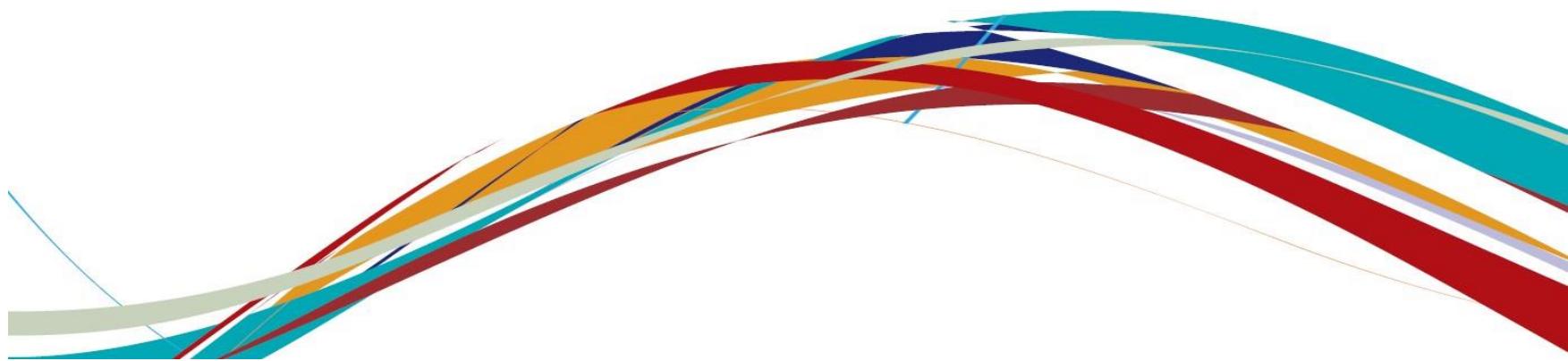


Module 06



Information System within Organization



Chapter Outline

- **Transaction Processing Systems (TPS)**
- **Enterprise Resource Planning Systems (ERP)**
- **Functional Area Information Systems**
- **Acquiring IT Applications**
- **Alternative Methods and Tools for Systems Development**

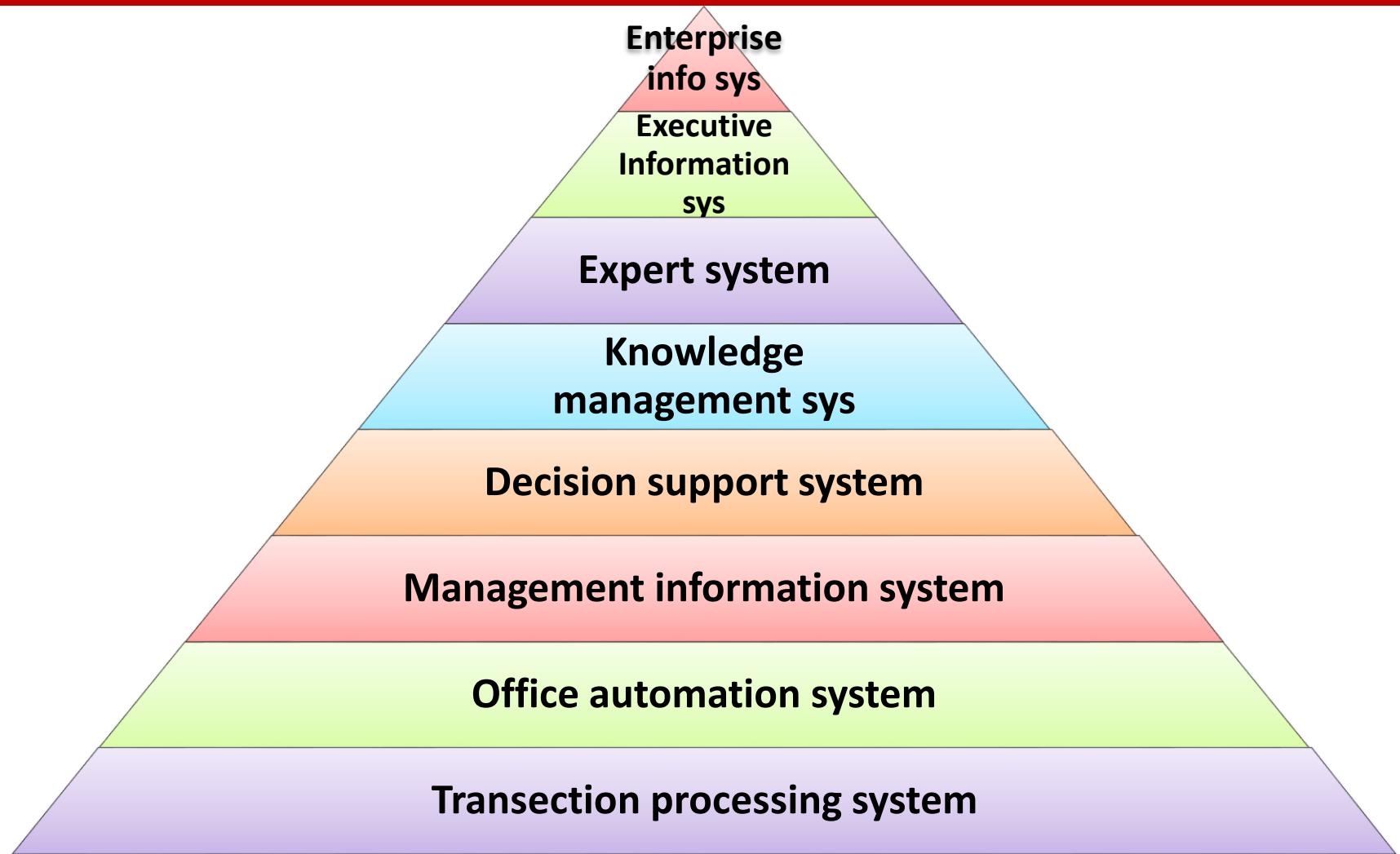
Example : 1

While having lunch in a P.F. Chang's China Bistro restaurant (www.pfchangs.com), a woman in Florida sent out a Tweet about her delicious lettuce-wrap appetizer. An employee at P.F. Chang's headquarters in Scottsdale, Arizona, spotted the tweet. He alerted a manager, who immediately called the Florida restaurant. Using the customer's profile picture, the restaurant manager identified the woman, and he instructed a server to present her with lettuce wraps and a dessert for being an enthusiastic supporter of their company. By having its finger on the pulse of its social media branding, P.F. Chang's executed a social media coup. Not only did the restaurant earn a fan for life—and one who has an active Twitter account—but the customer undoubtedly told her friends and coworkers about her lunchtime surprise, praising P.F. Chang's for caring about its customers. Further, in a short time, marketing executives in many organizations were presenting P.F. Chang's and its lettuce wraps in conferences and meetings as an example of intuitive branding

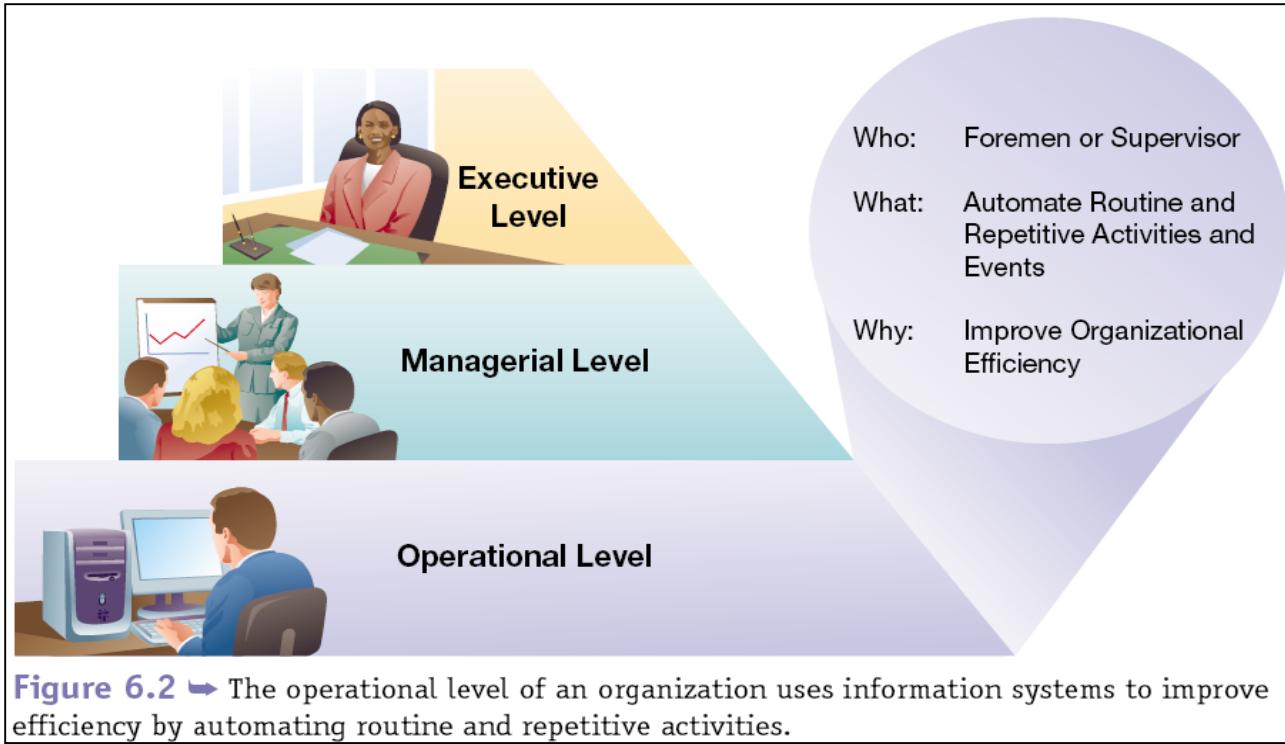
Example : 2

Musician Dave Carroll booked a flight with United Airlines. He checked his \$3,500 Taylor guitar because it was difficult to bring guitars onto flights as carry-on luggage. When Carroll arrived at his destination, he discovered that his guitar had been severely damaged. In addition, he alleged that he heard a fellow passenger claim that baggage handlers on the tarmac at Chicago's O'Hare International Airport were throwing guitars during a layover on his flight. Carroll stated that he alerted three United Airlines employees, who showed complete indifference to his problem. Frustrated by this lack of response, Carroll filed a claim with United. In response, the airline informed him that he was ineligible for compensation because he had failed to make the claim within the company's stipulated "standard 24-hour timeframe." Carroll maintained that he continued to negotiate for compensation with the airline for nine months, to no avail. At that point he wrote a song and created videos about his experience with United. The videos were released on YouTube, and they quickly collected more than 10 million hits.

