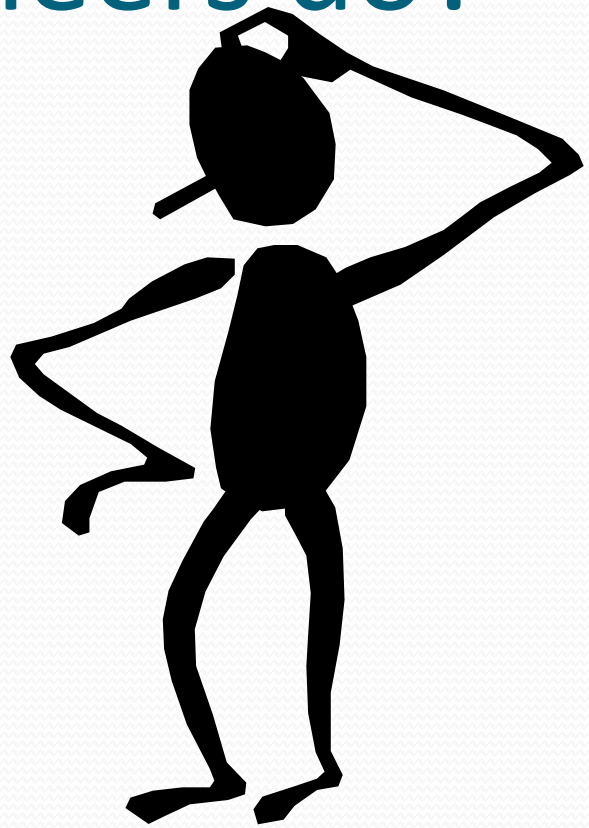
- **Help to unify the firm's structure and organization:** One organization
- **Management:** Firm wide knowledge-based management processes
- **Technology:** Unified platform
- **Business:** More efficient operations & customer-driven business processes
- **Supporting the major business functions:** sales and marketing, manufacturing and production, finance and accounting, and human resources

Role of IS and IT in Enterprise Management

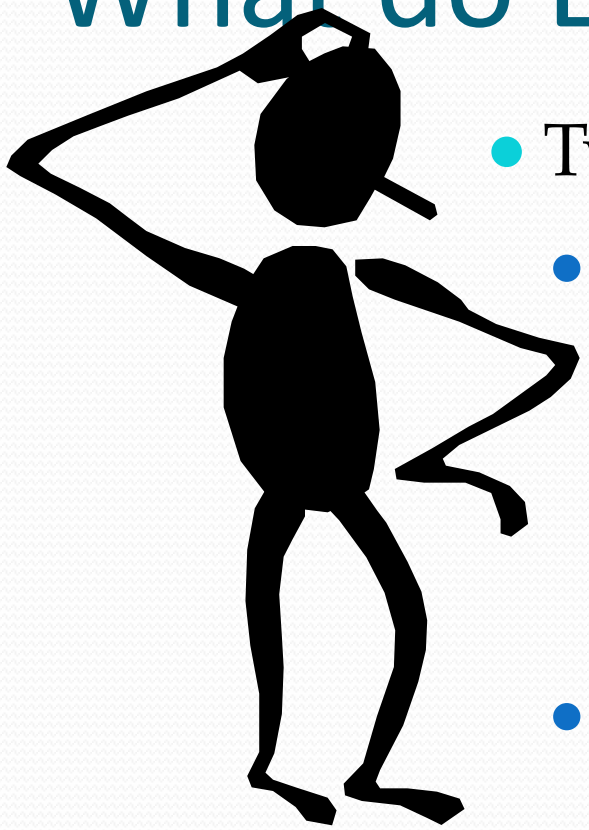
- Reduce Costs/ Improve Productivity
- Improve Customer Satisfaction/ Loyalty
- Create Competitive Advantage
- Generate growth
- Streamline Supply Chain
- Global Expansion

What do Enterprise Engineers do?

- Identify and Integrate best and most successful ways to change an enterprise.



