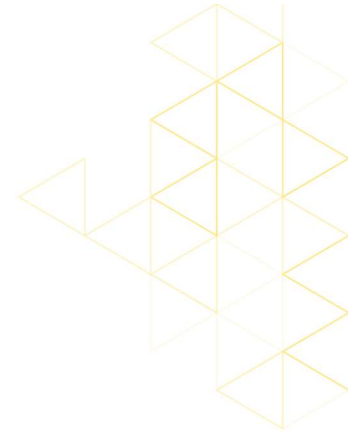




An Introduction to Outsourcing

Professor Andrew Thomas
Aberystwyth Business School

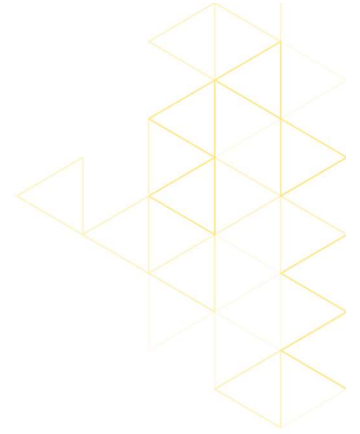


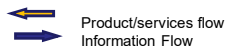
Objectives

- Introduce to outsourcing
- Introduce various cost definitions and demonstrate how they are applied in outsourcing strategies.
- Demonstrate how break-even analysis is used within an outsourcing context to determine outsourcing decisions .
- Consider the non-financial issues associated with outsourcing strategies

Outsourcing Strategy

Outsourcing Strategy is a strategic decision making process where a company considers at what point it is more appropriate to make a product (or service) within their own company (in-house) or, whether it is better for another company to make the product (or service) for them.

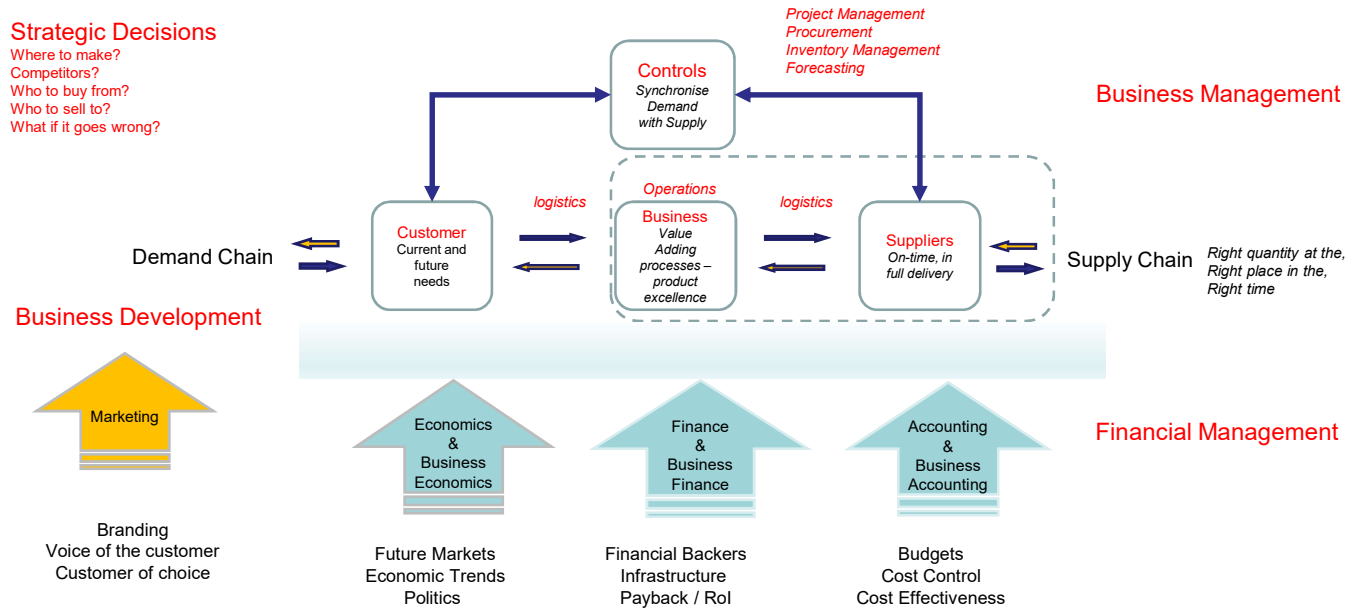




Strategic Decisions

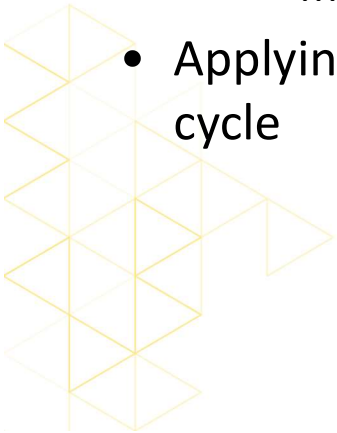
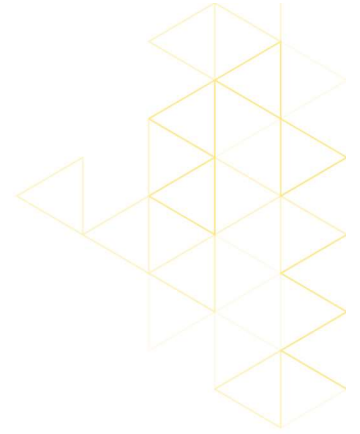
Where to make?
Competitors?
Who to buy from?
Who to sell to?
What if it goes wrong?