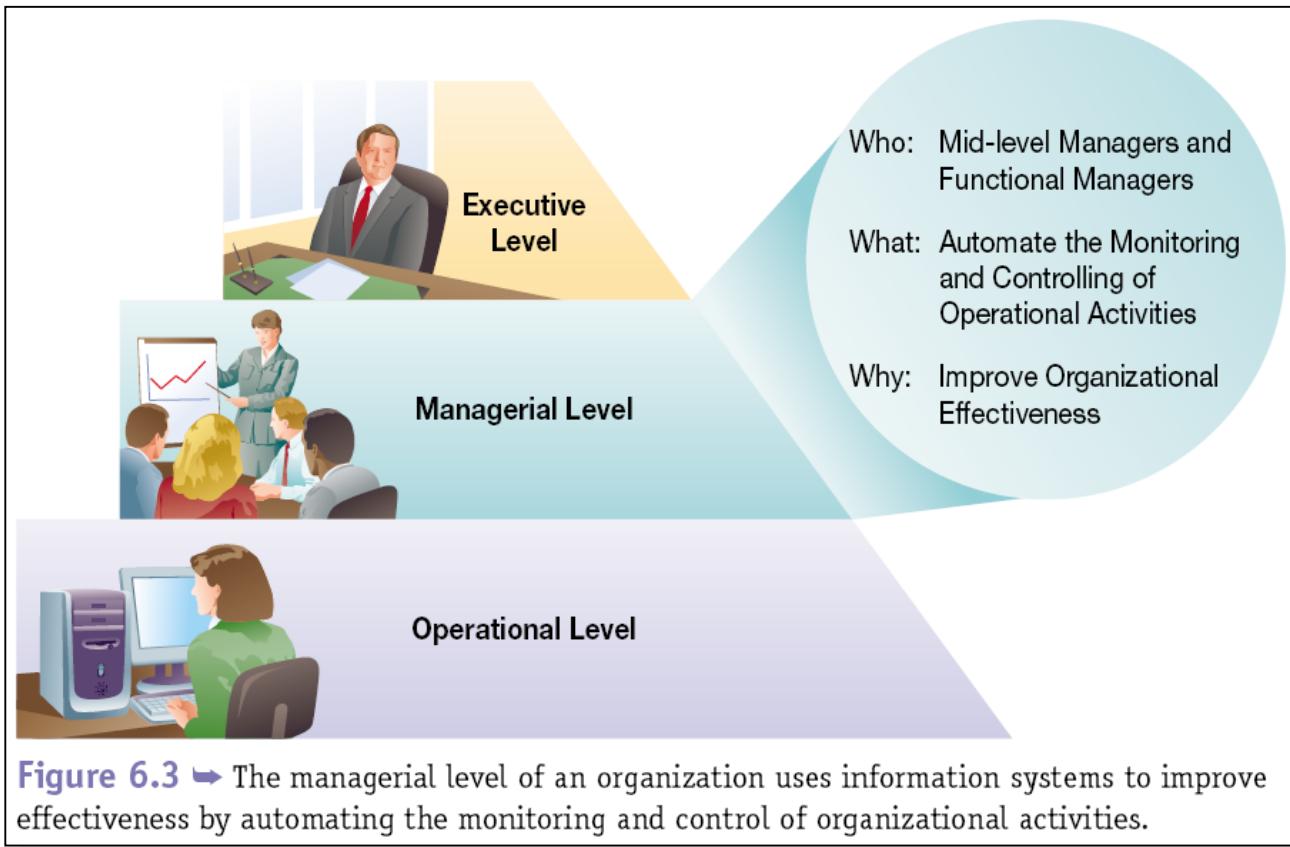
TYPES OF INFORMATION SYSTEMS



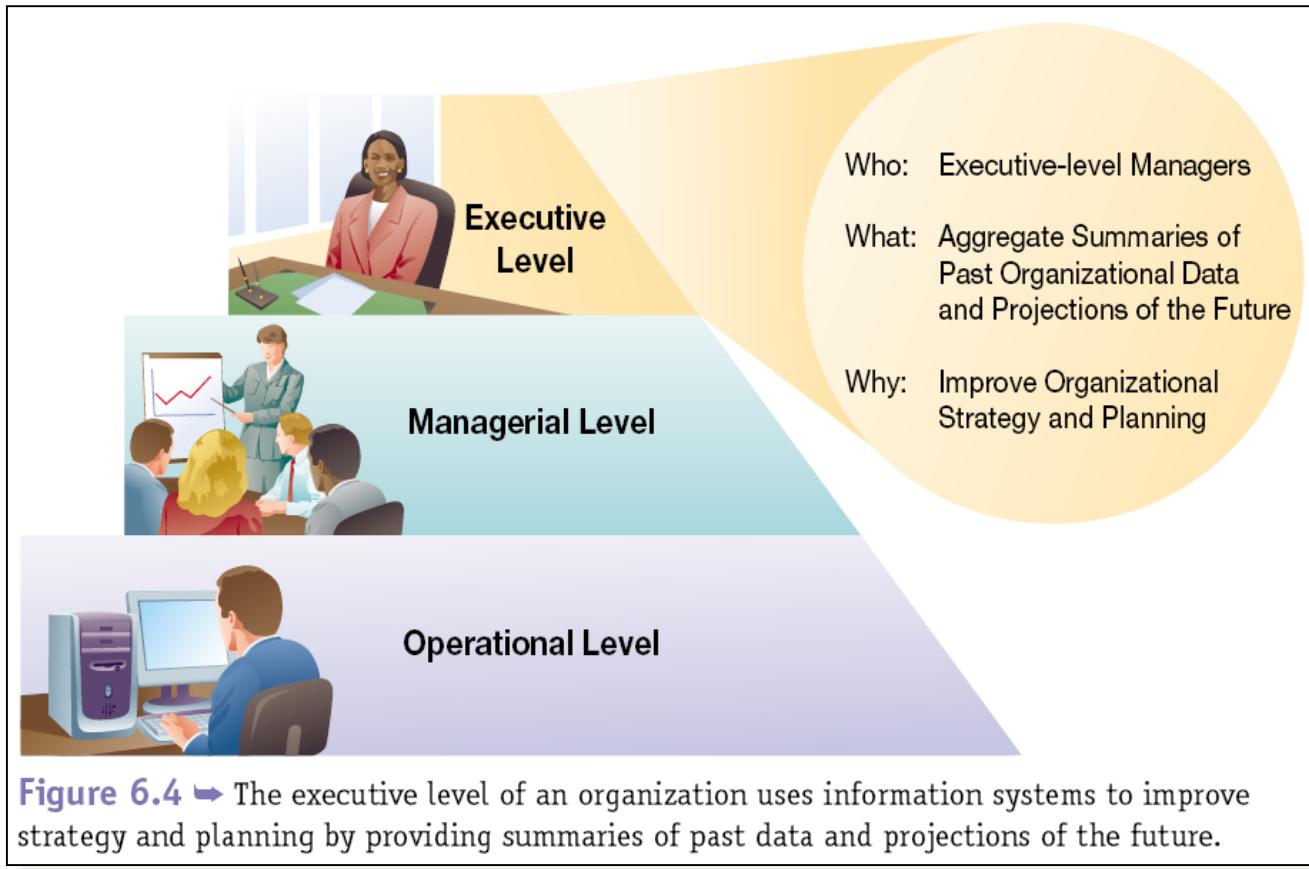
Who, What, Why: Organizational Level



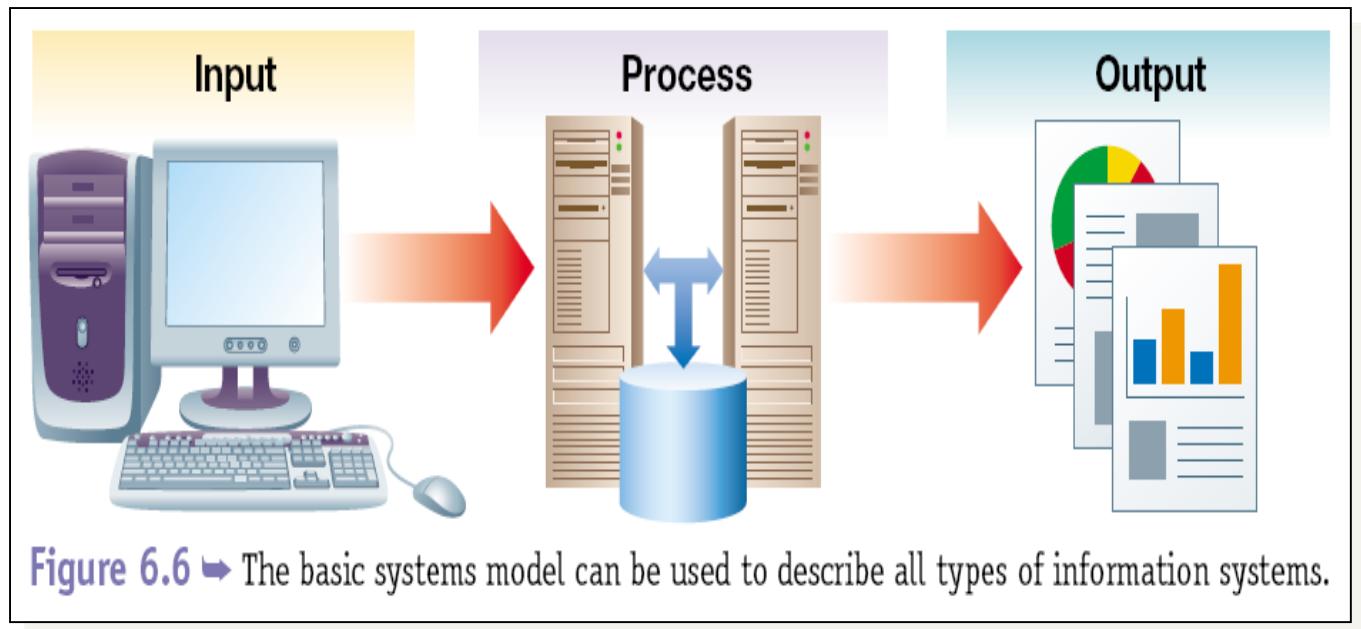
Who, What, Why: Managerial Level



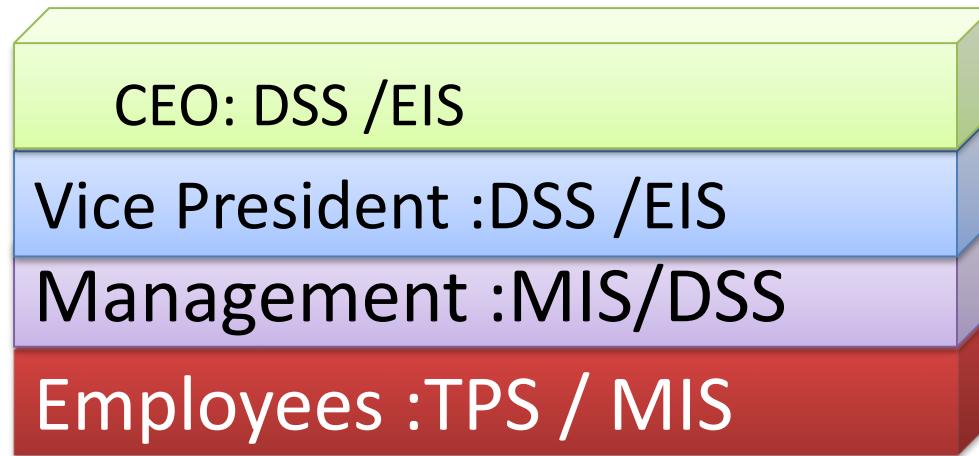
Who, What, Why: Executive Level



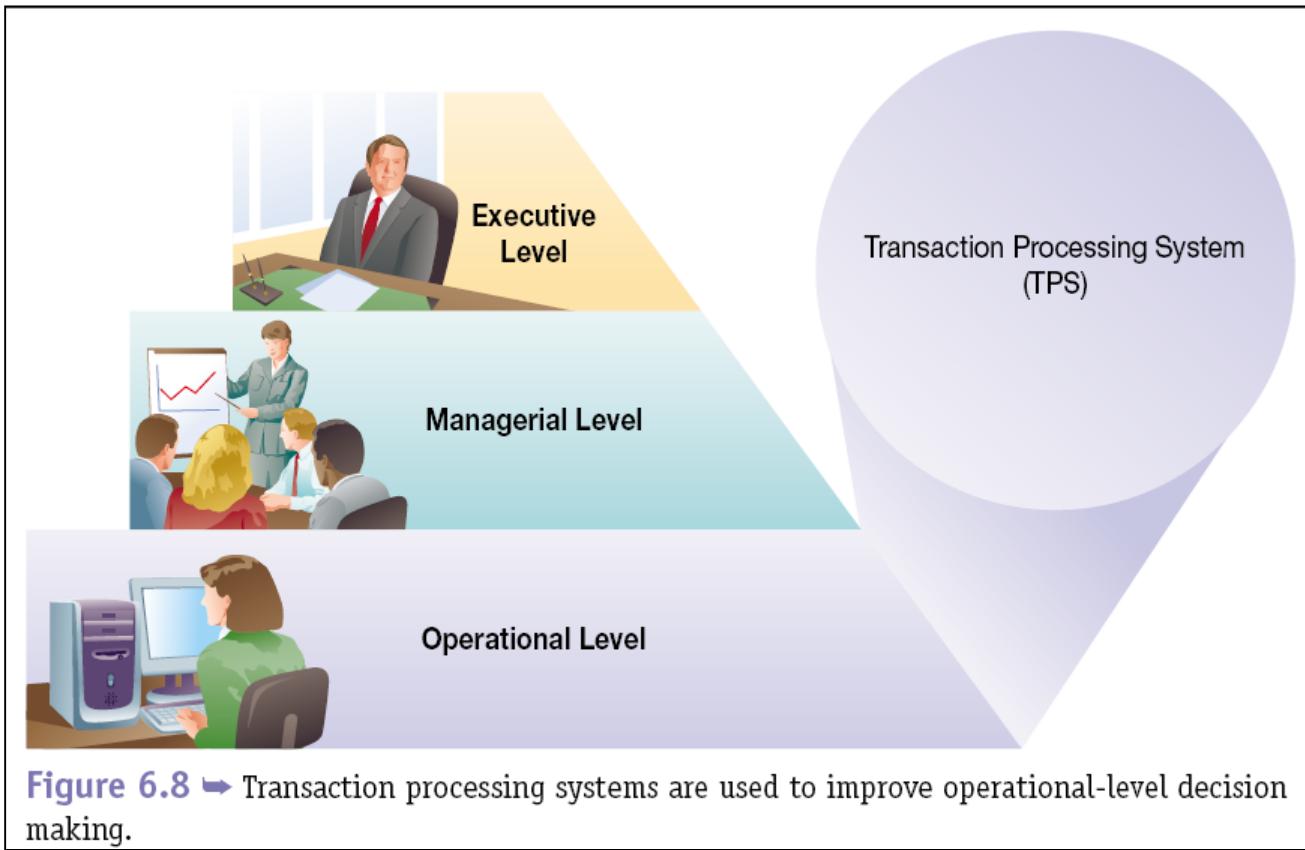
Basic Systems Model



TPS,MIS,DSS,EIS,ERP



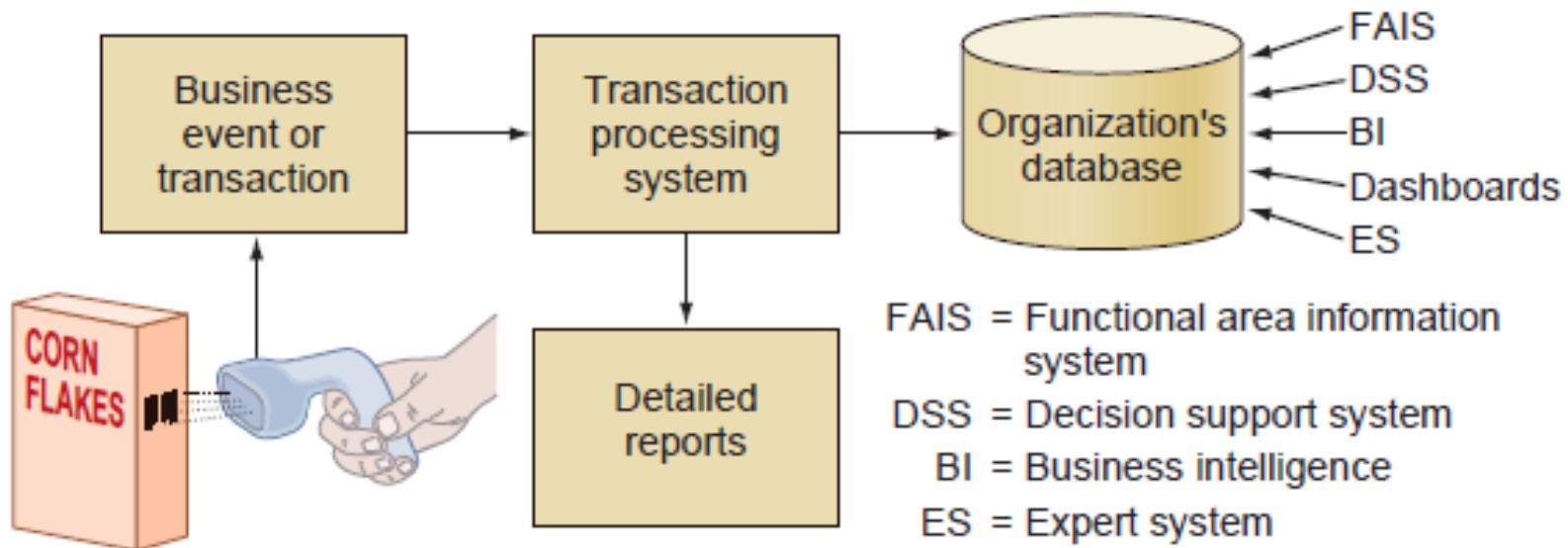
System Type: Transaction Processing Systems



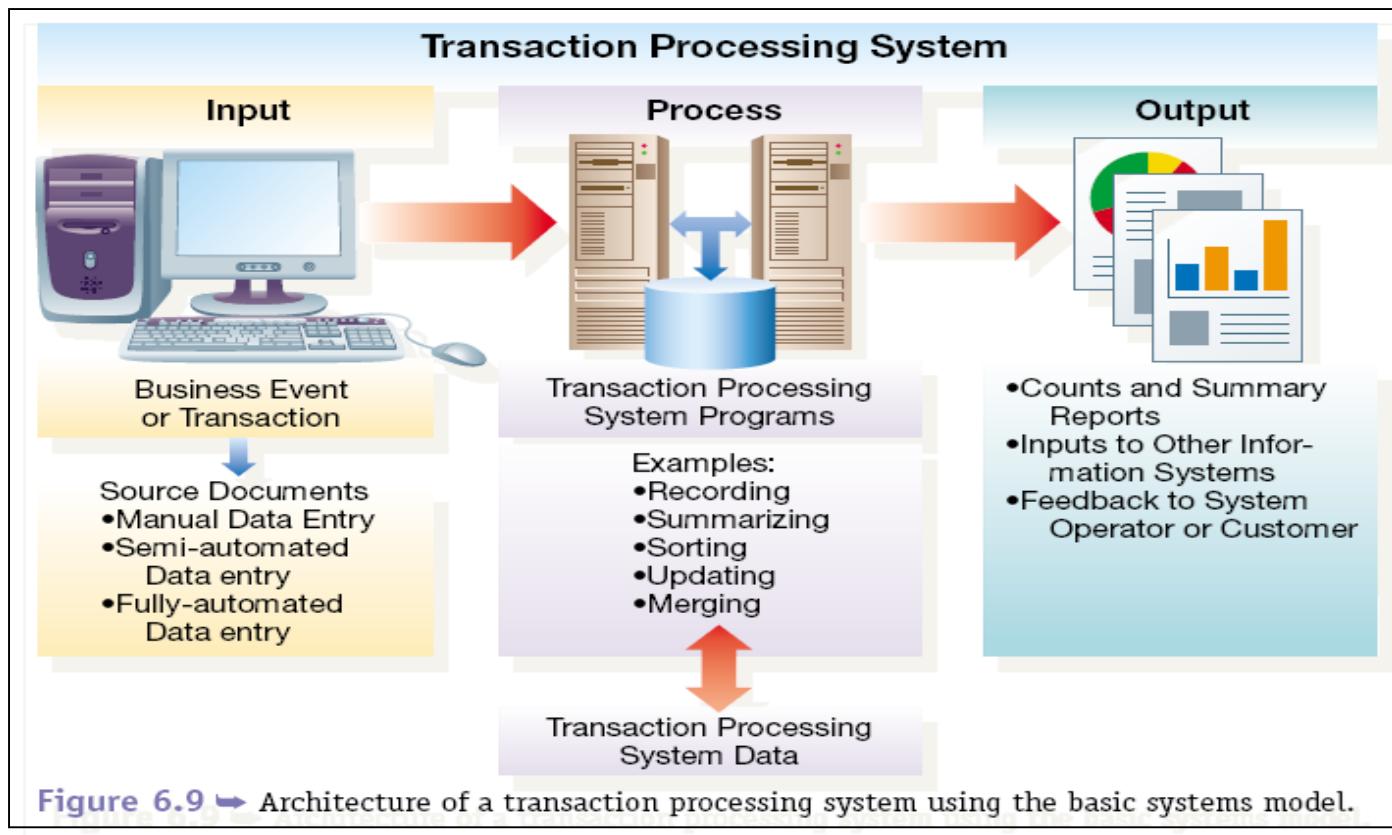
Transaction Processing Systems

- **Transaction processing system (TPS)** supports the monitoring, collection, storage, and processing of data from the organization's basic business transactions, each of which generates data.
- The TPS collects data continuously, typically in *real time*—that is, as soon as the data are generated—and it provides the input data for the corporate databases.

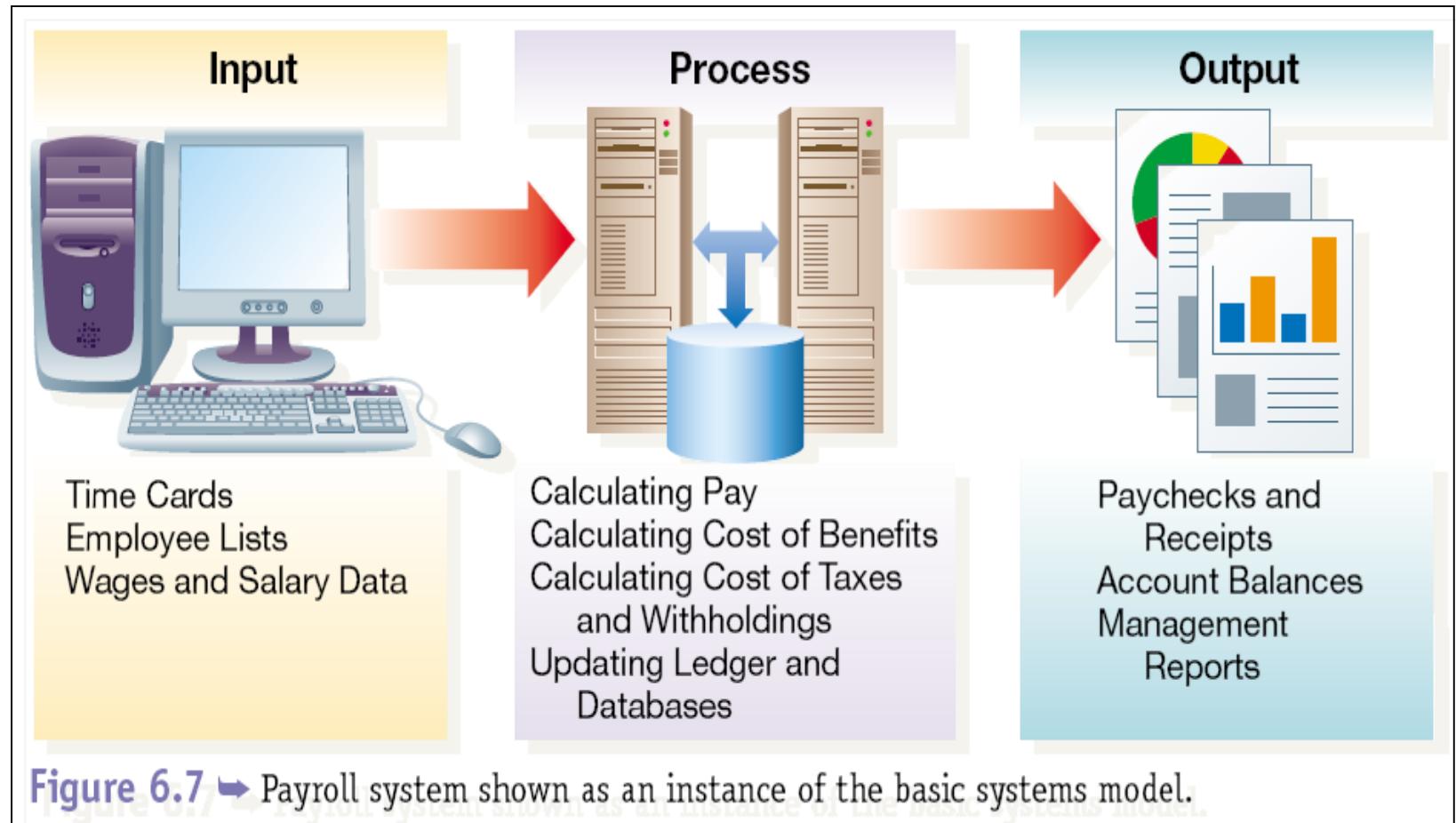
How transaction processing systems manage data.



System Architecture: Transaction Processing System



System Example: Payroll System (TPS)



Main functions of TPS:

Main functions of TPS are given as ,

- Input functions: Securing and inputting the data of the transactions that have taken place
- Output functions: Producing the report and record of the input data to be used for future references and validating the transaction
- Storage functions: Storing the data from both input and output operations and ensuring the availability of data for operations like information access, retrieval, sorting and updating.
- Processing functions: Computing, calculating, sorting, and defining the input data to get the desired results.

Characteristics of TPS

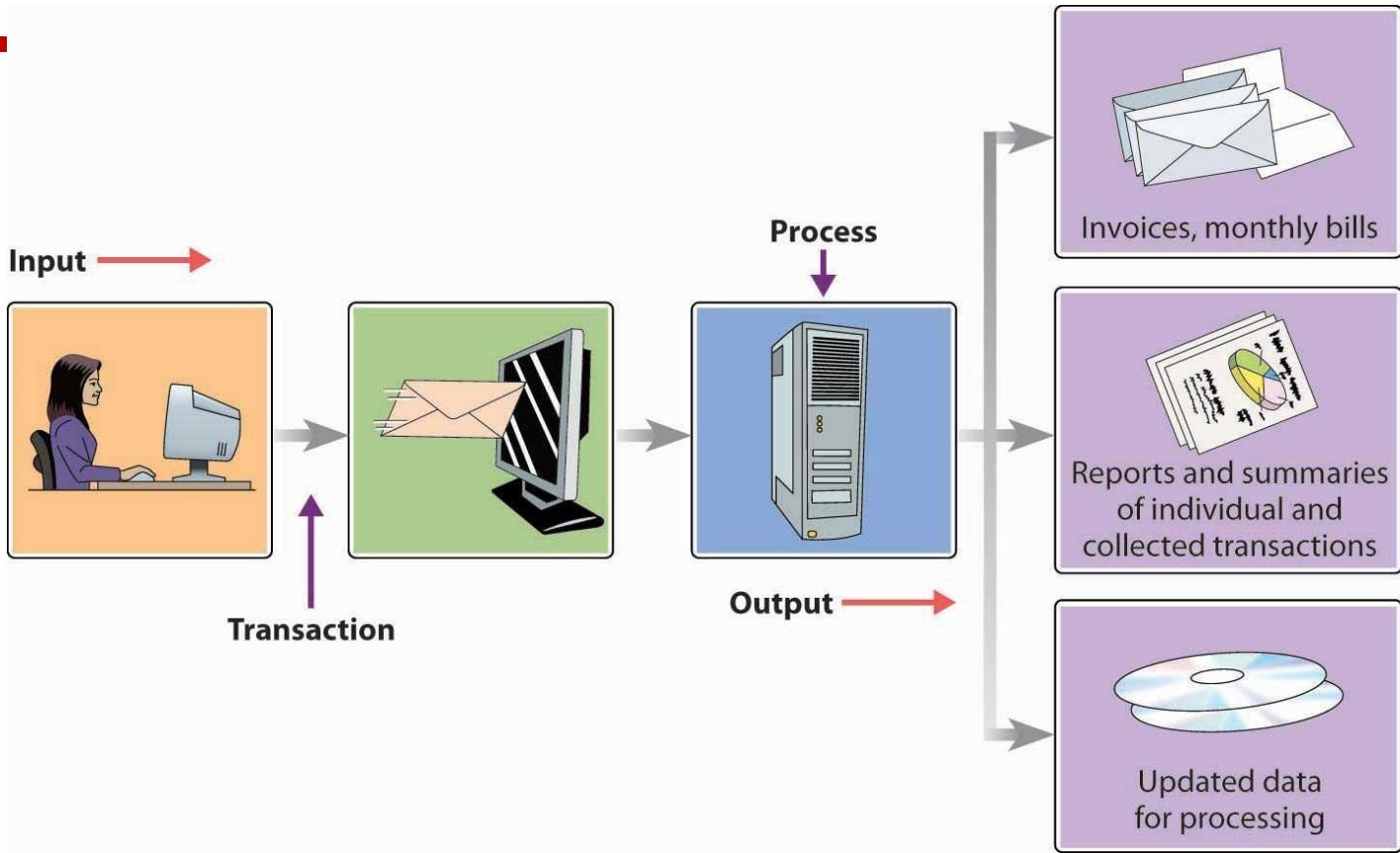
- Records internal and external transactions that take place in a company
- Is used mostly by lower-level managers to make operational decisions
- Stores data that are frequently accessed by other systems
- Is ideal for routine, repetitive tasks
- Records transactions in batch mode or on-line
- Requires six steps to process a transaction—data entry, validation, data processing, storage, output generation, and query support

TRANSACTION PROCESSING SYSTEM (TPS)

Examples:

- Sales order entry
- Employee Record Keeping & Payroll
- Accounting
- Production & Operation Systems
- Shipping
- Billing
- PoS (Point of Sale)
- Train Tickets
- Check In (Airport, Hotel, Hospital)
- Customer service
- Control Systems

A transaction in context of information system usually means CAPTURE, RECORD, PROCESS, STORE, ORGANIZE, QUERY, RETRIEVE, DISTRIBUTE information.



