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

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 (*next week*)

- e.g. support systems

functional software & systems (*next week*)

- finance and accounting, human resources & marketing

Business information systems

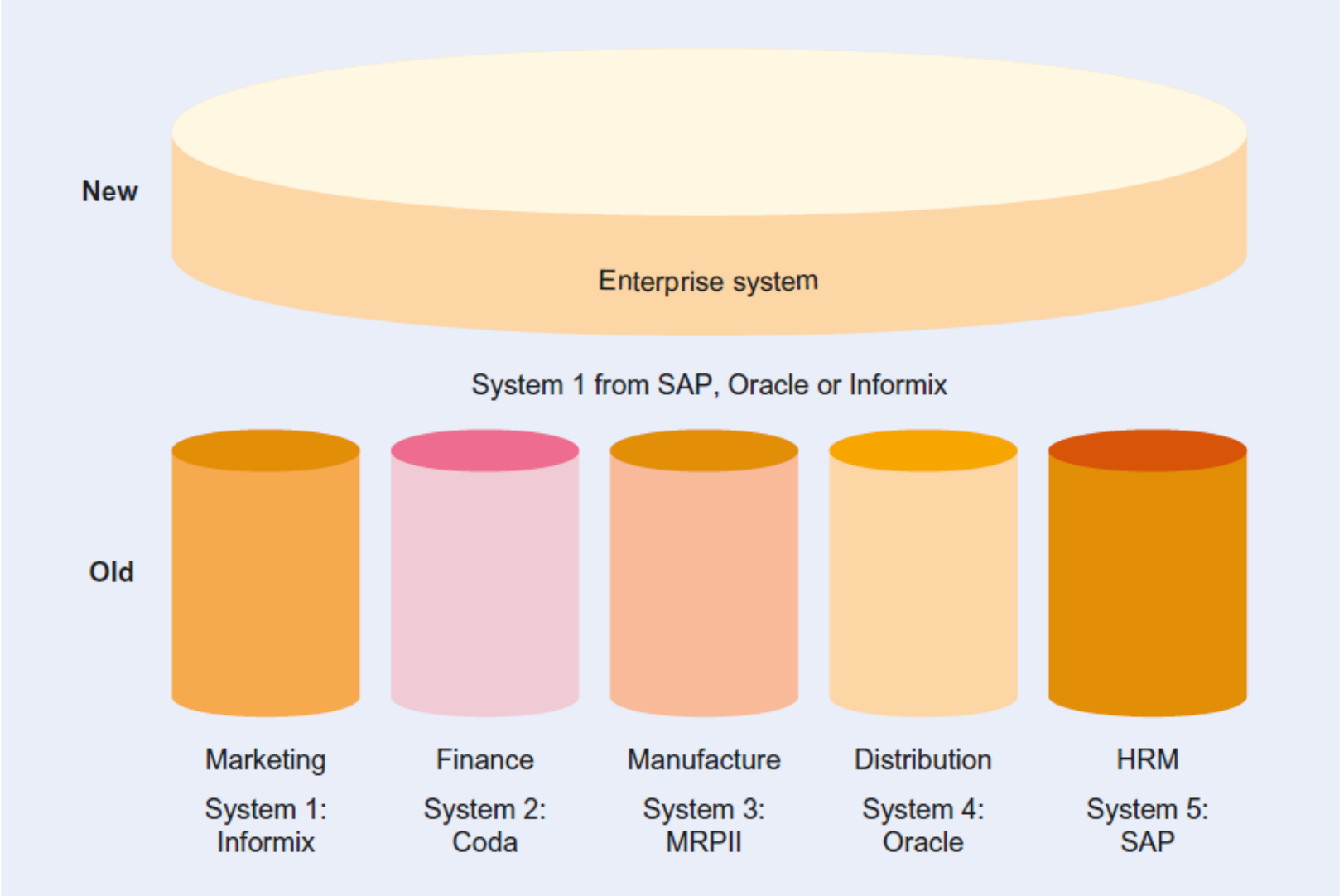
- categorized into
  - *operations* systems
  - *management* systems
- implemented as either
  - *enterprise* or
  - *functional* business systems

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

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

Traditionally, ES systems were very expensive

cost millions of dollars

only large companies could afford these systems

now ES vendors targeting medium-sized businesses

Main Types of Enterprise Systems

enterprise resource planning (ERP)

- internal production, distribution and financial processes

customer relationship management (CRM)

- marketing and sales processes

supply chain management (SCM)

- flow of materials, information and customers through the supply chain

supplier relationship management (SRM)

- sourcing, purchasing and the warehousing of goods and services.