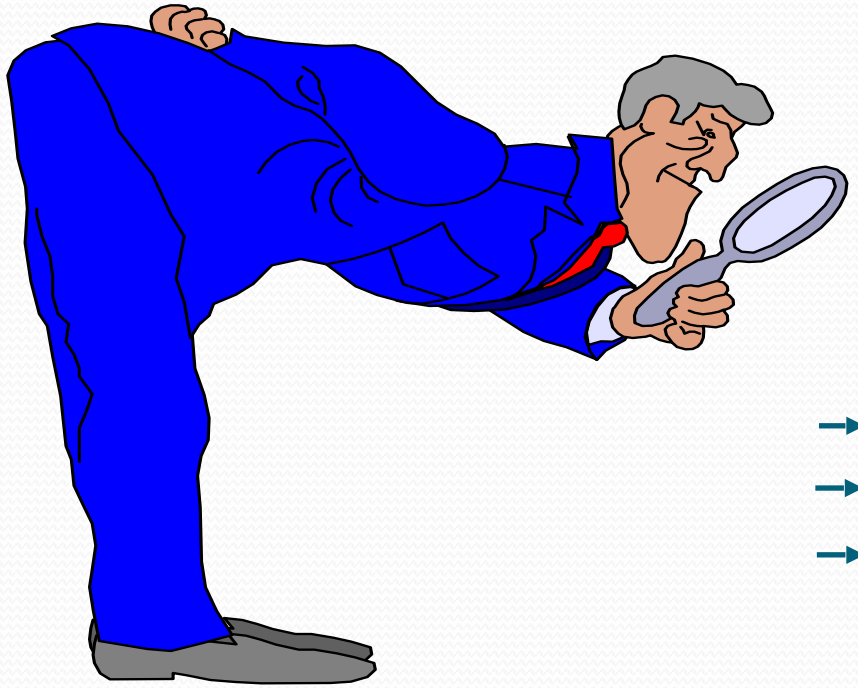
What do Enterprise Engineers do?

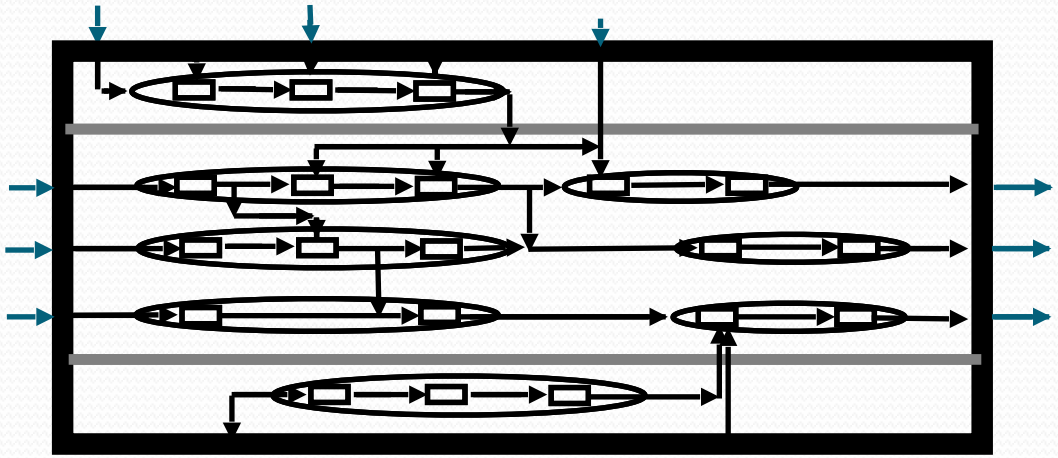


- Two aspects
  - Understand new mechanisms.
    - New ways of organizing work
    - New Corporate Architectures must be understood.
  - Understand methods that can change an enterprise.

Two questions Enterprise Engineers always ask

- What should the enterprise be?
- How do we get there from here?





Enterprise Engineering

- **Enterprise Engineering is integrated set of disciplines** for building or changing an enterprise, its processes, and systems.
- **It integrates** the most powerful change methods and makes them succeed.
- The goal is a human-technological partnership of maximum efficiency in which learning takes place at every level.

Goal of the Enterprise Engineer

- Identify and integrate the most valuable and successful ways to change an enterprise, and to take them into a professional discipline with a teachable methodology and measures of effectiveness.