Business Value Chains

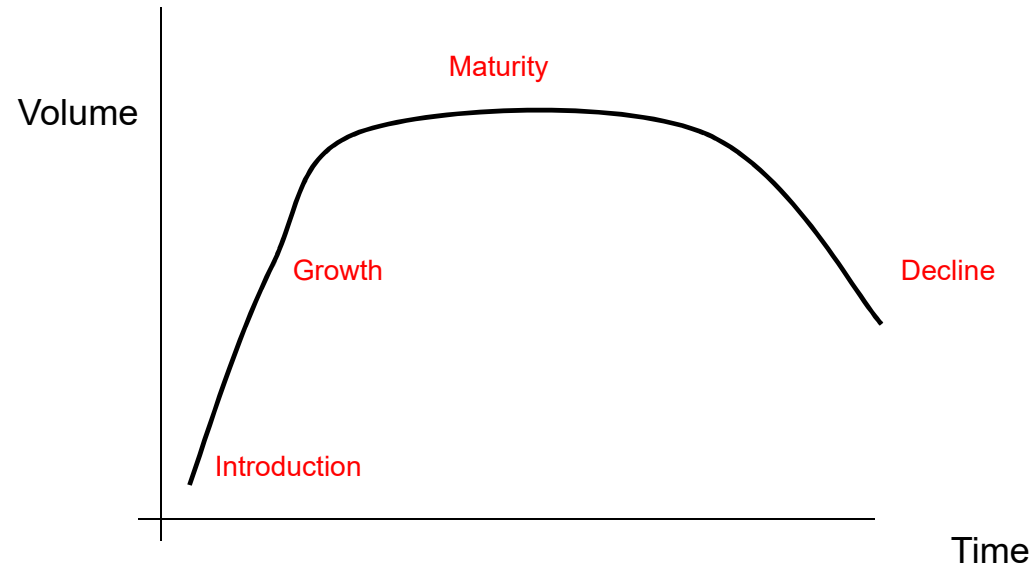


Outsourcing

- The outsourcing strategy will define the supply chain system and configuration.
- Decisions can be based:
 - Financially
 - Qualitatively
 - Mixture of financial and qualitative analysis
- Applying outsourcing can depend on position of product in product life cycle



Product Life Cycle



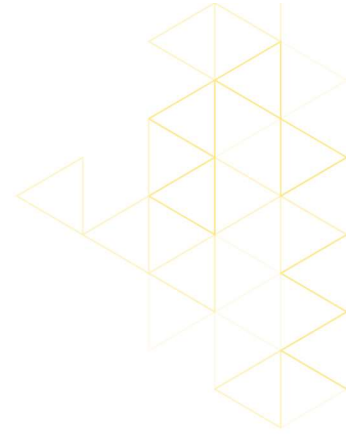
Outsourcing and PLC

- **Introduction** – risk of outsourcing can be high if product does not take off.
 - **Growth** – risk lessens as volumes increase
 - **Maturity** – Low risk
 - **Decline** – what do you do for your next product and how do you close off the existing arrangement?
-
- When do you switch to Outsourcing?
 - Sometimes you do not have a choice

Break-Even Analysis

- Break-Even Analysis

The volume where revenues equal total costs or costs associated with two alternative processes are the same.



Break-Even Analysis

- **Break-even analysis** is used to compare processes by finding the volume at which two different processes have equal total costs.
- **Break-even point** is the volume at which total revenues equal total costs.
- **Variable costs (vc)** are costs that vary directly with the volume of output.
- **Fixed costs (Fc)** are those costs that remain constant with changes in output level.



Break-Even Analysis can tell you...

- If a forecasted volume is sufficient to break even (make or buy point)
- How low variable cost per unit must be to break even given current prices and sales forecast.
- How low the fixed cost need to be to break even.
- How price levels affect the break-even volume.

Types of Costs

- Fixed Costs
- Variable Costs



Cost Definitions

- **Fixed Costs**
 - Expenses such as rent that remain constant over a wide range of output volumes.
- **Variable Costs**
 - Expenses such as material and direct labour that vary proportionately with changes in output.