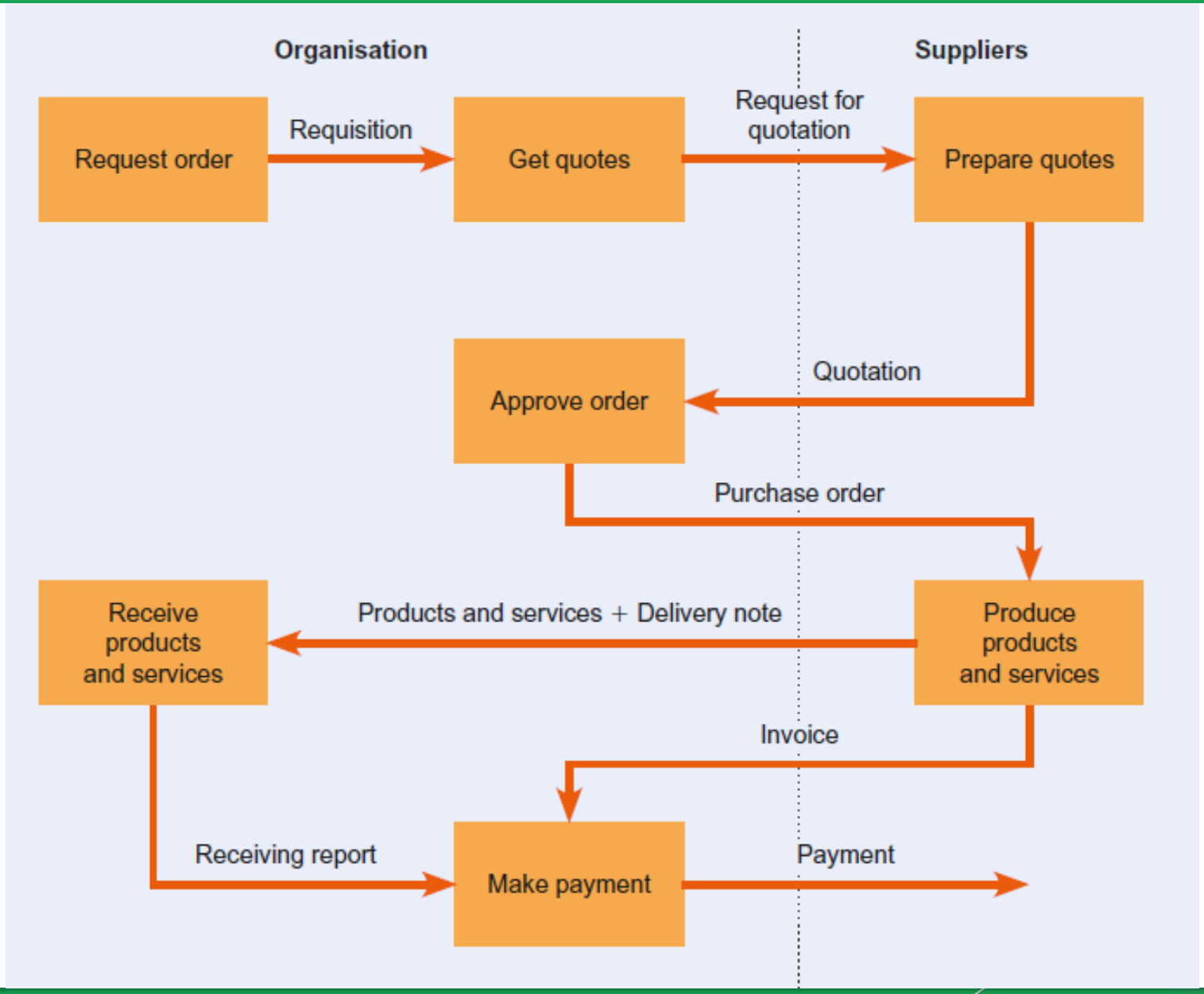
Other types of ES include:

product lifecycle management (PLM), financial management and human capital management.

