Course Companion

International Baccalaureate · IB Diploma · Business Management · SL

Every topic handout in one volume

全部专题讲义合集

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Introduction to business management (1.1-1.6)

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Introduction to business management

IB Diploma Programme Business Management SL, Unit 1 *Introduction to business management* (first assessment 2024). This topic covers sections 1.1 to 1.6: what a business is, types of business entities, business objectives, stakeholders, growth and evolution, and multinational companies. Unit 1 is the same at SL and HL. The course's four concepts, **change** 变革, **creativity** 创造力, **ethics** 伦理 and **sustainability** 可持续性, run through every section. The worked examples follow one car-repair business from its start, and its numbers fit every later unit.

In 1995 Wang Chuanfu started BYD in Shenzhen with about 20 workers, making batteries for mobile phones. It grew by building more factories, then by buying a small car maker in 2003. By 2023 BYD sold more new-energy cars than any other company in the world. This topic shows the choices behind a story like that: what form a business takes, what it aims for, whom it must keep happy, and how it grows.

Must-know for this topic:

Idea	Key content
business	resources → goods and services; four functions; four sectors; entrepreneurs
entities	sole trader, partnership, privately and publicly held companies; social enterprises
objectives	vision and mission; strategic and tactical objectives; CSR
stakeholders	internal and external; conflicts between them
growth	economies and diseconomies of scale; internal and external growth
MNCs	good and bad effects on the host country

What a business is

A **business** 企业 is an organisation that uses resources to make goods or services that people want. It combines:

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Shops on a high street: each business turns inputs into goods or services that customers will pay for

- **human resources** 人力资源: the people who work in it;
- **physical resources** 实物资源: buildings, machines, materials;
- **financial resources** 财务资源: the money to start and run it.

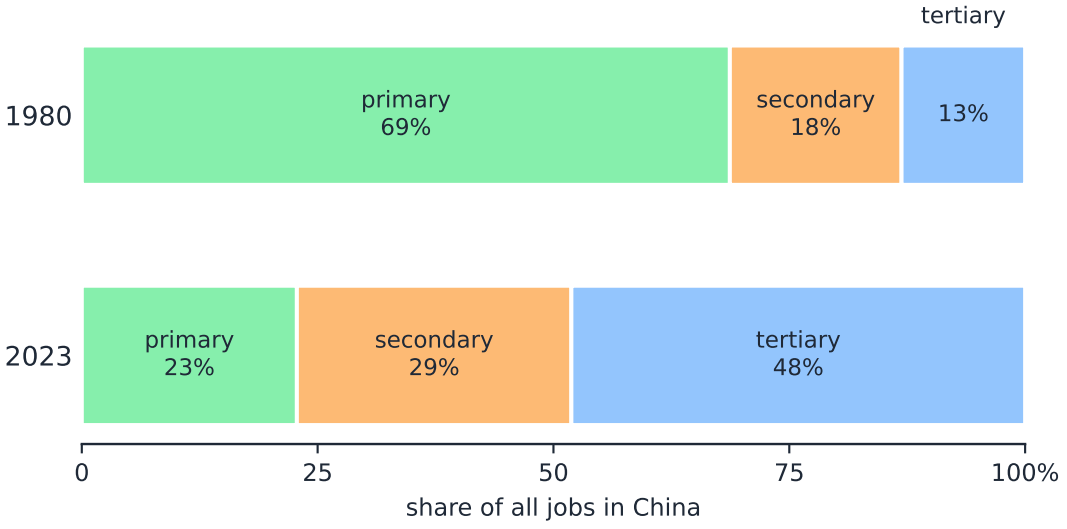
Every business has four **business functions** 业务职能, and each is one unit of this course: human resources (Unit 2), finance and accounts (Unit 3), marketing (Unit 4) and operations (Unit 5).

Businesses work in four **sectors** 产业部门:

Sector	What it does	Examples
primary sector 第一产业	takes natural resources from the earth	farming, fishing, mining
secondary sector 第二产业	makes goods from materials	car factories, building
tertiary sector 第三产业	provides services	shops, banks, car repairs
quaternary sector 第四产业	works with knowledge and information	software, research, consulting

As a country develops, jobs move from the primary sector to the secondary and then the tertiary sector. This is called **sectoral change** 产业结构变化.

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China's jobs moved from farming to services in four decades

An **entrepreneur** 企业家 starts a new business and takes the risk that it may fail. An **intrapreneur** 内部创业者 has new ideas and leads new projects inside an existing business. People start businesses to be their own boss, to follow an idea, or to earn more. They meet problems: finding finance, finding customers, little experience, strong rivals and the law's rules.

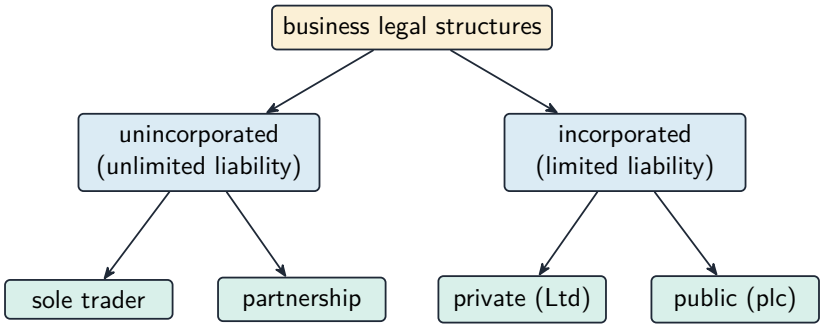
Types of business entities

The **private sector** 私营部门 is owned by individuals and private firms. The **public sector** 公共部门 is owned by the government.



A company headquarters: a large public company is owned by shareholders, a sole trader by one person

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Business types split by liability: unincorporated (unlimited) and incorporated (limited)

The most important difference between the types is **liability** 责任, which means who pays the business's debts if it fails.

- With **unlimited liability** 无限责任, the owners must pay the debts from their own money, even by selling their home.
- With **limited liability** 有限责任, owners can only lose the money they put into the business. This is possible because a company is a separate legal person from its owners.

Type	Owners	Liability	For	Against
sole trader 个体经营者	one person	unlimited	easy to set up; owner keeps all profit and makes every decision	hard to raise money; long hours; the business may end when the owner stops
partnership 合伙企业	two or more partners	usually unlimited	more money and more skills; work is shared	partners may disagree; each is responsible for the others' decisions
privately held company 私人控股公司	shareholders, often a family; shares are not sold to the public	limited	owners keep control; limited liability	must register and publish some accounts; harder to raise large sums
publicly held company 上市公司	anyone can buy shares on a stock exchange	limited	can raise very large amounts of money	must publish full accounts; owners can lose control in a takeover; pressure for short-term profit

A **social enterprise** 社会企业 is a business whose main aim is to help people or the environment. It earns money by trading, but it puts its **surplus** 盈余 back into its aim.

- **For-profit social enterprises** 营利性社会企业 include private-sector companies with a social aim, public-sector companies owned by the government, and **cooperatives** 合作社, which are owned and run by their members (such as workers or farmers) and share profits among them.
- **Non-profit social enterprises** 非营利性社会企业 include **non-governmental organisations** 非政府组织 (NGOs) and charities. They depend on donations and grants as well as trading.

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> **Worked example.** The car-repair business starts as a sole trader with 20,000 of savings. After a year the owner takes a partner, who adds another 20,000 and shares the long working week. Now each partner is responsible for the other's decisions and debts. When the business opens a second workshop, the owners form a privately held company. Their homes are now safe if the business fails, but they must register the company and publish accounts.

Business objectives

A business sets its aims from the top down.

- A **vision statement** 愿景宣言 says what the business hopes to become in the long run: "To be the repair garage every family in the city trusts."
- A **mission statement** 使命宣言 says what the business does, for whom and how: "We repair family cars quickly, at a fair price, and explain every bill."
- **Strategic objectives** 战略目标 are long-term aims set by senior managers: growth, profit, market share, protecting the value of the shares, and ethical aims.
- **Tactical objectives** 战术目标 are shorter-term, smaller steps, often set for one department, that help to reach a strategic objective.



Each level turns the one above it into more detailed, shorter-term aims

> **Worked example.** The repair business sets a strategic objective of 30% of the local repair market within three years. Its tactical objectives are to open on Saturdays within six months and to reach an average online review of 4.5 stars.

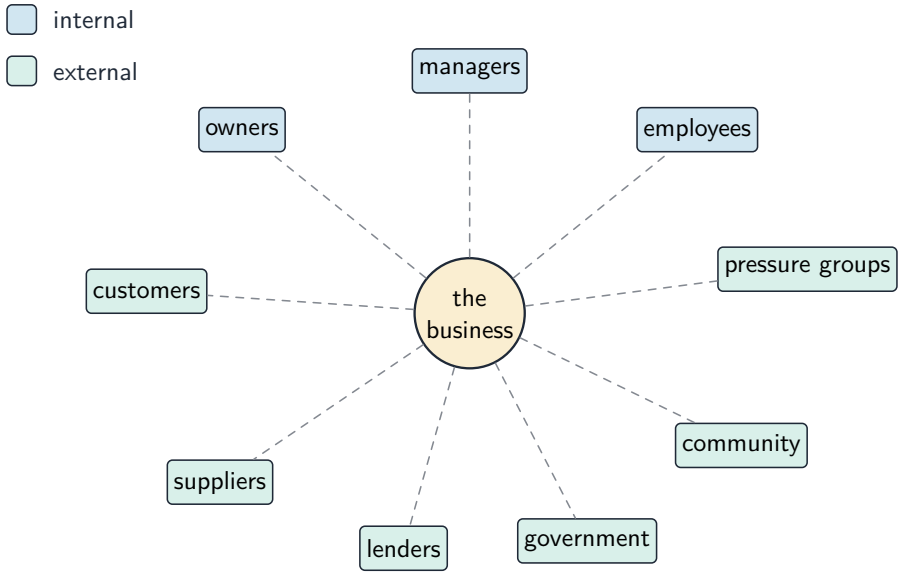
Objectives change when the situation changes. A new rival, a recession, new technology such as electric cars, or a new owner can all make a business rethink its aims.

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Corporate social responsibility 企业社会责任 (CSR) means a business aims to act ethically towards workers, customers, the community and the environment, not only to make a profit. The repair business recycles all its oil and old batteries and trains two young apprentices a year. CSR costs money in the short term, but it can build a good reputation, attract customers and staff, and avoid fines. Critics say some firms use CSR only for advertising.

Stakeholders

A **stakeholder** 利益相关者 is any person or group affected by what a business does.



Internal stakeholders work inside the business; external stakeholders are affected from outside

- **Internal stakeholders** 内部利益相关者 are inside the business: owners or shareholders, managers and employees.
- **External stakeholders** 外部利益相关者 are outside it: customers, suppliers, banks and other lenders, the government, competitors, **pressure groups** 压力集团 (groups that campaign on an issue, such as the environment) and the local community.