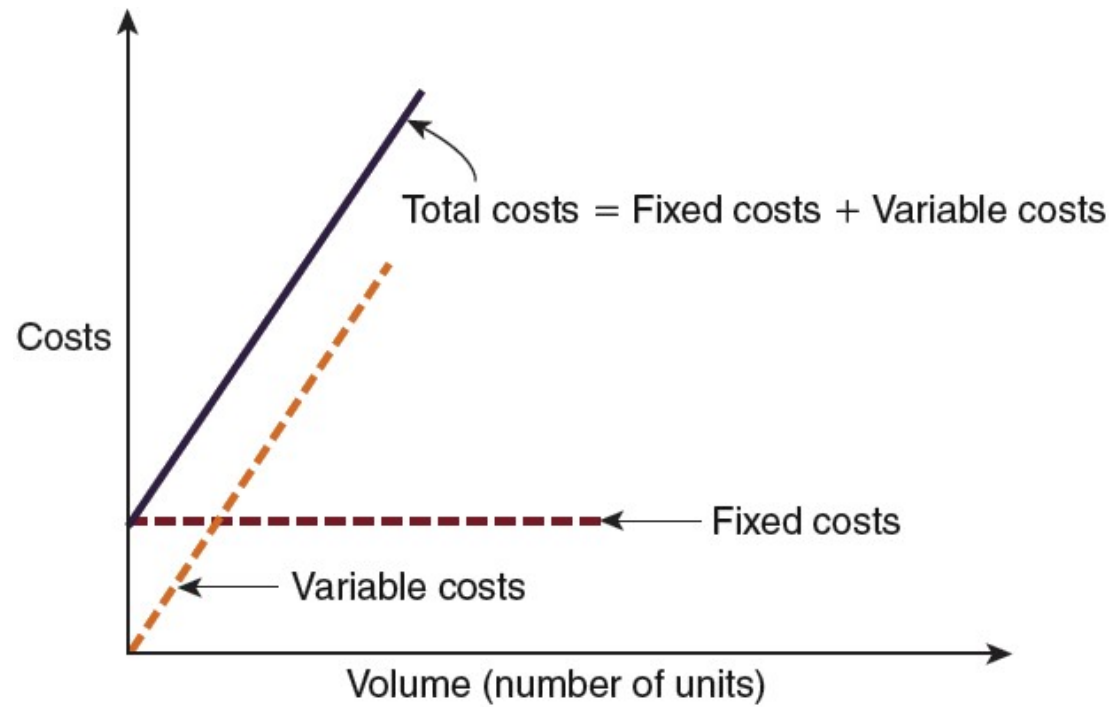


Cost Definitions (cont'd)

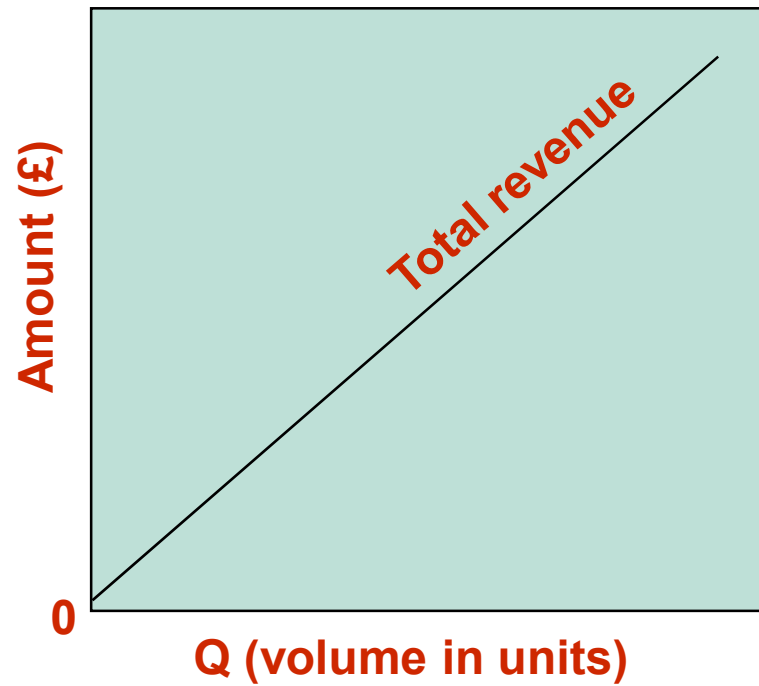
- **Cost of Capital**

- Usually expressed as a percentage rate, it reflects the cost of the money invested in a project.
- Comparisons:
 - The cost of borrowing money to finance the project.
 - Interest lost on short-term loans.
 - Opportunity cost of forgoing one of several other projects that require funding.