enterprise resource planning (ERP) systems

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


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

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

Enterprise resource planning (ERP) benefits

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

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

ERP benefits

- 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

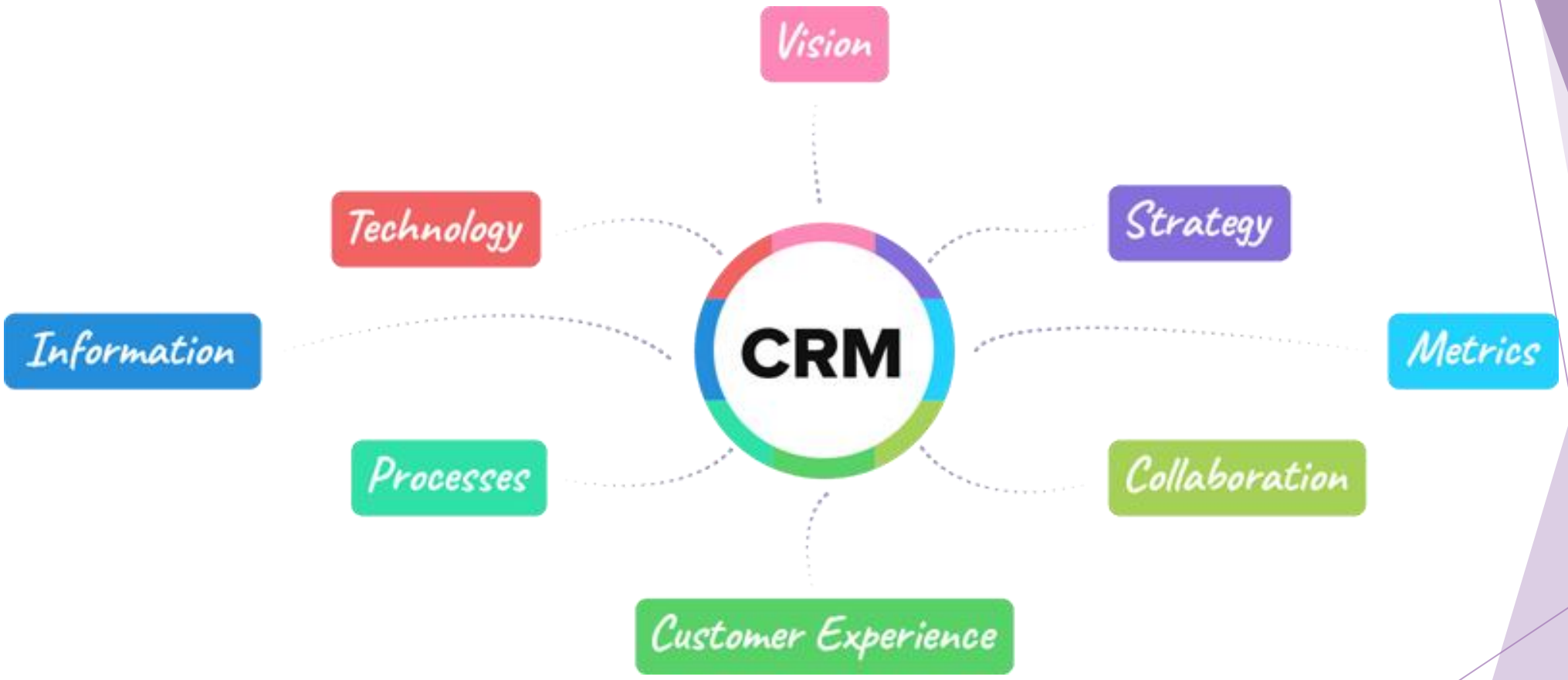
customer relationship management (CRM) systems

