Introduction to Management Information Systems

Introduction to Enterprise Information Systems

Foundations of Information Systems

Learning objectives

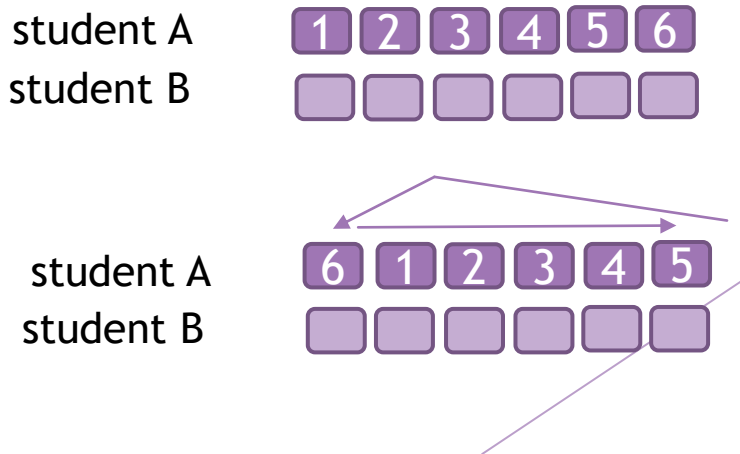
- identify systems and their components;
- identify and describe the behaviour of systems;
- identify types of BIS
- evaluate systems relevance to the organisation;
- identify basic strategies and methods used to gain competitive advantage through the use of systems

Enterprise Information Systems Activity

Foundations of Information Systems

Each student

1. take 1 or 2 slips (1 ERP, 1 CRM, and 1 SCM or SRM)
2. read & understand the information on the slip
3. explain the information (in pairs, 2 minutes)
   - change seat (student A)
   - repeat



Enterprise Information Systems Part I

Foundations of Information Systems

business IS

enterprise information systems

- major types e.g. ERP, CRM, SCM, SRM

operational information systems

- transaction processing systems, manufacturing, office automation

management information systems

- e.g. support systems

functional software & systems

- finance and accounting, human resources & marketing

Business information systems

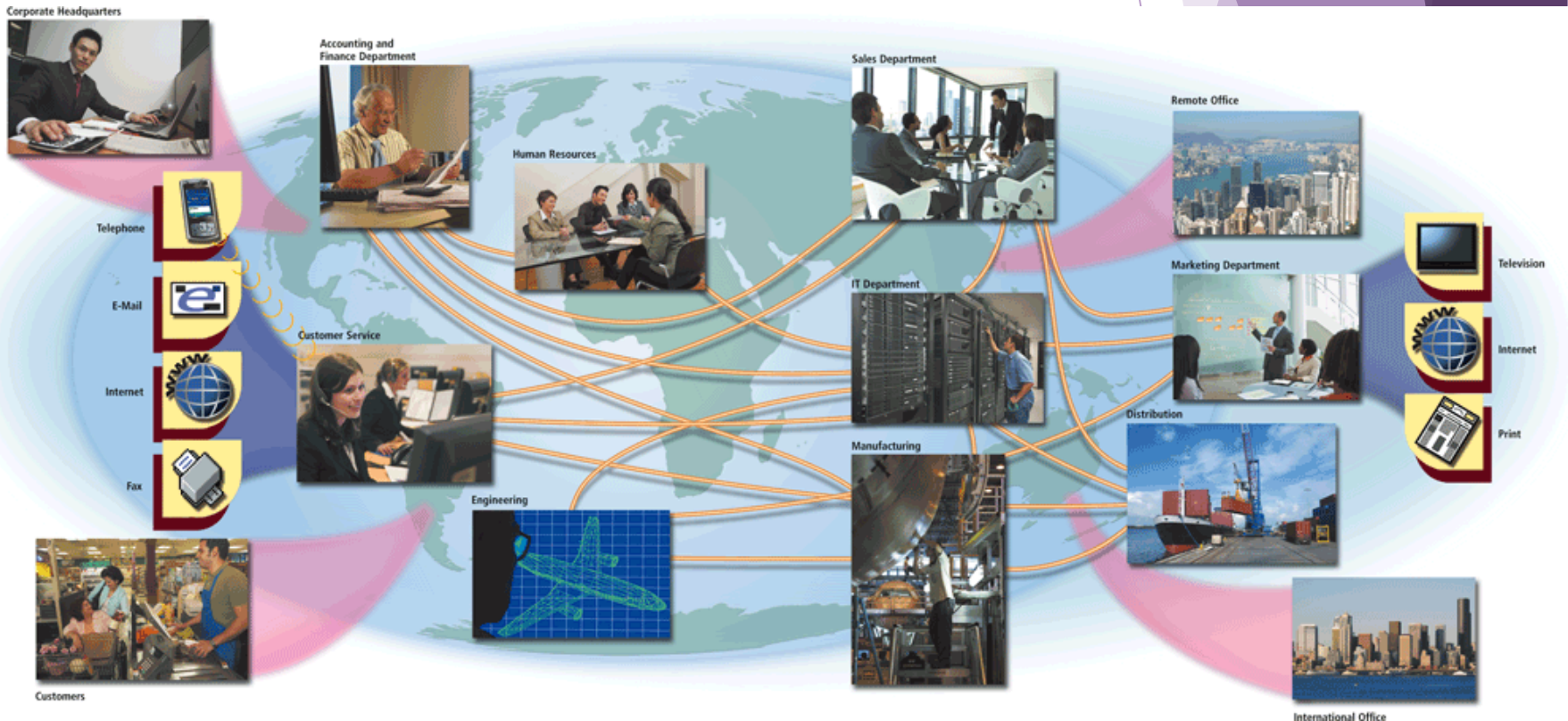
- categorized into
  - *operations* systems
  - *management* systems
- implemented as either
  - *enterprise* or
  - *functional* business systems

