

Capacity utilisation and outsourcing AS

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What you need to know

By the end of this topic you should be able to:

1. **Measure capacity utilisation:** know what a business's maximum capacity is, and calculate capacity utilisation as a percentage from output figures, for a factory or for a service such as a hotel or a cinema.
2. **Explain and analyse the impact of operating under maximum capacity** (with spare, or excess, capacity) **and of operating at or over maximum capacity**, on costs, prices, employees, quality, customers and profit.
3. **Explain and judge the methods of improving capacity utilisation:** raising output to fill the capacity the business already has, or cutting capacity that is not needed (rationalisation).
4. **Explain what outsourcing is and analyse its impact on a business**, including using it to raise capacity, and judge it against other ways of solving a capacity problem.

Calculating break-even and contribution belongs to costs, and investment appraisal to finance; this topic only borrows their results when a question gives you them.

Understand it

Capacity and capacity utilisation

A business's **maximum capacity** is the most output it can produce in a period, **and keep producing**, with the resources it has now: its buildings, machines and employees. A factory with machines that can make 10,000 units a month has a maximum capacity of 10,000 units a month. A service business has a capacity too: a hotel has a number of rooms per night, an airline a number of seats per flight, a hairdresser a number of appointments per day.

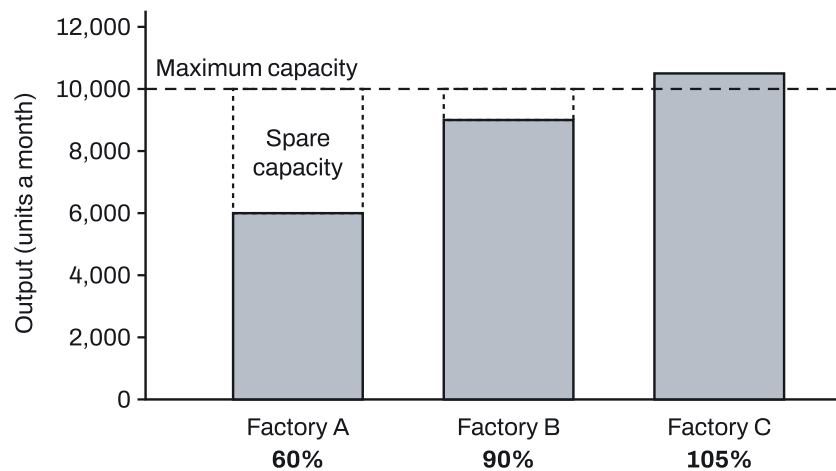
Capacity utilisation is the share of that maximum capacity that the business is actually using:

$$\text{Capacity utilisation} = \frac{\text{current output}}{\text{maximum possible output}} \times 100$$

A dairy that can bottle 50,000 litres a day and bottles 40,000 litres a day has a capacity utilisation of $\frac{40000}{50000} \times 100 = 80\%$. A hotel with 120 rooms that fills, on average, 90 a night has $\frac{90}{120} \times 100 = 75\%$.

Two words you will meet:

- **Spare capacity** (or **excess capacity**): the part of maximum capacity that is not being used. The dairy has $50000 - 40000 = 10000$ litres a day of spare capacity.
- **Operating over maximum capacity**: output above the level that can be sustained, so capacity utilisation is above 100%. This is possible only for a while, by running extra shifts and overtime, delaying machine maintenance and cutting breaks. A factory with a maximum of 1,000 units a week that is pushed to 1,080 units is at 108%.