Customer Relationship Management (CRM)

"Customer Relationship Management (CRM) is an approach that helps businesses improve existing customer relationships and acquire new customers faster"

https://www.zoho.com/crm/what-is-crm.html

Customer relationship management



Source: Gartner research

Customer Relationship Management (CRM)

- Customer Relationship Management (CRM) is a technology used to manage interactions with customers and potential customers.
- A CRM system helps organizations
  - build customer relationships and
  - streamline processes so they can
    - increase sales,
    - improve customer service, and
    - increase profitability.

CRM Services

- Sales Force Automation
- Lead Management
- Customer Service
- Multichannel Marketing
- Customer Experience
- Journey Orchestration
- Business Intelligence
- Account Management
- Artificial Intelligence
- Sales Performance Management

Customer relationship management

CRM enables you to focus on your organisation’s relationships with individual people

- customers,
- service users,
- colleagues
- or suppliers

Survey from large department store chain

- $10 for every new customer , advertising etc.
- $1 for every returning customer
- How get returnee? Nurture relationship

- Referrals – word of mouth
- Good experience – few people
- Bad experience – many people
- Front line – sales, marketing, customer service

Customer relationship management

How do you manage leads, new & existing customers ?

- Most efficient way to extract most value

Goal – improve business relationships with customers

- Result = retention & acquisition
- Leads => paying customers
- Customer => loyal customer base
- ‘better’ experience with company (improve customer satisfaction)

System

- Analyzes customer interactions
- Measure data throughout the customer lifecycle

Customer relationship management

- CRM system an overview of your customers
- a dashboard with
  - customer's previous history,
  - the status of their orders,
  - any outstanding customer service issues
- translates data from sales teams, customer service staff, marketers and social media monitoring into business information

CRM benefit

Identify and categorise leads

- identify and add new leads easily and quickly
- create customised documents
- sales staff can focus their attention

Increase referrals from existing customers

- understanding customers better,
- cross-selling and up-selling opportunities
- new business from existing customers
- better customer service
- Happier customers
- increase sales from customers

Improve products and services

- gather information from a huge variety of sources
- more insight into how your customers feel
- what they are saying about your organization
- improve what you offer
- identify problems early
- utilize social networks

CRM system benefits

Better data organization

- Leads, contacts, customers
- Sales, engagements, customer touch points

Enhanced Communication

- Templates, calendar
- Automatic reminders

CRM system benefits

Share Information

- Inside office, between departments, customers

Catch all leads

- Better / faster procedures for contact to sales

Statistics

- analyze your performance
- Weekly reports, ad hoc, summaries, sales & marketing

CRM Benefits

Help Sales & marketing by

- Improve response time
- Pursue new leads
- Build marketing campaigns
- Sales process streamlining
- Analyse purchasing patterns
- Ensure quality customer service
- Automate tasks

cloud-based CRM

many CRM systems are now cloud-based

costs based on number of users, can be scaled up (or down)

Cloud-based CRM offers:

- faster deployment
- Automatic software updates
- Cost-effectiveness and scalability
- ability to work from anywhere, on any device
- Increased collaboration

CRM vs ERP - What's the Difference?

- CRM
  - Focuses on boosting sales
  - outward touch points
- ERP
  - Focuses on reducing costs
  - inward efficiency