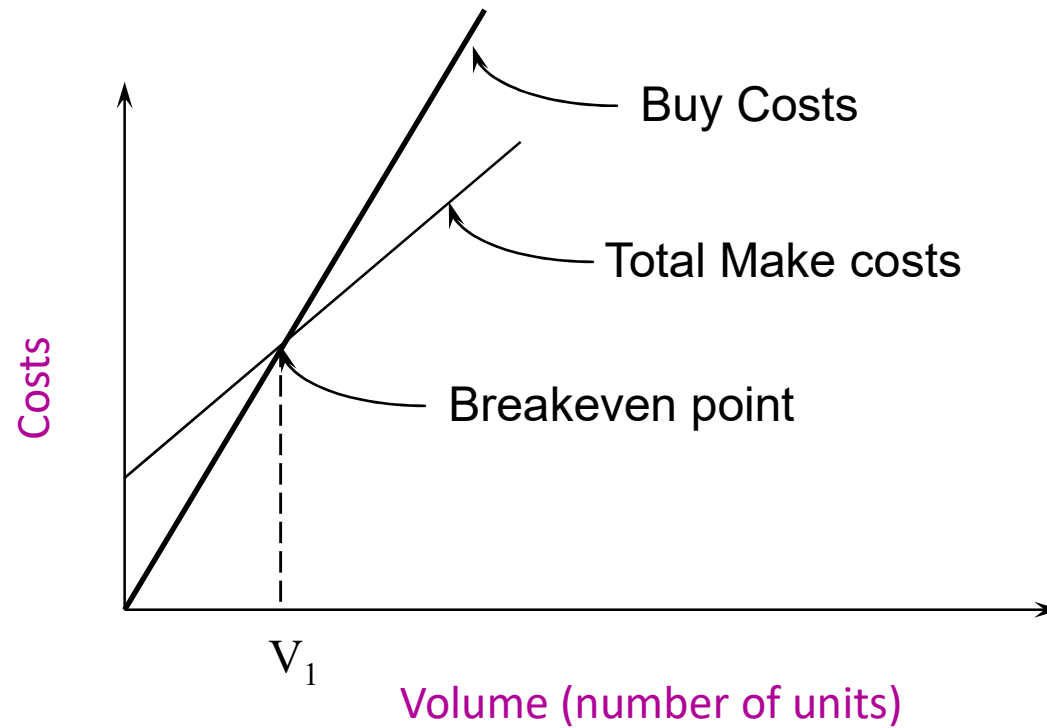
Fixed and Variable Cost Components



Cost-Volume Relationships



Break-even Analysis: Make or Buy Costs



Break-Even Analysis (cont'd)

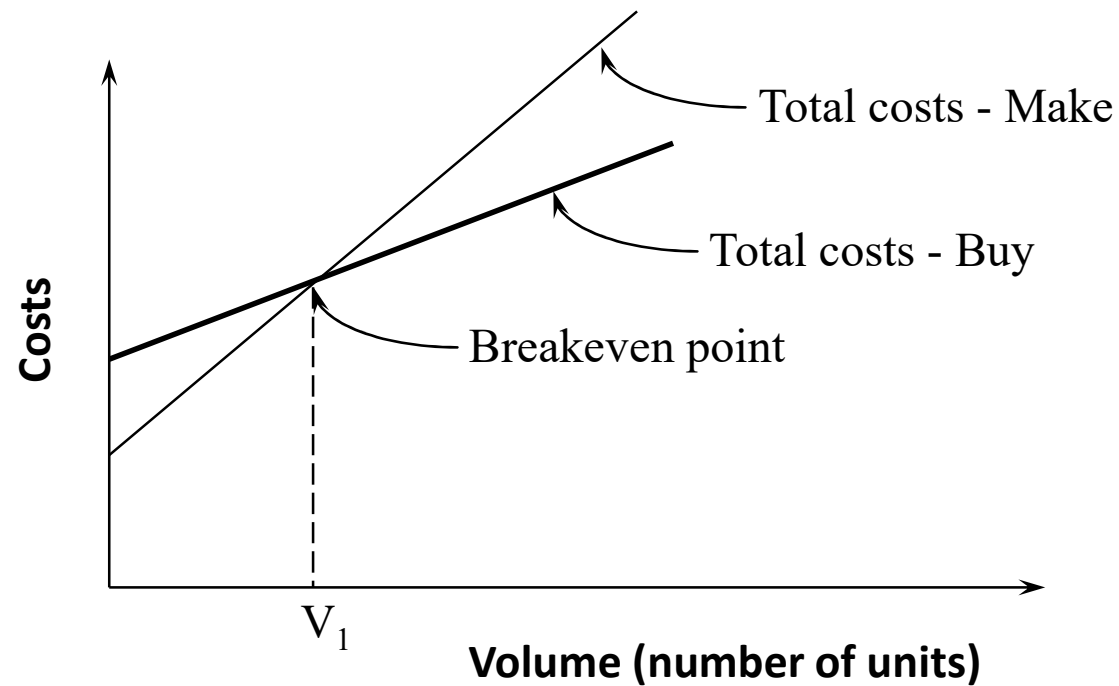
- Make or Buy cost (Assumptions)
 - The selling price per unit is constant.
 - Variable costs per unit remain constant.
 - Fixed costs remain constant.

Break-Even Analysis (cont'd)

- Choice of Processes
 - Used to choose from among alternative processes a company can use.
 - Break-even point is defined as that volume where we are indifferent with respect to the costs of the alternative processes.