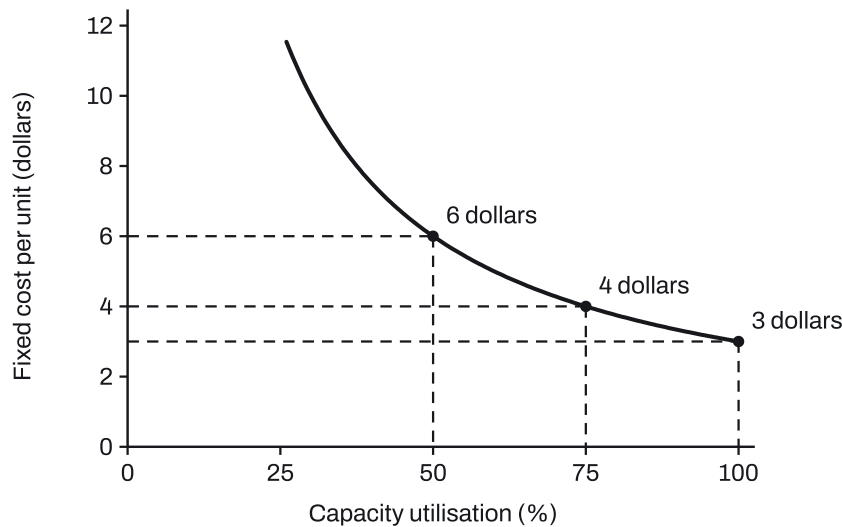


Why capacity utilisation matters: fixed costs per unit

Most of the costs of having capacity are **fixed costs**: rent, the machines' depreciation and loan interest, salaries, insurance. They must be paid whether the capacity is used or not. The more units the business makes, the more units share those costs, so the **fixed cost per unit falls as capacity utilisation rises**:

$$\text{Fixed cost per unit} = \frac{\text{total fixed costs}}{\text{output}}$$

A workshop with fixed costs of 60,000 dollars a month and a maximum capacity of 20,000 units pays 6 dollars of fixed cost per unit at 50% utilisation (10,000 units), 4 dollars at 75% (15,000 units) and 3 dollars at 100% (20,000 units).



Lower cost per unit then gives the business a choice: **cut its price** to compete and win sales, or keep the price and earn a **higher profit margin** on every unit.

Operating under maximum capacity

When capacity utilisation is low:

- **Resources stand idle.** Machines, floor space and paid employees are not producing; the business is paying for capacity it does not use, which is inefficient.
- **Higher average costs.** Fixed costs are spread over fewer units, so each unit costs more, the business is less price-competitive than rivals running nearer full capacity, and its profit margin shrinks. If sales cannot cover the fixed costs, it makes a loss.
- **Morale can suffer.** Employees with too little to do may be bored, or fear that their jobs are at risk.
- **Image.** Empty restaurants or half-full flights can make customers think the business is unpopular.

There are benefits too, which mark schemes accept:

- **Room to respond.** A sudden rise in demand or a large new order can be met quickly, without overtime or turning customers away.
- **Time for maintenance and training,** without stopping production.
- **Less pressure on employees,** so fewer mistakes.

Operating at or over maximum capacity

When capacity utilisation is very high:

- **Lowest fixed cost per unit,** so the best chance of high profit, and the business is clearly in demand.

But, especially above 100%:

- **Pressure on employees.** Long hours and constant overtime cause stress, tiredness, absence and staff leaving, which raises recruitment and training costs.
- **Quality falls.** Rushed work and tired staff make more mistakes, more faulty products are returned and the brand's image suffers.
- **No time for maintenance.** Machines that are never stopped break down, and then production stops completely and orders are late.
- **Higher costs.** Overtime is paid at a higher rate, so average costs can **rise** again.
- **New orders refused.** With no spare capacity, the business cannot accept extra orders, so customers go to rivals and may not come back.
- **Not sustainable.** It works for a short peak, not as a permanent way of operating.

So most businesses aim for a capacity utilisation that is **high but below 100%**: low costs per unit, with a small margin for maintenance and sudden orders.

Improving capacity utilisation

Because capacity utilisation is current output divided by maximum output, there are two ways to raise it.

1. Raise output, using the capacity the business already has, when there is demand or demand can be created:

- **More marketing:** advertising, promotions or lower prices to raise demand, so more is made with the same machines and employees.
- **New products** that use idle machines or idle hours (a bakery's ovens baking cakes for cafés in the afternoon).
- **Work for other businesses:** becoming a subcontractor, using spare capacity to make products under contract for another firm.
- **Better use of existing assets:** maintaining machines so they break down less, updating their software or technology, and training and motivating employees so that less paid time is wasted.