Choosing between ERP or CRM

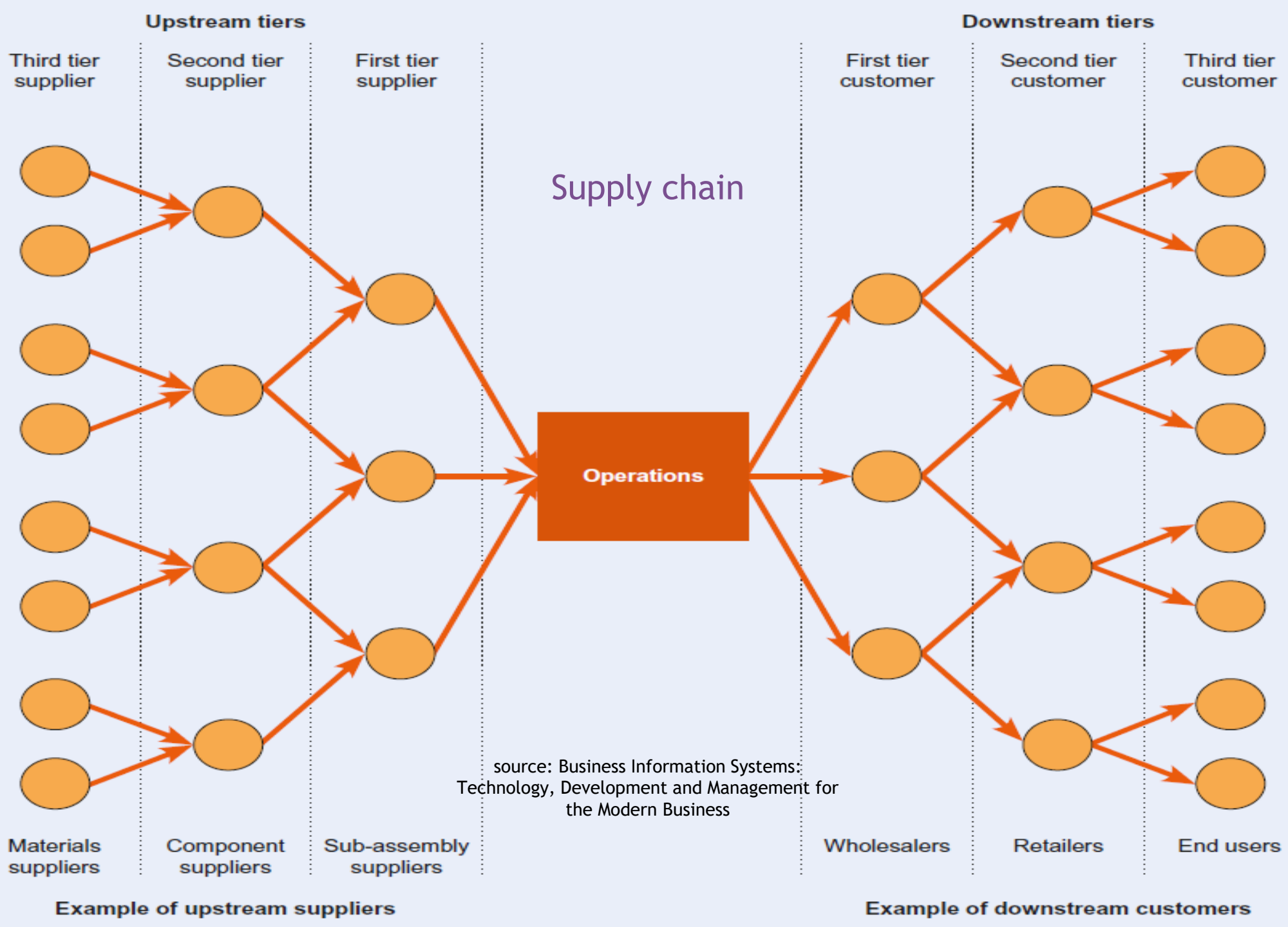
- Needs
- Investment
- Scale
- Overlap but different
- ERP > CRM cost
- CRM for small benefits
- ERP benefits for large, complex
- Larger businesses incorporate an integrated CRM with the ERP

supply chain management (SCM) systems

Supply chain management (SCM)