Transaction Processing Systems

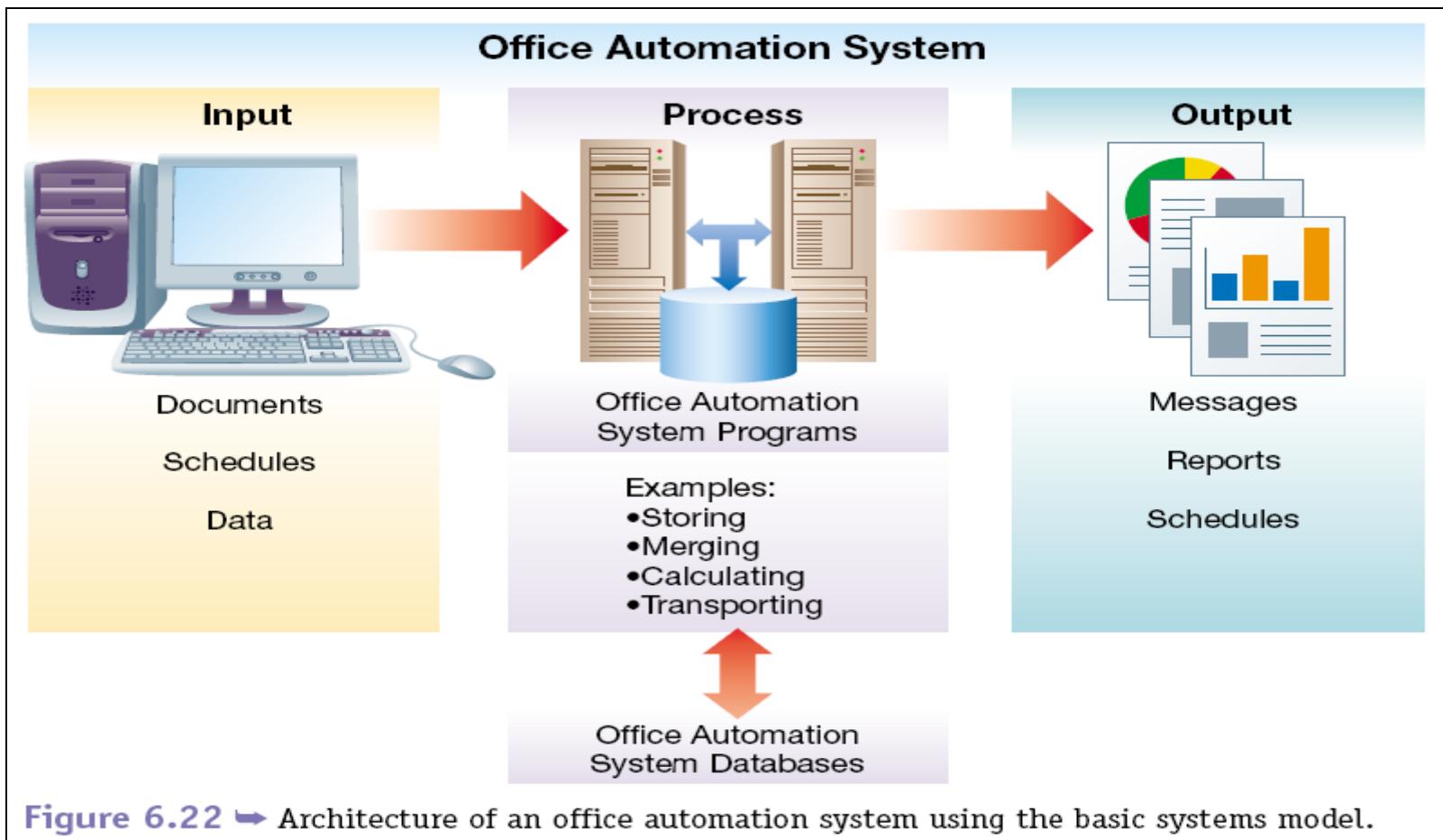
- **Online transaction processing (OLTP)**, business transactions are processed online as soon as they occur.
- For example, when you pay for an item at a store, the system records the sale by reducing the inventory on hand by one unit, increasing sales figures for the item by one unit, and increasing the store's cash position by the amount you paid.
- The system performs these tasks in real time by means of online technologies.

OFFICE AUTOMATION SYSTEM (OAS)

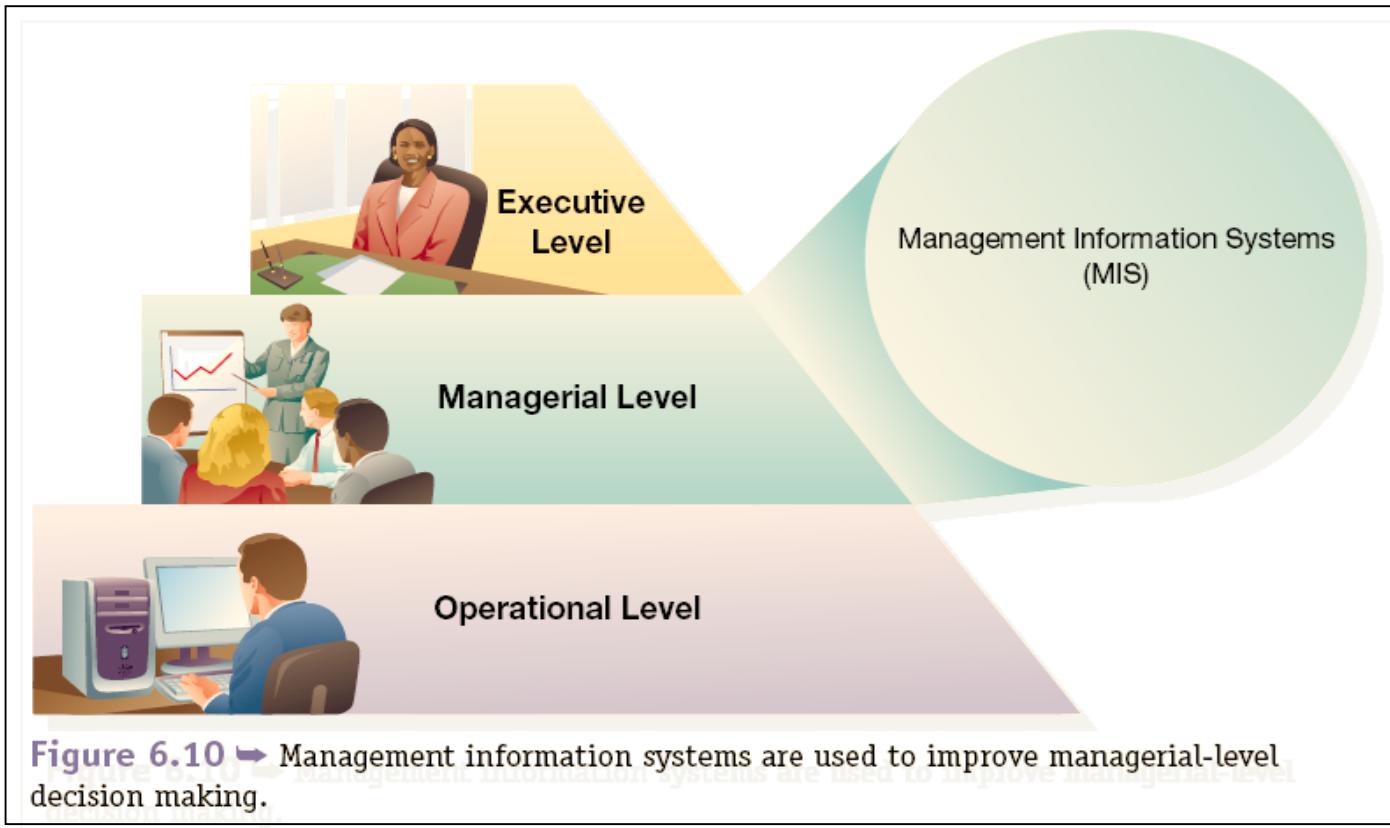
These systems are focussed on improving collaboration, communication and operational efficiencies and productivity in a workgroup.

Example: MSOffice, MS Outlook, MS Exchange, Lotus Notes, SkyPe, Webex, MS Sharepoint, Whatsapp, Gmail, Snipping Tool...

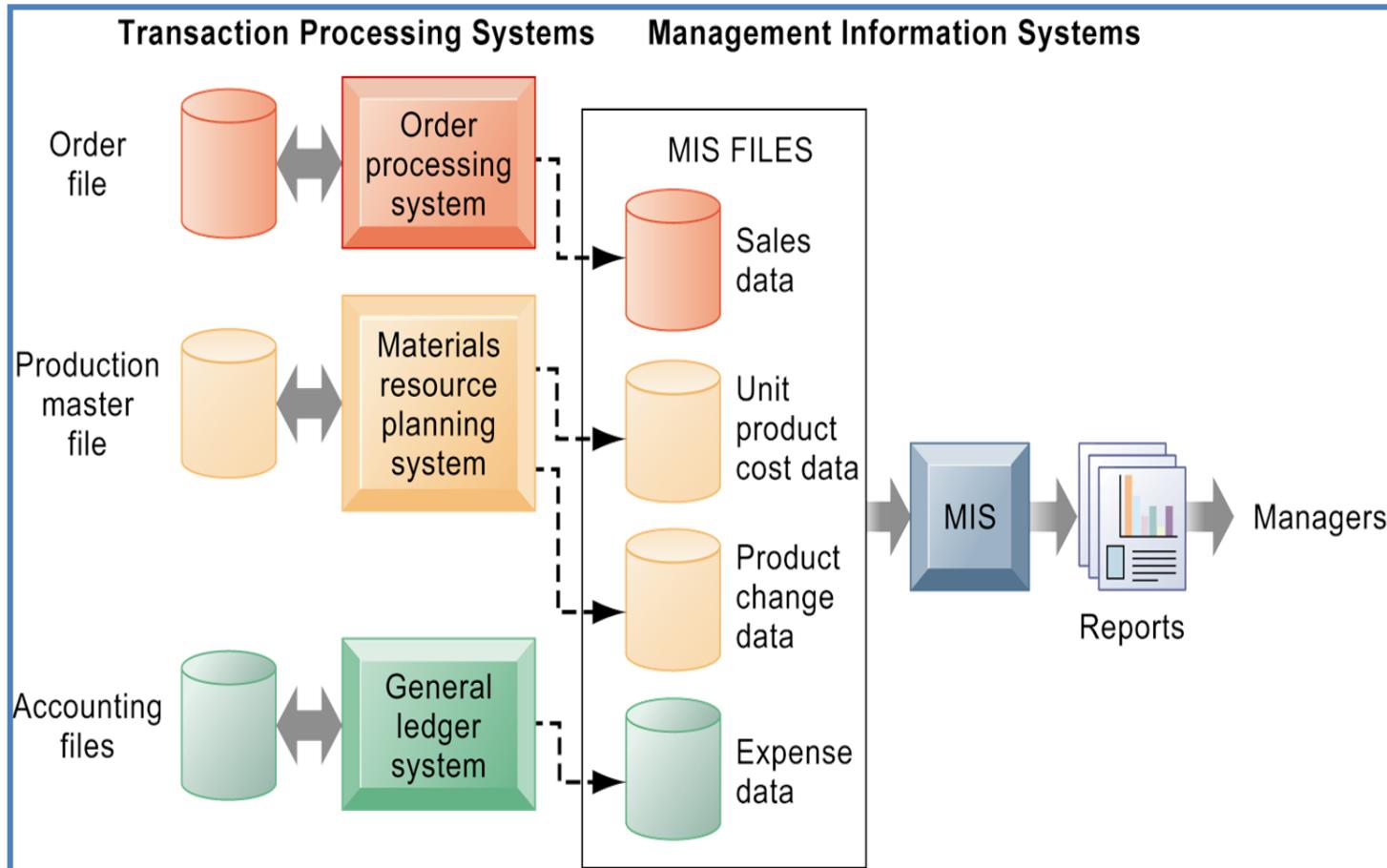
System Architecture: Office Automation Systems



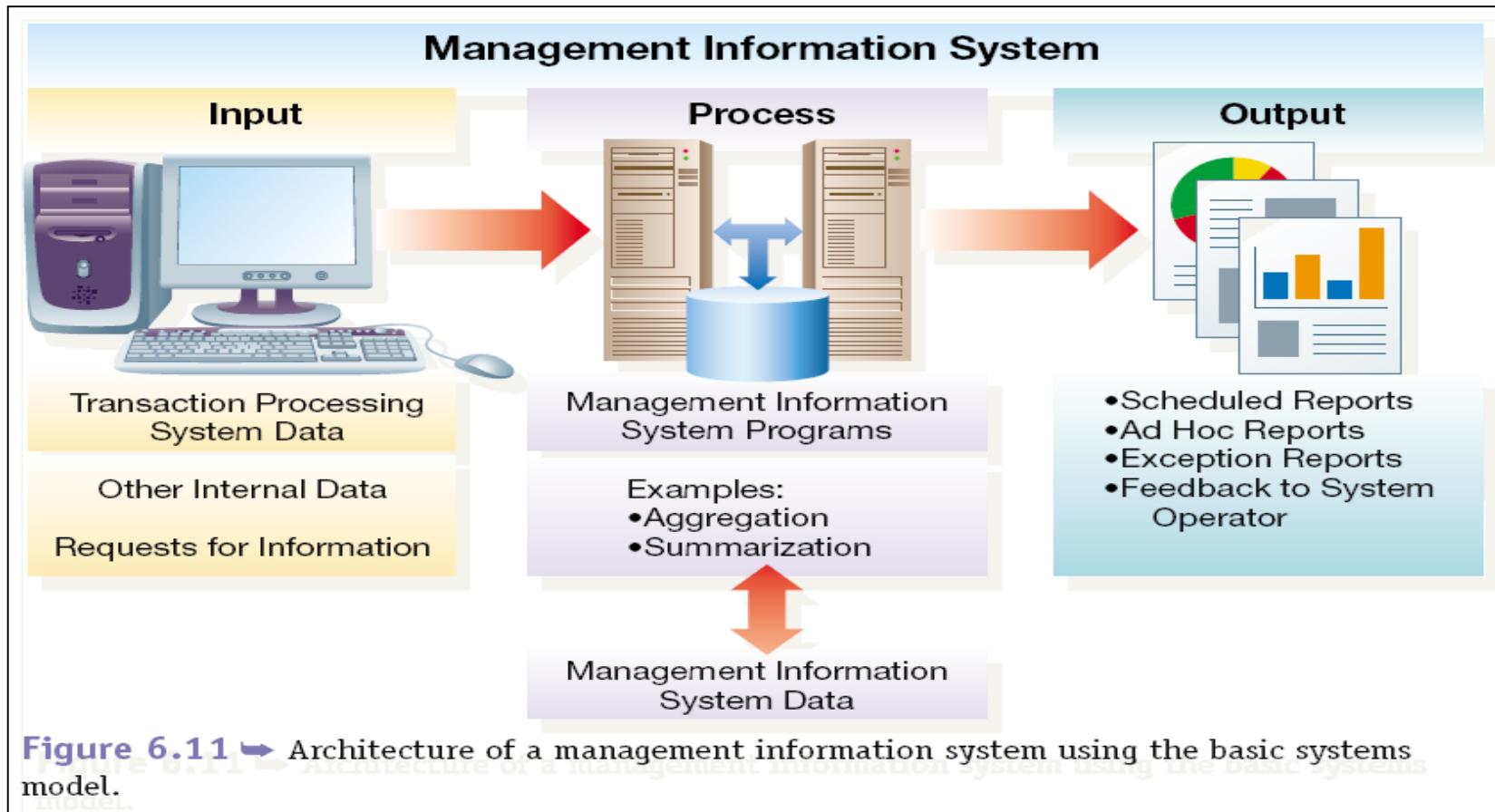
System Type: Management Information System



System Example: MIS



System Architecture: Management Information System



MANAGEMENT INFORMATION SYSTEM (REPORTING)

□ Examples:

- Serve Middle management / Tactical Users
- Converts data from TPS to a format useful, comparable and presentable to middle managers
- Provide reports on firm's current performance, based on data from TPS
- Provide answers to routine questions with predefined procedure for answering them
- Enables managers to take timely and effective decisions for Planning and Controlling
- Typically have little analytic capability

- Customer Satisfaction Report (Governance)
- Client Account Report (Business potential)
- Sales Funnel Report (Revenue / Forecast adjustments)
- Budget versus Actual Report (Spend Report)
- Supplier Performance Report (Governance)
- Employee Experience Report(Governance)
- All Variance or Exception Reports (Governance)

Decision Support System



- E.G. telecom DSS, pattern recognition e.g. beer and nappies, tea and shampoo ???

Decision Support Systems (DSS)

- A decision support system (DSS) is a computerized system that gathers and analyzes data, synthesizing it to produce comprehensive information reports.
- A decision support system differs from an ordinary operations application, whose function is just to collect data.
- Decision support systems allow for more informed decision-making, timely problem-solving, and improved efficiency in dealing with issues or operations, planning, and even management.

Decision Support Systems (DSS)

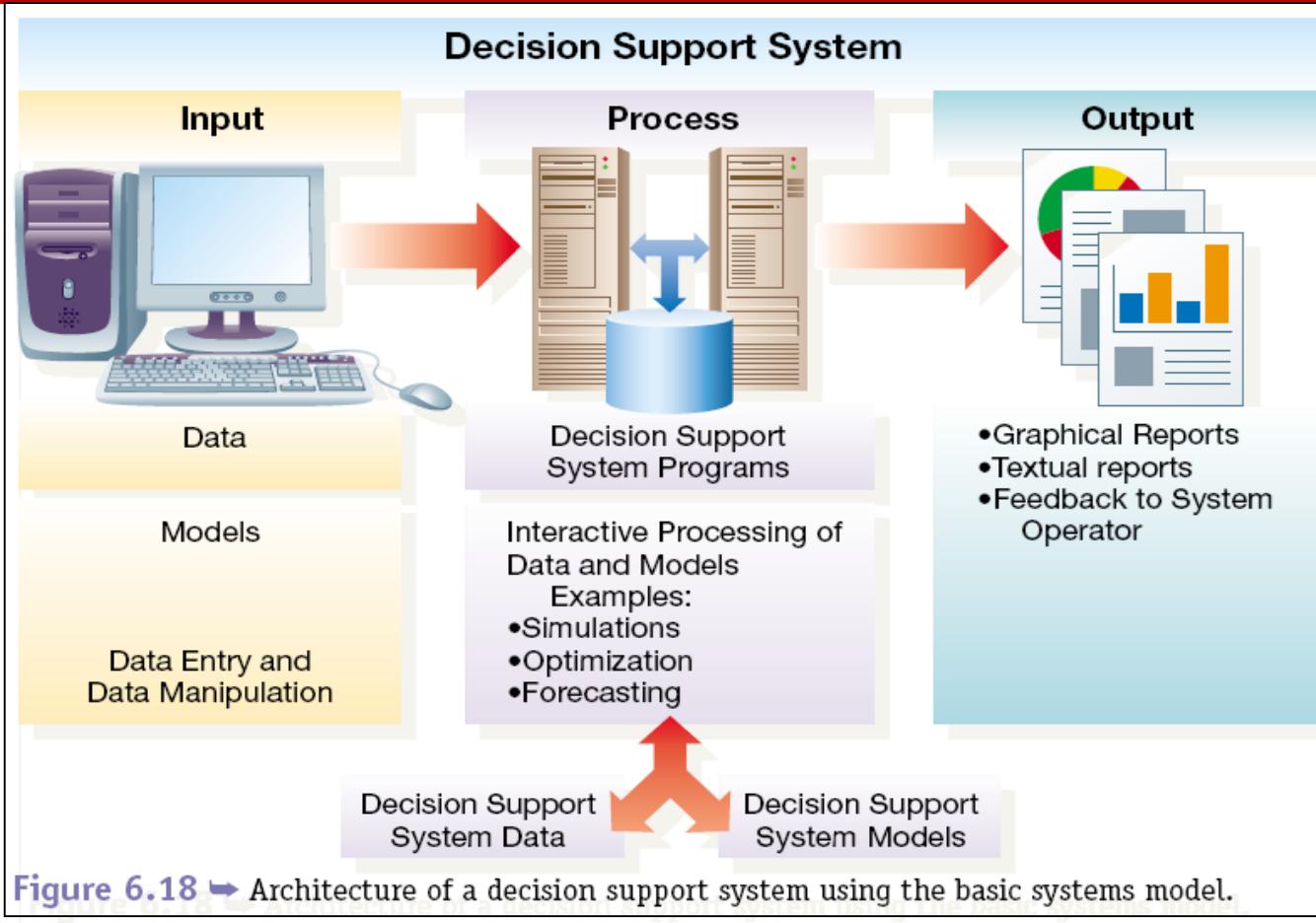
The main characteristics of DSS are:

- 1. A DSS is designed to address semi-structured and unstructured problems.
- 2. The DSS mainly supports decision-making at the top management level.
- 3. DSS is interactive, user-friendly can be used by the decision-maker with little or no assistance from a computer professional.
- 4. DSS makes general-purpose models, simulation capabilities and other analytical tools available to the decision-maker.