2. Cut maximum capacity when demand is not expected to recover, so that the resources that remain are used more fully. This is **rationalisation**: selling or closing machines, a production line or a whole site, cutting a shift, or moving to smaller premises. It saves fixed costs but costs jobs, may harm morale and leaves the business unable to meet a later rise in demand.

What does not improve capacity utilisation: buying extra machines or hiring more employees raises maximum capacity, so unless demand rises at the same time, capacity utilisation falls. "Reducing waste" only helps if you explain how it raises the output the business actually sells.

When demand is above capacity

When a business is operating over maximum capacity for a long time, it needs a lasting fix. The options:

Option	For	Against
Overtime or extra shifts	quick, no new building	costly, tired staff, short term only
Outsourcing (subcontracting) some production	fast, no capital spending, flexible	loss of control over quality; the supplier takes a profit
Extend the factory or buy more equipment	full control of quality; lower costs in the long run	large capital cost, takes time to build, finance needed, spare capacity if demand falls
Raise price or limit orders	keeps quality, raises margin	loses customers to rivals; conflicts with growth objectives
Raise productivity (training, better methods)	lowers unit cost	slow, uncertain results

The right choice depends on **how long** the extra demand will last, the **finance** available (a business with high gearing may not be able to borrow for a new factory), how important **quality and brand** are, and **how quickly** the problem must be solved. A common sensible answer is outsourcing in the short term while the business decides whether to expand.

Outsourcing

Outsourcing means paying another business (a third party) to carry out a business activity or function that the business could do itself with its own resources. **Subcontracting** means the same in practice: the business contracts a second business to supply part, or all, of its output or a service.

Almost anything can be outsourced: manufacturing all or part of a product, delivery, IT, payroll and accounts, recruitment, cleaning, catering, customer call centres, marketing. A clothing brand might outsource the sewing of its garments to a factory in another country while it keeps design and marketing.

Outsourcing is **not** the same as selling through another business, such as a retailer or a distributor. Those are distribution channels.

Advantages of outsourcing

- **More capacity, quickly.** The business can meet higher demand without building a factory or buying equipment, so it avoids large capital spending and the risk of being left with idle capacity if demand falls.
- **Flexibility.** Orders to the outsourcing firm can be raised or cut as demand changes, depending on the contract.
- **Lower costs.** The specialist firm may have economies of scale or lower labour costs, so it can do the job more cheaply than the business could.
- **Specialist skills and equipment** the business does not have, which can raise quality.
- **Focus on core activities.** Managers and employees can concentrate on what the business does best (design, marketing, the service customers pay for), and the floor space, machines and people that did the outsourced work can be put to better use.

Disadvantages of outsourcing

- **Less control over quality and delivery.** If the outsourcing firm makes faulty products or delivers late, the business's customers blame the business, and its reputation suffers.
- **Reliance on another business.** It may raise prices, go out of business, give priority to other clients or work for competitors too.
- **Costs may rise.** The outsourcing firm must make a profit, so its price includes a margin; there are also transport costs, contract costs and the cost of checking its work.
- **Communication** can be slow or difficult, especially over long distances or in different languages and time zones.
- **Ethics and reputation.** Poor working conditions at the outsourcing firm can attract criticism from pressure groups and customers, and may clash with the business's own values.
- **Employees.** Outsourcing work can mean redundancies; remaining staff may fear for their jobs, and motivation falls.
- **Confidentiality.** Designs, processes and customer data are shared with an outside firm and may leak.

When it suits: the activity is not what makes the business special; a reliable, reputable specialist exists; the extra demand may not last; and the business lacks the finance or time to expand. **When it does not:** the activity is central to the brand (a hand-made product, a premium promise of quality), customers need an instant response, or the outsourcing firm's standards or values do not match the business's.

Key facts and formulas

There is no formula list for this subject in the exam. "Learn it" means you must remember it.