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

Supply chain



source: Business Information Systems: Technology, Development and Management for the Modern Business

supply chain

Activities on the input side to the organization

‘upstream’ or ‘supply side’

divided into tiers of suppliers

Activities on the output side

‘downstream’ or ‘demand side’

divided into tiers of customers

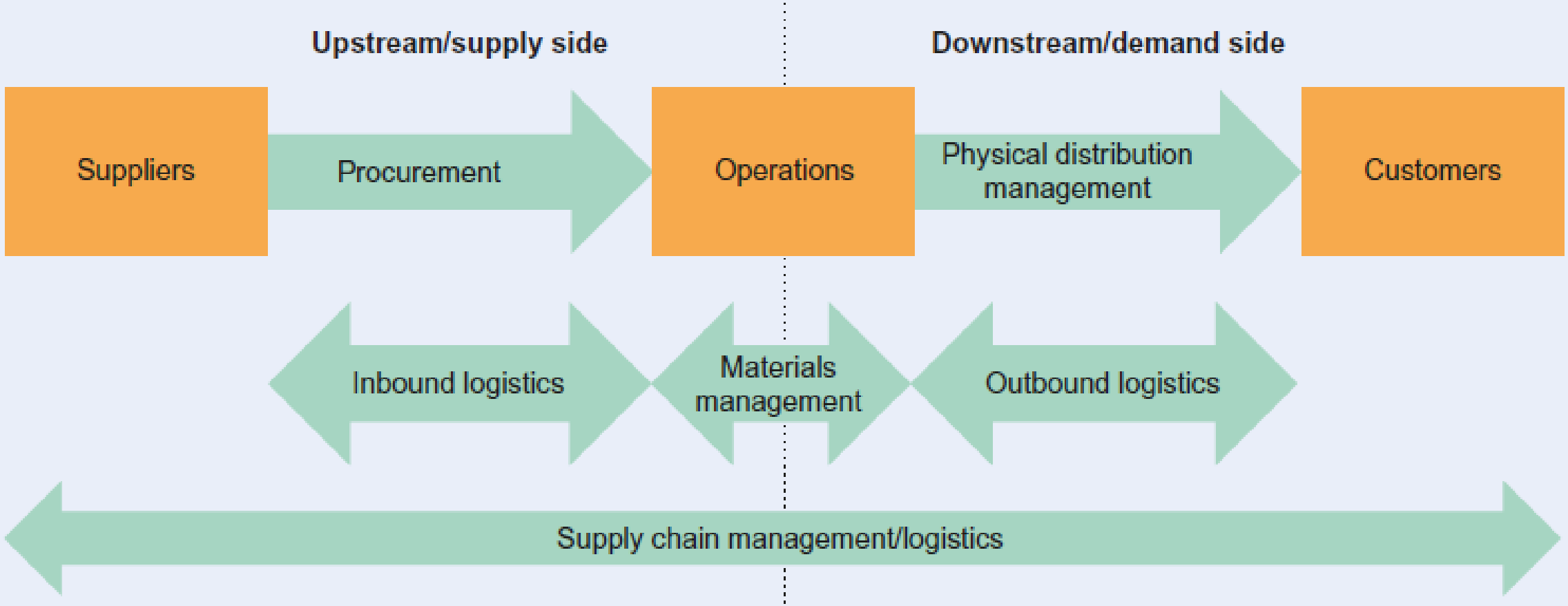
supply chain

Upstream suppliers

- ‘first-tier’ supply the organisation directly
- ‘second tier’ suppliers that supply first-tier organisations
- e.g. component and sub-assembly suppliers

downstream customers

- wholesalers and retailers.
- separate supply chain for each product or service
- ‘supply network’ or ‘supply web’



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supply chain integration

ERP systems

- provide integration of processes across functional areas within the organisation.