Decision Support Systems (DSS)

- A DSS does not replace the MIS; instead a DSS supplements the MIS.
- There are distinct differences between them. MIS emphasizes on planned reports on a variety of subjects;
- DSS focuses on decision-making. MIS is standard, scheduled, structured and routine;
- DSS is quite unstructured and is available on request.
- MIS is constrained by the organizational system; DSS is immediate and user-friendly.

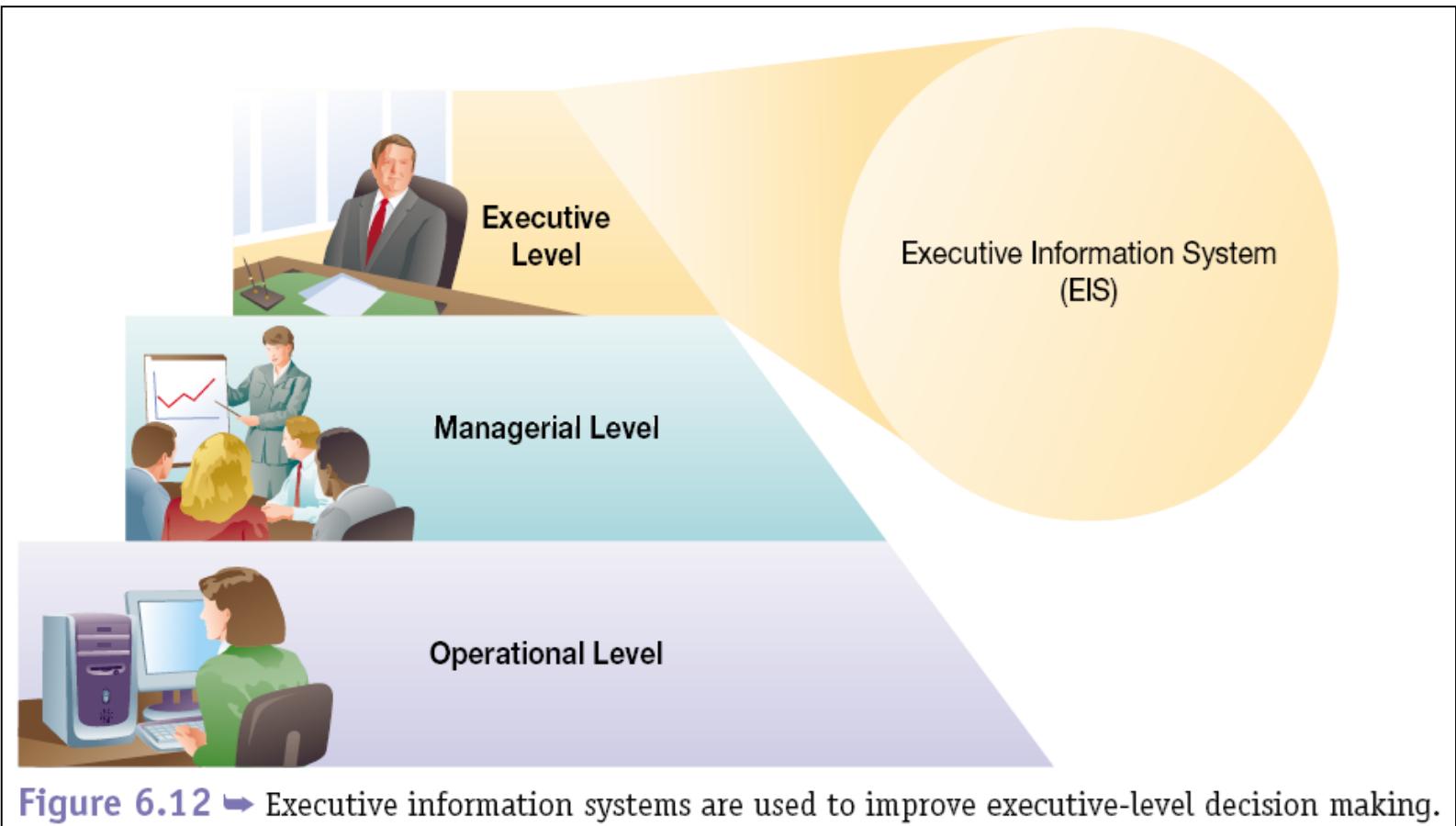
System Architecture: Decision Support Systems



System Description: Common Decision Support Systems

Area	Common DSS Models
Accounting	Cost analysis, discriminant analysis, break-even analysis, auditing, tax computation and analysis, depreciation methods, budgeting
Corporate Level	Corporate planning, venture analysis, mergers and acquisitions
Finance	Discounted cash flow analysis, return on investment, buy or lease, capital budgeting, bond refinancing, stock portfolio management, compound interest, after-tax yield, foreign exchange values
Marketing	Product demand forecast, advertising strategy analysis, pricing strategies, market share analysis, sales growth evaluation, sales performance
Personnel	Labor negotiations, labor market analysis, personnel skills assessment, employee business expense, fringe benefit computations, payroll and deductions
Production	Product design, production scheduling, transportation analysis, product-mix inventory level, quality control, learning curve, plant location, material allocation, maintenance analysis, machine replacement, job assignment, material requirement planning
Management Science	Linear programming, decision trees, simulation, project evaluation and planning, queuing, dynamic programming, network analysis
Statistics	Regression and correlation analysis, exponential smoothing, sampling, time-series analysis, hypothesis testing

System Type: Executive Information System (EIS)

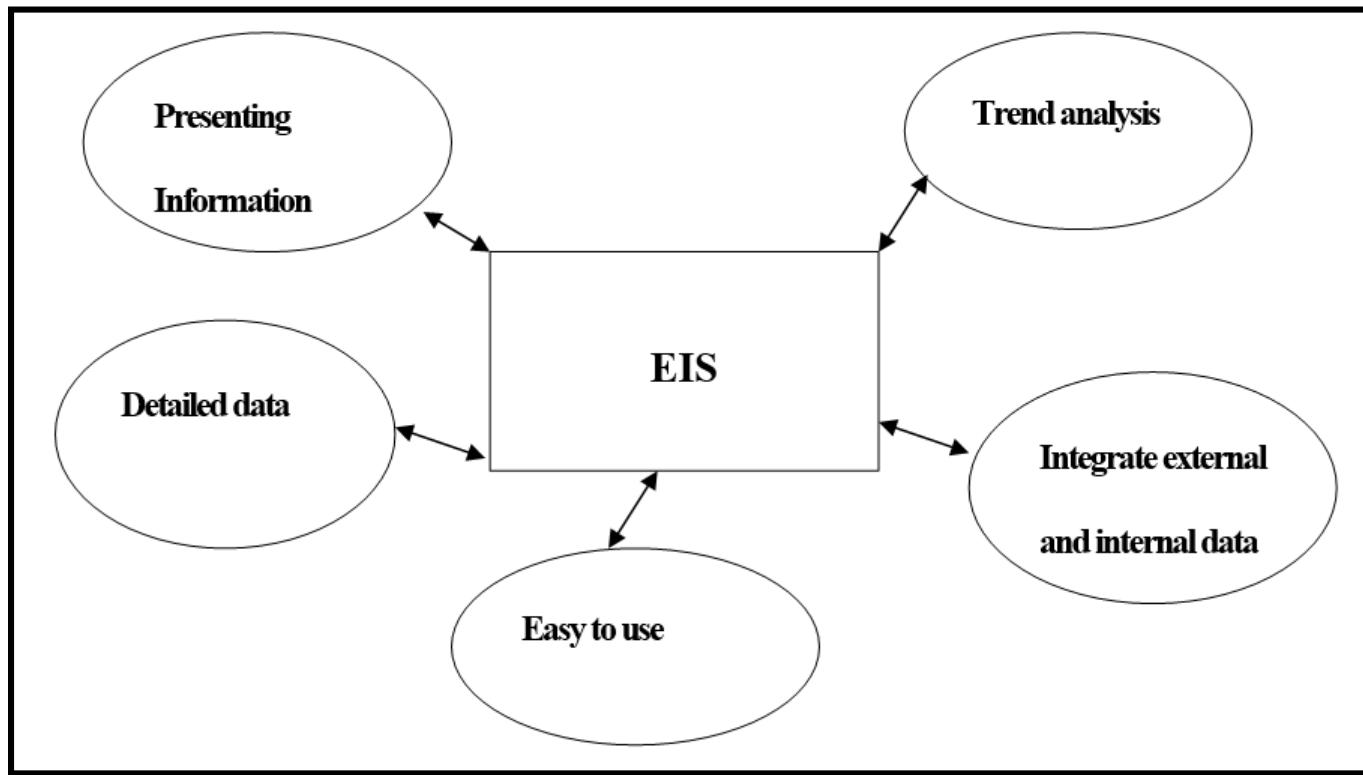


Executive information System

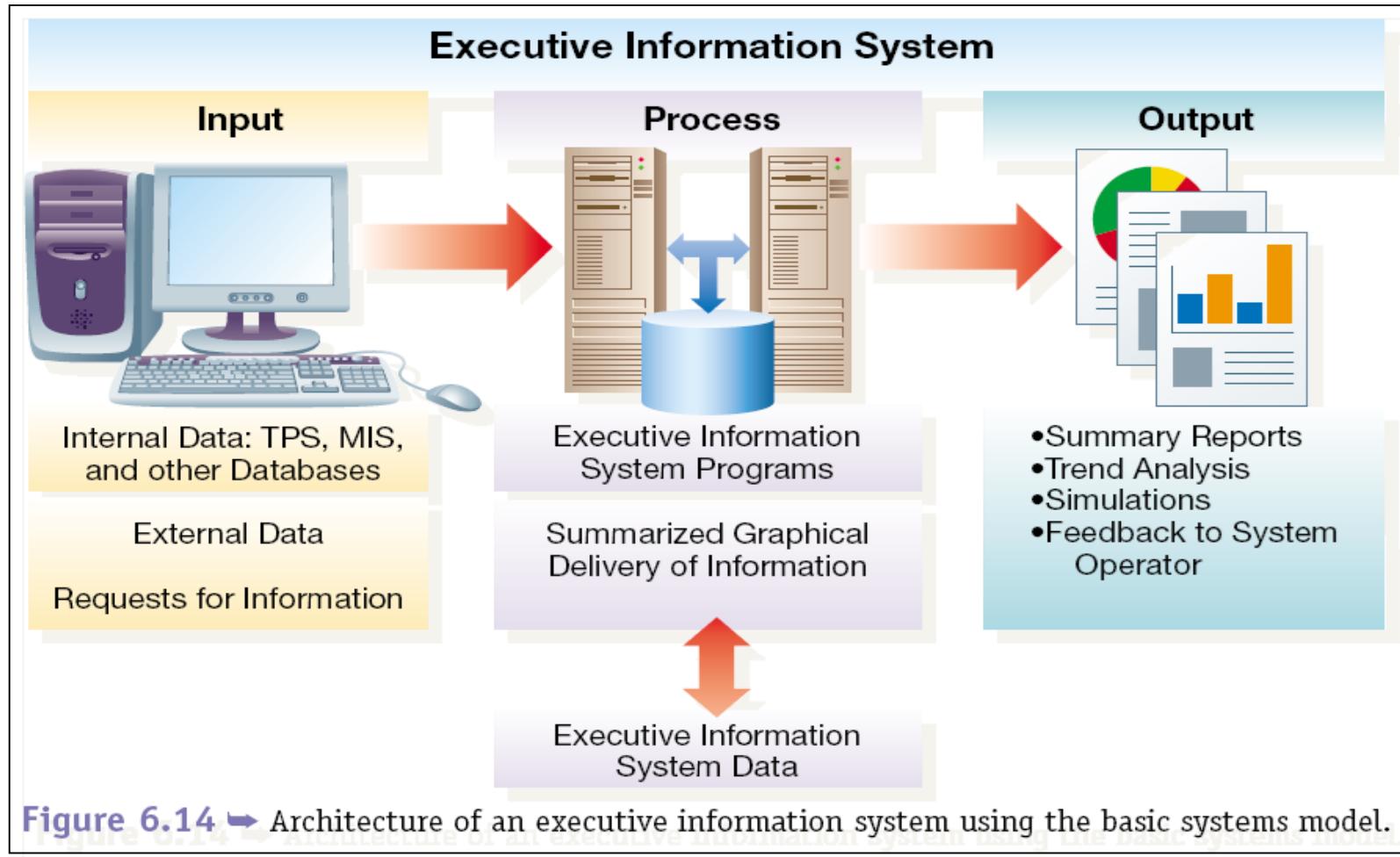
An executive information system (EIS) is a decision support system (DSS) used to assist senior executives in the decision-making process. It does this by providing easy access to important data needed to achieve strategic goals in an organization. An EIS normally features graphical displays on an easy-to-use interface.

Executive information systems can be used in many different types of organizations to monitor enterprise performance as well as to identify opportunities and problems.

Characteristics Of EIS



System Architecture: Executive Information Systems



System Description: Expert Systems

Expert Systems

Special-purpose systems used by employees to make decisions usually made by more experienced employees or an expert in the field

System Details

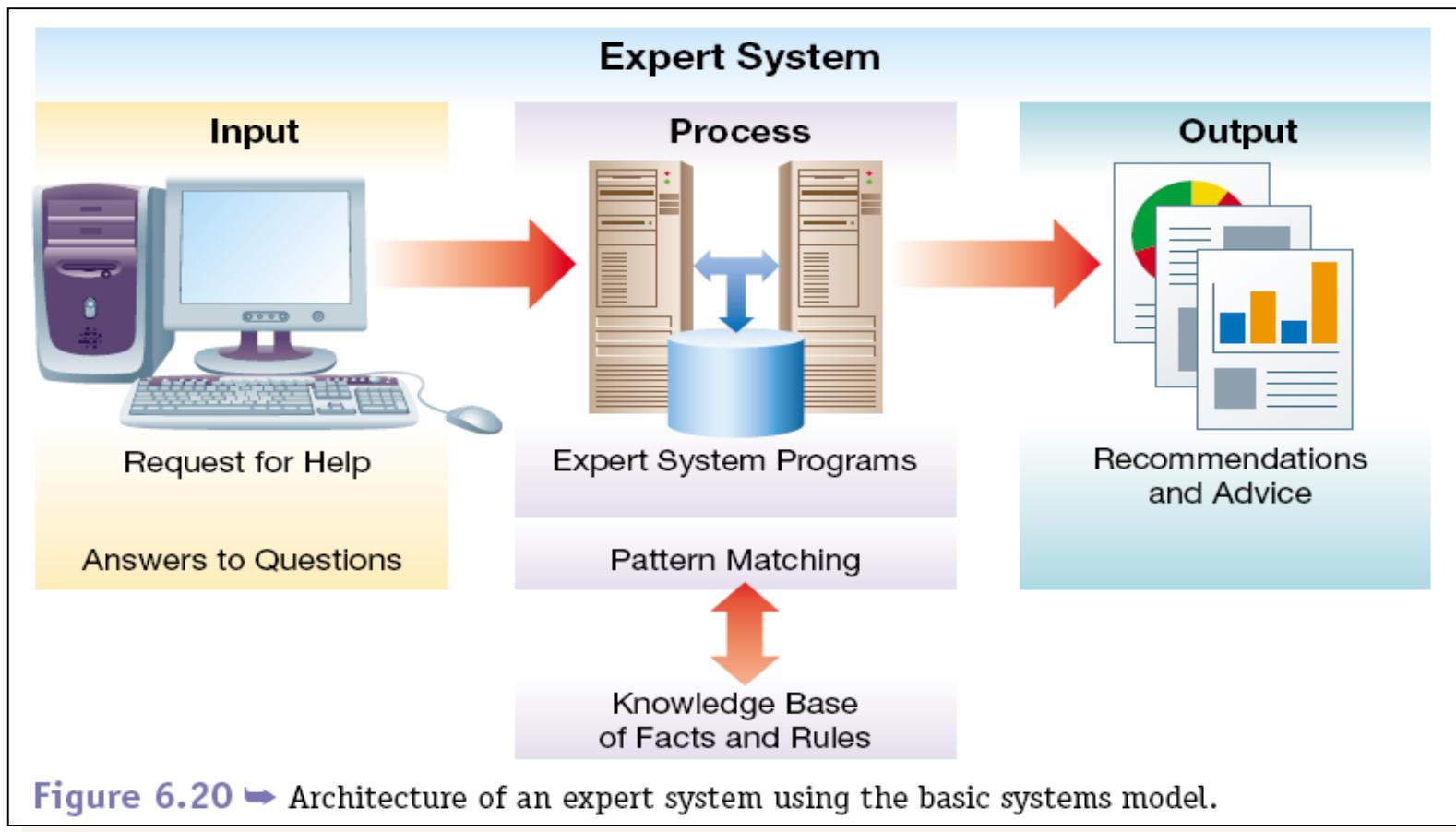
These systems use **inference engines** that match **facts** and **rules**, sequence **questions** for the user, draw a **conclusion**, and present the user a **recommendation**

Supported Activities:

These systems support many activities including:

- **Medical Diagnosis**
- **Machine Configuration**
- **Financial Planning**

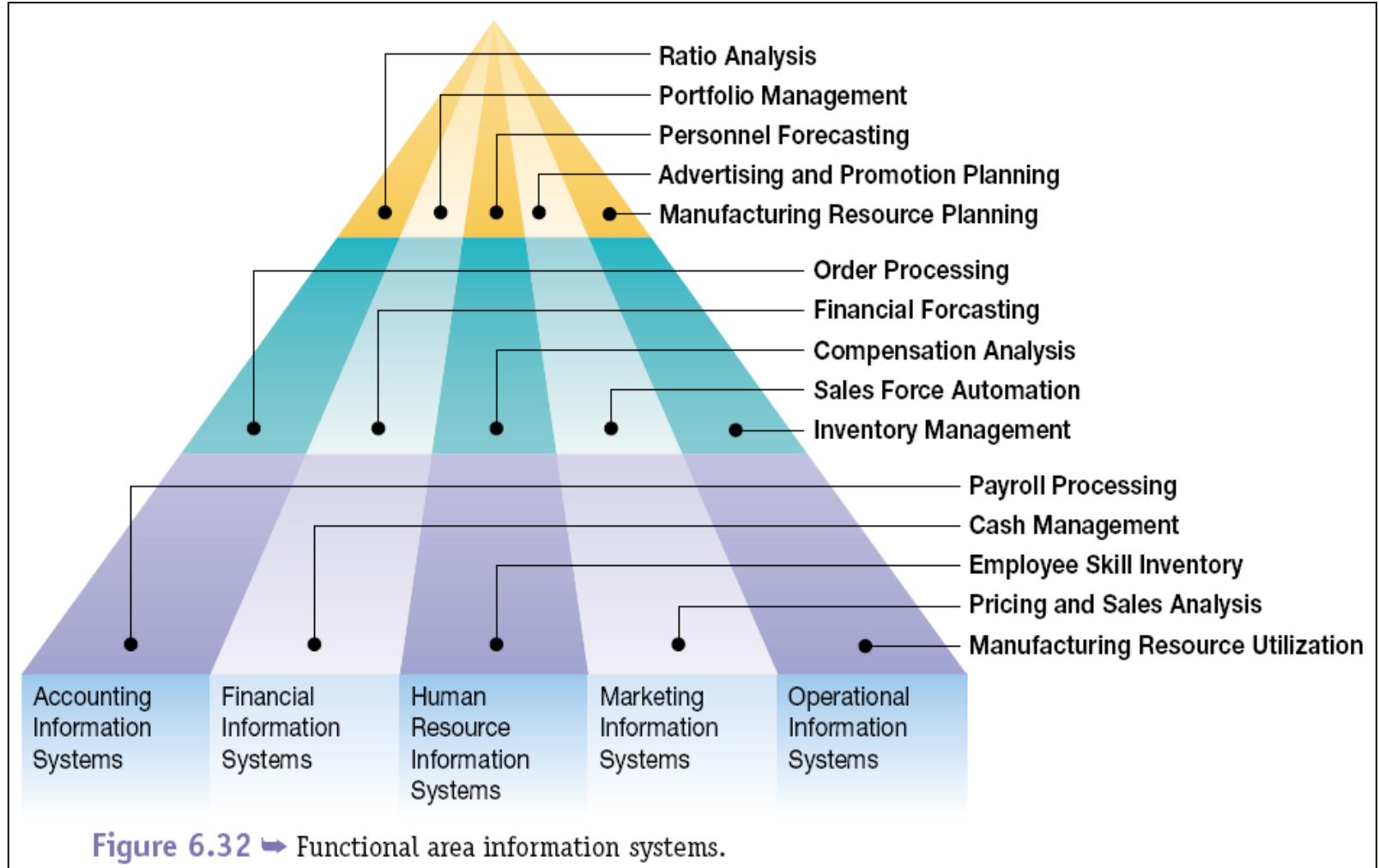
System Architecture: Expert Systems



Functional Area Information Systems

- Each department or functional area within an organization has its own collection of application programs, or information systems.
- Each of these **functional area information systems** (FAISs) supports a particular functional area in the organization by increasing each area's internal efficiency and effectiveness.
- FAISs often convey information in a variety of reports.
- Examples of FAISs include accounting IS, finance IS, production/operations management (POM) IS, marketing IS, and human resources IS.