Fact or formula	Status
Maximum capacity: the most output a business can produce and sustain in a period with its current resources	Learn it
Capacity utilisation = $\frac{\text{current output}}{\text{maximum possible output}} \times 100$	Learn it
Spare (excess) capacity = maximum capacity – current output	Learn it
Capacity utilisation above 100%: operating over maximum capacity, possible only in the short term	Learn it
Fixed cost per unit = $\frac{\text{total fixed costs}}{\text{output}}$, so it falls as capacity utilisation rises	Learn it
Two ways to improve capacity utilisation: raise output within existing capacity, or cut capacity (rationalisation)	Learn it
Rationalisation: reducing the scale of operations, such as closing a site or selling machines, to cut spare capacity	Learn it

Fact or formula	Status
Outsourcing (subcontracting): paying another business to carry out a business activity or function	Learn it

How to do it

We have tagged 15 questions on this topic (2021–2026), on Papers 1, 2 and 3. 3 of them have parts of more than one type, so the counts add up to 18.

Question type	Questions
Analyse the impact of operating under or over maximum capacity, or of improving it	4
Calculate capacity utilisation	4
Analyse an impact, advantage or disadvantage of outsourcing	3
Evaluate outsourcing against another way to raise capacity	3
Recommend how to fix a capacity problem	2
Explain the term outsourcing	1
Explain one method of improving capacity utilisation	1

The marks are for four skills: **K** (knowledge: a correct point or definition), **App** (application: using the business or industry in the question), **An** (analysis: a chain of causes and consequences) and **Eval** (evaluation: a supported judgement). Below, (K), (App), (An) and (Eval) after a sentence show the mark it earns.

1. Analyse the impact of operating under or over maximum capacity, or of improving it (4 questions)

Forms: Paper 1 "Analyse one possible impact on a business of operating over (or below) maximum capacity" or "Analyse one benefit to a business of improving capacity utilisation" [**5**]; Paper 2 "Explain one possible disadvantage to [case business] of high capacity utilisation" [**3**].

- K**: name **one** impact precisely. Over capacity: stress on employees, falling quality, no time for maintenance, overtime costs, orders refused; or the good side, more output and lower unit costs. Under capacity: idle resources, higher fixed cost per unit, less competitive; or the good side, room to meet sudden demand. Improving utilisation: fixed costs spread over more units, resources used efficiently.
- App** (2 on Paper 1): explain how the impact comes about, using a kind of business (a bottling plant, a hotel, a furniture maker).
- An** (2): carry it on to the end result. Useful chains:
 - overtime every week → tired staff make mistakes → more faulty goods returned → brand image damaged → lost sales;
 - machines never stopped for servicing → breakdown → production halts → orders late → customers switch to rivals;

- fixed costs over fewer units → higher cost per unit → must charge more than rivals or accept a lower margin → lower profit;
- higher utilisation → lower unit cost → price can be cut to win market share, or kept to raise the profit margin.

On Paper 2 [3], 1 K + 1 for the explanation + 1 for the case: use the capacity utilisation figure you have just calculated ("at 97% there is almost no spare capacity, so ...").

Variations you will meet: mark schemes also accept the cost-saving reading of "improving capacity utilisation" (cutting excess capacity saves fixed costs). An impact can be good or bad; choose the one you can chain furthest.

2. Calculate capacity utilisation (4 questions)

Paper 2 (b)(i) [3] or Paper 3 (a) [2–3]. One mark for the formula, one for the right figures in it, full marks for the answer; the % sign is not needed, and a wrong figure used correctly still earns marks.

1. Write the formula: $\text{current output} \div \text{maximum possible output} \times 100$.
2. Find the **current output** and the **maximum** for the **same period**. Paper 2 usually gives both in a table; Paper 3 may make you work them out from the text, for example an average daily output from a total, or output after a stated percentage rise.
3. Divide and **multiply by 100**. Round sensibly (2 decimal places is safe).

For example, 1,300 meals a day in a kitchen that can make 2,000 a day: $\frac{1300}{2000} \times 100 = 65\%$. Output of 12 million rising by 15%, with a maximum of 15 million: $\frac{12 \times 1.15}{15} \times 100 = 92\%$.

Variations you will meet: an answer above 100% is correct when output is above maximum capacity ($\frac{2.2}{2.0} \times 100 = 110\%$). Writing 0.65 instead of 65% loses a mark; units such as "110 m" are wrong.