Stakeholders often want different things, so there is **stakeholder conflict** 利益相关者冲突. Shareholders want higher dividends, but employees want higher wages. Customers want low prices, but suppliers want high prices. The local community wants peace and quiet, but the business wants to grow. Managers deal with conflict by deciding whose needs matter most, by talking and agreeing a compromise, or by changing the plan so that more groups gain.

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Worked example. Saturday opening pleases customers and the owners, but the mechanics lose their weekend. The owners agree a rota, so each mechanic works one Saturday in four, and pay 50% extra for Saturday hours.

Growth and evolution

■ Economies and diseconomies of scale

Economies of scale 规模经济 are the fall in average cost (cost per unit) as a business grows. **Internal economies of scale** 内部规模经济 come from the business's own growth:

- **purchasing economies** 采购经济: discounts for buying in bulk;
- **technical economies** 技术经济: bigger, better machines used fully;
- **managerial economies** 管理经济: hiring specialist managers;
- **financial economies** 财务经济: big firms borrow more cheaply;
- **marketing economies** 营销经济: one advert reaches more customers per unit sold.

External economies of scale 外部规模经济 come from the growth of the whole industry in an area, such as colleges that train mechanics, or parts suppliers that open nearby.

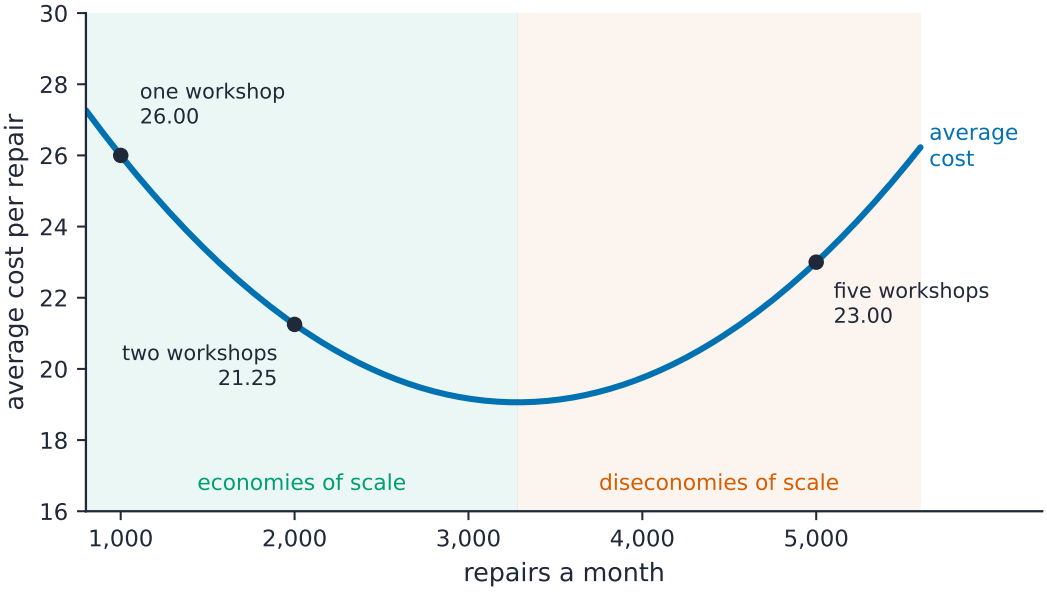
Diseconomies of scale 规模不经济 are the rise in average cost when a business grows too big. Communication becomes slow, managers lose control, decisions take longer, and workers feel less valued, so motivation falls.

Worked example. Average cost = total cost ÷ output.

	Repairs a month	Total cost	Average cost
one workshop	1,000	26,000	26.00
two workshops	2,000	42,500	21.25
five workshops	5,000	115,000	23.00

Going from one workshop to two lowers average cost by 4.75 a repair: bulk discounts on parts and one manager for both sites. At five workshops the owners expect average cost to rise again, because they could no longer watch every site and parts would have to travel between them. This is the point where diseconomies begin.

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Average cost falls with economies of scale, then rises once diseconomies set in

Small businesses have advantages too. They can give personal service, change quickly, and keep the owner in control. Many owners choose to stay small for these reasons.

■ Internal and external growth

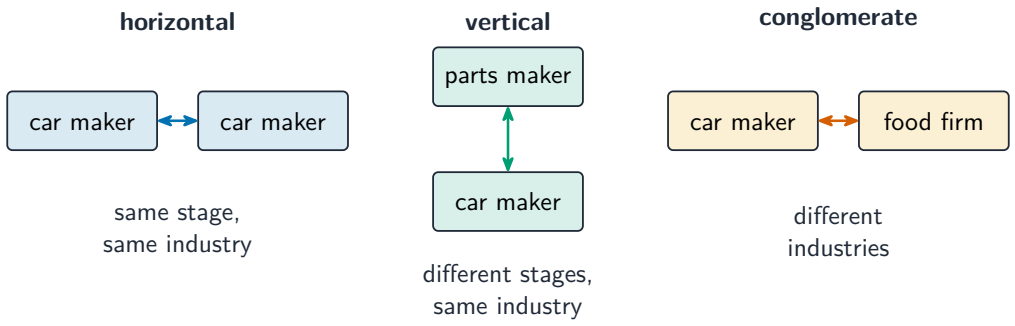
Internal growth 内部增长 (organic growth) means growing from inside: opening new branches, selling new products, or winning more customers. It is slow but safe, and the business keeps its own culture.

External growth 外部增长 means growing by joining with other firms. It is faster, but it is expensive and the two cultures may clash.

Method	Meaning
merger 合并	two firms agree to join and become one new firm
acquisition 收购 / **takeover** 接管	one firm buys more than half the shares of another; a takeover is an acquisition the target does not want
joint venture 合资企业	two firms create a new firm together and share its costs, profits and control
strategic alliance 战略联盟	firms work together on a project but stay separate and do not create a new firm
franchising 特许经营	a franchisor sells others the right to use its brand and methods, for a fee and a share of sales

When firms join, the type of integration depends on how their businesses relate.

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Horizontal, vertical and conglomerate integration: same stage, different stages, different industries

Multinational companies

A **multinational company** 跨国公司 (MNC) has operations in more than one country. The country where it opens a factory or office is the **host country** 东道国.



A multinational's outlets look the same worldwide: one global brand operating in many countries

Good effects on the host country	Bad effects on the host country
new jobs and better training	profits may be sent back to the MNC's home country
investment and new technology	local firms may not survive the competition
tax revenue for the government	local culture may change, with fewer local brands
more choice for consumers	pollution and heavy use of resources
local suppliers win new orders	an MNC may pressure the government on tax or rules

The balance depends on the MNC, the host country and the time period. A car factory may bring thousands of jobs, but if it closes ten years later the town loses most of them at once. Governments try to keep the good effects by setting rules on pay, pollution and local partners.

Checklist

- Resources; the four functions; the four sectors and China's sectoral change; entrepreneurs and intrapreneurs; why businesses start and the problems they meet (1.1).
- Private and public sector; sole trader, partnership, privately held and publicly held company with liability and finance compared; for-profit and non-profit social enterprises, including cooperatives and NGOs (1.2).
- Vision and mission statements; strategic and tactical objectives; why objectives change; CSR (1.3).
- Internal and external stakeholders; conflicts between them and how managers deal with them; the Saturday-opening example (1.4).
- Internal and external economies of scale, diseconomies, the average cost of 26.00, 21.25 and 23.00; reasons to stay small; internal and external growth; mergers, acquisitions, joint ventures, strategic alliances and franchising; horizontal, vertical and conglomerate integration (1.5).
- The good and bad effects of MNCs on host countries (1.6).

Paper 1 asks you to define terms, explain them and discuss them in the case-study business. Paper 2 may ask for the average-cost calculation. All numbers about the repair business are original.

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Human resource management (2.1-2.7)

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Human resource management

IB Diploma Programme Business Management SL, Unit 2 *Human resource management* (first assessment 2024). This topic covers sections 2.1 to 2.7 at SL: human resource planning, organisational structure, leadership, motivation and communication. Resistance to change, the shamrock organisation, process theories of motivation, organisational culture (2.5) and employee relations (2.7) are HL only and are left out. The worked examples follow the course's repair business, which has now grown to 80 employees in four workshops.

Every year Google, Haidilao and many other firms spend large sums on staff benefits, training and team events. Haidilao's waiters are famous for their friendly service, and the company gives them real power to please customers: a waiter can give a free dish or a discount without asking a manager. Why would a firm trust its lowest-paid workers like this? This topic is about the people in a business: how they are organised, led, motivated and kept.

Must-know for this topic:

Idea	Key content
HR planning	workforce planning; internal and external factors; recruitment, training, appraisal, dismissal
labour turnover	$\frac{\text{number of staff leaving}}{\text{average number of staff}} \times 100$: $12 \div 80 \times 100 = 15\%$
structure	span of control, levels, chain of command, delegation; tall against flat; matrix
leadership	autocratic, paternalistic, democratic, laissez-faire, situational
motivation	Taylor, Maslow, Herzberg, McClelland, Deci and Ryan; financial and non-financial rewards
communication	formal and informal; barriers

Introduction to human resource management

Workforce planning

Human resource management 人力资源管理 (HRM) makes sure the business has the right number of people, with the right skills, in the right jobs, at the right time. **Workforce planning** 劳动力规划 compares the staff a business will need with the staff it has, and plans how to close the gap.

Labour turnover 员工流动率 measures how many workers leave in a year:

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$$\text{labour turnover} = \frac{\text{number of staff leaving in a year}}{\text{average number of staff}} \times 100$$

> **Worked example.** The repair business has an average of 80 staff. In one year 12 leave. Labour turnover $= 12 \div 80 \times 100 = 15\%$. Each leaver must be replaced, so the business pays for recruitment and training, and it loses skills and customer knowledge. Some turnover is healthy: new staff bring new ideas.

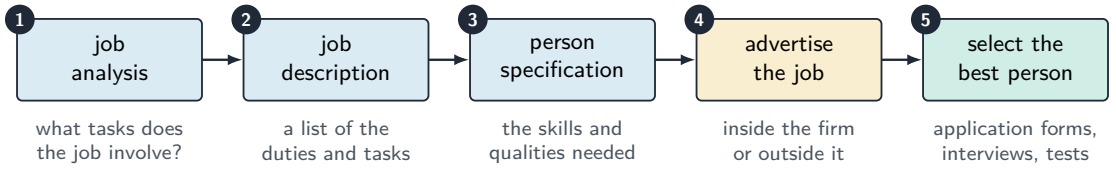
Internal and external factors

Internal factors include the firm's objectives, its budget, its structure, and changes in technology. External factors include:

- **demographic change** 人口结构变化: for example, an ageing workforce;
- **labour mobility** 劳动力流动性: how easily workers move between jobs and places;
- **migration** 移民: workers coming from or going to other countries;
- new working patterns: **flexi-time** 弹性工作制 (choosing when to work the agreed hours), **teleworking** 远程办公 (working from home or elsewhere), and the **gig economy** 零工经济 of short-term jobs paid task by task, as for delivery riders.