System Description: Functional Area Info Systems



Information Systems for Accounting and Finance

A primary mission of the accounting and finance functional areas is to manage money flows into, within, and out of organizations.

Activities of the accounting/finance functional area.

Financial Planning and Budgeting.

Managing Financial Transactions.

Investment Management.

Control and Auditing.

Information Systems for Marketing

- customer-centric organizations
- successful organization must understand its customers' needs and wants and then develop its marketing and advertising strategies around them

Information Systems for Production/Operations Management

- The POM function in an organization is responsible for the processes that transform inputs into useful outputs as well as for the overall operation of the business.
- The POM function is also responsible for managing the organization's supply chain.

Activities:

- **In-House Logistics and Materials Management.**
- **Inventory Management**
- **Quality Control.**
- **Planning Production and Operations.**
- **Computer-Integrated Manufacturing.**
- **Product Life Cycle Management**

Information Systems for Human Resource Management

- **Recruitment.**
- **Human Resources Development**
- **Human Resources Planning and Management**

Activities Supported by Functional Area Information Systems

Accounting and Finance

Financial planning—and cost of money

Budgeting—allocates financial resources among participants and activities

Capital budgeting—financing of asset acquisitions

Managing financial transactions

Handling multiple currencies

Virtual close—the ability to close the books at any time on short notice

Investment management—managing organizational investments in stocks, bonds, real estate, and other investment vehicles

Budgetary control—monitoring expenditures and comparing them against the budget

Auditing—ensuring the accuracy of the organization's financial transactions and assessing the condition of the organization's financial health

Payroll

Activities Supported by Functional Area Information Systems

Marketing and Sales

Customer relations—know who customers are and treat them like royalty

Customer profiles and preferences

Sales force automation—using software to automate the business tasks of sales, thereby improving the productivity of salespeople

Human Resource Management

Recruitment—finding employees, testing them, and deciding which ones to hire

Performance evaluation—periodic evaluation by superiors

Training

Employee records

Benefits administration—retirement, disability, unemployment, etc.

Activities Supported by Functional Area Information Systems

Production/Operations and Logistics

Inventory management—when to order new inventory, how much inventory to order, and how much inventory to keep in stock

Quality control—controlling for defects in incoming material and defects in goods produced

Materials requirements planning—planning process that integrates production, purchasing, and inventory management of interdependent items (MRP)

Manufacturing resource planning—planning process that integrates an enterprise's production, inventory management, purchasing, financing, and labor activities (MRP II)

Just-in-time systems—a principle of production and inventory control in which materials and parts arrive precisely when and where needed for production (JIT)

Computer-integrated manufacturing—a manufacturing approach that integrates several computerized systems, such as computer-assisted design (CAD), computer-assisted manufacturing (CAM), MRP, and JIT

Product life cycle management—business strategy that enables manufacturers to collaborate on product design and development efforts, using the Web

Examples of information systems supporting the functional areas

Accounting and Finance Financial planning—and cost of money Budgeting—allocates financial resources among participants and activities Capital budgeting—financing of asset acquisitions Managing financial transactions Handling multiple currencies Virtual close—the ability to close the books at any time on short notice Investment management—managing organizational investments in stocks, bonds, real estate, and other investment vehicles Budgetary control—monitoring expenditures and comparing them against the budget Auditing—ensuring the accuracy of the organization's financial transactions and assessing the condition of the organization's financial health Payroll	 Quality control—controlling for defects in incoming material and defects in goods produced Materials requirements planning—planning process that integrates production, purchasing, and inventory management of interdependent items (MRP) Manufacturing resource planning—planning process that integrates an enterprise's production, inventory management, purchasing, financing, and labor activities (MRP II) Just-in-time systems—a principle of production and inventory control in which materials and parts arrive precisely when and where needed for production (JIT) Computer-integrated manufacturing—a manufacturing approach that integrates several computerized systems, such as computer-assisted design (CAD), computer-assisted manufacturing (CAM), MRP, and JIT Product life cycle management—business strategy that enables manufacturers to collaborate on product design and development efforts, using the Web
Marketing and Sales Customer relations—know who customers are and treat them like royalty Customer profiles and preferences Sales force automation—using software to automate the business tasks of sales, thereby improving the productivity of salespeople	Human Resource Management Recruitment—finding employees, testing them, and deciding which ones to hire Performance evaluation—periodic evaluation by superiors Training Employee records Benefits administration—retirement, disability, unemployment, etc.
Production/Operations and Logistics Inventory management—when to order new inventory, how much inventory to order, and how much inventory to keep in stock	

Examples of information systems supporting the functional areas.

ACCOUNTING	FINANCE	HUMAN RESOURCES	PRODUCTION/ OPERATIONS	MARKETING	STRATEGIC
Profitability Planning	Financial Planning	Employment Planning, Outsourcing	Product Life Cycle Management	Sales Forecasting, Advertising Planning	TACTICAL
Auditing, Budgeting	Investment Management	Benefits Administration, Performance Evaluation	Quality Control, Inventory Management	Customer Relations, Sales Force Automation	OPERATIONAL

DSS, GDSS, ESS, MIS, TPS, KWS, Office Systems.

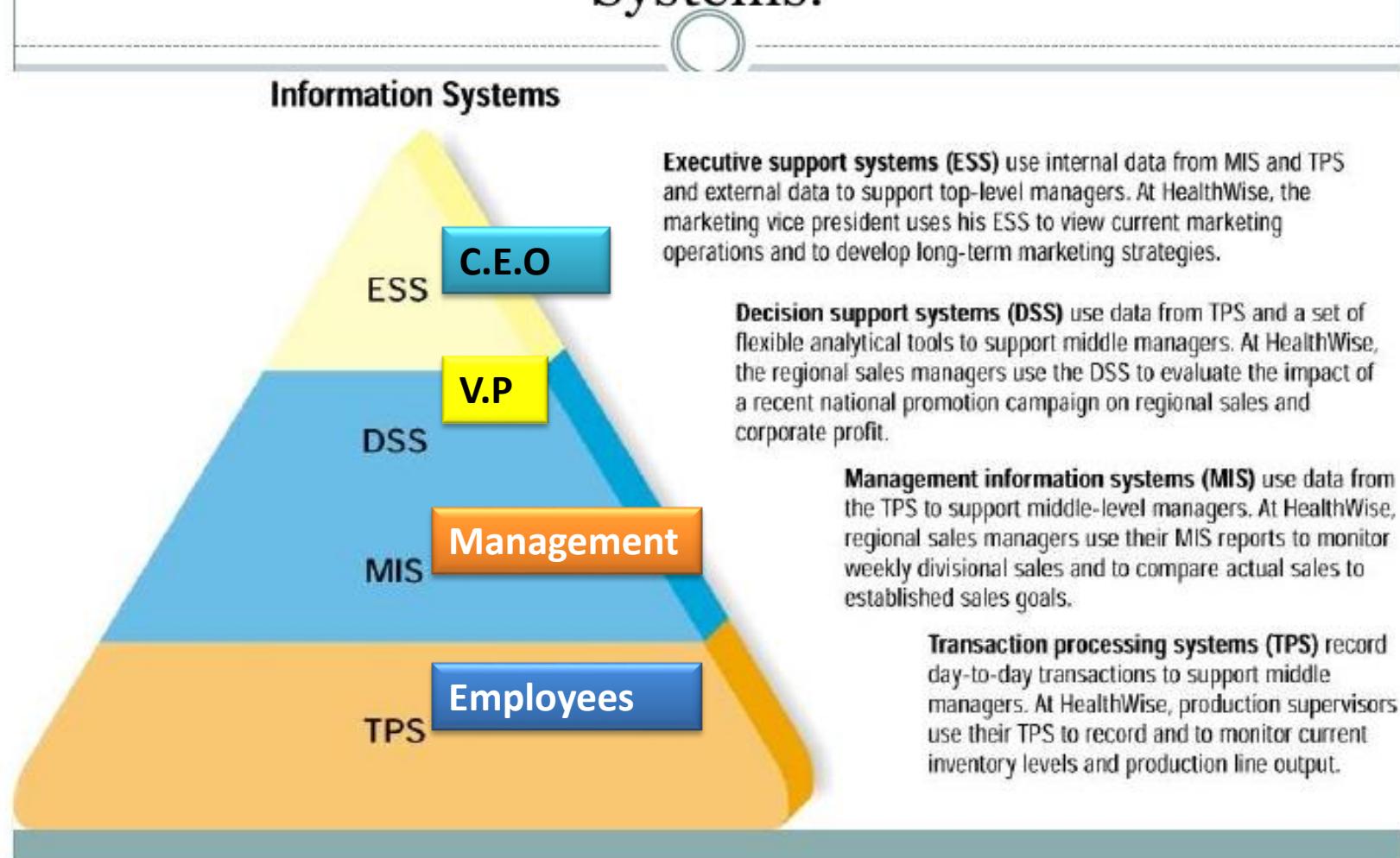
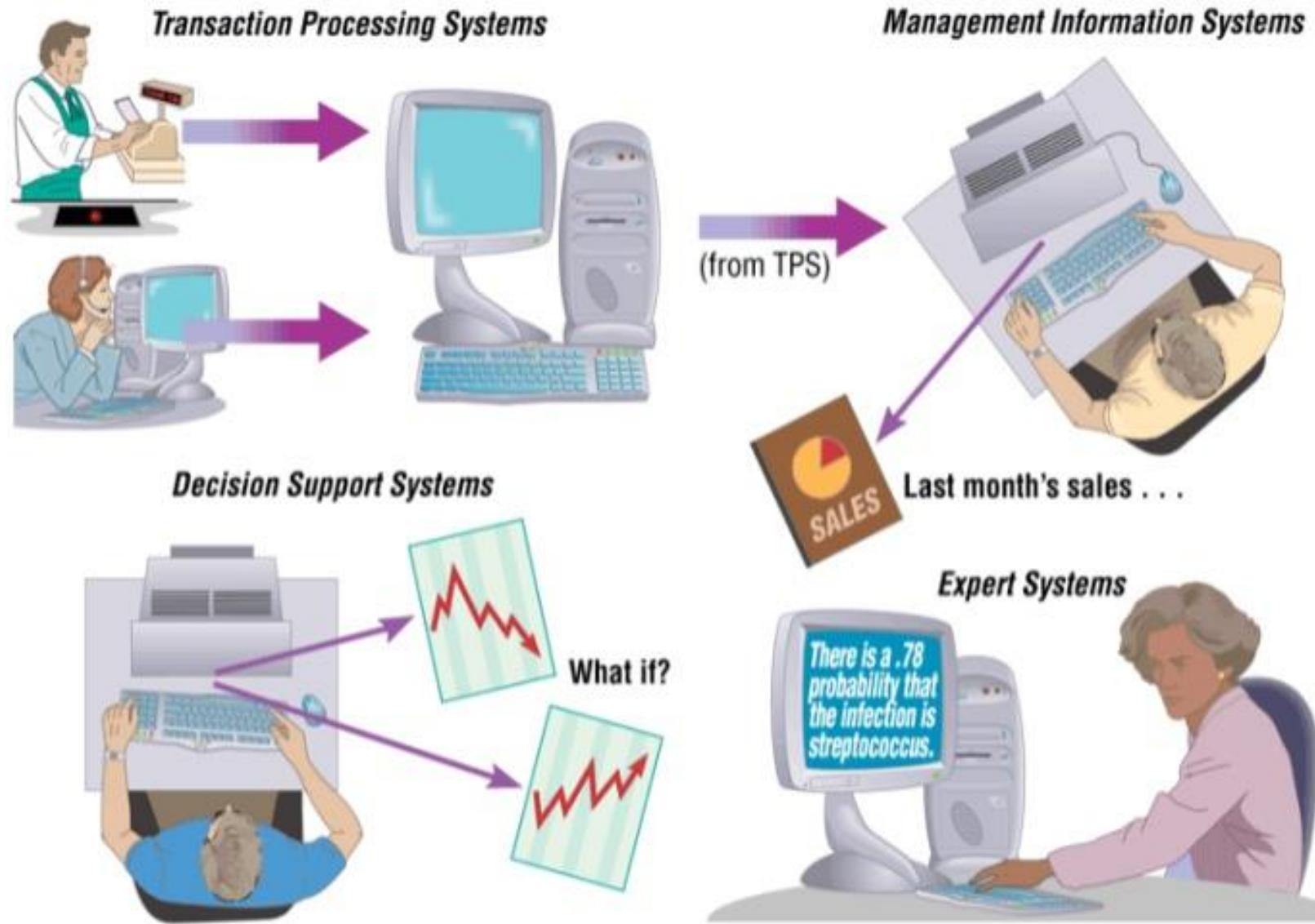


Figure 1.12 Depictions of Four Classes of Information Systems: TPS, MIS, DSS, and ES



IT's about [small] business

10.1 Henthorn Mower & Engine Service and ADP

ACCT

Information systems within an organization are not always computer based. Many small businesses still rely on systems where collection, storage, analysis, and distribution of information are all executed on paper. For example, paper payrolls include a time card that each employee “punches” every day when arriving at and leaving work (data collection). These “punches” are manually totaled at the end of each week (analysis) and then entered into a ledger for future reference (storage). At the appropriate time, this information will be sent to the accountant (distribution) to determine the amount of pay due to each employee (information).

In most cases, this process works. However, there are many ways this information could be more useful, if it were stored in a computer system that would help manage the entire process. Paper systems require significant manual effort, and they are especially subject to human error. Computerized information systems are much more reliable, and they provide many other benefits as well.

Consider the case of Rickie Star, who purchased his in-laws' mower business in 1978. The business—Henthorn Mower & Engine Service—remains a small, family-run business with about 12 employees. As is frequently true of family-owned businesses, many of the current information systems are paper based. Within Henthorn, the division of responsibilities was initially determined by history, preference, and the “way it has always been.” In particular, the responsibility of managing time cards and payroll fell to Rickie’s mother-in-law. She spent every Thursday morning going through the manual process outlined above. This process worked fine—that is, until she passed away, and the responsibility fell on Rickie’s shoulders.

It did not take long for Rickie to realize that he needed a better solution to the payroll process. Even for his small business, he needed a quicker and more reliable system that would free him to spend his time performing other duties. After researching the possible solutions, he decided that the EasyPayNet (<https://easynet.adp.com>) and ezLaborManager (<https://ezlm.adp.com>) solutions from ADP (www.adp.com) best suited his needs.

Rickie’s time system moved from paper to the computer in a seamless fashion. Employees now use an electronic clock that scans a time card rather than the old manual clock that “punched” the card. This information is available in real time (no waiting until Thursday), so Rickie can see who is on time, who is late, and how many hours each employee has worked for each pay period. The system also calculates sick days, vacation days, taxes . . . and even cuts the employees’ paychecks!

For Henthorn Mower & Engine Service, moving its paper-based system to the ADP solutions provided benefits beyond simply the time saved by not having to manually calculate payroll. Rather, the new IS added a level of reliability and quick access to information that employees had not even realized they were missing.

Sources: Compiled from “Henthorn Mower & Engine Service,” ADP Small Business Services Case Study, 2011; www.adp.com, <https://easynet.adp.com>, <https://ezlm.adp.com>, accessed March 21, 2013.

Questions

1. Identify additional advantages (other than the ones described in this case) of computerizing Henthorn’s payroll process.
2. What are some potential disadvantages of computerizing Henthorn’s payroll process?

Enterprise Resource Planning Systems

- Enterprise resource planning systems are designed to correct a lack of communication among the functional area IS.
- ERP systems resolve this problem by tightly integrating the functional area IS via a common database.
- For this reason, experts credit ERP systems with greatly increasing organizational productivity.
- **ERP systems** adopt a business process view of the overall organization to integrate the planning, management, and use of all of an organization's resources, employing a common software platform and database.

10.2 European Railway Successfully Converts to SAP



A large European railway company transports millions of passengers and thousands of tons of cargo every year. The company has ambitious plans for growth, particularly in its freight-transport operations. As a result, it has invested heavily in expanding its information technology infrastructure. At the same time, the company faces rising operational expenses and increasing competition from other transport operators due to decreasing regulation of the transportation sector in its European markets. To successfully expand its operations as well as its market share, the railway must maximize savings and efficiencies, without sacrificing the exceptional service levels its customers have come to expect.

As the firm pursued its strategy of expansion, obtaining a unified view of its operations became increasingly difficult. The company's application portfolio was highly customized and fragmented, comprising more than 1,000 different information systems. This lack of IS integration and transparency across the company made it challenging for the business to obtain an accurate view of enterprise-wide cost structures and difficult to streamline operations across all of its divisions. The company needed to standardize its applications on a common platform.

The railway decided to replace its application portfolio with software solutions from SAP (www.sap.com). The company implemented SAP core modules, including financials, controlling, sales and delivery, materials management, plant maintenance, production planning and control, and project management. The firm also implemented the SAP real estate management module to support its complex property-management business. In addition, the railway relies on the SAP human capital management module for its staff and pension administration and billing. The SAP human resource solution is another critical application for the firm, which has thousands of current staff on its payroll and many former staff members who are receiving company pensions.

The entire corporate planning process and the consolidation of the company's divisions are based on SAP NetWeaver Business

Warehouse. For analysis and business intelligence applications, the company implemented SAP BusinessObjects software. Approximately 25,000 users have access to the employee self-service portal, while a total of 2,500 users have access to the company's main SAP systems. To ensure that all users across all different systems comply with the company's access rights, the railway implemented SAP solutions for data governance, risk, and compliance.