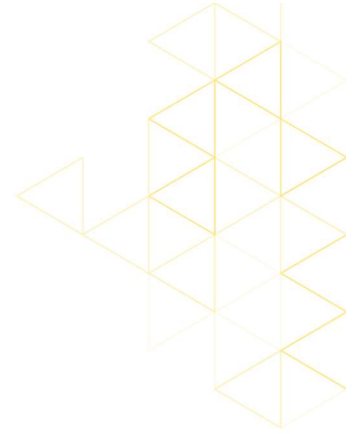


Break-even Analysis: Choice of Processes



Types of Economic Decisions

- Purchase of new equipment or facilities
- Replacement of existing facilities or equipment
- **Make-or-buy decisions**
- Lease-or-buy decisions
- Temporary shutdown or plant abandonment decisions
- Addition or elimination of a product or product line



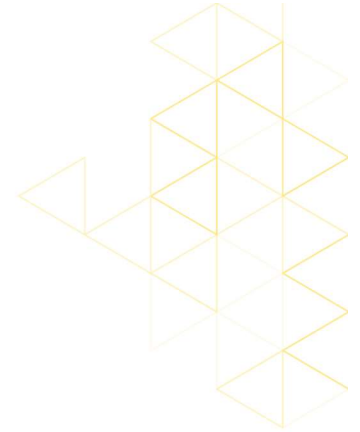
Assumptions of Cost-Volume Analysis

1. One product is involved
2. Everything produced can be sold
3. Variable cost per unit is the same regardless of volume
4. Fixed costs do not change with volume
5. Revenue per unit constant with volume
6. Revenue per unit exceeds variable cost per unit

Cost-Volume Analysis

- FC – Fixed cost
- VC – Total variable cost
- v – Variable cost per unit
- TC – Total cost
- TR – Total revenue
- R – Revenue per unit
- Q – Quantity or volume of output
- Q_{BEP} – Break-even quantity
- P – Profit
- CM – Contribution Margin

- $TC = FC + VC$
 - $VC = Q \times v$
 - $TR = R \times Q$
 - $P = TR - TC$
 $= R \times Q - (FC + v \times Q)$
 $= Q(R - v) - FC$
- $CM = R - v$
 $Q = P + FC / R - v$
 $Q_{BEP} = FC / R - v$



Make or Buy Example

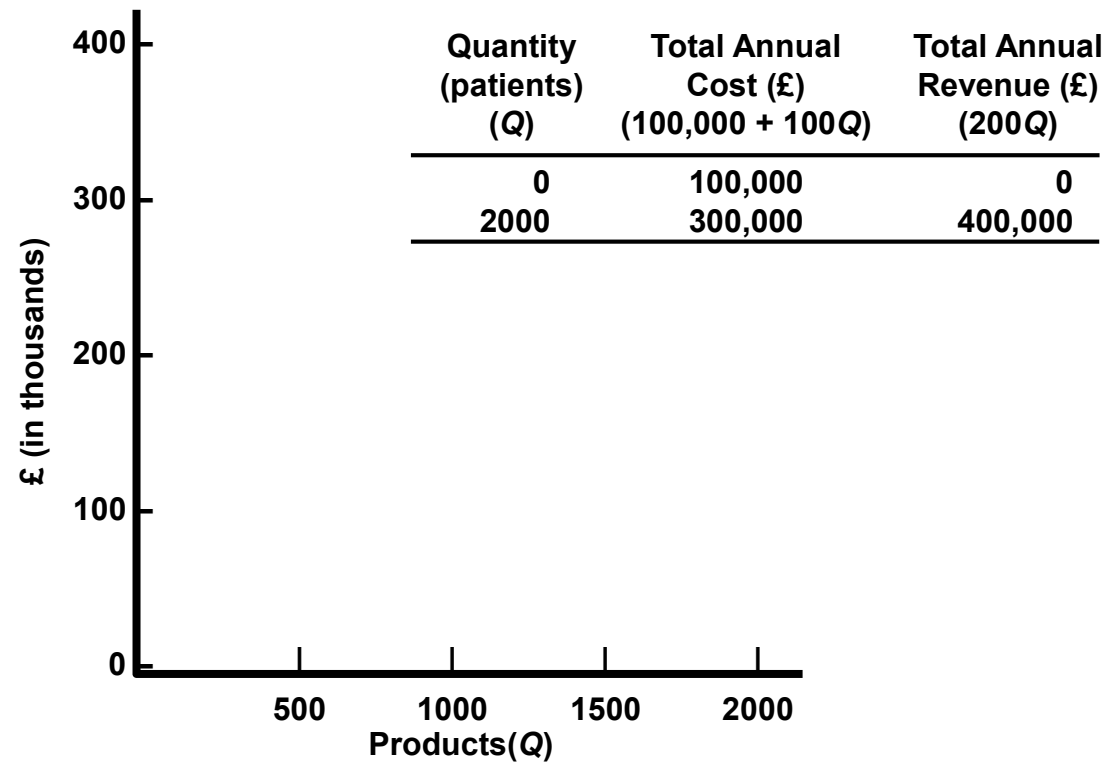
A company is considering buying in a new product from a supplier at £200 per unit.