Recruitment, training, appraisal and dismissal

Recruitment 招聘 follows common steps: identify the vacancy, write a **job description** 职位描述 (the tasks of the job) and a **person specification** 人员规格 (the skills and qualities needed), advertise, shortlist, interview or test, and appoint.



The steps of recruitment and selection, from analysing the job to choosing the best person

- **Internal recruitment** fills the job with someone already in the firm. It is quicker and cheaper, and the person knows the business. But it brings no new ideas, and it leaves another job empty.
- **External recruitment** brings in new skills and ideas, but it costs more and takes longer.

Training 培训:

- **Induction training** 入职培训 introduces new staff to the firm, its rules and its people.

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- **On-the-job training** 在职培训 happens while working, for example by watching an experienced worker. **Off-the-job training** 脱产培训 happens away from the workplace, such as a college course.
- **Cognitive training** 认知培训 develops thinking skills; **behavioural training** 行为培训 develops how people act with others, such as teamwork and dealing with customers.

Appraisal 绩效评估 judges how well an employee is doing:

- **formative**: ongoing feedback to help the person improve;
- **summative**: a final judgement at the end of a period, often linked to pay;
- **360-degree**: feedback from managers, colleagues, junior staff and sometimes customers;
- **self-appraisal**: employees judge their own work.

Employment can end through **dismissal** 解雇 (for a fair reason, such as serious misconduct) or **redundancy** 裁员 (the job itself is no longer needed). Redundancy is not the worker's fault, so laws often require a payment.

Organisational structure

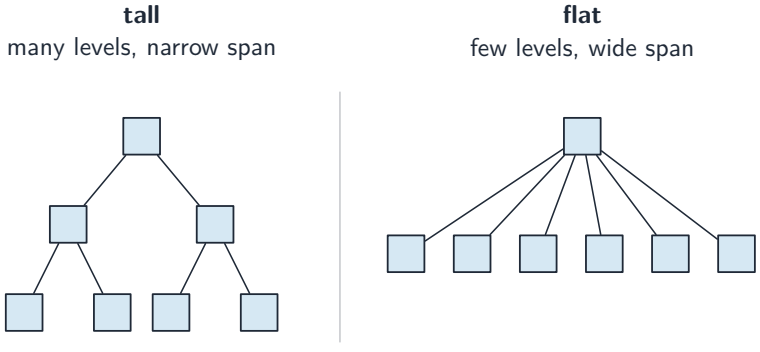
The key terms

- **Span of control** 管理幅度: the number of people a manager directly supervises.
- **Levels of hierarchy** 层级: the number of layers of management.
- **Chain of command** 指挥链: the line of authority from the top to the bottom.
- **Delegation** 授权: passing authority to a junior. The manager still keeps the responsibility.
- **Centralisation** 集权 keeps decisions at the top; **decentralisation** 分权 passes them down.
- **Bureaucracy** 官僚制度: many rules and procedures.
- **Delayering** 减少层级: removing levels of management.

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A management meeting: the structure decides who reports to whom and who takes which decisions



A tall structure has many levels and narrow spans; a flat one has few levels and wide spans

	Tall structure	Flat structure
levels	many	few
span of control	narrow	wide
communication	slow, through many levels	fast and direct
supervision	close	less close; workers need more trust
promotion	many small steps	fewer chances
cost of managers	high	low

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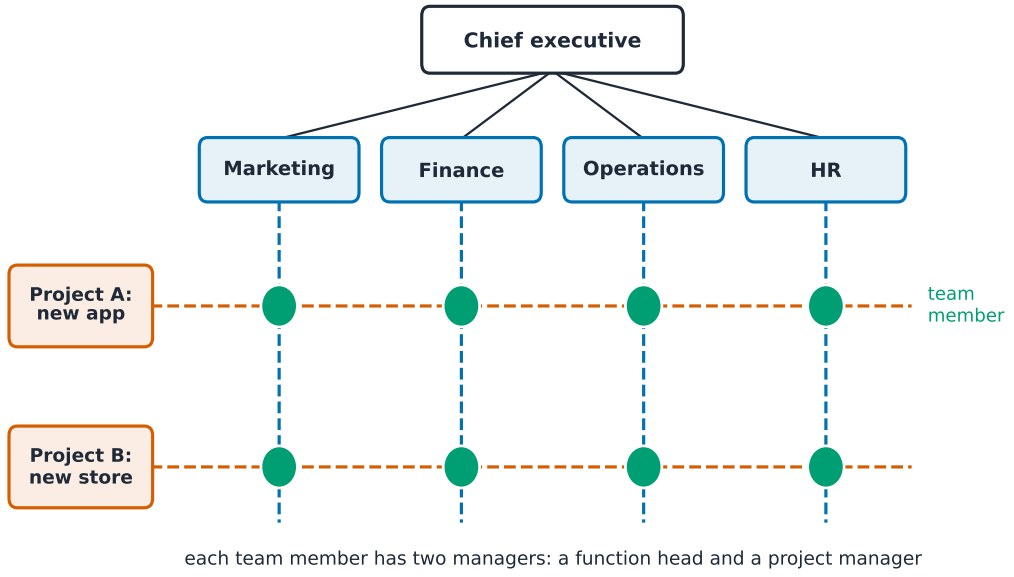
Worked example. At the repair business, the owner and four workshop managers supervise 75 mechanics: three levels, and a span of 18 or 19 mechanics per workshop manager. That is too wide for coaching new mechanics. The owner adds a senior mechanic in each workshop. Now there are four levels and each senior mechanic supervises 9 or 10 people. Training improves, but a customer complaint now passes through one more link in the chain of command.

Types of structure

An **organisation chart** 组织结构图 can be arranged:

- by function, as a **functional structure** 职能型结构: departments for marketing, finance, operations and HR;
- by product, as a **product-based structure** 产品型结构: a division for each product line;
- by region, as a **regional structure** 地区型结构: a division for each country or area.

A **matrix structure** 矩阵结构 crosses functions with projects. Each person works in a project team but also belongs to a department, so they have two managers. This brings mixed skills together, but two bosses can give different orders.



In a matrix structure, each person reports to a function head and a project manager

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Leadership and management

Management and leadership

Management 管理 is about getting things done. Henri Fayol listed its functions: planning, organising, commanding, coordinating and controlling. **Leadership** 领导力 is about setting a direction and inspiring people to follow it. A good manager is not always a good leader, and the reverse is also true.



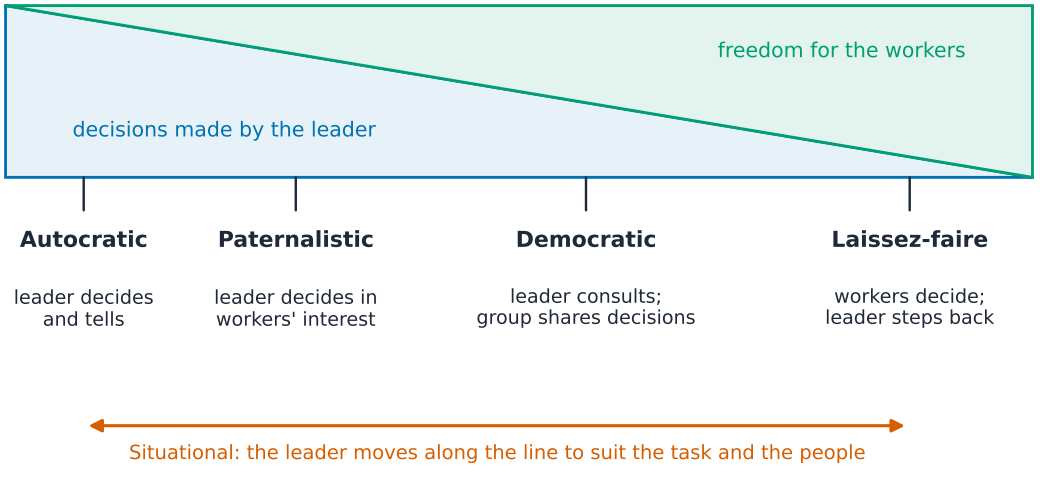
Leaders set direction and motivate people; managers plan, organise and control the work

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Leadership styles

Style	How decisions are made	Works well when	Problems
autocratic 专制型	the leader decides alone and gives orders	quick decisions are needed; a crisis; unskilled staff	workers feel unvalued; no ideas from below
paternalistic 家长型	the leader decides, but in what they think is the workers' interest	staff want security and care	workers may become dependent
democratic 民主型	the leader consults and the group shares decisions	skilled staff; complex problems	slow; needs good communication
laissez-faire 放任型	the leader leaves decisions to the workers	creative experts who need freedom	lack of direction; poor coordination
situational 情境型	the leader changes style to fit the task and the people	most real businesses	needs a very skilled leader

The best style depends on the situation: the task, the time available, the skills of the workers, and the culture of the business.



Leadership styles differ in how much decision-making the leader shares

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Motivation and demotivation

Motivation 激励 is the will to work hard and well. Motivated workers produce more, make fewer mistakes, and are less likely to leave. **Demotivation** 积极性下降 shows up as absence, low effort and high labour turnover.