SCM systems

- extend this integration across organisations within the supply chain

value-chain analysis

- supply chain integration decisions - use value-chain analysis
- which set of activities (e.g. design, assembly) should be undertaken
- rather than from the viewpoint of products or services

Supply chain management

Value chain:

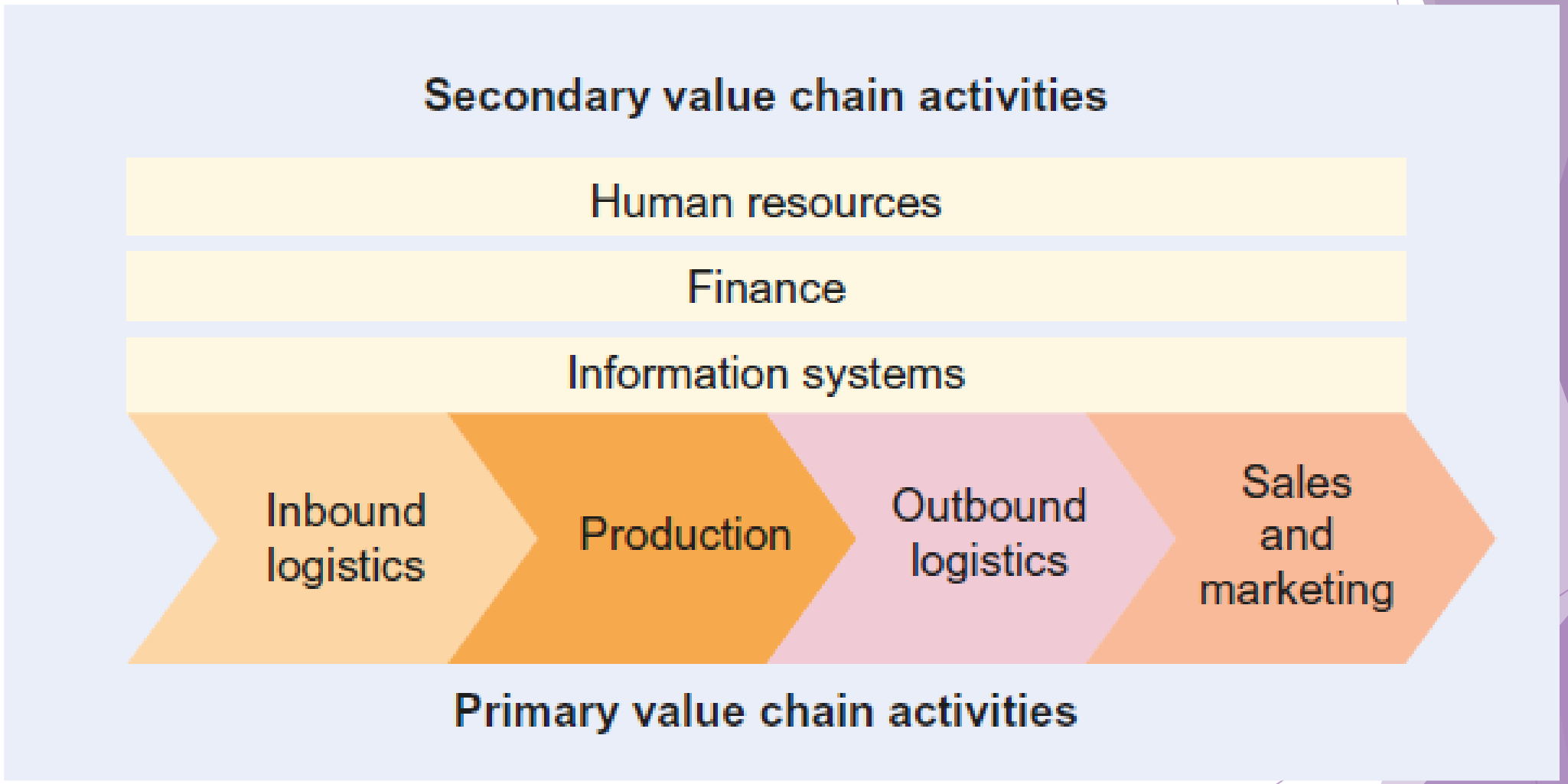
a series of connected activities that add value to an organization's products or services

Michael Porter (Porter, 1980)

- A value chain is used to describe all the business activities it takes to create a product from start to finish
  - design, production, distribution, etc.