Following the initial implementation of the core SAP modules, the railway leveraged its investment by replacing approximately 250 legacy applications without having to invest additional monies in SAP software licenses. Consolidating company data in the integrated SAP modules also substantially reduced the complexity of the overall information technology architecture, thereby reducing licensing, operational, and maintenance costs.

Overall, the SAP implementation lowered the total cost of ownership for corporate data management by 25 percent, and it reduced data backup times by 70 percent. Both enhancements enabled the company to reduce its operational costs. In addition, the new system reduced both application response times and batch processing times by 30 percent. Finally, the system reduced the time required to switch to backup systems in the event of a system failure by 97 percent, which dramatically improved both data security and business continuity.

Sources: Compiled from S. Kramer, "Belgian Railways Gets on Track for the Future with SAP and OpenText," *SAP Business Trends*, March 14, 2013; "A Large Railway Company Lays the Track for New Business Opportunities," *IBM Case Study*, April 12, 2013; "Belarusian Railways Transforms Operations and Reporting with SAP and IBM," *IBM Case Study*, October 1, 2012; www.ibm.com, www.sap.com, www.rw.by/en, accessed May 5, 2013.

Questions

1. Discuss why the railway decided to implement an ERP system.
2. Describe the benefits that the company realized after deploying its ERP system.

Enterprise Resource Planning Systems

- The major objectives of ERP systems are to tightly integrate the functional areas of the organization and to enable information to flow seamlessly across them.
- Tight integration means that changes in one functional area are immediately reflected in all other pertinent functional areas.
- In essence, ERP systems provide the information necessary to control the business processes of the organization.
- ERP systems are an evolution of FAIS. That is, ERP systems have much the same functionality as FAIS, and they produce the same reports.
- ERP systems simply integrate the functions of the various FAIS.

Enterprise Resource Planning (ERP)



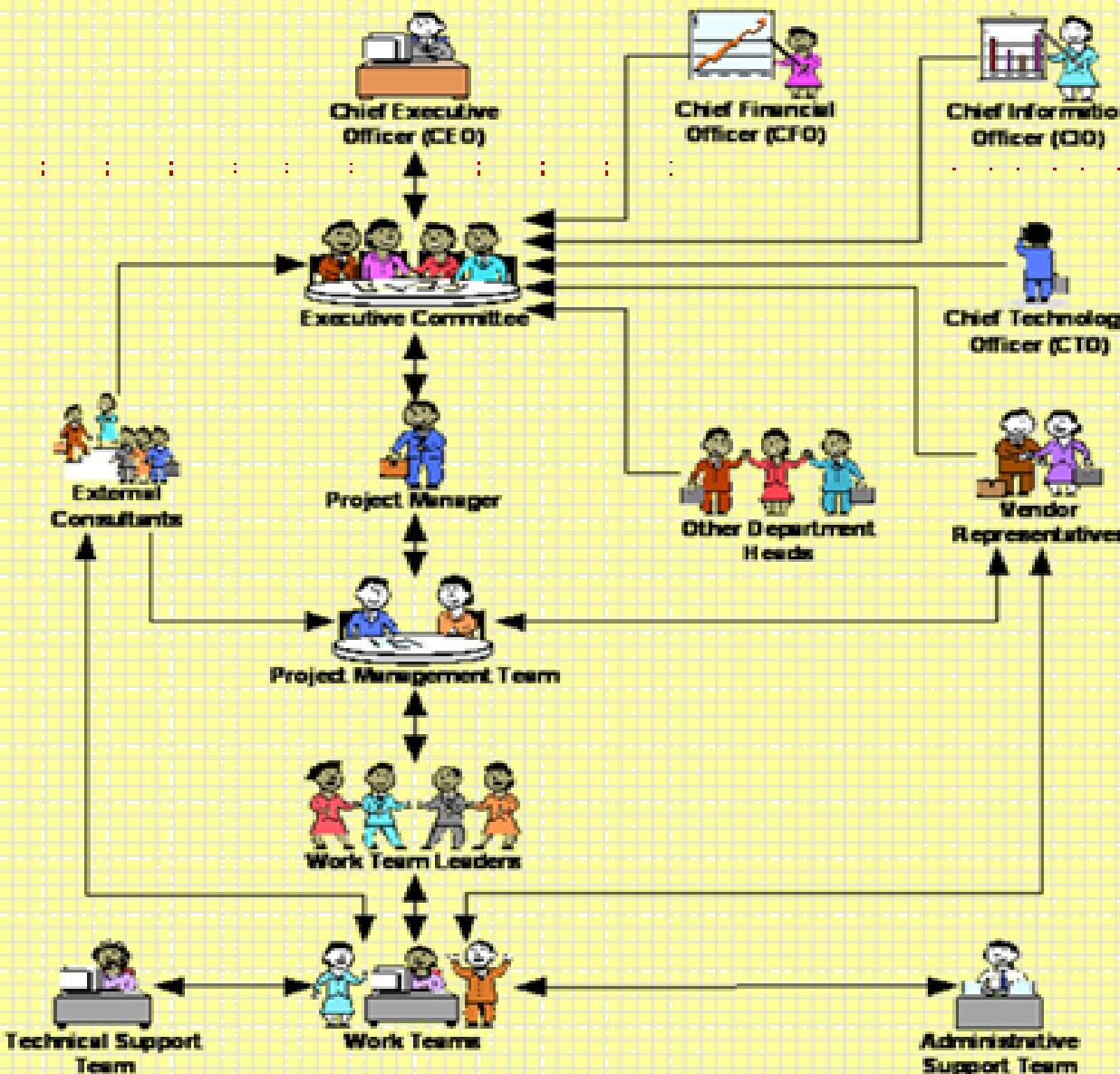
Commercially available ERP software

- The leading ERP software vendor is SAP, which features its SAP R/3 package.
- Other major vendors include Oracle and PeopleSoft
-

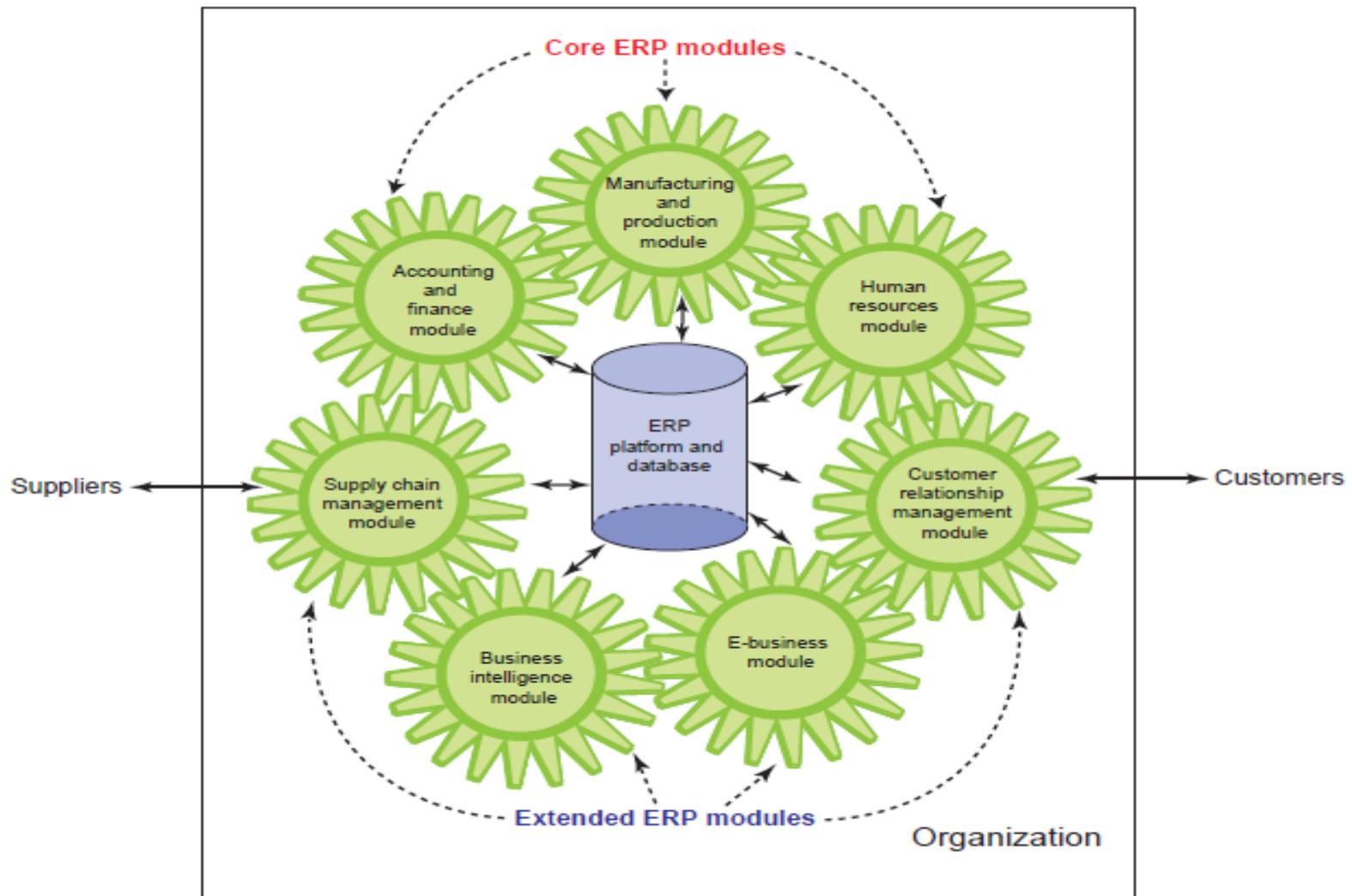
ERP II Systems

- Over time, ERP systems evolved to include administrative, sales, marketing, and human resources processes.
- Companies now employ an enterprise wide approach to ERP that utilizes the Web and connects all facets of the value chain.
- These systems are called ERP II.
- **ERP II systems** are interorganizational ERP systems that provide Web-enabled links among a company's key business systems—such as inventory and production—and its customers, suppliers, distributors, and other relevant parties.
- These links integrate internal-facing ERP applications with the external-focused applications of supply chain management and customer relationship management.

Organization of the ERP Implementation Project



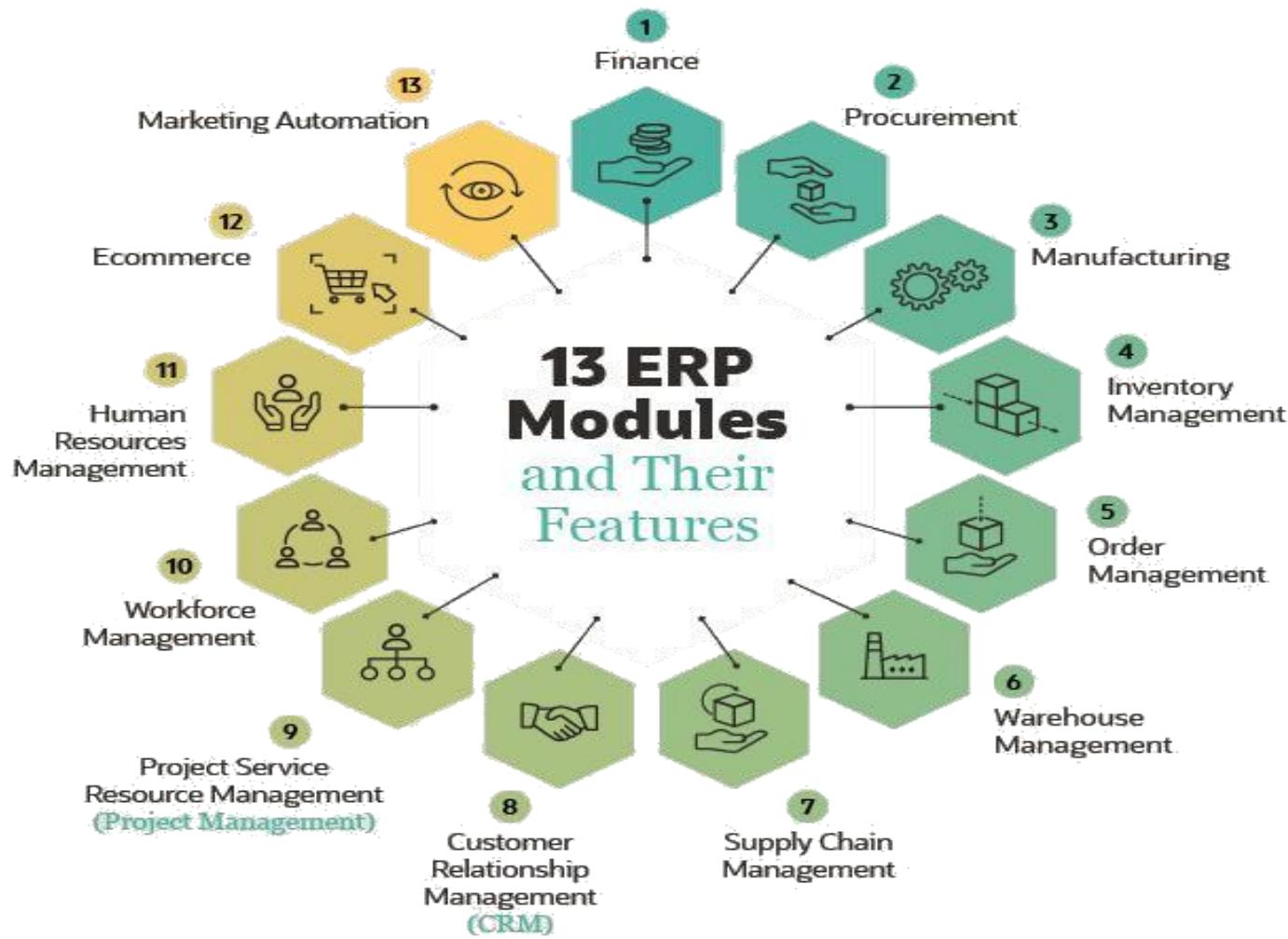
The organization and functions of an ERP II system.



ERP modules

- ERP II systems include a variety of modules that are divided into core ERP modules and extended ERP modules
- **Core ERP modules :**
 - financial management, operations management, and human resource management
- **Extended ERP modules**
 - customer relationship management, supply chain management, business intelligence, and e-business

Typical Functions of ERP



Benefits and Limitation of ERP Systems

Benefits

- Organizational flexibility and agility.
- Decision support
- Quality and efficiency.

Limitations of ERP implementations

- Companies may need to change their existing business processes to fit the predefined business processes incorporated into the ERP software
- ERP systems can be extremely complex, expensive, and time-consuming to implement

BENEFITS OF ERP

- Business integration
- Streamlining Operations, implementation of best practices
- Improved accuracy, reliability, availability and consistency of data
- Better analysis and planning capabilities
- Use of latest technology
- Reduced inventory and inventory carrying cost
- Reduced manpower cost
- Reduced material costs
- Improves sales and customer service
- Efficient financial management

Major Reasons for Adopting ERP

- Integrate financial information
- Integrate customer order information
- Standardize and speed up operations processes
- Reduce inventory
- Standardize Human Resources information

Potential Benefits of ERP

Internal Benefits

- Integration of a single source of data
- Common data definition
- A real-time system
- Increased productivity
- Reduced operating costs
- Improved internal communication
- Foundation for future improvement

Potential Benefits of ERP

External Benefits

- Improved customer service and order fulfillment
(e.g. pets.com, tata steel, Mumbai Dabba wala)
- Improved communication with suppliers and customers
- Enhanced competitive position
- Increased sales and profits

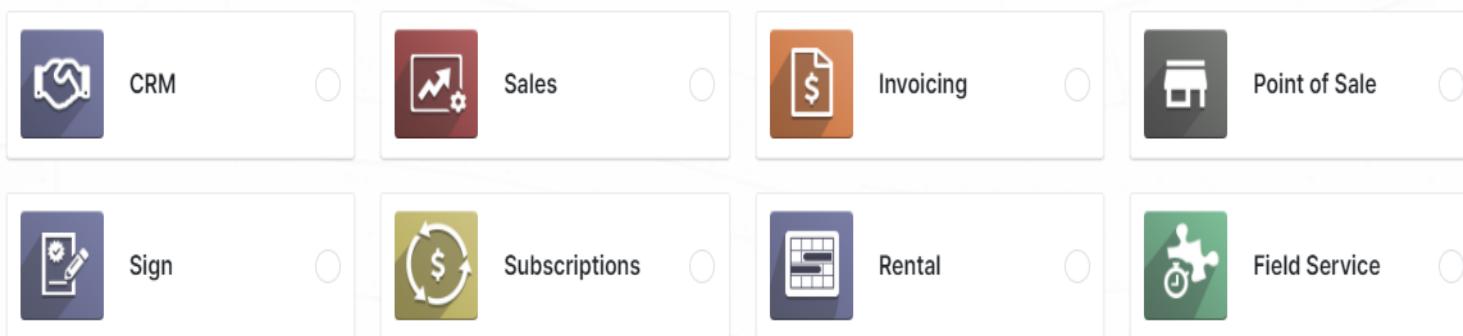
Major causes of ERP implementation failure

- Failure to involve affected employees in the planning and development phases and in change management processes;
- Trying to do too much too fast in the conversion process;
- Insufficient training in the new work tasks required by the ERP system;
- The failure to perform proper data conversion and testing for the new system.