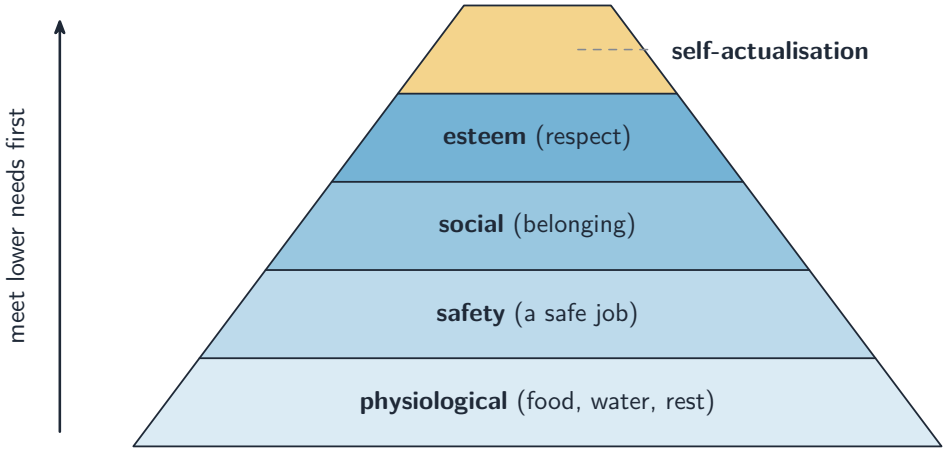
A busy workplace: pay, recognition and the work itself all affect how motivated staff are

Content theories

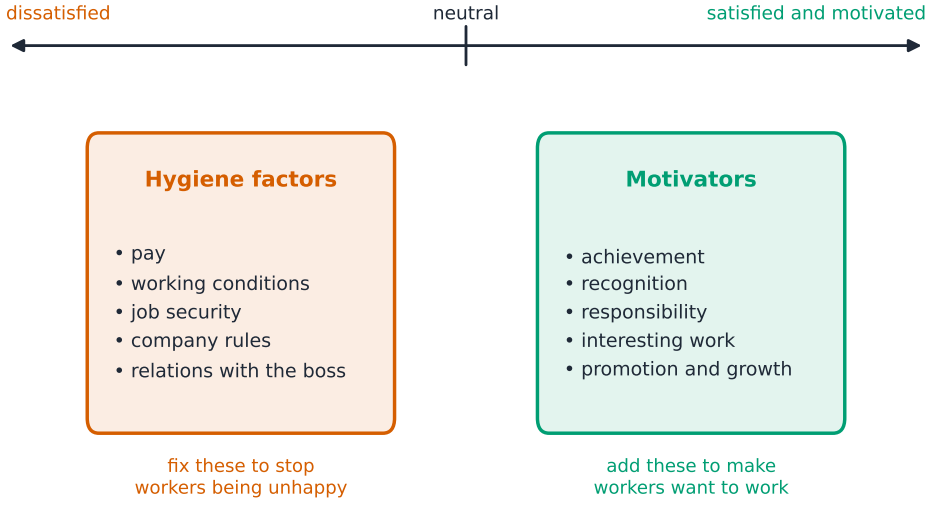
- **Frederick Taylor** 泰勒: workers are motivated mainly by money. He used **scientific management** 科学管理: break each job into simple tasks, find the fastest method, and pay by output (**piece rate** 计件工资). Critics say people want more than money, and repeated simple tasks are boring.
- **Abraham Maslow** 马斯洛: people have a **hierarchy of needs** 需求层次. A lower need must be met before the next one motivates.
  At work: pay meets physiological needs; a safe job and a contract meet safety needs; teams meet social needs; praise and job titles meet esteem needs; challenging work meets **self-actualisation** 自我实现 needs. The order does not fit everyone: an artist may chase self-actualisation before security.
- **Frederick Herzberg** 赫茨伯格: two separate sets of factors. **Hygiene factors** 保健因素 such as pay and conditions do not motivate, but if they are poor, workers become unhappy. **Motivators** 激励因素 such as recognition and responsibility create real motivation.
- **David McClelland** 麦克利兰: people are driven by three learned needs: the **need for achievement** 成就需要 (to do well), the **need for affiliation** 亲和需要 (to be liked and belong) and the **need for power** 权力需要 (to influence others). Managers should match jobs to each person's strongest need.

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- **Deci and Ryan** 德西和瑞安: **self-determination theory** 自我决定理论. People are most motivated when they feel **autonomy** 自主 (control over their work), **competence** 胜任 (being good at it) and **relatedness** 关联 (connection to others).



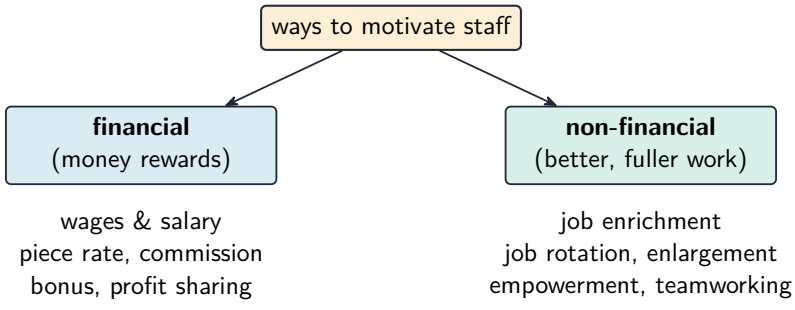
Maslow: lower needs are met first, from physiological to self-actualisation



Herzberg: fixing hygiene factors removes unhappiness; only motivators create motivation

Financial and non-financial rewards

Financial rewards	Non-financial rewards
salary 薪水 (a fixed yearly amount)	**job enrichment** 工作丰富化: more challenging tasks and responsibility
wages 工资 paid by time or by output (piece rate)	**job rotation** 工作轮换: moving between tasks
commission 佣金: a share of the value of sales	**job enlargement** 工作扩大化: more tasks at the same level
profit-related pay 利润分享: a share of the firm's profit	**empowerment** 授权赋能: freedom to make decisions
performance-related pay 绩效工资: pay linked to targets	**purpose** 使命感: work that feels meaningful
employee share ownership 员工持股	**teamwork** 团队合作
fringe payments 附加福利: free meals, health insurance, a car	



Motivators are either financial (money) or non-financial (better, fuller work)

Worked example. At the repair business, most of the 12 leavers were mechanics on piece rates. They felt their effort was wasted when spare parts arrived late. Herzberg would say late parts and pay disputes are hygiene failures to fix first. The owner fixes parts delivery, changes pay to a basic salary plus a team bonus, and starts formative appraisal. If turnover falls to 6 leavers a year, the rate becomes $6 \div 80 \times 100 = 7.5\%$, and the business saves the cost of six replacements.

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Communication

Communication 沟通 is the passing of information from a sender to a receiver.

- **Formal communication** 正式沟通 follows official channels: meetings, reports, emails and notices.
- **Informal communication** 非正式沟通 happens outside them: chats and rumours (the **grapevine** 小道消息). It is fast, but often wrong.

Barriers to communication 沟通障碍 include language and **jargon** 行话 (technical words others do not know), too much information, the wrong channel (bad news by email), physical distance and time zones, cultural differences, and lack of trust. A tall structure adds another barrier: messages change as they pass through many levels.

Checklist

- The role of HRM and workforce planning; labour turnover $= 12 \div 80 \times 100 = 15\%$ and its costs (2.1).
- Internal and external factors: demographic change, labour mobility, migration, flexi-time, teleworking and the gig economy (2.1).
- Recruitment steps, job description and person specification, internal against external; induction, on-the-job, off-the-job, cognitive and behavioural training; formative, summative, 360-degree and self-appraisal; dismissal against redundancy (2.1).
- Span of control, levels, chain of command, delegation, centralisation, bureaucracy, delayering; tall against flat; by function, product or region; matrix (2.2).
- Management functions; management against leadership; autocratic, paternalistic, democratic, laissez-faire and situational styles (2.3).
- Taylor, Maslow, Herzberg, McClelland, Deci and Ryan; financial and non-financial rewards; the turnover fix from 15% to 7.5% (2.4).
- Formal and informal communication; the barriers (2.6).

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Finance and accounts (3.1-3.9)

International Baccalaureate · IB Diploma · Business Management · SL

Finance and accounts

IB Diploma Programme Business Management SL, Unit 3 *Finance and accounts* (first assessment 2024). This topic covers the SL content of sections 3.1 to 3.8: why businesses need finance and where they get it, costs and revenues, final accounts, ratio analysis, cash flow and investment appraisal. Debt/equity ratio analysis (3.6), budgets (3.9), net present value, intangible assets and depreciation are HL only and are left out here. The worked examples use the course's repair business in its second year as a company, so every number below fits with every other.

In 2017 the bike-sharing company ofo had millions of yellow bikes on the streets of Chinese cities and had raised billions of dollars from investors. By the end of 2018 it had spent most of that money, and more than ten million users were waiting in an online queue to get their deposits back. Customers liked the product. The company failed because cash ran out. This topic shows how a business plans its money, reads its accounts and checks whether a project is worth the cost.

Must-know for this topic:

Idea	Key content
finance	capital against revenue expenditure; internal against external sources
final accounts	income statement; statement of financial position
profitability	gross profit margin 40%, profit margin 15%, ROCE 25%
liquidity	current ratio 2.0, acid test 1.25
cash flow	profit is not cash; working capital cycle; forecast
appraisal	payback 3 years, ARR 8.3%

Finance and its sources

A business spends money in two ways.

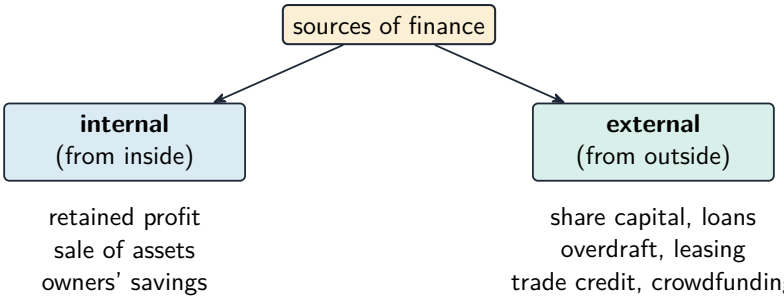
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A bank: loans and overdrafts are external sources of finance

- **Capital expenditure** 资本支出 buys **non-current assets** 非流动资产, things the business keeps for more than a year: a workshop, a machine, a van.
- **Revenue expenditure** 收益支出 pays for day-to-day running: wages, parts, rent and electricity.

The money for each should come from a source that fits. A long-term asset needs long-term finance. Paying for a new workshop with an overdraft is risky, because the bank can ask for the overdraft back at any time.



Internal finance comes from inside the business; external finance comes from outside

Internal finance 内部融资 comes from inside the business:

- **personal funds** 个人资金: the owner's own savings, the main source for a sole trader;
- **retained profit** 留存利润: profit kept in the business instead of being paid to the owners. It costs no interest, but a new or loss-making business has none;
- the **sale of assets** 出售资产 the business no longer needs, such as an old van.

External finance 外部融资 comes from outside:

Source	What it is	For and against
share capital 股本	money from selling shares (companies only)	never repaid and no interest; the owners lose some control
loan capital 贷款资本	a bank loan repaid with interest over years	large sums; interest must be paid even in a bad year
overdraft 透支	the bank lets the account go below zero	flexible and quick; expensive, and the bank can end it at any time
trade credit 商业信用	suppliers let the business pay 30 to 60 days later	free; paying late harms the relationship
crowdfunding 众筹	many people each give a small amount online	also tests the idea; most campaigns fail to reach their target
leasing 租赁	renting equipment instead of buying it	no large payment; costs more in total
microfinance 小额信贷	small loans to people that banks will not serve	helps very small and new businesses; amounts are small
business angels 天使投资人	rich individuals who invest and give advice	money plus experience; they want a share of the business

Sources are also short term (under a year: overdraft, trade credit), medium term (one to five years: leasing, most loans) or long term (over five years: share capital, long loans). To choose, a manager weighs the cost, the amount needed, how long it is needed for, control of the business, and how much the business has already borrowed.