What Is Enterprise Computing?

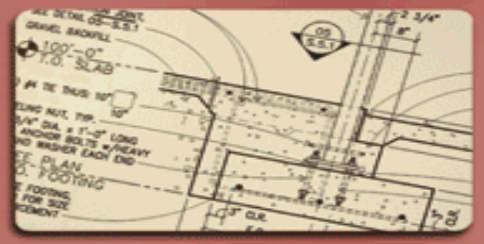
involves the use of computers in networks,

may have a variety of different operating systems, protocols,

and network architectures



documents



drawings

multimedia

data

information from other internal sources

process
categorize
index
store

information from external sources such as news and journals

enterprise portal software

print

fax

financial reports

legal documents

e-mail, IM, and text messages

wireless

resumes and job requests

financial information

orders

systems

HR

sales

executives

Enterprise information

information gathered in the ongoing operations of an enterprise-sized organization

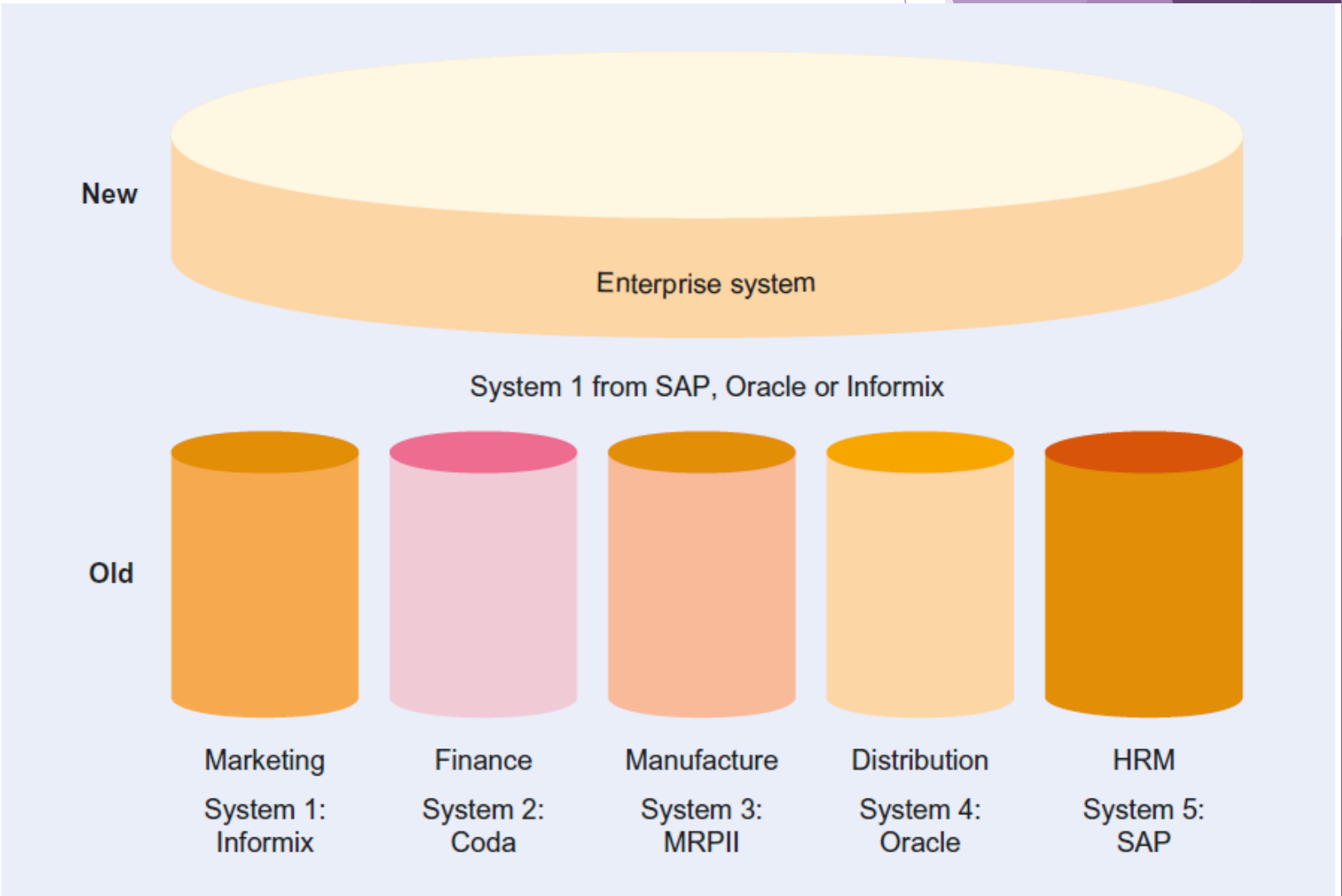
- Business intelligence
- Business process management
- Business process automation