3. Analyse an impact, advantage or disadvantage of outsourcing (3 questions)

Forms: Paper 1 "Analyse one impact on a business of outsourcing (its production process)" [5]; Paper 2 "Analyse one advantage and one disadvantage to [case business] of outsourcing [an activity]" [8].

1. **K:** name the impact: more capacity, flexibility, lower costs, specialist skills, focus on core activities; or loss of control over quality, reliance on a supplier, higher costs from the supplier's margin, reputation and ethics, staff morale, ideas leaking.
2. **App:** on Paper 1 pick an example business and activity (a bank outsourcing its call centre, a phone brand outsourcing assembly); on Paper 2 use the case: what is outsourced, to whom, where they are, their lead times, the business's brand and values.
3. **An:** chain to sales, profit or reputation:
 - outsourced assembly → no need to buy machinery → cash kept for product design and marketing → stronger brand and more sales;
 - outsourced firm cuts corners → faulty products under the business's name → complaints and returns → reputation and future sales lost;

- supplier far away → long lead times → slow response when demand changes → lost orders.

Mark structures: [5] = 1 K + 2 App + 2 An on **one** impact (no marks at all without a valid impact); [8] = for each of the two points, 1 K + 1 App + 2 An. A two-sided point ("costs fall, but the supplier's profit margin means the saving is smaller than expected") counts as developed analysis.

4. Evaluate outsourcing against another way to raise capacity (3 questions)

Forms: Paper 2 (d) **[12]** "Evaluate whether outsourcing is the most suitable way to increase [case business]'s production capacity" (2 K, 2 App, 2 An, 6 Eval); older Paper 3 essays: "Evaluate whether [business] should subcontract production to solve the problem of insufficient capacity" **[16]**, or "Recommend whether [business] should buy new equipment or outsource" using payback or ARR from part (a) **[14]**.

1. **K:** define outsourcing (or subcontracting) and capacity.
2. **App:** use the case's numbers and facts: how far demand exceeds capacity, how fast it is growing, the business's finance and gearing, the outsourcing firm's location, reputation and other clients, what makes the product special (hand-made, premium, ethical).
3. **An**, both ways:
 - for: capacity rises at once with no capital spending → orders met → sales and market share grow; flexible if demand falls; the business can focus on design and marketing;
 - against: quality and values out of the business's control → complaints or bad publicity → loyal customers lost; the supplier's margin lowers profit per unit; dependence on one supplier;
 - the alternatives (extend the factory, buy equipment, overtime, raise prices) with their own for and against.
4. **Eval:** decide **for this business**: outsource, expand, or a mixture. Strong judgements say what the decision depends on: whether the extra demand will last; the terms of the contract (don't assume it can be cancelled at any time); how central quality and brand values are; finance. Outsourcing in the short term while expanding later, or outsourcing only the standard products and keeping the special ones in-house, is credited when it is justified.

When the question names two options, evaluate **both**: answers that discuss only one lose analysis and evaluation marks.

5. Recommend how to fix a capacity problem (2 questions)

Paper 3 (b) **[12]**, using the capacity utilisation from part (a). Two forms:

- **Over capacity** ("Recommend how [business] could solve the problem of operating over maximum capacity"): compare outsourcing with expanding (the table in "When demand is above capacity"), plus other options such as limiting sales or raising productivity. Focus on **solving** the problem, not on describing its consequences. Judge short term against long term, cost, quality control and finance.
- **Under capacity** ("Recommend whether [business] should close [a site]"): low capacity utilisation and high unit costs argue for closing (rationalisation). Against: if the site's sales cover its variable costs, it makes a positive **contribution** to fixed costs, and the business's fixed costs (head office, marketing) would not

disappear with it, so closing would lower total profit; closure works against a growth objective, harms morale elsewhere, and a few months' figures may not show a trend. Recommend with reasons, and say what more information you would want.

1. Use your part (a) result as evidence (own figure rule applies).
2. Give two or more options or arguments, each applied and analysed.
3. Make the recommendation, justify it with the case, and judge along the way, not only at the end.

6. Explain the term outsourcing (1 question)

Paper 2 (a)(ii) [3]: 1 K + 2 App.