- A value chain analysis gives businesses a visual model of these activities, allowing them to determine where they can reduce costs
  - e.g. low prices

value chain model



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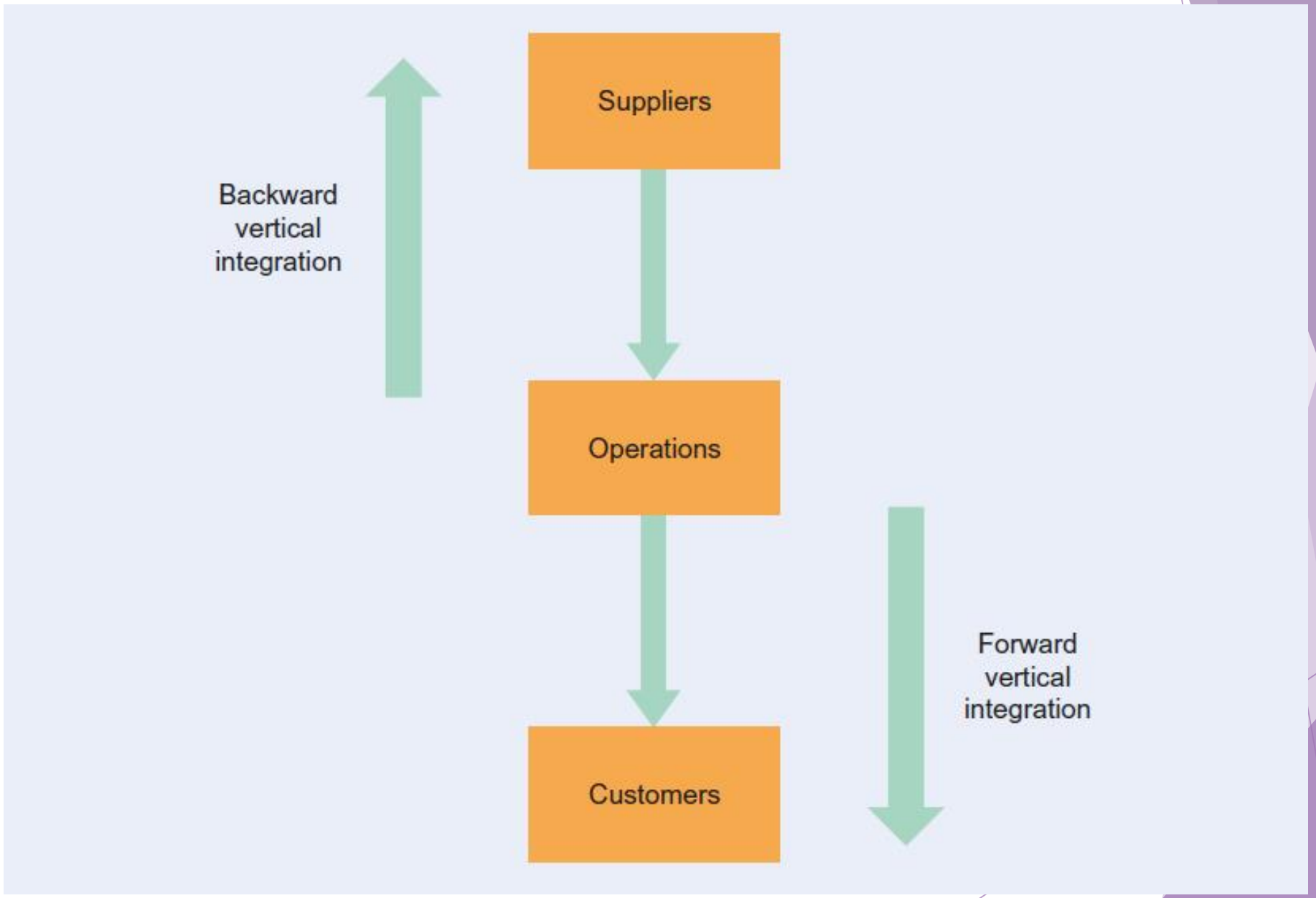
Suppliers
Backward vertical integration
Operations
Forward vertical integration
Customers

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

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

supply relationship management

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?