Operations management

IB DP Business Management Unit 5 Operations management full package

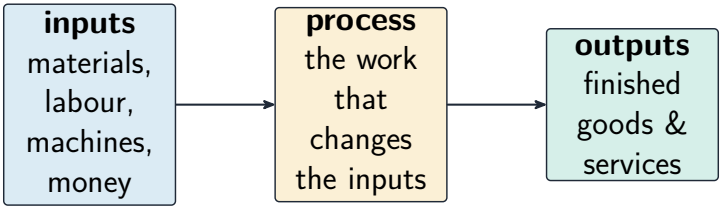
Operations management

- explain the role of operations and **value added**, and compare job, batch, **mass production** and **mass customisation**;
- analyse the factors that decide where a business locates, including outsourcing and reshoring;
- calculate contribution, break-even output, the margin of safety, target output and target price;

The role of operations and operations methods

- **Operations management** is the part of a business that makes its goods or provides its services.
- It turns **inputs** (labour, materials, machines, money and information) into **outputs** that are worth more than the **inputs**.
- The extra value is **value added** .
- *Inputs are transformed into **outputs** worth more than the inputs: **value added***

Figure: The role of operations and operations methods



the output is worth more than the inputs $\Rightarrow$ value added

- **Inputs** (materials, labour, machines, money) flow into a process and out as **outputs** (finished goods and services)
- Match each part of the diagram to the text.

Location

- costs: land, rent, wages and transport;
- the labour available and its skills;
- nearness to customers (most important for services, such as repairs) and to suppliers (important for heavy materials);

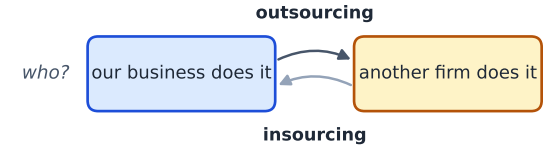
Location (2)

- infrastructure: roads, ports, power and internet;
- government: taxes, grants, rules and political stability;
- culture and language, for a business moving abroad.

Location (3)

- **Outsourcing** (subcontracting) gives a task to another firm, such as the repair business paying a firm to run its booking app. It is often cheaper and uses the other firm's skills, but the business loses some control over quality.
- **Offshoring** moves work to another country, for lower costs or to be near new markets.
- **Insourcing** brings an outsourced task back inside the business, usually for better control or quality.
- **Reshoring** brings work back to the home country, often after supply problems abroad.

Figure: Location



- Who does the work: outsourcing and **insourcing**.
- Where it is done: offshoring and **reshoring**.

Break-even analysis

- target output $= \dfrac{\text{fixed costs} + \text{target profit}}{\text{contribution per unit}}$. For a profit of 15,000: $(12{,}500 + 15{,}000) \div 10 = 2{,}750$ repairs.
- target price $= \dfrac{\text{fixed costs} + \text{target profit}}{\text{output}} + \text{variable cost per unit}$. For a profit of 10,000 at 2,000 repairs: $(12{,}500 + 10{,}000) \div 2{,}000 + 15 = 26.25$.

$$\text{contribution per unit} = 25 - 15 = 10$$

Sources for this lesson

- International Baccalaureate, *Business Management guide* (first assessment 2024).
- Toyota Motor Corporation, reports on the 2011 Great East Japan Earthquake and its supply-chain recovery; Reuters reporting on Toyota's chip stocks (2021).
- T. Ohno, *Toyota Production System: Beyond Large-Scale Production* (1988).
- International Organization for Standardization, ISO 9001:2015 *Quality management systems*.

Common errors

- Writing "break-even is where the business makes a profit"; at break-even, total revenue equals total costs and profit is zero.
- Using price instead of contribution in the break-even formula: divide fixed costs by contribution per unit (price minus variable cost).
- Rounding break-even output down; 1,291.7 repairs means 1,292 are needed to cover all costs.

Common errors (2)

- Confusing the **margin of safety** (actual output minus break-even output) with profit.
- Choosing a location on cost alone; markets, labour skills, infrastructure, government rules and quality of life all count.
- Treating outsourcing and offshoring as the same thing: outsourcing uses another firm; offshoring moves work abroad, inside or outside the firm.

Key terms

- **Value added**: the difference between the price of a product and the cost of the **inputs** bought to make it.
- **Batch production**: making a set number of identical products before switching to a different product.
- **Mass customisation**: making large numbers of products that can each be changed to suit one customer.

Key terms (2)

- **Contribution per unit**: price minus variable cost per unit; the amount each sale adds towards fixed costs and then profit.
- **Break-even output**: the output at which total revenue equals total costs.
- **Margin of safety**: actual output minus break-even output.
- **Offshoring**: moving part of the production process to another country.

Check yourself

- 1.
- A repair sells for 25 and uses 15 of parts and direct labour.
- Calculate the contribution per repair and the break-even output if fixed costs are 12,500 a month. 2.
- The business does 2,000 repairs a month.