Need for Enterprise Integration

- Integration of markets
- Integration between several development and manufacturing sites
- Integration between suppliers and manufacturers
- Integration of design and manufacturing
- Integration of multi-vendor hardware and software components

Basic principles for integration

- Provide the vision, right information, resources, and responsibility
- Empowered people
- A comprehensive and effective communication networks
- Democratization and dissemination of information
- Freely shared information

Two major issues of Enterprise Integration

- How to motivate employee
- How to provide employee with the right information to do their jobs

Types of Integration

- Loose Integration versus Full Integration
- Horizontal Integration versus Vertical Integration
- Intra-Enterprise Integration versus Inter-enterprise Integration
- System Integration, Application Integration, and Business Integration

Loose Integration versus Full Integration

- **Loose Integration -** If two systems can merely exchange information with one another with no guarantee that they will interpret this information the same way.
- **Full integration -** Two systems are fully integrated if and only if
  - The specificities of any one of these systems are only known to the system itself and not by the other one.
  - The two systems both contribute to a common task.
  - The two systems share the same definition of each concept they exchange

Horizontal Integration versus Vertical Integration

- **Horizontal Integration -** concerning physical and logical integration of business processes from product demand to product shipment, regardless of the organizational boundaries.
- *Concerning the technological flow*

- **Vertical Integration -** concerns integration between the various management levels of the enterprise, i.e. decision-making integration, where a management level defines the set of constraints for its lower management levels, which in turn send feedback information to their upper management level, and so on.
- *Concerning the decision flow*

Intra-Enterprise Integration vs. Inter-Enterprise Integration

- **Intra-Enterprise Integration -** the integration of the business processes internal to a given enterprise. (Full integration)

- **Inter-Enterprise Integration -** the integration of business processes of a given enterprise with business processes of other enterprises, or even sharing some parts of business processes by different cooperative enterprises. (Loose integration)

System Integration, Application Integration, and Business Integration

- Physical System Integration - concerning System communication
- Application Integration - concerning Interoperability of applications
- Business integration - concerning Business process coordination

Alignment Process

- Developing a common understanding among the key stakeholders of the purpose and goals of the project and the means and methods of accomplishing those goals is called the **Alignment Process**.
- It is important to accomplish this alignment during the initiation phase.
- Project managers usually conduct a start-up meeting that is sometimes called a kickoff meeting.

- *A kickoff meeting is the first meeting with the project team and the client of the project.*