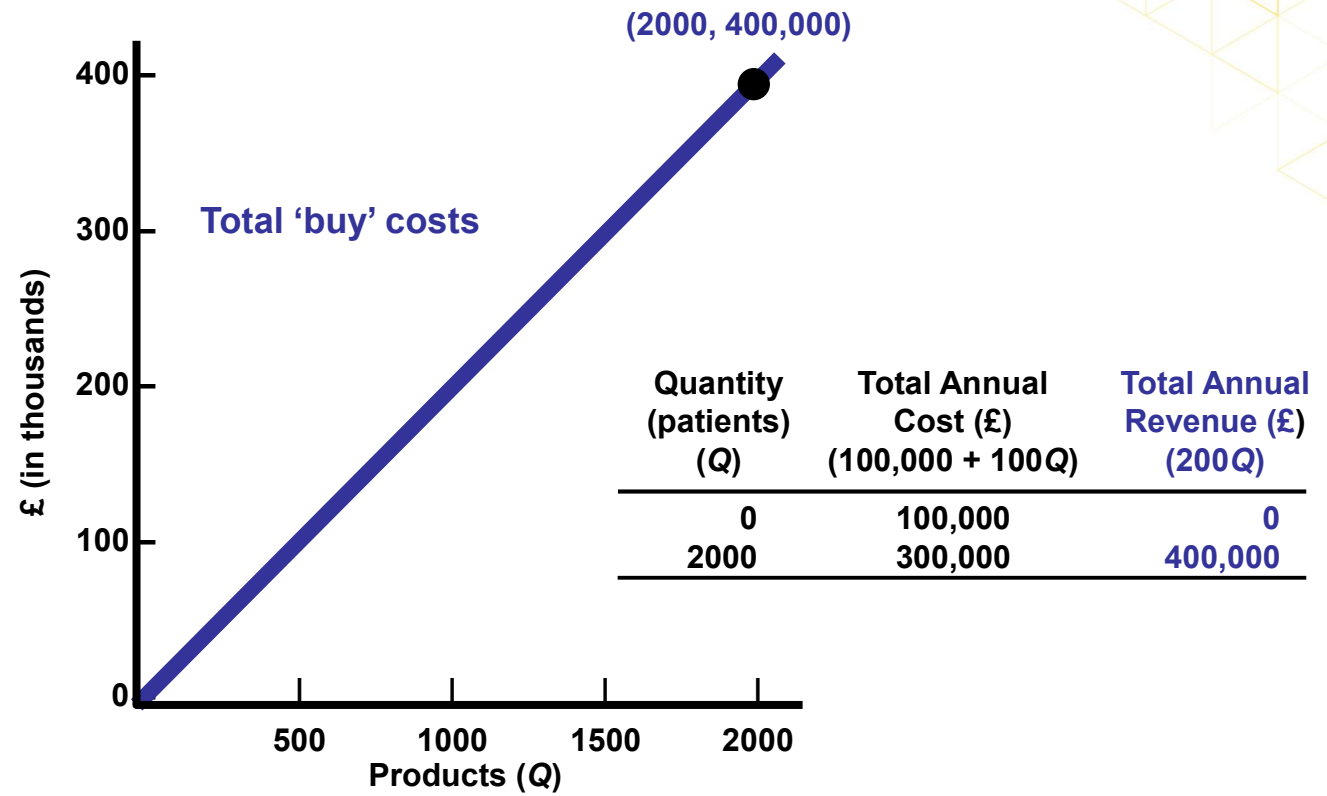
To produce 'in house' the fixed cost per year would be £100,000, and the total variable costs would be £100 per part.

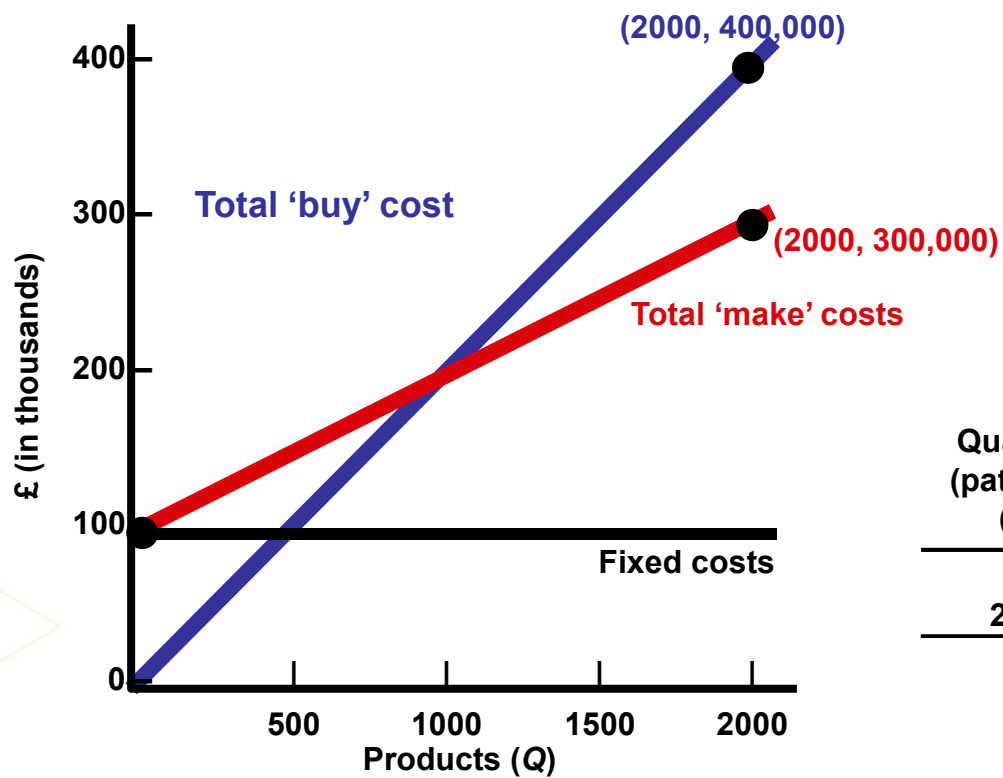
What would be the break even-point in terms of volume and cost for the make or buy decision ?

