Operations Management

IGCSE Business Studies ▪ Topic 4

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What we will cover

1 Methods of production

2 Productivity & lean production

3 Types of cost

4 Break-even

5 Quality

1 Production

Methods of production

job	batch	flow
one unique item at a time	a group, then switch to another	a non-stop line

- training workers,
- using better machines and **technology** 技术,
- improving **motivation** 激励,
- organising the work better.

Productivity and lean production

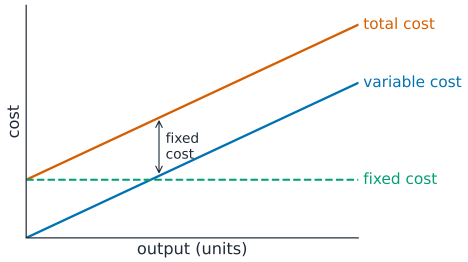
productivity 生产率
output per worker; raise it with training, technology & motivation

lean production 精益生产
cut all waste; **just-in-time** 准时制 holds little **inventory** 库存

Industrial robots

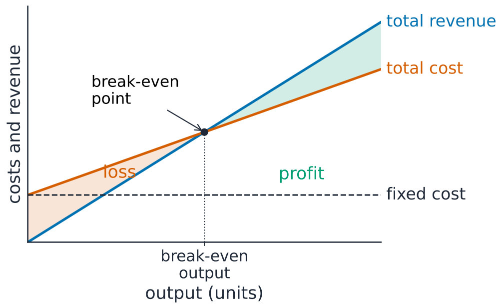
2 Costs

Types of cost



- **fixed costs** 固定成本 do not change with output – rent, salaries, insurance. You pay them even if you make nothing.
- **variable costs** 可变成本 change with **output** 产量 – materials, and pay for each item made. More output means more variable cost.
- **total cost** 总成本 is fixed costs plus variable costs.
- **average cost** 平均成本 is the total cost divided by the number

Break-even



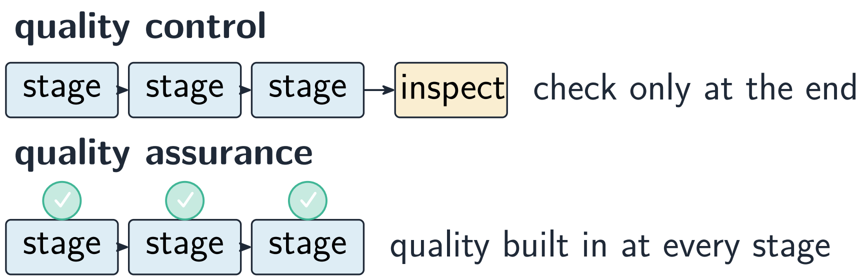
The **break-even point** 盈亏平衡点 is where total revenue = total cost (no profit, no loss).

$$\text{break-even} = \frac{\text{fixed costs}}{\text{contribution per unit}}.$$

Quality

- **quality control** 质量控制 – check at the end
- **quality assurance** 质量保证 – build in quality throughout

Good quality wins loyal customers & cuts waste.



3 Recap

Worked example – total and average cost

Fixed costs are £8,000, variable cost is £2 per unit, and the factory makes 1,000 units.

- Total variable cost $= 2 \times 1{,}000 = £2{,}000$
- Total cost = fixed + variable $= 8{,}000 + 2{,}000 = £10{,}000$
- Average cost $= \dfrac{\text{total cost}}{\text{output}} = \dfrac{10{,}000}{1{,}000} = £10$
- Make more and AC falls: the fixed cost is spread over more units.

Fixed costs do not change with output (rent); variable costs do (materials). Spreading fixed costs is exactly what economies of scale means.

Topic 4 – key takeaways

1. **Methods**
   job, batch & flow production
2. **Lean**
   cut waste; just-in-time holds little stock
3. **Costs**
   total = fixed + variable; average = total/output
4. **Break-even**
   where total revenue = total cost

Check yourself

1. Which method suits a one-off wedding cake?
2. Do fixed costs change with output?
3. What is true at the break-even point?
4. When does quality control check the product?

Answers **1.** job production **2.** no **3.** total revenue = total cost **4.** at the end of production