role of operations management

- strategic role of operations management – cost leadership, good/service differentiation
- goods and/or services in different industries
- interdependence with other key business functions

- **Operations**: business processes that involve transformation
- **Transformation:** converting inputs into outputs
  - **Manufacturer:** inputs . tangible goods
  - **Service:** processes in delivering the service + inputs intangible services
- **Value adding**: creation extra value as inputs converted to outputs

CUSTOMER CONCERNS THAT IMPACT THE OPERATIONS FUNCTION

- **Minimising waste** at every stage of production = ↑ efficiency
- **Fair value of labour:** fair conditions/wages
- **Operate at low cost =** ↓ prices = **maximise affordability:**
- **Integrate environmentally sustainable practices**

1.1: Strategic role of operations management

- **Strategic:** long-term, broad aim affecting all KBA's
  - Strategic role: ↑ profits through production G/S, by adding value to inputs
- **Profit centres:** those aspects of the business that directly derive income
- **Cost centres**: those aspects of business that do not directly derive income but do incur cost
  - Operations = cost centre = manage cost

1.1.1: Cost leadership

- **Cost leadership**: aiming to have lowest costs or to be most price-competitive in the market
  - Business should still be profitable minimise costs
- **Economies of scale**: cost advantages that can be created as a result of an increase in scale of business operations
  - E.g. purchase inputs at lower cost/unit, efficiencies from new technology

1.1.2: Good/service differentiation

GOODS	SERVICES
• Tangible may be perishable • Tend to be standardised – may be customised • Can be owned, transferred through sale of ownership • Time lag between production & consumption • Value -> inputs + margin	• Intangible • Tend to be customised – may be standardised • Cannot be owned • Production & consumption is simultaneous • Value subjective: determined by market

PRODUCT DIFFERENTIATION

- **Product differentiation**: distinguishing products' features in some way from those of its competitors

Goods:

- Varying **actual product features**: varieties of increasing complexity
- Varying **product quality:** ↑ quality = ↑ price
  - Higher quality may be sold under different brand name – market perception

- Varying any **augmented features:** add-ons/additional benefits (e.g. in cars)

Services

- Varying **amount time** spent on service
- Varying **level expertise** brought to service: ↑ expertise = ↑ specialisation
- Varying **qualifications of provider**
- Varying **quality of materials** used in delivering the service

1.2: Goods and/or services in different industries

1.2.1: Goods in different industries

- Operations decisions vary for standardised + customised goods
- **Standardised good:** mass produced usually on assembly line, uniform quality that meets predetermined level, production focus
- **Customised goods:** varied according customer needs, market focus rather production focus

PERISHABLE GOODS

- Short life span, inexpensive
- Businesses will integrate:
  - High standards of quality + cleanliness
  - Short lead times + efficient distribution
  - Robust packaging + cold storage

NON-PERISHABLE GOODS

- More durable than perishable goods -> not subject to rapid decay
- Businesses will:
  - Manage all aspects quality in the process
  - Implement effective inventory management strategies
  - Be highly responsive to market demand = prevent over production

INTERMEDIATE GOODS

- **Intermediate goods:** goods processed more once -> become inputs in the production of another good
  - E.g. screws, computer chip

1.2.2: Services in different industries

- **Standardised service:** generally performed in same manner each time delivered to customer
- **Customised service**: generally tailored to each individual customer

COST LEADERSHIP

- Business bring cost leadership to service by standardising the way it is performed
  - E.g. fast food customer service standardised: trained what to say + how

SELF SERVICE

- **Self-service**: encouraging customers to take the initiative to help themselves

    - Allow business to focus on customisation when person cannot help themselves
- **Drip pricing**: business advertise one price but in process of customer purchasing the service, numerous additional charges + costs are added
    - Final price > advertised price
        - E.g. airline tickets

1.3: Interdependence with other key business functions (KBF's)