1. **K**: using another business (a third party) to carry out a business activity or function.
2. **App**: add an example of an outsourced function (manufacturing, accounts, HR, IT, delivery) and/or a reason (lower cost, skills the business lacks, more capacity). Two of these earn both marks.

Don't copy the case's sentence about outsourcing: it earns nothing. Selling through a partner or distributor is not outsourcing.

7. Explain one method of improving capacity utilisation (1 question)

Paper 1 [3]: 1 K for the method + 2 for a developed explanation of how it raises output **relative to** capacity.

1. **K**: name the method: more marketing to raise demand, new products for idle machines, subcontracting work for other firms, rationalisation (cutting capacity), better maintenance or updated technology for existing machines, raising labour productivity.
2. **Explain**: how it works and why utilisation rises: "a promotion raises demand (1), so the factory's machines, now idle on Fridays, are used to make the extra output (1), raising current output towards maximum capacity."

Buying new machinery or hiring more employees does not count, because it raises maximum capacity.

Worked examples

Example 1

Crumb & Co is a bakery. Its ovens can bake at most 4,800 loaves a day. Over the last 20 working days it baked 72,000 loaves.

(a) Calculate Crumb & Co's capacity utilisation over the last 20 days. [3]

(b) Explain one method Crumb & Co could use to improve its capacity utilisation. [3]

(a) Capacity utilisation = $\frac{\text{current output}}{\text{maximum output}} \times 100$ (1).

Average daily output = $72000 \div 20 = 3600$ loaves, so $\frac{3600}{4800} \times 100 (1) = 75\% (1)$.

(b) Crumb & Co could make a new product (K): its ovens have 1,200 loaves a day of spare capacity, which could bake cakes and rolls to supply local cafés (1). The same ovens and bakers would then produce more each day, so output rises towards the 4,800 maximum and the fixed cost of the ovens is spread over more products (1).

Example 2

Peak Bikes assembles bicycles. Its maximum capacity is 2,000 bicycles a month and it currently makes 1,700 a month. It has accepted a large order that will raise output to 2,150 bicycles a month for the next three months.

(a) Calculate Peak Bikes' capacity utilisation now and for the next three months. [3]

(b) Explain one possible disadvantage to Peak Bikes of operating above maximum capacity. [3]

(a) Now: $\frac{1700}{2000} \times 100 = 85\% (1)$. Next three months: $\frac{2150}{2000} \times 100 (1) = 107.5\% (1)$.

(b) There will be no time for machine maintenance (K). To build 150 bicycles a month more than its maximum, Peak Bikes will have to run its assembly line through the weekly service slots (App), so a breakdown could halt production altogether and the large order, along with orders from regular shops, would be delivered late (App).

Example 3

Linden Tea (LT) sells premium loose-leaf tea online in recyclable tins, each packed with a hand-written thank-you card. Its six packing staff can pack at most 400 orders a day. In the weeks before the holidays, orders average 520 a day and customers have complained about slow delivery. A fulfilment company has offered to store LT's tins and pack all its orders for 1.10 dollars an order; packing currently costs LT 0.90 dollars an order.

Analyse one advantage and one disadvantage to LT of outsourcing its packing. [8]

Advantage: more capacity at once. Outsourcing lets a business use another firm's resources to raise output without investing itself (K). LT is at $\frac{520}{400} \times 100 = 130\%$ of its packing capacity, and delivery is already slow (App). The fulfilment company can pack all 520 orders a day straight away (An), so customers receive their tea before the holidays, fewer complain or cancel, and LT keeps the extra sales of its busiest season, without the cost of hiring and training extra packers who would be idle in January (An).

Disadvantage: higher costs and less control. The outsourcing firm must make a profit, and LT no longer controls how the work is done (K). Each order would cost $1.10 - 0.90 = 0.20$ dollars more, about $520 \times 0.20 = 104$ dollars a day in the peak (App), which cuts LT's profit margin (An); and if the fulfilment company drops the hand-written cards that make LT's premium brand personal, loyal customers may feel LT has become just another online shop and stop paying a premium price (An).

Each point earns K + App + a developed chain: $2 K + 2 App + 4 An = 8$.