Enterprise Systems

Enterprise systems (ES) aim to support the business processes of an organization across any functional boundaries that exist within that organization

Enterprise system

An enterprise system in comparison to separate functional units in an organization



Enterprise Systems

- aim to support the business processes of an organization across any functional boundaries that exist within that organization
- use Internet technology to integrate information
  - within the business
  - with customers, suppliers, and partners outside the business

ES characteristics

ES use a centralized database structure that enables integration of data across the organization

a cross-functional process view of an organization that contains a set of defined business process designs, or process blueprints, covering areas such as procurement, production and fulfilment

Enterprise system (ES) benefits

integration of organizational processes

- increased efficiency
- quality of customer service

better sharing of information

- better decision making
- more agile organization

simplified support and maintenance

- single supplier v many legacy systems

Enterprise system (ES) benefits

defined business process

- template for a BPM initiative

excellent application area functionality

- ‘best-of-breed’ ES solution
- specific to one process
- e.g. a procurement system

Enterprise system (ES) disadvantages

high costs

management of change

- implementation difficult
- radical change of IS & business processes
- major planning, training & development

process blueprint

- standardization can lose competitive advantages

ES architecture

first ES

- used a mainframe architecture with a central computer connected to terminals
- expensive, lacked scalability and few vendors
- mainly limited to large organizations

second stage

- client server architecture
- distributed workload across multiple, smaller applications servers
- reduced costs
- improved system scalability

ES architecture

third stage

- web integrated ERP systems
- web-based systems
- integrated several client-server applications
- create an enterprise application
- increases ERP flexibility
- web a standard platform for across organizations
- make use of service-oriented architecture (SOA)

ES implementation

- implementation linked to the business process management (BPM)
- identify business processes that add value to products & services
- IS supports these process
- BPM provides the methods to automate activities

ES implementation

- ES can not provide the most relevant and up-to-date application software for every company
- need alternative software = integration issues
- but integration main reason for ES,
- can usually be achieved at a price,
- renew IT systems - ‘big bangs’
- install major systems or
- to develop systems
  - mix of new and old (legacy) systems
  - incrementally

ES implementation

Traditionally, ES systems were very expensive

cost millions of dollars

only large companies could afford these systems

now ES vendors targeting medium-sized businesses

Enterprise Information Systems

major types of enterprise systems

enterprise resource planning (ERP)

supplier relationship management (SRM)

customer relationship management (CRM)

supply chain management (SCM)

Information Systems in the Enterprise

Enterprise resource planning provides centralized, integrated software to help manage and coordinate ongoing activities

Information Systems in the Enterprise

Customer relationship management manages information about customers, interactions with customers, past purchases, and interests

supply chain management (SCM)

The coordination of all supply activities of an organisation from its suppliers and partners to its customers.

supply relationship management (SRM) refers to all activities involved with obtaining items from a supplier

enterprise resource planning (ERP) systems

what are ERPs?