> **Worked example.** The repair business built a second workshop for 120,000. Half came from retained profit and half from a five-year bank loan. The workshop will earn money for many years, so long-term finance fits. The monthly parts bill uses trade credit. For eleven days in December, when wages were paid before customers paid their bills, the business used its overdraft.

Costs, revenues and final accounts

■ Costs and revenues

- A **fixed cost** 固定成本 does not change with output: rent, salaries, insurance.
- A **variable cost** 可变成本 changes with output: car parts, paint, energy for the machines.

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- A **semi-variable cost** 半可变成本 has a fixed part and a variable part, such as a phone contract with a monthly charge plus a cost per call.
- A **direct cost** 直接成本 belongs to one product or department, such as the parts used in one repair. An **indirect cost** 间接成本, or **overhead** 管理费用, is shared, such as the manager's salary.

Total revenue 总收入 is price × quantity sold. The repair business does 2,000 repairs a month at an average price of 25, so its revenue is $2{,}000 \times 25 \times 12 = 600{,}000$ a year. Many businesses also have other **revenue streams** 收入来源: the repair business sells tyres, rents out its car wash and earns a fee from an insurance company for every customer it sends.

Final accounts

The **final accounts** 财务报表 are prepared at the end of each year. Many **stakeholders** 利益相关者 read them: owners and shareholders check profit, banks check the business can repay, suppliers check it can pay its bills, employees check their jobs are safe, and the government checks tax.

The **income statement** 损益表 shows how much profit the business made over the year.

Income statement for the year	**$**
sales revenue	600,000
cost of sales	(360,000)
gross profit 毛利	240,000
expenses (wages, rent, marketing)	(150,000)
profit before interest and tax	90,000
interest	(10,000)
profit before tax	80,000
tax at 25%	(20,000)
profit for the period	60,000
dividends	(20,000)
retained profit	40,000

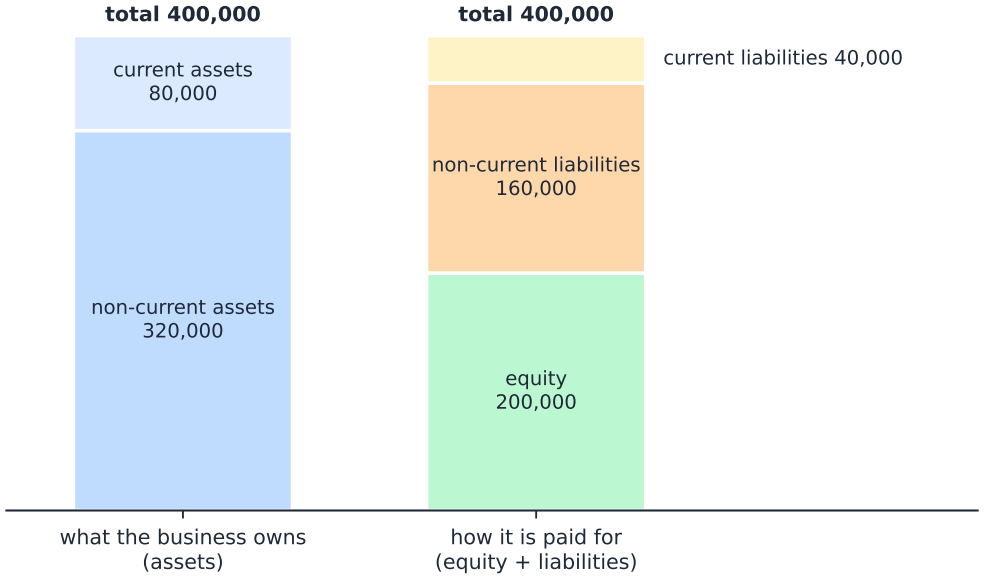
Brackets mean the number is taken away. **Cost of sales** 销售成本 is the direct cost of the repairs that were sold: opening stock 18,000, plus parts bought 372,000, minus closing stock 30,000, gives 360,000.

The **statement of financial position** 资产负债表, or balance sheet, is a picture of the business on one day: what it owns (**assets** 资产), what it owes (**liabilities** 负债) and the owners' money (**equity** 所有者权益).

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Statement of financial position on 31 December	$
non-current assets: property 240,000; equipment 80,000	320,000
current assets: stock 30,000; debtors 45,000; cash 5,000	80,000
current liabilities: creditors 25,000; overdraft 5,000; short-term loan 10,000	(40,000)
net current assets (working capital)	40,000
non-current liabilities: bank loan	(160,000)
net assets	200,000
equity: share capital 120,000; retained earnings 80,000	200,000

Current assets 流动资产 turn into cash within a year. **Debtors** 应收账款 are customers who still owe money. **Current liabilities** 流动负债 must be paid within a year; **creditors** 应付账款 are suppliers the business still owes. Current assets minus current liabilities is **working capital** 营运资本: $80{,}000 - 40{,}000 = 40{,}000$, the money available for day-to-day running. Net assets always equal equity, because everything the business owns is paid for either by borrowing or by the owners.



The balance sheet balances: total assets of 400,000 are paid for by equity, long-term debt and short-term debt

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Profitability and liquidity ratios

Ratio analysis 比率分析 compares numbers from the final accounts so that a business can be compared with last year and with its rivals.



Straight-line depreciation lowers the asset's value by the same amount each year

Profitability ratios 盈利能力比率 measure profit against sales or against the money invested.

$$\text{gross profit margin} = \frac{\text{gross profit}}{\text{sales revenue}} \times 100 = \frac{240{,}000}{600{,}000} \times 100 = 40\%$$

$$\text{profit margin} = \frac{\text{profit before interest and tax}}{\text{sales revenue}} \times 100 = \frac{90{,}000}{600{,}000} \times 100 = 15\%$$

Capital employed 运用资本 is non-current liabilities plus equity: $160{,}000 + 200{,}000 = 360{,}000$.

$$\text{ROCE} = \frac{\text{profit before interest and tax}}{\text{capital employed}} \times 100 = \frac{90{,}000}{360{,}000} \times 100 = 25\%$$

The **return on capital employed** 资本回报率 (ROCE) of 25% is far above the roughly 6% interest on the bank loan, so borrowing to invest has paid off. To raise profitability, a business can raise prices where customers are loyal, buy parts more cheaply, cut waste, or sell more of its high-margin services.

Liquidity ratios 流动性比率 show whether the business can pay its short-term debts.

$$\text{current ratio} = \frac{\text{current assets}}{\text{current liabilities}} = \frac{80{,}000}{40{,}000} = 2.0$$

$$\text{acid test ratio} = \frac{\text{current assets} - \text{stock}}{\text{current liabilities}} = \frac{80{,}000 - 30{,}000}{40{,}000} = 1.25$$

A current ratio between 1.5 and 2 is usually safe. The **acid test ratio** 速动比率 leaves out stock, because stock may be slow to sell; a result above 1 is usually safe. Both results here are healthy. A ratio far above the safe range is not good either: money is sitting idle instead of earning a return. To improve liquidity, a business can sell old stock, collect money from debtors faster, or turn an overdraft into a long-term loan. Each step has a cost: discounts to sell stock lower profit, and pushing customers to pay faster may lose some of them.

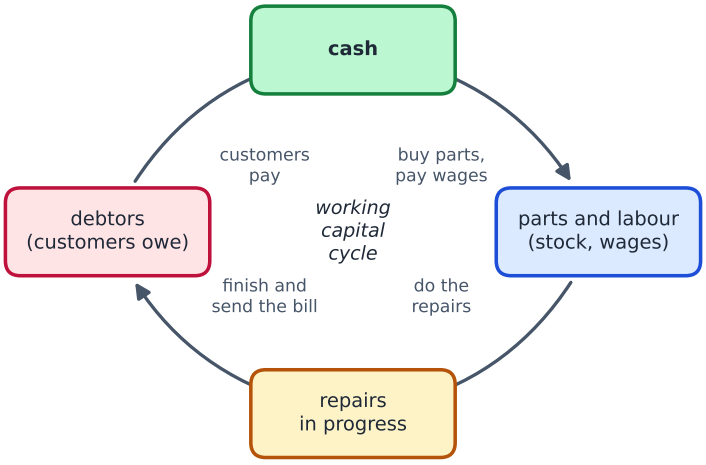
Cash flow

Profit 利润 and **cash flow** 现金流 are different. Profit is revenue minus costs for the year. Cash flow is the money that actually comes in and goes out, and when. A repair finished on 28 December counts as revenue in December, but if the customer pays in February, the cash arrives in February. A profitable business can still fail if it has no cash to pay wages and suppliers. A business with cash can survive a loss-making year.



Cash: a profitable business can still fail if it runs out of cash to pay its bills

The **working capital cycle** 营运资本周期 is the time between paying for inputs and receiving cash from customers.



The longer the working capital cycle, the more cash the business needs to keep running

Businesses hold cash for three reasons: to pay day-to-day bills, to keep a safety reserve for surprises, and to take chances when they come, such as a supplier's discount for buying in bulk.

A **cash flow forecast** 现金流量预测 shows the cash a business expects to receive and pay out, month by month. Each month:

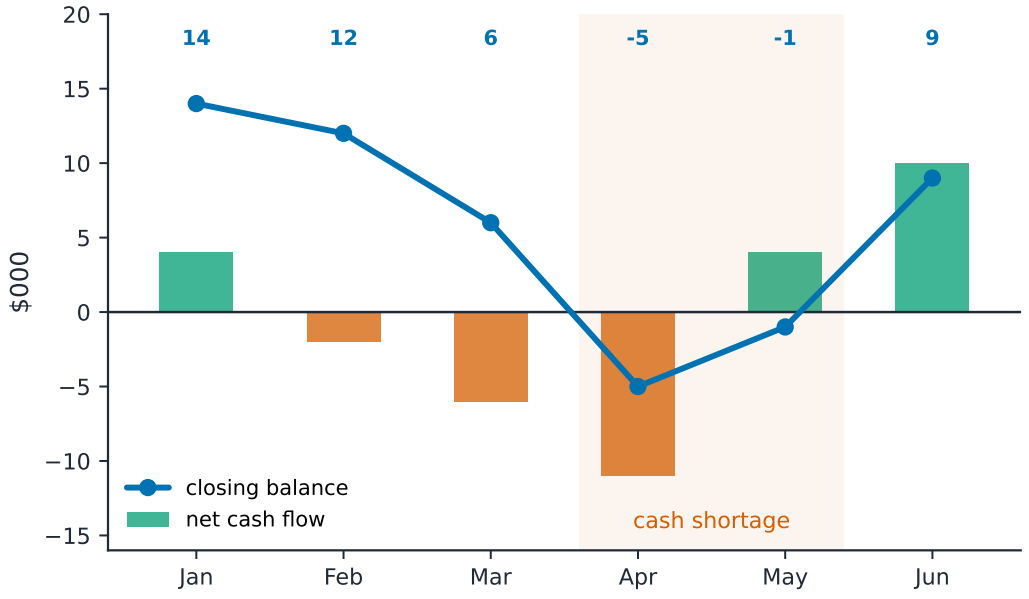
- net cash flow = cash in − cash out;
- closing balance = opening balance + net cash flow;
- the closing balance becomes next month's opening balance.