Example 4

Volt Cell (VC) is a private limited company that designs and makes phone chargers on automated lines in its own factory. Its brand is built on safety: every charger is tested in VC's own laboratory before it leaves the factory, and none has ever been recalled. Maximum capacity is 60,000 chargers a month. Sales were 57,000 a month last year, but a national electronics chain has just agreed to stock VC's chargers, and orders for the coming year are forecast at 75,000 a month. VC sells each charger for 15 dollars; its own variable cost is 6 dollars a charger. VC's gearing is 55%. To meet the extra demand VC could:

- pay a contract manufacturer abroad, which tests one charger in every hundred, to make 15,000 chargers a month at 9 dollars each; or
- add a second production line for 1.2 million dollars, ready in 8 months, raising maximum capacity to 90,000 chargers a month.

Recommend which option VC should choose. Justify your answer. [12]

Knowledge. Outsourcing means paying another business to carry out part of a business's production (K). Capacity is the most output a business can sustain with its current resources (K).

The problem. Forecast orders are $\frac{75000}{60000} \times 100 = 125\%$ of VC's capacity, so 15,000 chargers a month cannot be made in-house (App).

For outsourcing. It solves the shortage at once with no capital spending, which matters because VC's gearing of 55% makes another large loan risky (App). Each outsourced charger still earns a contribution of $15 - 9 = 6$ dollars, so the 15,000 extra chargers add $15000 \times 6 = 90,000$ dollars a month (An). If the chain's orders turn out lower than forecast, VC can cut its order instead of paying for a production line that stands idle (An).

Against outsourcing. VC's own chargers earn $15 - 6 = 9$ dollars each, so outsourcing gives up 3 dollars a charger, or 45,000 dollars a month (An). More serious, sample testing breaks VC's safety promise: a single faulty charger that overheats under VC's name could lead to a recall, bad publicity and the loss of the electronics chain as a customer, and with it the growth the outsourcing was meant to support (An).

The new line. It keeps every charger tested in VC's laboratory and earns the full $15000 \times 9 = 135,000$ dollars a month of extra contribution, so the 1.2 million dollars is covered in about $1200000 \div 135000 \approx 8.9$ months of extra sales (An). But it takes 8 months to install, it must be financed with more borrowing at 55% gearing, and if demand settles back near last year's 57,000, the factory would run at only $\frac{57000}{90000} \times 100 = 63.3\%$, raising fixed cost per charger (An).

Judgement. VC should outsource **for the next 8 months only**, because otherwise it cannot supply the new chain at the start of the contract, and a lost first impression with a national retailer may not be won back (Eval). But it should not accept the contract manufacturer's sampling: every outsourced charger should pass through VC's own laboratory before sale, even though that adds cost, because the safety record is the reason customers pay VC's price (Eval). Whether VC should then install the second line depends on whether the chain's orders stay near 75,000 a month and on a lender's view of its gearing; if they do, the line pays for itself in under a year and brings all production back under VC's control (Eval).

The marks: 2 K, 2 App, 2 An, and 6 Eval for a supported recommendation in VC's context that weighs both options and says what the decision depends on.

Common mistakes

- **Confusing capacity with capacity utilisation.** Capacity is the maximum output (a number of units); capacity utilisation is the percentage of it being used. Define the one the question asks about.
- **Leaving the answer as a decimal.** 0.65 is not 65% and loses a mark; multiply by 100. Don't add units such as "110 m" to a percentage.
- **Using figures from different periods.** Daily output over monthly capacity gives nonsense; convert one so both cover the same period.
- **"Improving" capacity utilisation by adding capacity.** Buying new machinery or hiring more skilled staff raises maximum capacity, so utilisation falls unless demand rises too (March 2026). Reducing waste counts only if you show how it raises output against capacity.
- **Describing the problem instead of solving it.** When asked how to solve operating over maximum capacity, some answers spent most of their time on the consequences of being over capacity (June 2022). Use the consequences as evidence, then compare solutions.
- **Assuming a subcontract can be cancelled at any time.** It depends on the contract's terms, which the case may not give (June 2021). Say "depending on the contract".
- **Evaluating only one of two options.** When asked whether to buy equipment or outsource, answers about only one option lose analysis and evaluation marks (June 2021).
- **Outsourcing as a cure for everything.** It cannot fix a demand change that happens on the same day, because the outside firm needs time to deliver (June 2022). Match the solution to the problem.
- **Copying the case to define outsourcing,** or confusing it with selling through a retailer. The definition must say another business carries out a function for you.
- **A recommendation only at the end.** Judge as you go, and support the final decision with the case (June 2022).
- **Ignoring capacity in growth answers.** Plans to raise sales must ask whether the business can produce the extra output (March 2022).