$$Q = FC / (R - v) = 100,000 / (200 - 100) = 1,000 \text{ products}$$

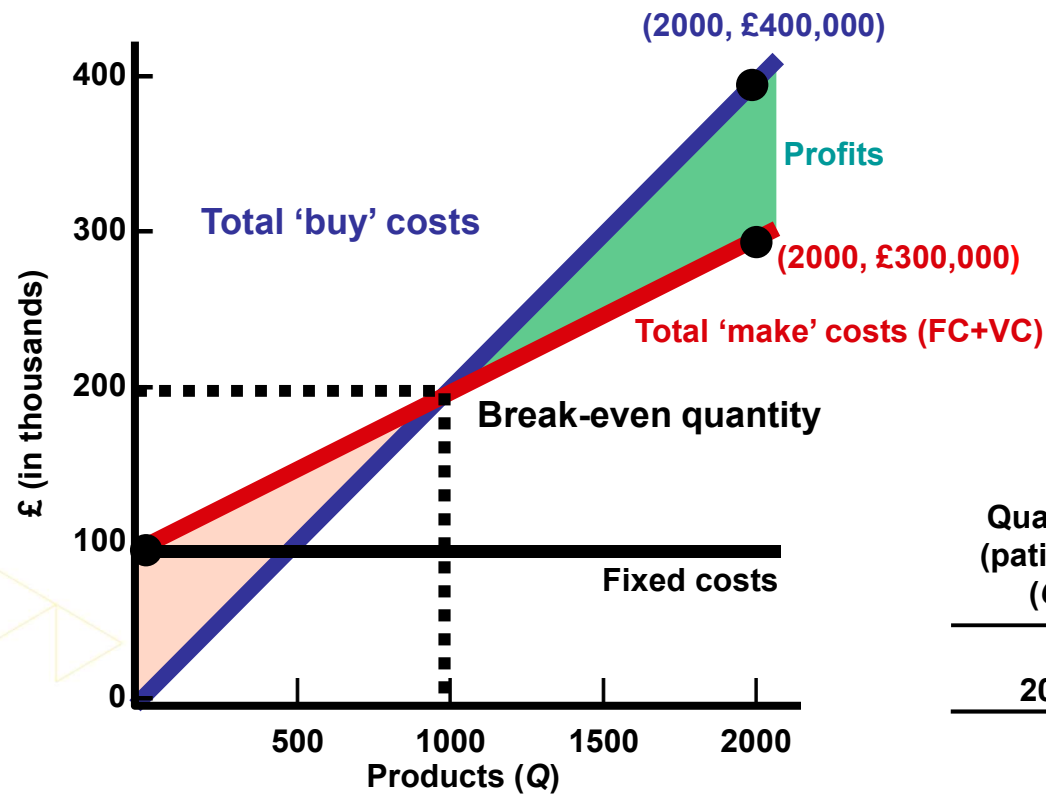
Make or Buy Example







Quantity (patients) (Q)	Total Annual Cost (£) $(100,000 + 100Q)$	Total Annual Revenue (£) $(200Q)$
0	100,000	0
2000	300,000	400,000



Quantity (patients) (Q)	Total Annual Cost (£) (100,000 + 100Q)	Total Annual Revenue (£) (200Q)
0	100,000	0
2000	300,000	400,000

Make or Buy Exercise

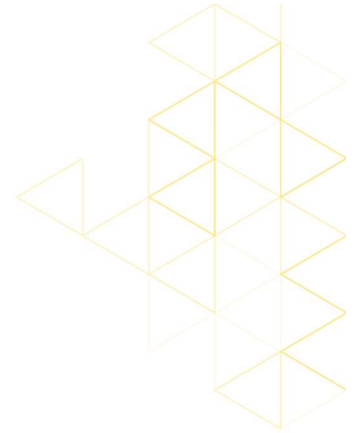
A company is considering buying in a new product from a supplier at £350 per unit.

To produce 'in house' the fixed cost per year would be £130,000, and the total variable costs would be £80 per part.

What would be the break even-point in terms of volume and cost for the make or buy decision ?