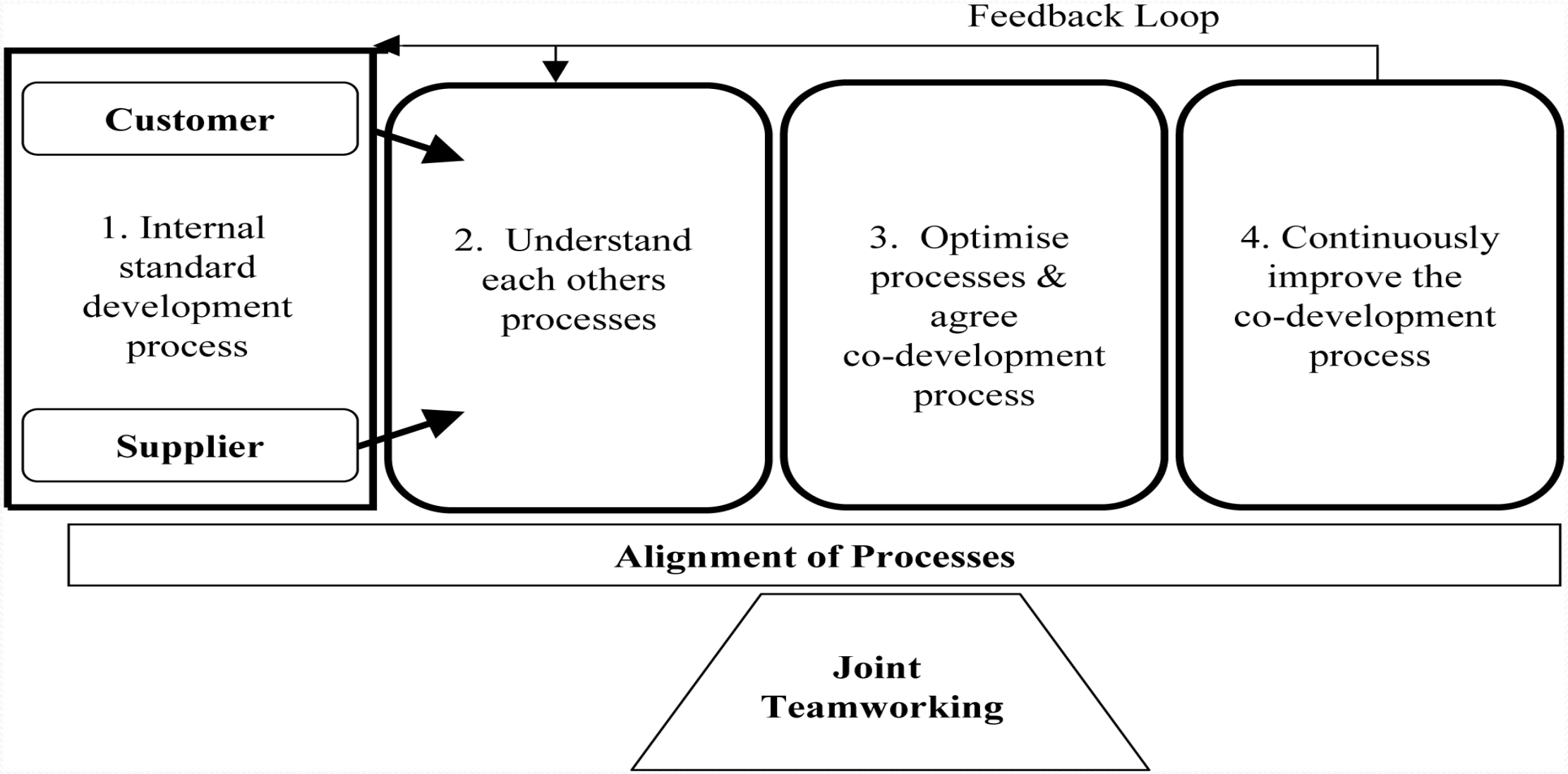
Objective of Alignment Process

- The purpose of the alignment process is to develop a common understanding of the purpose, agree on the means and methods, and **establish trust.**
- The components of the alignment process are discussions of the purpose, goals, participant roles, methods of tracking progress and costs, methods of managing change, and building trust.
- The effects of a lack of trust are delays caused by fact checking or missing information that was not shared because the person's discretion was not trusted to handle sensitive information.

Alignment Process (Continued)

- The agenda and duration of the start-up meeting depends on the complexity level of the project.
- Projects with a limited scope and short duration may engage in a session start-up meeting over lunch.
- A medium-complexity project will require more-hour meeting while a high-complexity project cannot achieve alignment in a single meeting.
- Alignment can require several days of activities.

Alignment Process



Electronic Organisms

- As systems become more complex, the designs of this systems must be automated.
- Electronic organisms, in fact all organisms,
  - have to be complex, because they have to contain all the creative infrastructure necessary for their creation, reproduction, maintenance and action,
  - but they can easily afford to be complex, because there is no need for detailed communication with a programmer.
- Electronic Organisms have the ability to react immediately to unforeseen challenges, without the need for a programmer to recognize the situation and deal with it by modifying a program.

Integrated Change Framework

Integrated Change Framework

- Leadership and Vision
- Communication & Stakeholder Management
- Training & Development
- Organizational Structure
- Culture
- Performance Management & Measures
- Change Plan

Future Trends

- Cloud deployment models that change application economics
- Mobile technology accelerated business processes
- Business process flexibility evolution via embedded modeling tools
- Business intelligence
- Business process management
- Application user experiences advancement
- Extensibility improvement via platform-as-a-service
- Elastic computing platforms scaled transactions and analytics
- Collaboration comes to applications in context via social tools
- Environmental scanning

and so on…..

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Thank you

Next Class:

Chapter-4: Decision support and Intelligent systems