- **Interdependence**: mutual dependence the KBFs have on one another
    - **Marketing:** design, price, promote and distribute products
    - **Finance**: fund inputs
    - **HR**: hire/train staff

influences

- globalisation, technology, quality expectations, cost-based competition, government policies, legal regulation, environmental sustainability
- corporate social responsibility
  - the difference between legal compliance and ethical responsibility
  - environmental sustainability and social responsibility

Main influences on operations management (CGGLEQT)

COST BASED COMPETITION

- **Cost based competition**: derived from determining breakeven point (C=R), then applying strategies to create cost advantages over competitors
- Recognises prices can't keep increasing -> ↓ costs to maximise profits when revenue fixed
  - ↓ costs: bulk buy, economies of scale, standardise products, automation
- Mass customisation = cost-based competition when products are differentiated
- Feature of operations when business brings cost leadership approach
- **Fixed costs:** costs that do not change regardless of level of business activity
- **Variable costs:** costs that vary in direct relationship to level of business activity

GLOBALISATION

- **Globalisation**: removal of trade barriers between nations, characterised by:
  - Increasing integration between national economies
  - High degree of transfer of capital, labour, ideas, finance + technology
- Large businesses orienting practices towards **GLOBAL** market
  - Global consumers tend seek **global brands + standardised products**
- Manufacturing goods on global scale = economies of scale
- Providing services on global scale = standardise = cost leadership

Supply Chain Management (SCM) and the global web:

- **Supply chain**: range of suppliers a business has + nature of relationship with those suppliers
- Business needs **reliable supply chain**, **responsive to changes in demand** as experienced by business
  - Quality must be reliable
  - **Sourcing:** strategy of finding suppliers needed so production process flow smoothly
- **Global web**: network of suppliers a business has chosen on basis of lowest overall cost, lowest risk and maximum certainty in quality and timing of supplies
  - Choose location with appropriate proximity = minimise costs

GOVERNMENT POLICIES

- Policies impact operations-> tax, WH&S, environment, employment relations, trade
- Policies may inform law-making + lead to opportunities -> operations must be aware
- **Carbon pricing:** putting a price on carbon
  - Business reshape practices to minimise carbon created = avoid tax = minimise costs

LEGAL REGULATIONS

- Range laws business must comply with is collectively termed 'compliance'
- Compliance areas:
  - **Labour:** wages, hours, on-costs, WHS Act 2012 (Cwlth)
  - **Human Rights:** Anti-Discrimination Act 1977 (Cwlth) – race/sex/disability/age
  - **Environment + public health**: pollution, dumping, waste disposal
  - **Financial regulations**: Ensure company directors follow the rules as fiduciaries

        - **Fiduciary:** person in position of financial trust with respect to others' money
    - *Others:* Tax, offshoring, intellectual property
- **Compliance costs**: expenses associated with meeting requirements of legal regulations

ENVIRONENTAL SUSTAINABILITY ***(ecological sustainability)***

- **Ecological sustainability:** practices that consume resources today without compromising access to those resources for future generations
- 2 main aspects to ecological sustainability:
    - Sustainable use of renewable resources
    - ↓ use of non-renewable resources
- ↑ awareness = adopt ecologically sustainable practices to ↓ **carbon footprint**
- **Carbon footprint**: amount carbon produced + entering the environment from operations processes

QUALITY EXPECTATIONS

- **Quality: "**totality of features and characteristics of a product that bears its ability to satisfy stated or implied needs" – International Standards Organisation (ISO)
- Quality informs all operations processes
    - **Goods:** quality of design, fitness for purpose, durability
    - **Services:** professionalism + reliability of provider, level of customisation

TECHNOLOGY

- **Technology**: the design, construction and/or application of innovative devices, methods and machinery upon operations processes
- Communications technology = ↑ efficiency + ease of communication
- Technology applied to range of operations processes:
    - **Administrative level:** assist with decision making, organisation + planning
        - E.g. office technologies + software
    - **Processing level:** used in manufacturing + quality management
        - E.g. robotics, CAD/CAM