Enterprise Resource Planning (ERP) systems

- a single solution from a single supplier
- integrated functions for major internal processes
  - production,
  - distribution,
  - sales,
  - finance and
  - human resources management

ERP systems

- Departmental IS are stand-alone systems
- They do not communicate
- integrate the department IS – common database
- Increase productivity & efficiency

Enterprise resource planning (ERP) is a process used by companies to manage and integrate the important parts of their businesses.

- help implement resource planning
- integrating all of the processes
- in a single system

ERP benefits & disadvantages

An ERP software system can integrate:

- planning,
- purchasing inventory,
- sales,
- marketing,
- finance,
- human resources,
- and more

Enterprise resource planning

- ERP solutions have evolved
- many are now typically web-based applications
- can be access remotely
- often integrates accounts payable, stock control systems, order-monitoring systems, and customer databases

Enterprise resource planning (ERP) benefits

- Improve business processes efficiency
- Cuts costs, reduce overheads
- All aspects of your business

Enterprise resource planning

Benefits include :

- reducing costs, and improving operations
- the free flow of communication between business areas,
- a single source of information, and
- accurate, real-time data reporting
- allow the different departments to communicate and share information
- collects information about the activity and state of different divisions, making this information available to other parts
- can eliminate costly duplicate and incompatible technology

Enterprise resource planning

- Integrating and automating business processes
  - eliminates redundancies,
  - improves accuracy, and
  - improves productivity
- Departments with interconnected processes can now synchronize work
  - to achieve faster and better outcomes
- Accurate and complete reporting help companies adequately
  - plan, budget,
  - forecast, and communicate

Enterprise resource planning

- access information quickly
- needed for clients, vendors, and business partners,
- contributes to
  - improved customer and
  - employee satisfaction,
  - quicker response rates, and
  - increased accuracy rates.
- Associated costs often decrease as the company operates more efficiently

ERP Benefits

- Track business processes within/between departments
- Send alerts across departments
- Planning – enterprise level strategies
- Help
  - Process orders
  - Update accounts
  - Trigger alerts
- Manage manufacturing & supply
- Recruiting & hiring
- Payroll, benefits & personal information

An ERP system can be ineffective if a company doesn't implement it carefully.

Failure occurs when there is a company's reluctance to abandon old working processes