> **Worked example.** The repair business forecasts the first half of next year (in $000).

	Jan	Feb	Mar	Apr	May	Jun
opening balance	10	14	12	6	−5	−1
cash in	46	44	42	44	50	54
cash out	42	46	48	55	46	44
net cash flow	4	−2	−6	−11	4	10
closing balance	14	12	6	−5	−1	9

In April the yearly insurance and a large parts order are paid in the same month, and the balance falls to −5,000. The forecast shows the problem in January, so the manager has three months to arrange an overdraft or move a payment.

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The closing balance falls below zero in April and May: the forecast warns of a cash shortage three months early

A forecast is only as good as its guesses. Sales may be lower than expected, customers may pay late, and costs may rise. Managers should change it as new information comes in.

A business can deal with a cash flow problem in three ways:

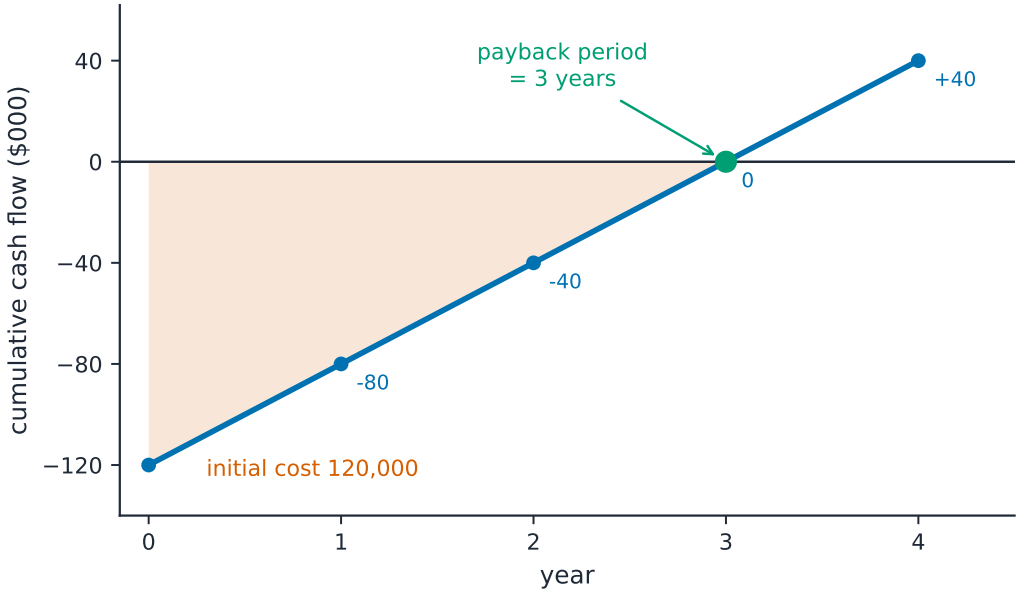
Approach	Examples	Drawback
reduce cash outflows	delay buying new equipment; lease instead of buy; ask suppliers for longer credit	old equipment may break; suppliers may refuse
improve cash inflows	ask customers to pay faster; offer a discount for paying cash; sell old stock	discounts lower profit; customers may go elsewhere
find more finance	overdraft; short-term loan; sell an asset	interest costs; the asset may be needed later

Investment, profit and cash flow are linked. A new workshop uses a lot of cash now and earns profit only later, so even a good investment can cause a cash shortage in its first months.

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Investment appraisal

Investment appraisal 投资评估 checks whether a capital project is worth its cost. The repair business plans a third workshop. It costs 120,000 and should bring in a net cash flow of 40,000 a year for four years.



The third workshop pays back its 120,000 cost after exactly three years

The **payback period** 投资回收期 is the time a project takes to earn back its cost. After three years the workshop has earned $3 \times 40{,}000 = 120{,}000$, so the payback period is 3 years. If the cash flow is not the same each year, add the years until the total covers the cost, then work out the part year: $\text{months} = \dfrac{\text{amount still needed}}{\text{cash flow in that year}} \times 12$. Payback is simple and shows risk, because money that comes back sooner is safer. It ignores everything that happens after the payback date.

The **average rate of return** 平均收益率 (ARR) is the average yearly profit as a percentage of the cost.

$$\text{ARR} = \frac{(\text{total returns} - \text{capital cost}) \div \text{years of use}}{\text{capital cost}} \times 100 = \frac{(160{,}000 - 120{,}000) \div 4}{120{,}000} \times 100 = 8.3\%$$

ARR uses all the years of the project and can be compared with the interest rate on a loan. It ignores timing: 40,000 received in year 4 is treated the same as 40,000 received in year 1.

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Checklist

- Capital and revenue expenditure; internal sources (personal funds, retained profit, sale of assets) and eight external sources; short, medium and long term; matching the source to the need (3.1–3.2).
- Fixed, variable, semi-variable, direct and indirect costs; total revenue and revenue streams (3.3).
- The income statement from sales revenue 600,000 to retained profit 40,000; the statement of financial position with net assets and equity of 200,000; who reads the accounts (3.4).
- Gross profit margin 40%, profit margin 15%, ROCE 25%; current ratio 2.0, acid test 1.25; ways to improve each (3.5).
- Profit against cash flow; the working capital cycle; the January–June forecast with its −5,000 in April; three ways to fix a cash problem (3.7).
- Payback 3 years, ARR 8.3%; what each method can and cannot show (3.8).

Paper 2 tests the calculations: write the formula, put in the numbers and give the answer with its unit, then say what it means for the business. Paper 1 asks about sources of finance and cash flow in the case-study business. All numbers here are original.

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Marketing (4.1-4.6)

International Baccalaureate · IB Diploma · Business Management · SL

Marketing

IB Diploma Programme Business Management SL, Unit 4 *Marketing* (first assessment 2024). This topic covers the SL content of sections 4.1 to 4.6: the role of marketing, marketing planning, market research and the seven Ps of the marketing mix. Sales forecasting (4.3) and international marketing (4.6) are HL only and are left out. The worked examples use the course's repair business. Its city has a market of 8,000 car repairs a month, and the business does 2,000 of them.

Luckin Coffee opened its first shop in Beijing in 2017. Within two years it had more shops in China than Starbucks. It did not win with better coffee alone. It used an app for every order, small pick-up shops instead of big cafés, and large discounts to win first-time buyers. Every one of those choices is a marketing decision: product, price, place and promotion. This topic shows how a business decides who its customers are and how to reach them.

Must-know for this topic:

Idea	Key content
orientation	market orientation against product orientation
market share	$\frac{\text{firm's sales}}{\text{total market sales}} \times 100$: $2{,}000 \div 8{,}000 \times 100 = 25\%$
planning	segmentation, targeting, positioning; position map; USP
research	primary and secondary; qualitative and quantitative; sampling
the 7Ps	product, price, promotion, place, people, processes, physical evidence

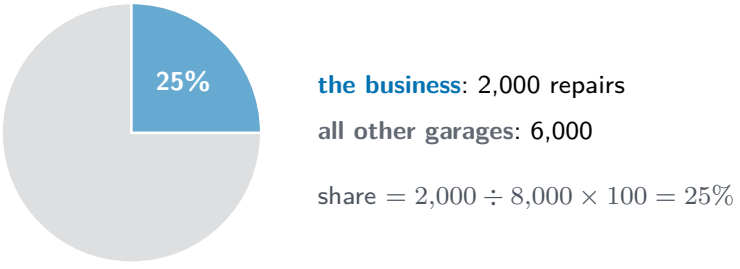
The role of marketing

Marketing 营销 means finding out what customers want and supplying it at a profit. It links the business to its customers.

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Advertising screens: promotion is the most visible part of marketing, but only one of the Ps



Market share = firm's sales / market sales x 100.

- A business with **market orientation** 市场导向 starts with customers: it researches what they want, then makes it. This is the usual approach today, because tastes change fast.
- A business with **product orientation** 产品导向 starts with the product: it makes what it is good at, then tries to sell it. This can work for new technology, where customers do not yet know what they want, but it is risky.

Social enterprises market too, but their aim may be to change behaviour (for example, to make people recycle) rather than to earn profit.

Market share 市场份额 is a firm's sales as a percentage of the whole market's sales.

> **Worked example.** The city's garages do 8,000 repairs a month, and the repair business does 2,000. Its market share = 2,000 ÷ 8,000 × 100 = 25%. If the market grows to 10,000 repairs and the business does 2,400, its sales rise by 20% but its market share falls to 24%. Rivals grew faster.

A high market share brings economies of scale, a strong brand and power over suppliers. The firm with the largest share is the **market leader** 市场领导者.

Marketing planning

A **marketing plan** 营销计划 sets out the marketing objectives, the target market, the marketing mix, the budget and how success will be measured. Marketing objectives must fit the business's main objectives: for example, "raise market share from 25% to 30% in two years".

Segmentation, targeting and positioning

1. **Segmentation** 市场细分: dividing a market into groups of customers with similar needs. Common ways: by **demographics** 人口统计特征 (age, income, gender), by geography, and by **psychographics** 消费心理特征 (lifestyle, values, interests).
2. **Targeting** 目标市场选择: choosing which segments to serve. A **niche market** 利基市场 is a small, specialised segment; a **mass market** 大众市场 is a large one with similar needs.
3. **Positioning** 市场定位: deciding how the product should be seen compared with rivals in the customer's mind.

A **position map** 定位图 (perception map) places rival products on two features that customers care about, such as price and quality. It shows where competition is crowded and where there is a gap.