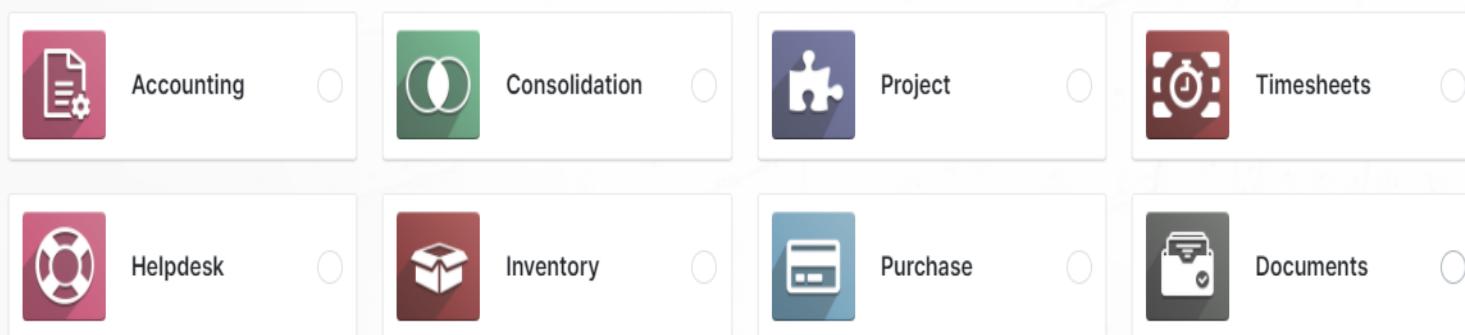
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SALES



OPERATIONS



MANUFACTURING



Manufacturing



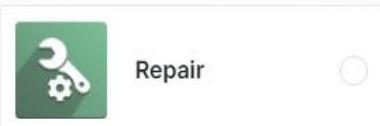
PLM



Maintenance

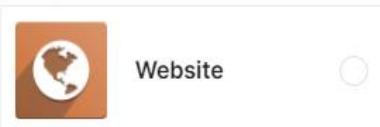


Quality

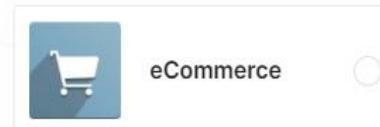


Repair

WEBSITE



Website



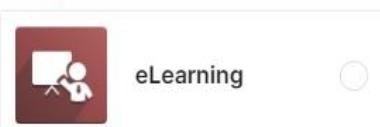
eCommerce



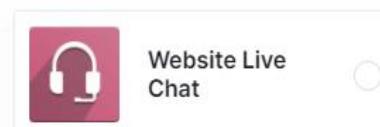
Blog



Forum

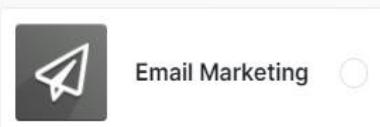


eLearning



Website Live Chat

MARKETING



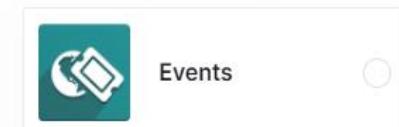
Email Marketing



SMS Marketing



Marketing
Automation



Events



Survey



Social Marketing



Appointments



Newsletter
Subscribe Button

HUMAN RESOURCES



Employees



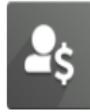
Recruitment



Employee
Referral



Time Off



Expenses



Planning



Appraisals



Fleet



Approvals

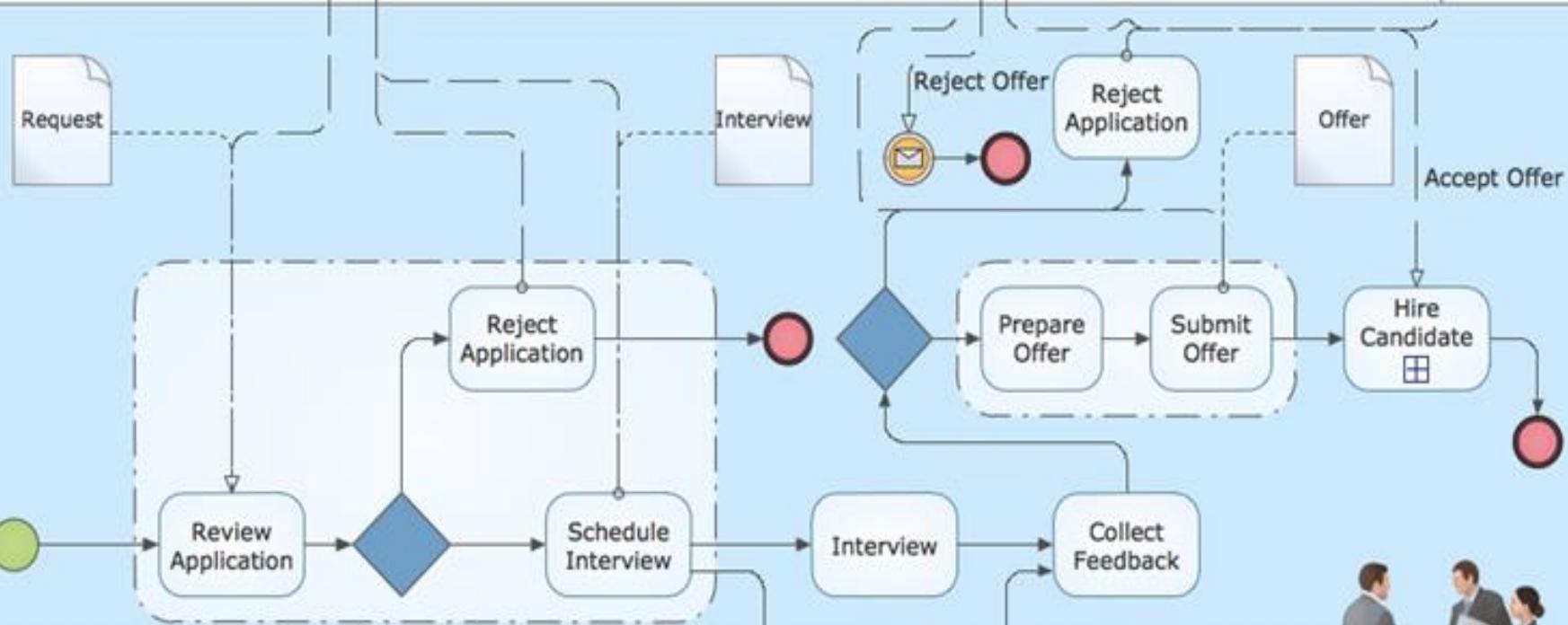
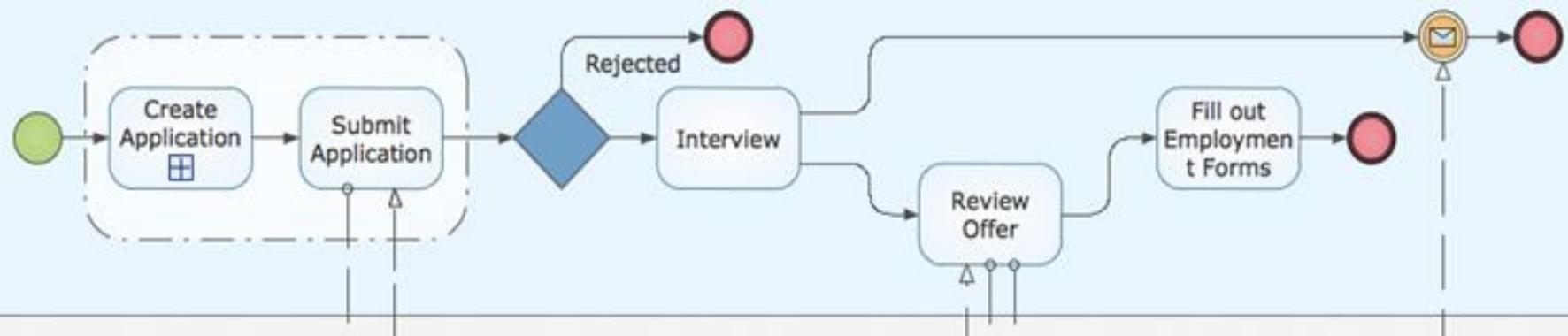


Lunch

CUSTOMIZATIONS



Studio



Implementing ERP Systems

- Companies can implement ERP systems in two ways, using on-premise software or using software-as-a-service (SaaS).
- There are three strategic approaches to implementing an on-premise ERP system.
 - The *vanilla approach*
 - The *custom approach*
 - The *best of breed approach*

The *vanilla approach*

- The term “vanilla ERP” was first introduced in the 90’s by top vendors like SAP and Oracle.
- ‘Plain vanilla’ simply refers to an out-of-the-box implementation style that has little or no modifications at all in the basic design of the ERP solution code.
- Vanilla ERP pushes back the concept of never ending customizations in the original solution and encourages the use core ERP functionalities

The *vanilla approach*

- **Refined Business Process** – Plain Vanilla **ERP implementation** demands rigorous reworking of business processes, which results in filtering of unnecessary, redundant practices and in turn refining them into a simple and easy to execute form.
- **Saves you from the Implementation Headache** – Customization, though make the ERP solution a perfect glove fit for your business processes but also raise the level of complexity and risk of implementation failure significantly.
- **Easy on Pocket** – Generally speaking, Vanilla ERPs are built on the Pareto's principle or 80-20 rule, considering that 80% of the processes are same for most of the organizations. The uniqueness in business operations can be accounted for 20% or lesser.
- **Smooth upgrades**

best of breed Approach

- This approach to building a platform or ecosystem of technology applications advises selecting the “best” or most capable individual applications for specific functions or process areas (like HRMS, CRM, WMS, etc.) and using it in the best way when compared to integrated ERP solutions.
- The best of breed ERP implemented vendors are committed to just one main process area and are focused on creating solutions that offer the best features and design. It will typically perform a specialized function better than an integrated ERP solution

ERP implementation and strategy

- Big Bang
- Phased
- Parallel
- Process line
- Hybrid

Implementing ERP Systems

Software-as-a-Service ERP Implementation

- In this business model, the company rents the software from an ERP vendor who offers its products over the Internet using the SaaS model.
- The ERP cloud vendor manages software updates and is responsible for the system's security and availability.
- Three major advantages of using a cloud-based ERP system are:
 - The system can be used from any location that provides Internet access.
 - Companies using cloud-based ERP avoid the initial hardware and software expenses that are typical of on-premise implementations
 - Cloud-based ERP solutions are scalable, meaning it is possible to extend ERP support to new business processes and new business partners (e.g., suppliers) by purchasing new ERP modules

Disadvantages to adopting cloud-based ERP systems

- cloud-based ERP systems should be secure
- Companies that adopt cloud-based ERP systems sacrifice their control over a strategic IT resource.
- Direct consequence of the lack of control over IT resources.

Enterprise Application Integration

- For some organizations, integrated ERP systems are not appropriate
- These companies can use enterprise application integration. An **enterprise application integration (EAI) system** integrates existing systems by providing software, called *middleware*, that connects multiple applications
- EAI system allows existing applications to communicate and share data, thereby enabling organizations to utilize existing applications

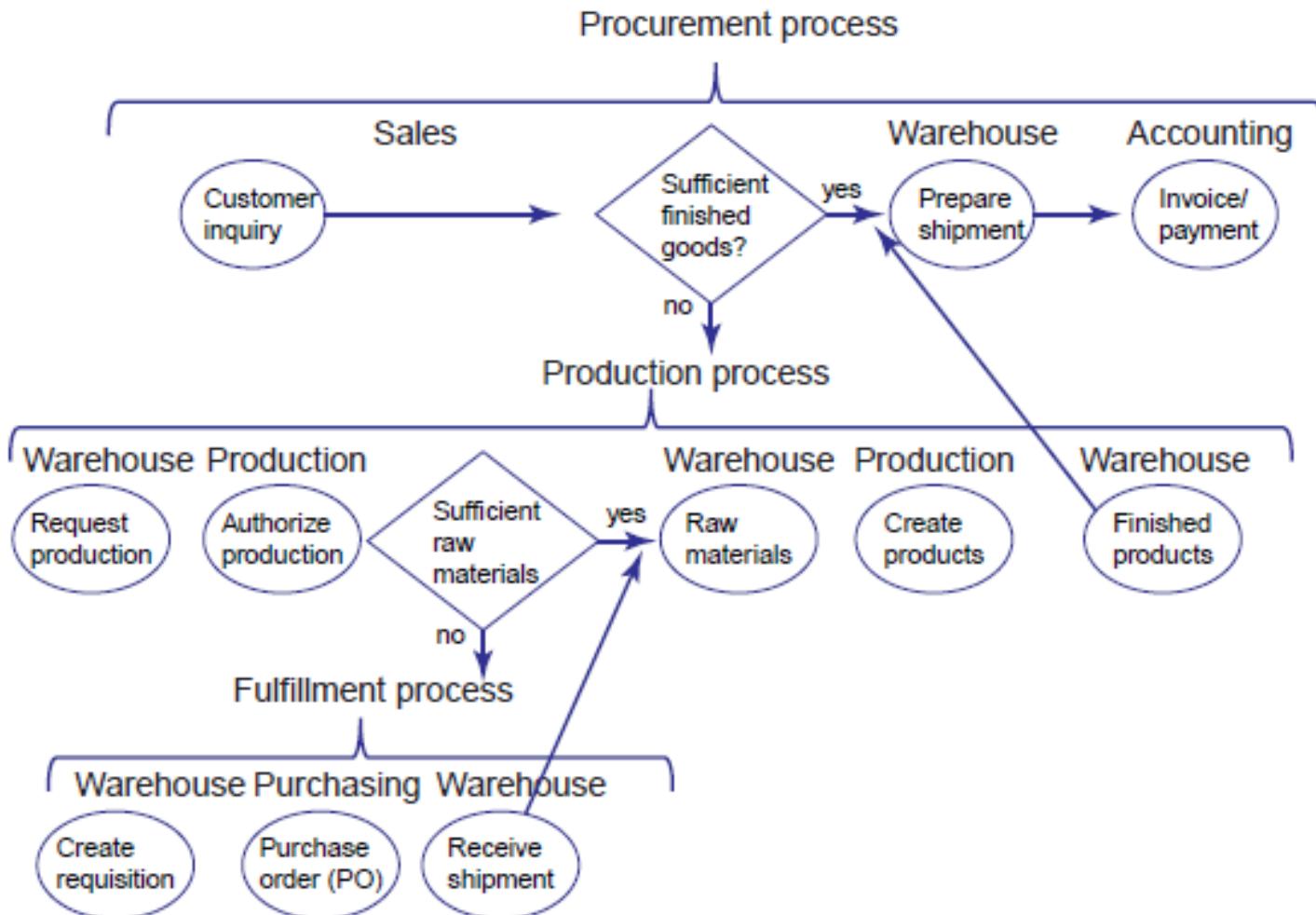
ERP Support for Business Processes

- ERP systems manage end-to-end, cross-departmental processes.
- A **cross-departmental process** is one that
 - (1) originates in one department and ends in a different department or
 - (2) originates and ends in the same department but involves other departments.

Three prominent examples of cross-departmental processes

1. The *procurement process*, which originates in the warehouse department (need to buy) and ends in the accounting department (send payment).
2. The *fulfillment process*, which originates in the sales department (customer request to buy) and ends in the accounting department (receive payment).
3. The *production process*, which originates and ends in the warehouse department (need to produce and reception of finished goods) but involves the production department as well.

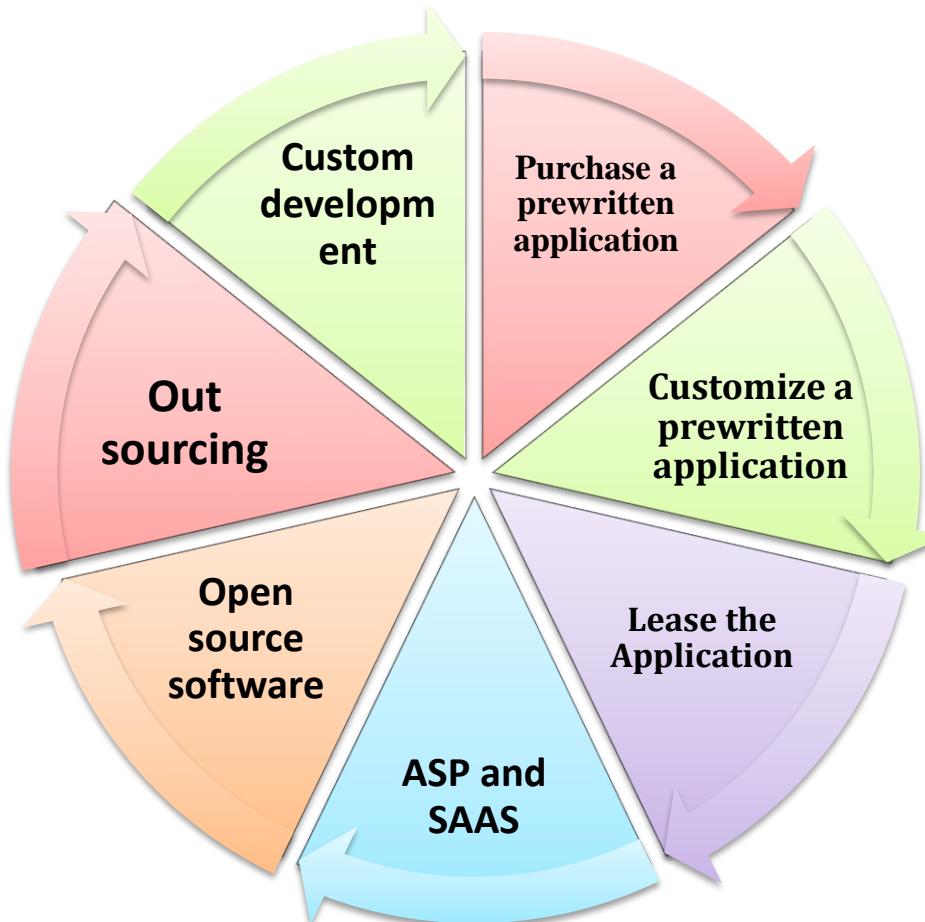
Integrated processes with ERP systems



Interorganizational Processes: ERP with SCM and CRM

- ERP systems can also manage processes that originate in one company and conclude in another company.
- These processes are called interorganizational processes, and they typically involve supply chain management (SCM) and customer relationship management (CRM) systems.

Strategies for Acquiring IT Applications



Strategies for Acquiring IT Applications

Variety of ways by which companies can acquire applications,

1. Purchase a prewritten application.

–purchasing an existing package can be a cost-effective and time-saving strategy

Advantages:

- Many different types of off-the-shelf software are available.
- The company can save much time by buying rather than building.
- The company can know what it is getting before it invests in the product.
- There is no need to hire personnel specifically dedicated to a project.

1. Purchase a prewritten application.

Disadvantages:

- Software may not exactly meet the company's needs.
- Software may be difficult or impossible to modify
- Difficult to integrate with existing systems
- Software is controlled by another company with its own priorities and business considerations.

2. Customize a prewritten application

- This is the attractive option if the software vendor allows the company to modify the application to meet its needs.
- It is not the best strategy when the software is either very expensive or is likely to become obsolete in a short time and can be extremely difficult, particularly for large, complex applications.

3. Lease the Application

- Leasing can be especially attractive to small- to medium-size enterprises (SMEs) that cannot afford major investments in IT software.
- Leasing can be executed in one of three ways.
- The first way is to lease the application from a software developer, install it, and run it on the company's platform.
- The vendor can assist with the installation and frequently will offer to contract for the support and maintenance of the system.
- The other two options involve leasing an application and running it on the vendor's platform.
- Organizations can accomplish this process by using an application service provider (ASP) or a software-as-a-service(SaaS) vendor.

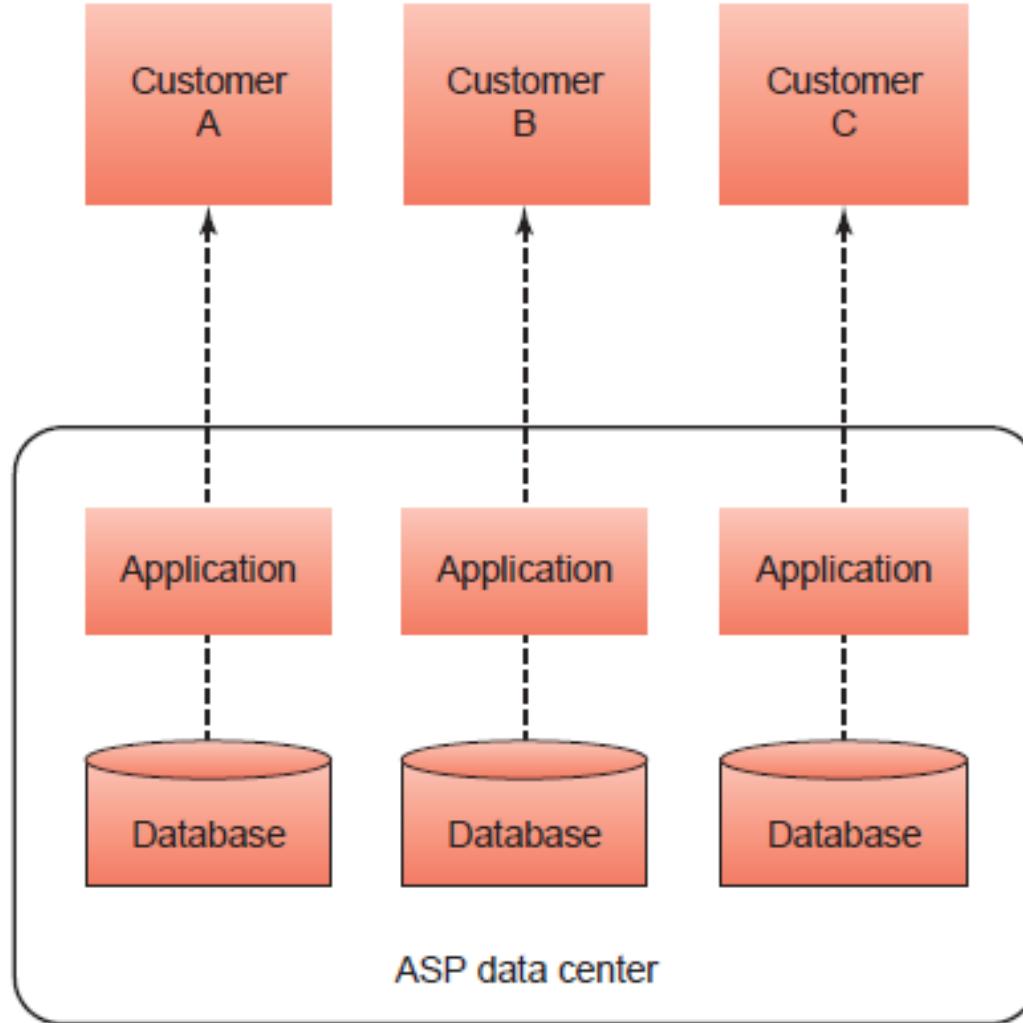
4. Application Service Providers and Software-as-a-Service Vendors

- An **application service provider (ASP)** is an agent or a vendor who assembles the software needed by enterprises and then packages it with services such as development, operations, and maintenance.
- The customer then accesses these applications via the Internet.
- ASP hosts both an application and a database for each customer.