Corporate social responsibility (CSR)

- **CSR**: open + accountable business actions based on respect for society + environment
- Business do more than just comply with regulations

LEGAL COMPLIANCE VS ETHICAL RESPONSIBILITY

- Legal compliance = follow the letter of the law (see compliance areas)
- **Ethical responsibility**: business meet all legal obligations and take it further by accounting for social + environmental concerns
    - Incur costs additional to compliance– show business values more than max profits
    - Lower shareholder profit + extra responsibility
- **Outsourcing:** use of outside specialists to undertake one or more KBF's
    - **Onshore**: use of domestic businesses as outsourcing provider
    - **Offshore:** taking activities to provider in another country
- Business aim ↓ compliance costs --> outsourcing may achieve this as:
    - Third party takes responsibility of compliance costs
    - Offshore outsourcing takes advantage of **regulatory differences between nations**:
        - Exploit weaker labour, taxation + environmental standards = ↓ costs

        - **Raises ethical concerns**
- Business may follow International Labour Standards from International Labour Organisation (ILO)
    - Deals with:
        - Working women and maternity protection
        - Provision of safe working conditions

ENVIRONMENTAL SUSTAINABILITY AND SOCIAL RESPONSIBILITY

- Principle of ecological sustainability = **evaluate full environmental effects** of operations
- Ecologically sustainable production = satisfy stakeholders expectations of 'green products'
- Socially responsible business attempt achieve 2 goals simultaneously:
    - Expand business
    - Providing for the greater good of society
- Socially responsible business = ↑ image, loyalty, sales
- Exploit employees or accept bribes = boycott products

operations processes

- inputs
  - transformed resources (materials, information, customers)
  - transforming resources (human resources, facilities)
- transformation processes
  - the influence of volume, variety, variation in demand and visibility (customer contact
  - sequencing and scheduling – Gantt charts, critical path analysis
  - technology, task design and process layout
  - monitoring, control and improvement
- outputs
  - customer service
  - warranties

1.1: Inputs

- **Inputs:** resources used in transformation process

1.1.1: Transformed resources

- **Transformed resources:** inputs converted in transformation process

MATERIALS

- **Materials:** basic elements used in production
  - **Raw materials** (unprocessed state) or **intermediate goods**

INFORMATION

- **Information:** knowledge gained from research + investigation results in ↑ in understanding
- Value of information lies in its ability to influence behaviour or decision making
- External (ABS, market reports) vs Internal (KPIs, customer feedback: warranty, media)

CUSTOMERS

- Customer orientation approach: customer=input, preferences=transformed resource
- **Customer relationship management (CRM):** systems business uses to maintain customer contact
  - Improve customer service + competitiveness

1.1.2: Transforming resources

- **Transforming resources:** inputs that carry out transformation process

HUMAN RESOURCES

- Most important input
- Qualified, hard-working, disciplined staff = productivity + efficiency
  - Performance objectives + staff motivation = ↑ efficiency

FACILITIES

- **Facilities:** the plant and machinery used in production
- Consider: layout, zoning, energy/water requirements

1.2: Transformation Processes

- **Transformation:** converting inputs into outputs
  - **Manufacturer:** inputs . tangible goods
  - **Services:** processes in delivering the service + inputs □ intangible services
- **Value adding**: creation extra value as inputs converted to outputs = *↑ price + profit*

1.2.1: Influence of volume, variety, variation in demand and visibility (customer contact)

INFLUENCE OF VOLUME

- **Volume:** how much of product is made
- Volume flexibility – how quickly transformation process adjust to ↑ / ↓ in demand
- **Lead time:** time takes for order to be fulfilled from moment it is made
  - Shorter lead time = more responsive to demand
- ↑ volume = **economies of scale:** cost advantages created as result of increase in scale of business operations (e.g. purchase input at lower cost/unit, efficiency from new technology)
  - May hinder ability to respond to demand = overproduce = wastage + costs
- Business that cannot respond quickly = loss sales