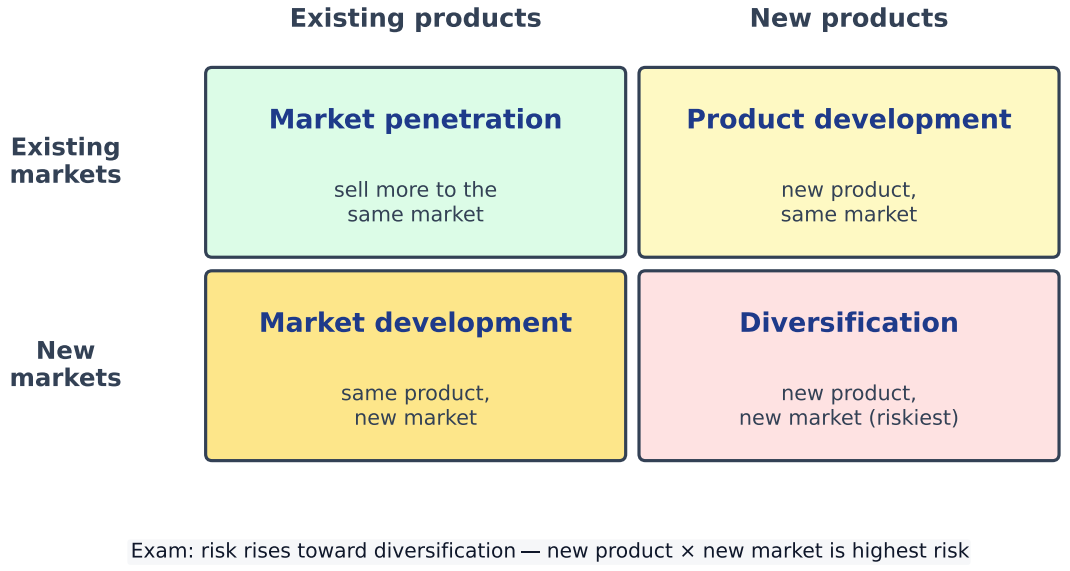
A position map shows where rivals compete and where gaps exist

A gap is not always a chance: there may be no customers there, or it may cost too much to serve. A business stands out through its **unique selling point** 独特卖点

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(USP): something rivals do not offer. The repair business's USP is a 24-hour repair promise with a free replacement car.

The **Ansoff matrix** 安索夫矩阵 (from the business management toolkit) shows four growth strategies and their risk:

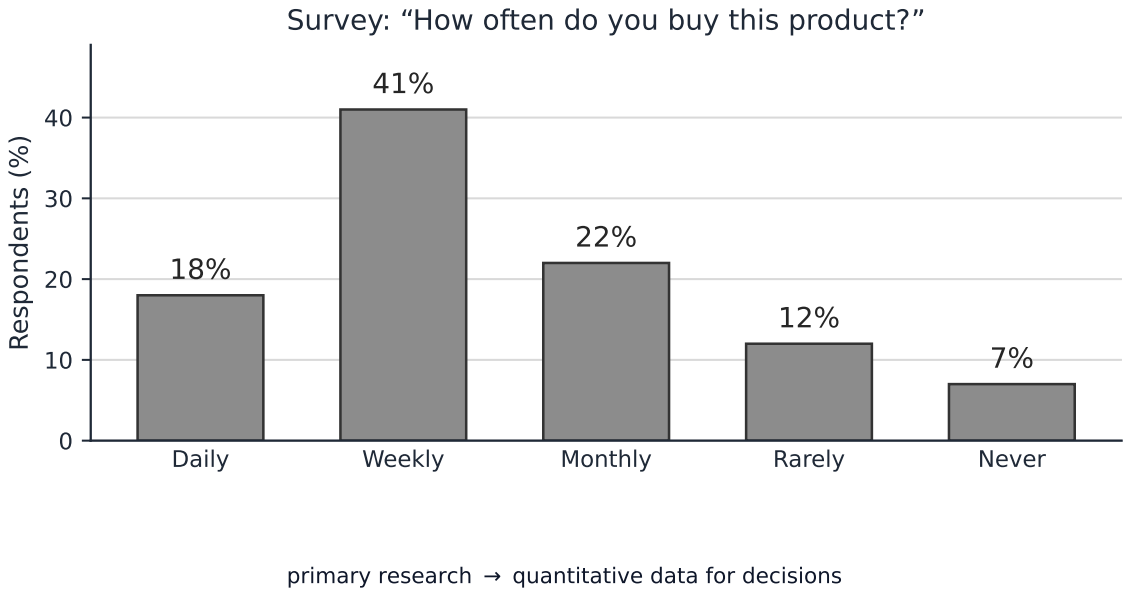


Ansoff matrix: risk rises from market penetration to diversification

Market research

Market research 市场调研 collects information about customers, competitors and markets to reduce the risk of decisions.

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Primary research → quantitative data that guides marketing decisions

- **Primary research** 一手调研 collects new data for the business's own purpose: **surveys** 问卷调查, interviews, **focus groups** 焦点小组 (a small group discussing a product), observation and test marketing. It fits the question exactly and is up to date, but it is slow and costly.
- **Secondary research** 二手调研 uses data that already exists: government statistics, industry reports, newspapers, competitors' websites and the firm's own sales records. It is quick and cheap, but it may be out of date or collected for another purpose.

Quantitative data 定量数据 is numbers ("62% of drivers service their car once a year"). **Qualitative data** 定性数据 is opinions and reasons ("drivers distrust garages that do not explain the fault"). Good research uses both.

Researchers usually ask a **sample** 样本 instead of everyone:

Sampling method	How it works	Weakness
random sampling 随机抽样	everyone has an equal chance of being chosen	needs a full list of the population
stratified sampling 分层抽样	the sample matches the population's groups (age, area)	needs data on the groups
quota sampling 配额抽样	the researcher fills a set number from each group	not random, so bias is possible
convenience sampling 便利抽样	whoever is easy to reach	often unrepresentative
snowballing 滚雪球抽样	each person suggests others	biased towards one social circle

Sampling error 抽样误差 happens when the sample does not represent the population, often because it is too small. Research can also be biased by leading questions. And collecting customer data online raises ethical questions about privacy and consent.

The seven Ps of the marketing mix

The **marketing mix** 营销组合 is the set of decisions a business makes to sell its product. For goods there are four Ps: product, price, promotion and place. Services add three more: people, processes and physical evidence. All seven must fit together: a premium brand with a very low price confuses customers.

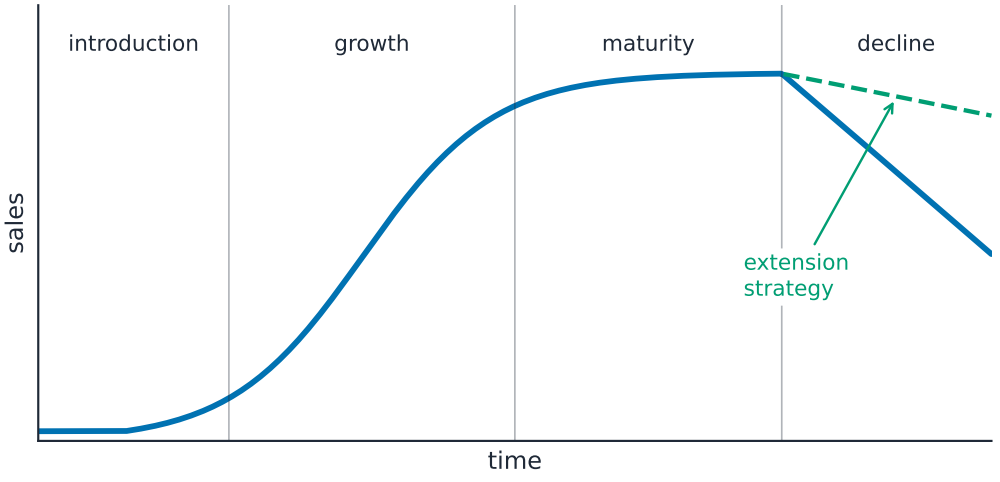


Shelf space: product, price, place and promotion all meet on a supermarket shelf

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Product

The **product life cycle** 产品生命周期 shows the stages of a product's sales over time:



introduction → growth → maturity → decline (sales over time)

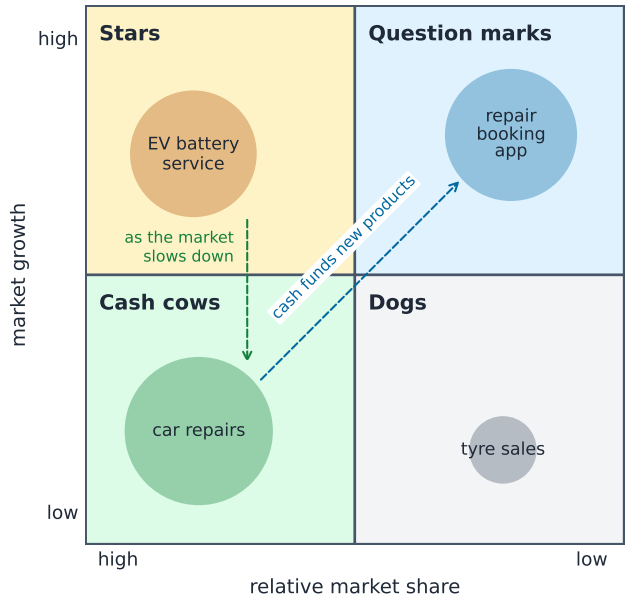
Sales through introduction, growth, maturity and decline; an extension strategy can delay the decline

Stage	Sales	Cash flow	Typical marketing
development	none	negative	research and testing
introduction	low, slow growth	negative	heavy promotion; skimming or penetration price
growth	rising fast	turning positive	more outlets; build the brand
maturity	high, levelling off	strongly positive	compete on price and features; extension strategies
decline	falling	falling	cut costs, then withdraw

Extension strategies 延伸策略 delay the decline: a new feature, a new design, a new market, or a new use.

The **Boston Consulting Group matrix** 波士顿矩阵 (BCG matrix) looks at a firm's whole range of products, its **product portfolio** 产品组合, using market growth and relative market share:

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The repair business's products on the Boston matrix: the cash cow pays for the star and the question mark

- **Stars** 明星产品: high share of a fast-growing market. They need cash to keep growing. *EV battery servicing.*
- **Cash cows** 现金牛: high share of a slow-growing market. They earn more cash than they need. *Ordinary car repairs.*
- **Question marks** 问题产品: low share of a fast-growing market. Invest to build share, or drop them. *The new repair booking app.*
- **Dogs** 瘦狗产品: low share of a slow-growing market. Usually sold or closed. *Tyre sales, where large chains are much cheaper.*

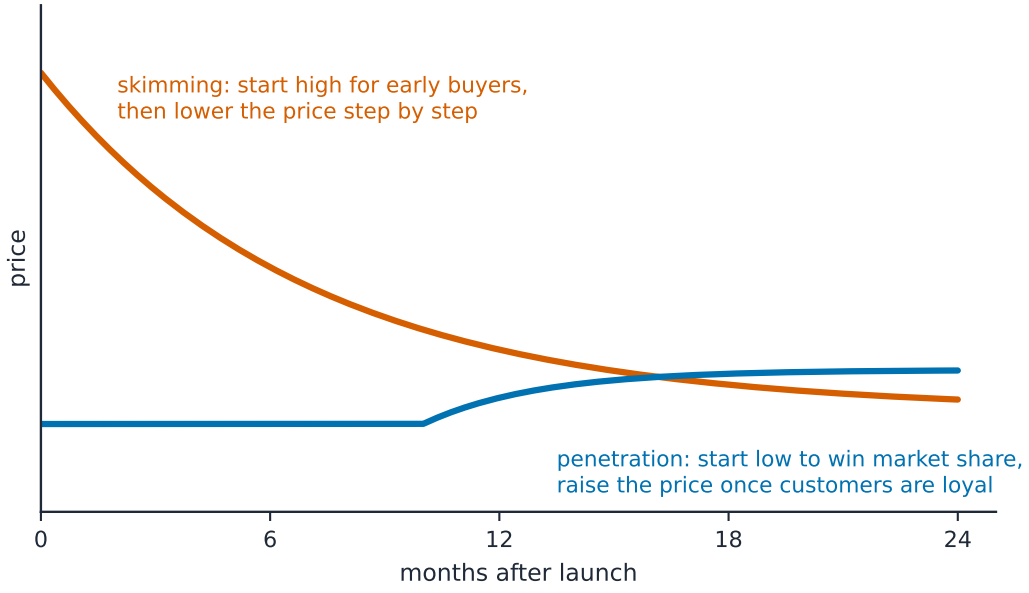
A balanced portfolio uses the cash from cows to turn question marks into stars, which later become the next cash cows.