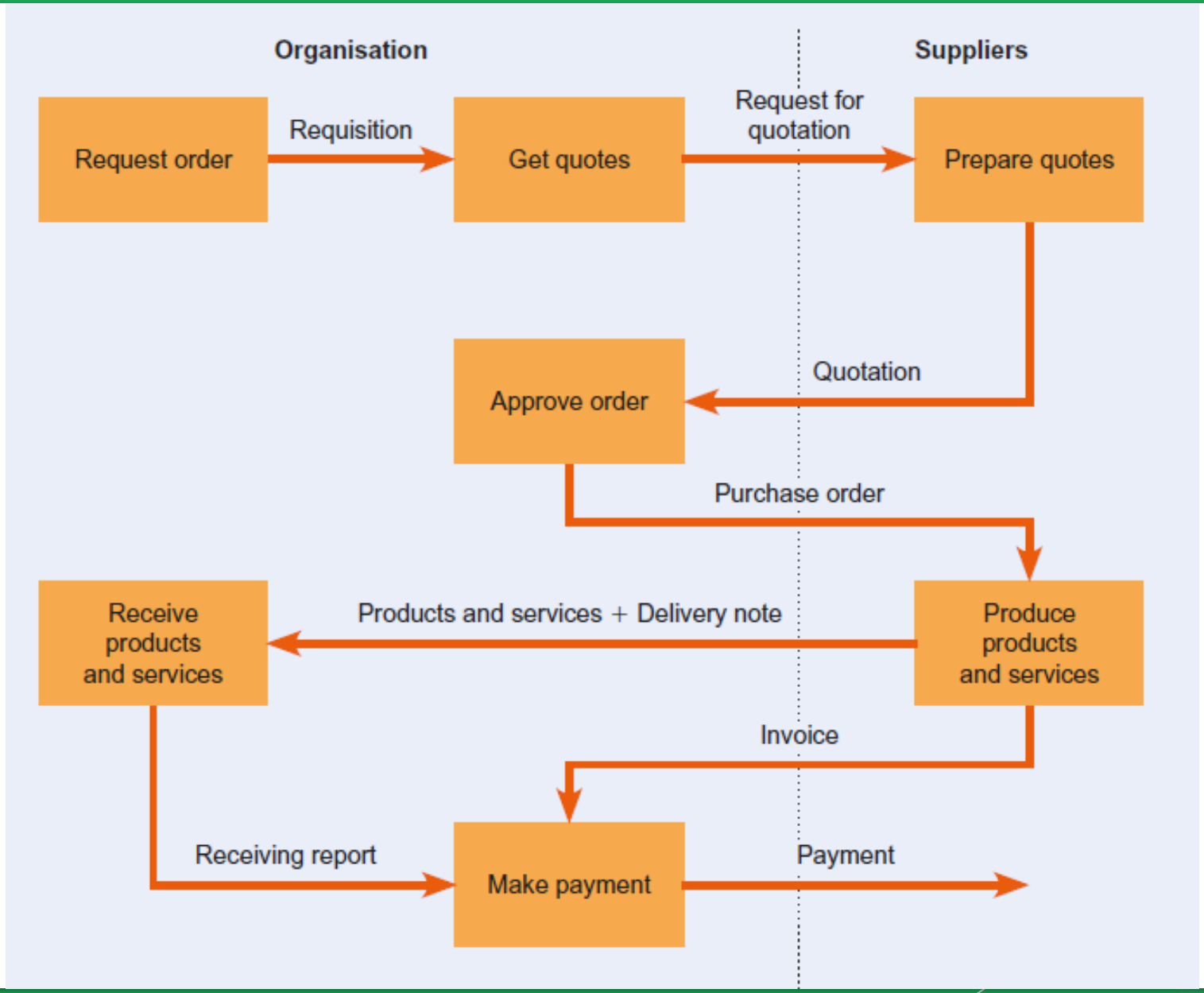
ERP example

procurement

- acquire all the materials needed by an organisation
  - purchases, rentals, contracts and other acquisition methods.
- selecting suppliers, approving orders and receiving goods from suppliers.

purchasing

- act of buying the raw materials, parts, equipment and all the other goods and services used in operations systems.
- procurement located in the purchasing department


Organisation
Suppliers
Request order
Requisition
Get quotes
Request for quotation
Prepare quotes
Approve order
Quotation
Purchase order
Receive products and services
Products and services + Delivery note
Produce products and services
Invoice
Receiving report
Make payment
Payment

ERP procurement

1. department require goods or services
2. issue a purchase requisition - authorizes the purchasing
   - what is to be purchased,
   - the amount to be purchased
   - requested date for delivery.
   - the account to be charged, the delivery address and approval
3. purchasing department prepare a ‘request for quotation’ document to supplier or suppliers
   - quotation - price, quantity discounts, delivery date & any other conditions

ERP procurement

4. chosen supplier issued with a purchase order
   - a legal obligation for buyer to pay
   - purchase order – item, price, delivery data
5. supplier produce the goods or service
   - deliver them
   - provide an invoice form requesting payment
6. good or services and invoice are satisfactory a payment will be issued to the supplier

ERP procurement

- procurement process is supported by using the ES to store relevant data and documents in a common database
- ERP provides automatic notification of process tasks to staff

Stages:

1. Request order (create purchase requisition)
2. Get quotes (create request for quotation)
3. Approve order (create purchase order)
4. Receive products and services (create receiving report)
5. Make payment (receive invoice and send payment)

ERP procurement

Request order (create purchase requisition)

manual system

- physical checks of stock check to see if new materials necessary
- gather forms e.g. previous purchases, lists of potential suppliers

ERP

- display inventory details
- can be triggered automatically
- displays a ‘purchase requisition’
- user searches for the required materials
- system recalls details of previous suppliers
- information available to other users

ERP procurement

Get quotes (create request for quotation)

manual system

- identify relevant suppliers
- prepare customer inquiry forms
- request availability and pricing information
- get customer quotation letters
- orders await approval

ERP

- automatic generation of customer inquiry letters
- Customer quotations received electronically
- automatic notification given