INFLUENCE OF VARIETY

- **Mix flexibility:** mix of goods made or services delivered through transformation process
- Greater variety = greater variation = ↑ inputs = ↑ cost + ↓ efficiency = ↓ profit

INFLUENCE OF VARIATION IN DEMAND

- ↑ demand hard meet if supplier cannot supply quickly or lack resources
- ↓ demand require flexibility = cut staff hours, slow production
- Predict demand: season, events, economy

INFLUENCE OF VISIBLITY (CUSTOMER CONTACT)

- Visibility => nature and amount customer contact
- Customer preference directly shape production
- **Direct:** customer feedback – surveys + blogs
- **Indirect:** sales data (indicate preferences), market share data (compare with competition)
- Customized products to satisfy demand = ↓ efficiency + ↑ cost = cost leadership

1.2.2: Sequencing and scheduling

- **Sequencing:** order in which activities occur in the operations processes
- **Scheduling:** length of time these activities take

GANTT CHART

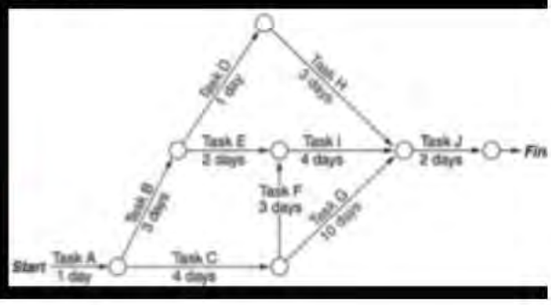
- **Gantt chart:** type bar chart that shows both the scheduled + completed work over period of time
- Used for processes with several activities: outlines different activities, order, expected time

Advantages:

- ☐ Force manager to plan steps needed to complete task and specify time required for each task
- ☐ Easy monitor actual against planned performance/progress

CRITICAL PATH ANALYSIS (CPA)

Not smallest number as doesn't allow longer tasks to be completed Arithmetic: [1+ 4 + 10 + 2 = 17]



Advantages:

. Organize + coordinate the operations process
 See which tasks done simultaneously

1.2.3: Technology, task design and process layout

TECHNOLOGY

- **Technology**: the design, construction and/or application of innovative devices, methods and machinery upon operations processes
- **Business technology:** technology that enables businesses to undertake the transformation process more effectively and efficiently
- Business need acquire up-to-date technology to compete effectively
    - Leasing can achieve this and ↓ costs

Office technology

- Computer, phone, modem = efficiency, **telecommute** (another location = worksite)
    - **Adv:** flexibility, work delivered email = paperless trading, hot desking (no set desk for employees) = ↓ office space + costs

Manufacturing technology

- **Robotics:** programmable machine capable of performing several tasks - used in engineering + on assembly lines
    - **Adv:** consistent, high-quality, precise, efficient, minimise waste
- **Computer-aided design (CAD):** computerised design tool that allows businesses to create product possibilities from series input parameters
    - **Adv:** visualise product, cheaper + quicker than normal drafting, quantify cost
- **Computer-aided manufacturing (CAM):** software that controls the manufacturing processes
    - **Adv:** instantaneous manufacturing after customer accepts design, store records to assist purchasing decisions
- **Disadvantage of all 3:** prone to error, very high-cost = unaffordable SME

TASK DESIGN

- **Task design:** classifying job activities in ways make it easy for employees to successfully perform and complete the task
- Process of attracting right candidate: **Task design . Job description personal specification recruitment selection**
- **Skills audit:** formal process used determine present level skilling and any skill shortfalls that need to be made up either through recruitment or training
    - Improve process as staff acquire desired skills

PROCESS LAYOUT

- **Process layout:** arrangement of machines so they are grouped by the process they perform

Product layout:

- **Product layout:** equipment arrangement that relates to sequence of tasks performed
- **Mass (product) production:** manufacturing high volume of constant quality goods
    - Assembly line used as best combination of personnel + machinery
- Work stations – work flows from station to station