How to get the marks

- **Command words.** *Calculate*: formula, figures, answer. *Explain*: a point, then how or why, with the case if there is one. *Analyse*: one or two points, each developed through a chain to a consequence; no judgement needed. *Evaluate*, *Recommend* and *Justify*: both sides, then a decision for this business with reasons.
- **[3] calculate capacity utilisation:** write the formula even if you can do it in your head; a slip in the figures still earns the formula mark, and later parts can use your own figure.
- **[3] explain the term outsourcing:** the definition (K), then an example function and a reason, for 2 App.
- **[3] explain one method / disadvantage:** name it (K), then two linked steps showing how it works, in context if there is a case. Use your calculated percentage as context.

- **[5] analyse one impact:** no marks without a valid impact; then 2 for explaining it and 2 for a chain of consequences, all on **one** impact.
- **[8] analyse one advantage and one disadvantage:** exactly one of each, each with K, a case fact and a chain of two or more links.
- **[12] evaluate (Paper 2):** 2 K, 2 App, 2 An, 6 Eval. The top band needs a judgement **in context**: a decision for this business, supported by its facts (its percentage, finance, brand, the supplier), and what it depends on (how long demand lasts, contract terms, quality). A short-term and long-term answer, or a partial outsourcing answer, is credited when it is justified.
- **Use the numbers.** A capacity utilisation figure, a contribution per unit or a cost per order is strong application.

Quick check

1. A cinema has 5 screens of 240 seats each and shows 4 films a day on each screen. Last week (7 days) it sold 16,800 tickets. Calculate its capacity utilisation.
2. A factory has fixed costs of 48,000 dollars a month and a maximum capacity of 12,000 units a month. Calculate its fixed cost per unit at 60% and at 90% capacity utilisation.
3. A factory has 5 identical machines, each able to make 10,000 units a month. It makes 40,000 units a month. (a) Calculate its capacity utilisation. (b) It sells one machine and keeps making 40,000 units. Calculate its new capacity utilisation, and state one risk of this decision.
4. Explain the term outsourcing, using a hospital as an example. **[3]**
5. Explain one reason why a business might choose to keep some spare capacity. **[3]**

Answers

1. Maximum = $5 \times 240 \times 4 \times 7 = 33600$ seats a week. Capacity utilisation = $\frac{16800}{33600} \times 100 = 50\%$.
2. At 60%: output = $0.6 \times 12000 = 7200$ units, so $48000 \div 7200 = 6.67$ dollars a unit. At 90%: output = 10800 units, so $48000 \div 10800 = 4.44$ dollars a unit.
3. (a) $\frac{40000}{50000} \times 100 = 80\%$. (b) $\frac{40000}{40000} \times 100 = 100\%$. Risk: there is no spare capacity, so a rise in demand or a machine breakdown means orders cannot be met.
4. Outsourcing is paying another business to carry out an activity the business could do itself (K). A hospital might pay a catering company to cook and serve patients' meals (App), because the specialist firm can do it more cheaply, letting the hospital's staff and budget focus on medical care (App).
5. To meet sudden rises in demand (K). A toy maker whose sales double in the weeks before a holiday can only take the extra orders if some machines and hours are free (1), so it keeps spare capacity rather than turning shops away to rival brands, which protects its sales and its relationship with those shops (1).

Past questions to try

- **9609/13/M/J/24 Q4**: one impact of operating over maximum capacity.
- **9609/12/F/M/24 Q4**: one impact of operating below maximum capacity.
- **9609/22/O/N/24 Q1**: part (c), one advantage and one disadvantage of outsourcing the making of pots.
- **9609/31/M/J/22 Q2**: capacity utilisation above 100%, then how to solve it.