ASP

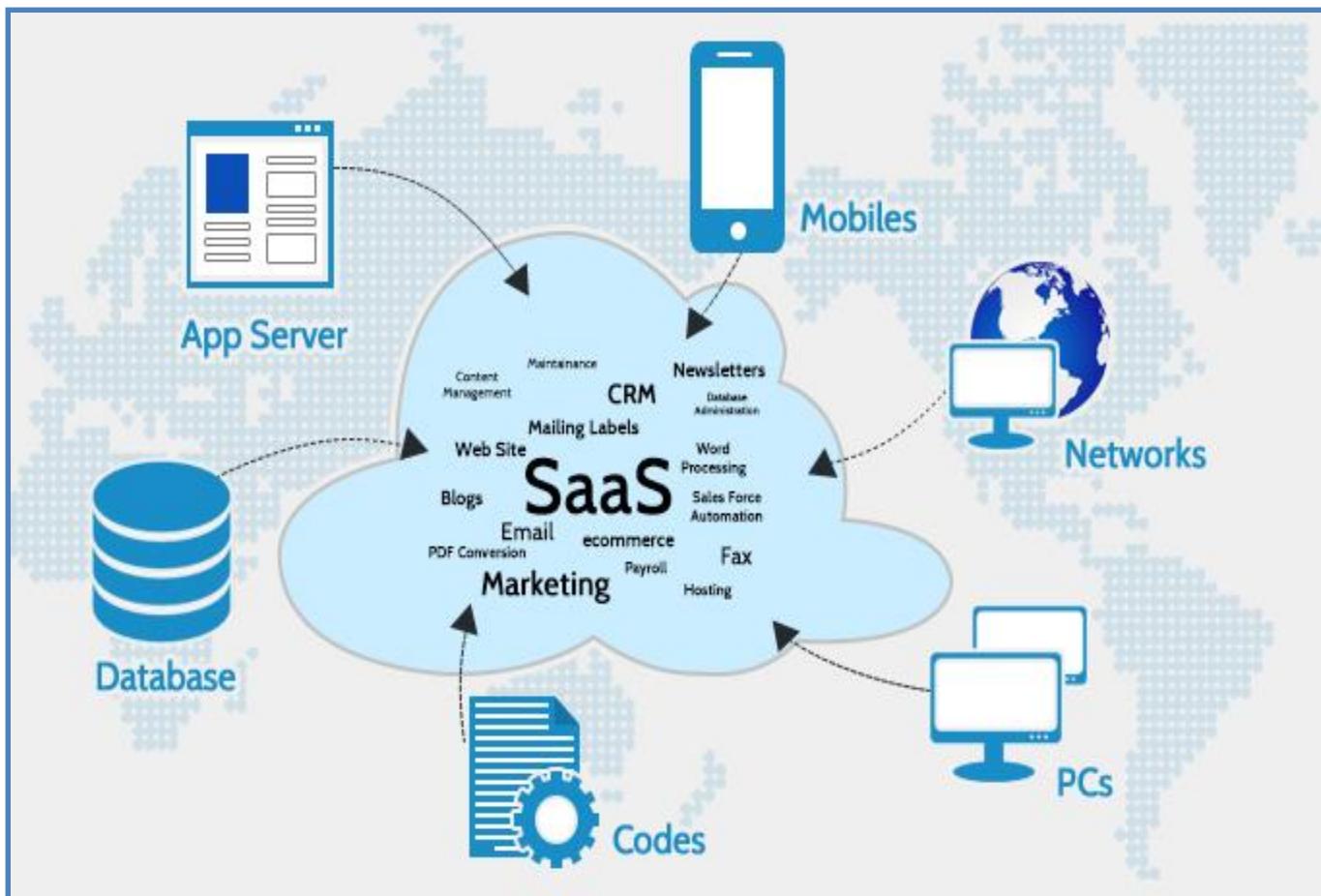


Operation of an application service provider (ASP).

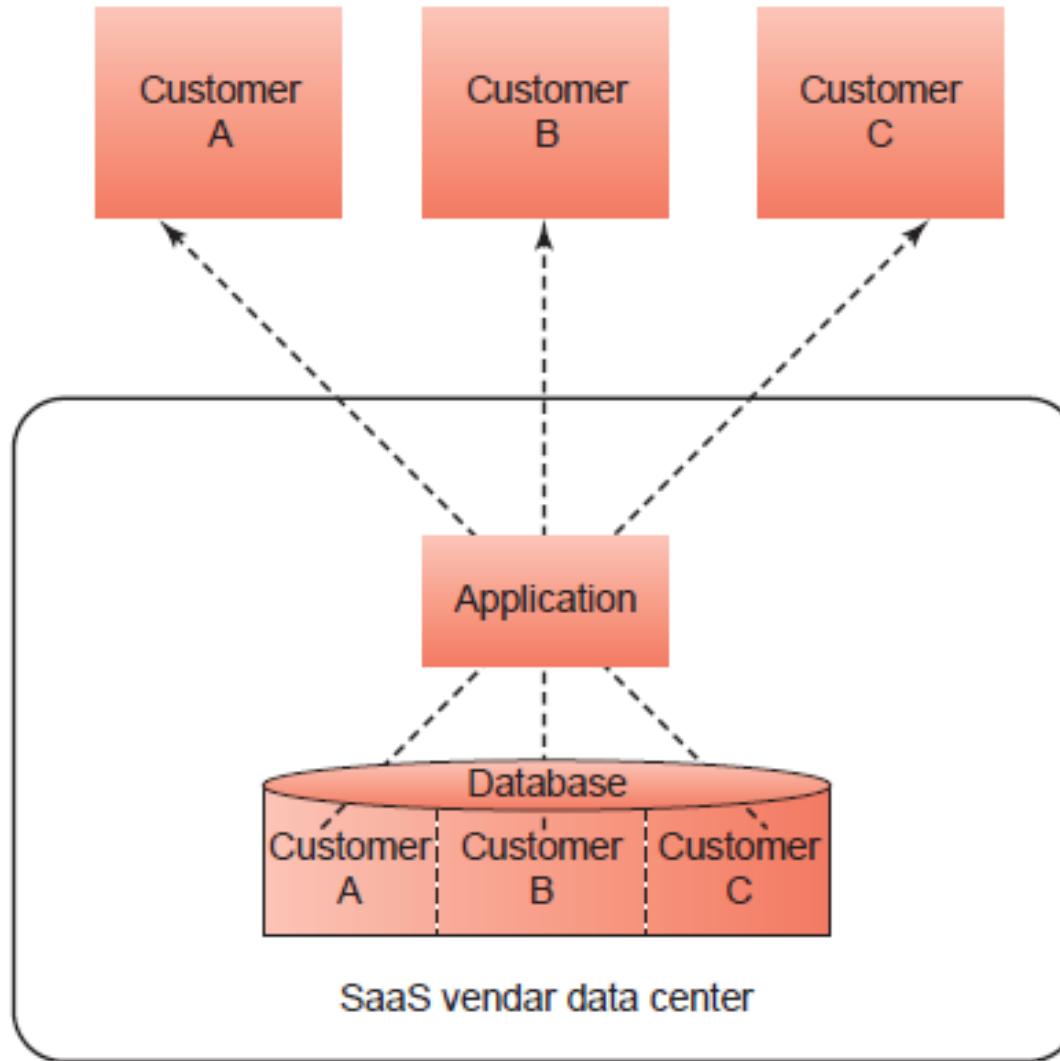


4. Software-as-a-service (SaaS)

- In a SaaS model, a software application is comprised of a single, integrated code base that is delivered as a service to multiple customers simultaneously and securely, via the web.
- Customers do not own the software; rather, they pay for using it.
- No need for customers to install and run the application on their own computers.
- SaaS customers save the expense (money, time, IT staff) of buying, operating, and maintaining the software.
- Vendor hosts an application that multiple customers can use.
- The vendor also hosts a database that is partitioned for each customer to protect the privacy and security of each customer's data.



Operation of a Software-as-a-Service (SaaS) vendor.



5. Use Open-Source Software

- The source code for **open-source software** is available at no cost to both developers and users.
- This software is distributed with license terms that ensure that its source code will always be available.
- **Proprietary software** is purchased software that has restrictions on its use, copying, and modification in contrast to open source s/w.
- Open-source software is produced by worldwide “communities” of developers who write and maintain the code.
- Core developers, is allowed to modify the code directly. All the other developers must submit their suggested changes to the core developers.

6. Outsourcing

- Acquiring IT applications from outside contractors or external organizations is called **outsourcing**.
- One disadvantage of outsourcing is that companies frequently must place their valuable corporate data under the control of the outsourcing vendor.
- Many software companies, from IBM to Oracle, offer a range of outsourcing services for developing, operating, and maintaining IT applications.

7. Employ Custom Development

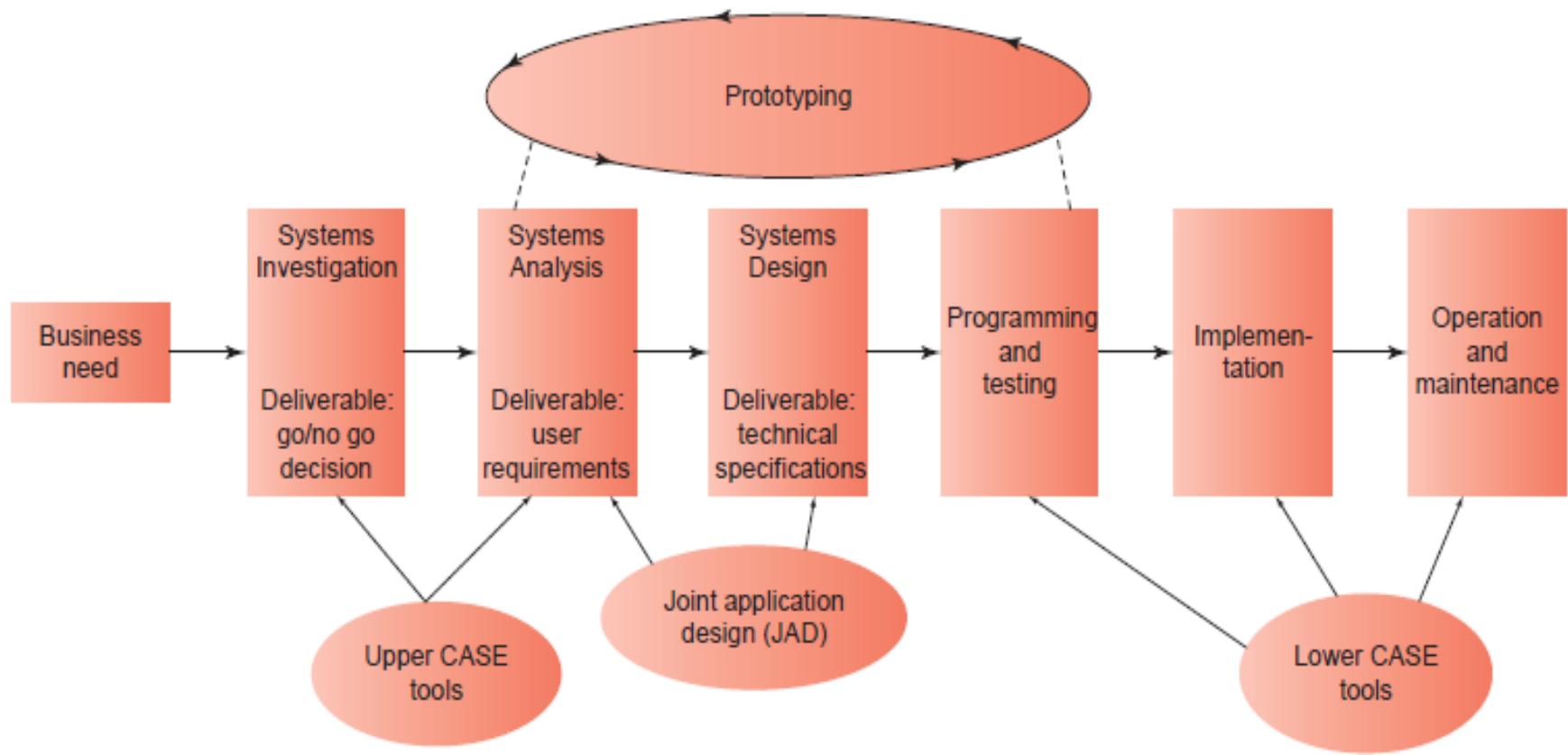
- Custom development is usually more time-consuming and costly than buying or leasing.
- But it often produces a better fit with the organization's specific requirements.
- Such software is designed to specifically address users' needs better than more traditional and widespread off-the-shelf software can.
- Custom software is typically created just for these specific users by a third-party or in-house group of developers and is not packaged for resale.

The Traditional Systems Development Life Cycle

The SDLC is a structured framework that consists of sequential processes by which information systems are developed.

1. Systems investigation
2. Systems analysis
3. Systems design
4. Programming and testing
5. Implementation
6. Operation and maintenance

The Traditional Systems Development Life Cycle



An upper CASE tool (front end CASE) provides support for the early stages in the systems development life cycle such as requirements analysis and design. A lower CASE tool (back end CASE) provides support for the later stages in the life cycle such as code generation and testing

Alternative Methods and Tools for Systems Development

Alternative methods for systems development

1. Joint application design,
2. Rapid application development,
3. Agile development,
4. End-user development.

Tools for Systems Development

1. Prototyping
2. Integrated computer-assisted software engineering (ICASE),
3. Component-based development,
4. Object-oriented development

Joint application design (JAD)

- **Joint application design (JAD)** is a group-based tool for collecting user requirements and creating system designs.
- It is most often used within the systems analysis and systems design stages of the SDLC.
- JAD involves a group meeting attended by the analysts and all of the users

Joint application design (JAD)

Advantages

- Involves many users in the development process.
- Saves time.
- Greater user support for new system.
- Improved quality of the new system.
- New system easier to implement.
- New system has lower training costs.

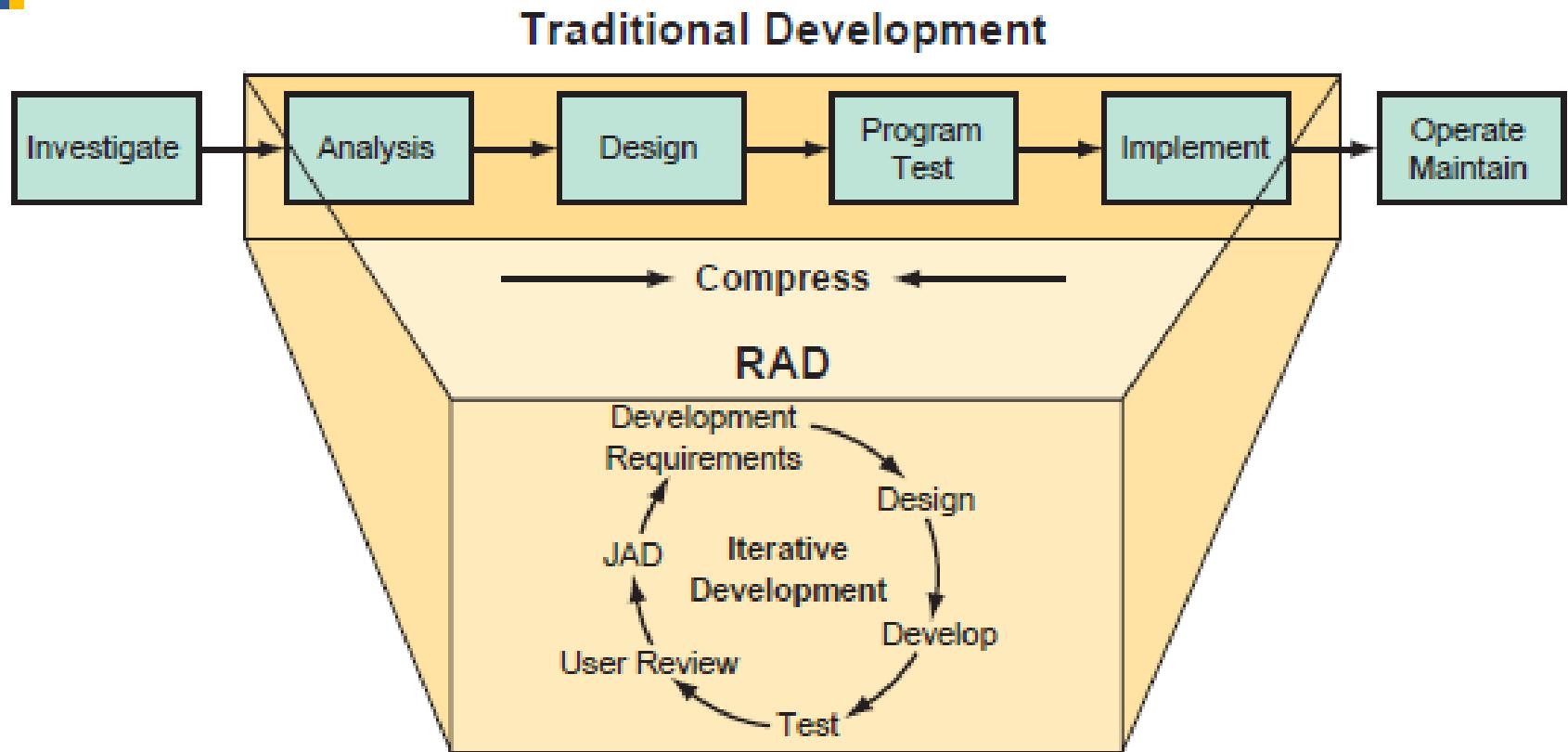
Disadvantages

- Difficult to get all users to attend JAD meeting.
- JAD approach has all the problems associated with any group meeting.

Rapid application development (RAD)

- **Rapid application development (RAD)** is a systems-development method that can combine JAD, prototyping, and integrated computer-assisted software engineering (ICASE) tools to rapidly produce a high-quality system.
- In the first RAD stage, developers use JAD sessions to collect system requirements.
- The development process in RAD is iterative; that is, requirements, designs, and the system itself are developed and then undergo a series, or sequence, of improvements.
- RAD uses ICASE tools to quickly structure requirements and develop prototypes.
- As the prototypes are developed and refined, users review them in additional JAD sessions.

A rapid prototyping development process versus SDLC



Rapid Application Development

Advantages

- Can speed up systems development.
- Users intensively involved from the start.

Disadvantages

- Produces functional components of final systems,
but not final systems.

Agile development

- Agile development is a software-development methodology that delivers functionality in rapid iterations, which are usually measured in weeks.
- Agile development focuses on rapid development and frequent user contact to create software that addresses the needs of business users.
- This software does not have to include every possible feature the user will require.
- This software must meet only the user's more important and immediate needs. It can be updated later to introduce additional functions as they become necessary
- The core principal of agile development is to do only what you have to do to be successful right now.

Scrum approach for Agile development

- A key principle of scrum is that during a project users can change their minds about what they want and need.
- Scrum acknowledges that a development problem cannot be fully understood or defined from the start.
- It focuses on maximizing the development team's ability to deliver iterations quickly and to respond effectively to additional user requirements when it emerge.
- Scrum contains sets of practices and predefined roles.
- The Scrum Master:** maintains the processes (typically replaces a project manager)
- The Product Owner:** represents the business users and any other stakeholders in the project
- The Team:** a cross-functional group of about seven people who perform the actual analysis, design, coding, implementation, testing, and so on

End-user development

End-user development is an approach in which the organization's end users develop their own applications with little or no formal assistance from the IT department.

Advantages

- Bypasses the IS department and avoids delays.
- User controls the application and can change it as needed.
- Directly meets user requirements.
- Increased user acceptance of new system.

Disadvantages

- May eventually require maintenance from IS department.
- Documentation may be inadequate.
- Poor quality control.