Time to do Exercise 1

**(The answer is shown later in this slideshow
so do not move forward until you have given
the exercise a go)**



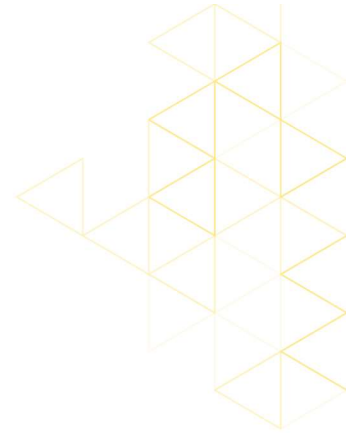
Make or Buy Example

$$Q = FC / (R - v)$$

$$= 130,000 / (350 - 80)$$

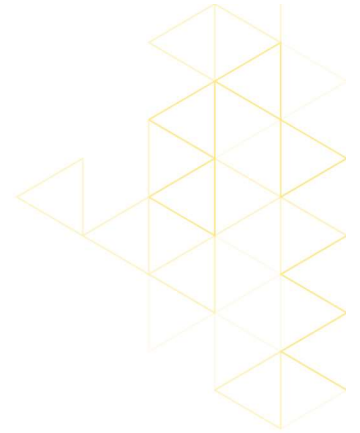
$$= 482 \text{ products}$$

$$482 \text{ products} \times £350 = £168,560$$



Time to do Exercise 2

**(The answer is shown later in this slideshow
so do not move forward until you have given
the exercise a go)**



Make or Buy Decisions

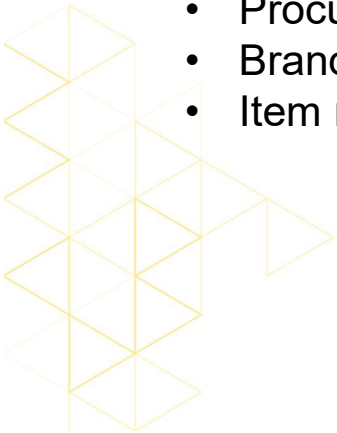
Make In House

- Cost considerations (less expensive to make the part)
- Productive use of excess plant capacity to help absorb fixed overhead (using existing idle capacity)
- Need to exert direct control over production and/or quality
- Better quality control
- Design secrecy is required to protect proprietary technology
- Unreliable suppliers
- No competent suppliers available
- Desire to maintain a stable workforce (in periods of declining sales)
- Quantity too small to interest a supplier
- Control of lead time, transportation, and warehousing costs
- Greater assurance of continual supply
- Provision of a second source
- Political, social or environmental reasons

Make or Buy Decisions

Buy in Part

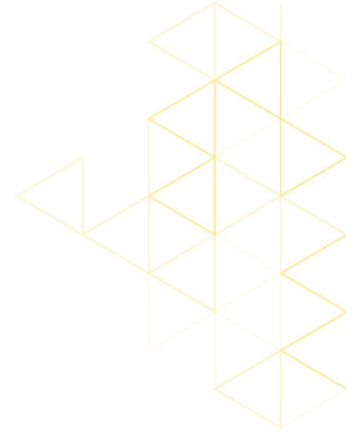
- Lack of expertise
- Suppliers' research and specialized know-how exceeds that of the buyer
- cost considerations (less expensive to buy the item)
- Small-volume requirements
- Limited production facilities or insufficient capacity
- Desire to maintain a multiple-source policy
- Indirect managerial control considerations
- Procurement and inventory considerations
- Brand preference
- Item not essential to the firm's strategy



Make or Buy Decisions

Major Elements of 'Make' Decision

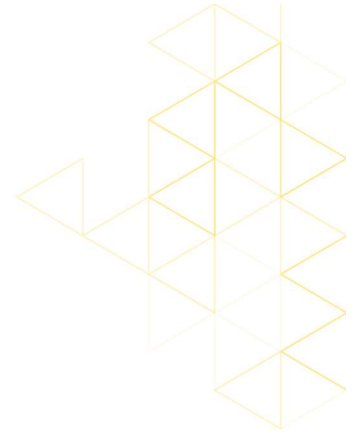
- Incremental inventory-carrying costs
- Direct labour costs
- Incremental factory overhead costs
- Delivered purchased material costs
- Incremental managerial costs
- Any follow-on costs stemming from quality and related problems
- Incremental purchasing costs
- Incremental capital costs

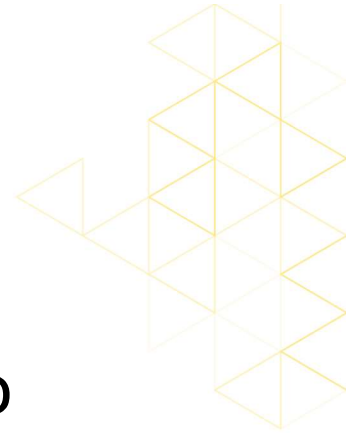


Make or Buy Decisions

Major Elements of 'Buy' Decision

- Purchase price of the part
- Transportation costs
- Receiving and inspection costs
- Incremental purchasing costs
- Any follow-on costs related to quality or service





Thank you for watching, now have a go
at the multiple choice questions.



If you have any questions then please
contact me on ant42@aber.ac.uk



PRIFYSGOL
ABERYSTWYTH
UNIVERSITY

Diolch | Thank you



THE TIMES
THE SUNDAY TIMES
**CANLLAW
PRIFYSGOLION
DA
2019**

PRIFYSGOL
Y FLWYDDYN AR
GYFER ANSAWDD
Y DYSGU

THE TIMES
THE SUNDAY TIMES
**GOOD
UNIVERSITY
GUIDE
2019**

UNIVERSITY
OF THE YEAR
FOR TEACHING
QUALITY