ERP procurement

Approve order (create purchase order)

manual system

- purchase requisition information needed
- transfer to purchase orders
- delivered to suppliers

ERP

- automatically generate purchase orders and electronically dispatch them to the suppliers

ERP procurement

Receive products and services (create receiving report)

manual system

- match the delivery list with relevant purchase order
- identifies the contents of the shipment
- contains the purchase order number
- generate goods receipt form

ERP

- user enters the purchasing number from the delivery list
- system retrieve the details of the purchase order
- allows checking of the delivery contents
- goods receipt information stored in database

ERP procurement

Make payment (receive invoice and send payment)

manual system

- match invoice with the purchase order
- match invoice with goods receipt document
- payment authorized and sent

ERP

- invoice generated
- crosscheck purchase order, goods receipt and invoice amounts automatically
- payment terms allocated
- payment made electronically to the supplier’s bank account

ERP Q & A

What Is an ERP and How Does It Work?

Enterprise resource planning (ERP) consists of technologies and systems companies use to manage and integrate their core business processes.

ERP software offers single system solutions that integrate processes across the business.

Such applications allow for users to interact within a single interface, share information, and enable cross-functional collaboration.

What Is an Example of an ERP?

Internet of things (IoT), Internet or cloud-based applications are on the rise.

more companies are moving away from on-site ERP systems to adopt the more agile, cloud-based ERP system, managed and maintained by the host or vendor.

Oracle, offers several cloud-based ERP products used by many household brands, such as FedEx, Blue Cross, and Blue Shield.

Microsoft Dynamics includes ERP

What Are the Benefits of an ERP?

An ERP promotes the free flow of communication across an organization and results in increased synergies between different business areas, increased efficiencies as processes are streamlined and information is readily accessible to those that need it; and reduced costs associated with outdated and ineffective technology.

Adopting an ERP may be a costly endeavor, but the return on investment (ROI) may be achieved quickly.

Most certainly, the benefits realized (e.g., increased productivity and reduced administrative costs) may far outweigh the costs to introduce an ERP.

What Should an ERP System Include?

- An ERP system should be automated—to reduces errors
- flexible, allowing for modifications as the company changes or grows.
- allow users to access it from their mobile devices.
- should provide a means for productivity to be analyzed and measured.

source: https://www.investopedia.com/terms/e/erp.asp

supply relationship management (SRM) systems

supply relationship management

supply relationship management (SRM) refers to all activities involved with obtaining items from a supplier

- includes procurement and inbound logistics
  - transportation, goods-in and warehousing
- connect ERP system to suppliers

supply relationship management

flexible manufacturing systems (FMS)

- process technology
- reduction in labour costs
- control of material costs major focus of overall manufacturing costs
- requires a high quality and reliable source of materials to be available

production planning systems

require the delivery of materials of perfect quality, at the right time and the right quantity

e.g. JIT

supply relationship management

Is it feasible and desirable to produce the good or service in-house?

- Often goods can be sourced internally at a lower cost, with higher quality or faster delivery

use a supplier -> choice of supplier

- perform a make-or-buy analysis to determine supply
- Criteria include price, quality and delivery performance
- offer expertise and resources

considered strategic issues

- internal skills lost if outsourcing
- distinctive competencies offered by the supplier

warehousing

holding stock

buffer between supply and demand

warehouse or distribution centre

- incoming raw materials used in production
- hold finished goods ready for distribution
- work-in-progress items
- spares for equipment

warehouses not long-term storage areas

need to process goods and services through the supply chain

as quickly as possible to serve customer demand,

sorting, consolidating and packing goods for distribution along the supply chain.

Centralisation vs Decentralisation

number, size & location of warehouses

Decentralised facilities

- service closer to the customer
- provide a better service level in terms of
- knowledge of customer needs and speed of service

Centralisation

- less handling of goods between service points
- lower control costs
- lower overall inventory levels due to lower overall stock levels being required.

SRM benefits

- faster purchase cycle times
- leading to a need for less material in inventory and
- less staff time spent in
  - searching and ordering products
  - reconciling deliveries with invoices
- automated validation of pre-approved spending budgets
  - fewer people processing each order
  - in less time
- greater flexibility in ordering goods from different suppliers
- integration of the many information systems

SRM barrier

The difficulty of linking systems with suppliers whose systems may be incompatible or non-existent.

It may be that small firms may find themselves increasingly excluded by buyers

Thank you!

any questions?