Branding 品牌建设 gives a product a name, logo and identity. A strong brand builds **brand loyalty** 品牌忠诚度 and lets the firm charge more. Packaging protects the product, but also informs and attracts buyers.

Price

Pricing method	How it works	When it is used
cost-plus pricing 成本加成定价	average cost plus a fixed percentage	simple; common in shops
penetration pricing 渗透定价	a low price at launch to win market share	mass markets; new firms
price skimming 撇脂定价	a high price at launch, lowered over time	new technology with keen early buyers
psychological pricing 心理定价	prices such as 99 instead of 100	consumer goods
loss leader 招徕定价	one item sold below cost to bring in customers	supermarkets
price discrimination 价格歧视	different prices for different groups for the same product	cinemas, airlines, student discounts
dynamic pricing 动态定价	prices change with demand in real time	ride-hailing apps, hotels
competitive pricing 竞争定价	prices set close to rivals'	many similar products
contribution pricing 贡献定价	price covers the variable cost and adds something towards fixed costs	spare capacity

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Skimming and penetration pricing move in opposite directions after launch

Promotion

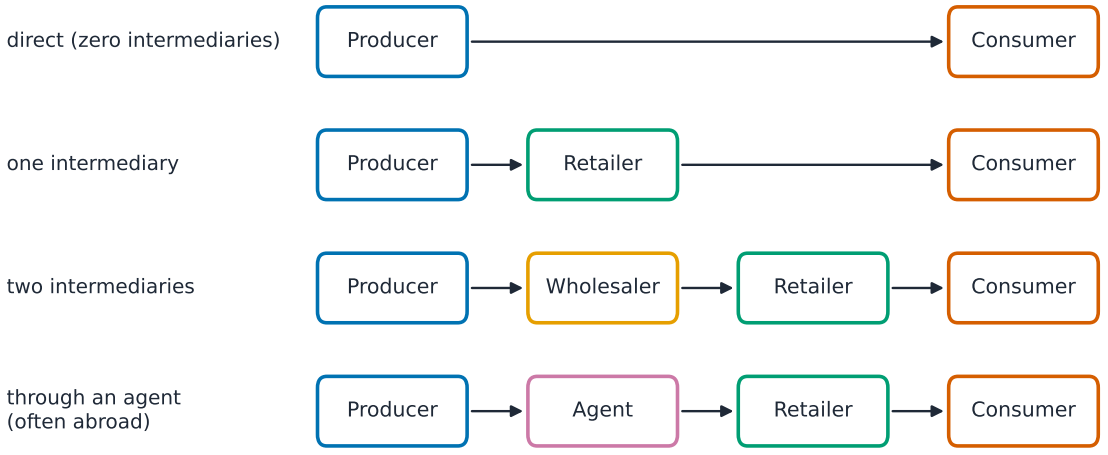
- **Above-the-line promotion** 线上促销 uses paid mass media: television, newspapers, cinema, billboards and online adverts. It reaches many people, but it is costly and hard to target.
- **Below-the-line promotion** 线下促销 is targeted and often cheaper: sales promotions (discounts, free gifts), sponsorship, direct marketing, personal selling and **public relations** 公共关系 (PR).
- **Social media marketing** 社交媒体营销 uses platforms such as WeChat, Douyin and Instagram. It is cheap and two-way, and messages can go viral, but bad comments spread just as fast.
- **Guerrilla marketing** 游击营销 uses surprising, low-cost stunts in public places to get attention.

The **promotional mix** 促销组合 is the combination a business chooses.

Place

Place 渠道 is how the product reaches the customer. A **distribution channel** 分销渠道 is the path from producer to consumer.

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Each intermediary adds reach but takes a share of the price

Each **intermediary** 中间商 (wholesaler, retailer or agent) adds reach and convenience, but takes part of the profit and reduces the producer's control. Selling online (**e-commerce** 电子商务) lets even small firms sell directly to customers far away.

■ People, processes and physical evidence

- **People** 人员: the staff who deal with customers. In a service, the mechanic who explains a fault clearly is part of the product.
- **Processes** 流程: how the service is delivered: online booking, waiting times, how complaints are handled.
- **Physical evidence** 有形展示: what customers can see: a clean workshop, uniforms, a clear invoice, online reviews.

Checklist

- Marketing; market against product orientation; marketing in social enterprises; market share 2,000 ÷ 8,000 = 25% and why share can fall as sales rise; market leadership (4.1).
- The marketing plan; segmentation by demographics, geography and psychographics; targeting niche and mass markets; positioning, position maps and the USP; the Ansoff matrix (4.2).
- Primary and secondary research; qualitative and quantitative data; random, stratified, quota, convenience and snowball sampling; sampling error and ethics (4.4).
- The seven Ps: the product life cycle and extension strategies; the BCG matrix with stars, cash cows, question marks and dogs; branding; the nine pricing methods; above- and below-the-line, social media and guerrilla promotion; distribution channels and intermediaries; people, processes and physical evidence (4.5).

Operations management (5.1-5.9)

International Baccalaureate · IB Diploma · Business Management · SL

Operations management

IB Diploma Programme Business Management SL, Unit 5 *Operations management* (first assessment 2024). This topic covers the SL content of sections 5.1 to 5.5: the role of operations, operations methods, location and break-even analysis. Lean production and quality (5.3), production planning (5.6), crisis management (5.7), research and development (5.8) and management information systems (5.9) are HL only and are left out. The worked examples use the course's repair business, and the numbers fit Unit 3: each repair sells for 25 on average, uses 15 of parts and direct labour, and fixed costs are 12,500 a month.



A distribution centre: operations management turns inputs into finished goods ready for customers.

In March 2011 a huge earthquake and tsunami hit north-east Japan. Many of Toyota's suppliers stopped work. Toyota was famous for holding very little stock, so within days some of its factories in Japan and abroad had no parts, and output stayed low for months. Toyota did not give up its low-stock system. Instead it built a database of every supplier behind its suppliers, so it could act faster next time. This topic is about how a business makes its products: which production method to use, where to produce, and how many it must sell to cover its costs.

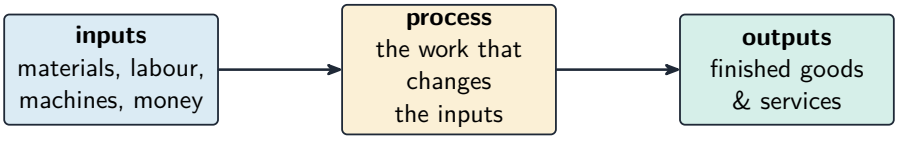
Must-know for this topic:

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Idea	Key content
operations	inputs → process → outputs; links to finance, HR and marketing
methods	job, batch, mass/flow, mass customisation
location	reasons; outsourcing, offshoring, insourcing, reshoring
break-even	contribution 10; break-even 1,250 repairs; margin of safety 750

The role of operations and operations methods

Operations management 运营管理 is the part of a business that makes its goods or provides its services. It turns **inputs** 投入 (labour, materials, machines, money and information) into **outputs** 产出 that are worth more than the inputs. The extra value is **value added** 附加值.



the output is worth more than the inputs ⇒ value added

Inputs are transformed into outputs worth more than the inputs: value added

Operations links to every other part of the business. Marketing says what customers want; finance pays for the machines; human resources finds the skilled staff. Operations must also be sustainable: a workshop that recycles oil and old tyres cuts its costs and its harm to the environment.

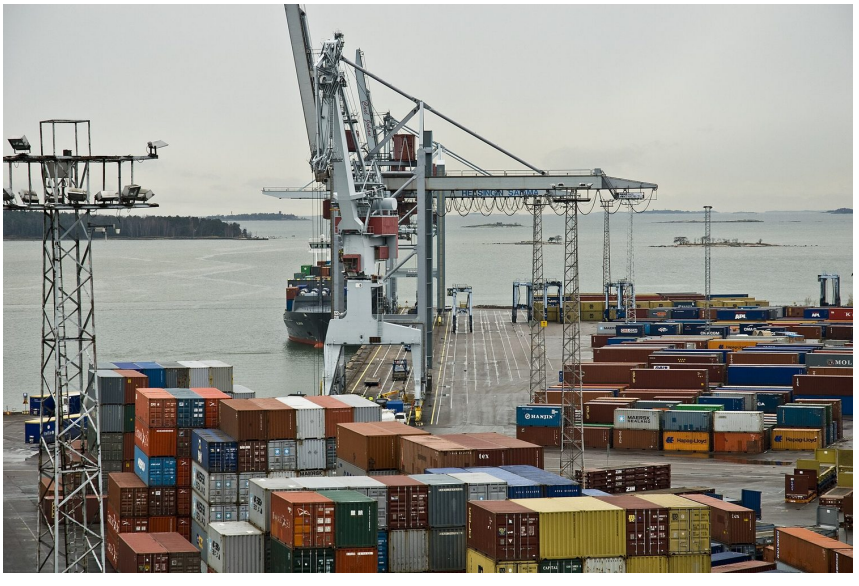
There are four main **operations methods** 生产方法:

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Method	What it is	Example	For and against
job production 单件生产	one item made to a customer's order	restoring a classic car	high quality and high prices; slow, skilled staff, high cost per unit
batch production 批量生产	a group of identical items, then a switch to the next group	servicing 40 taxis from one company in one week	some variety, lower cost; time is lost when switching between batches
mass production 大规模生产 (flow)	the same item made without stopping	a car factory line	lowest cost per unit; expensive to set up, little choice, boring work
mass customisation 大规模定制	flow-line speed, but each customer chooses features	a car ordered online in your choice of colour and wheels	choice at a low cost; needs flexible machines and good data

Location

Businesses choose a location by weighing:



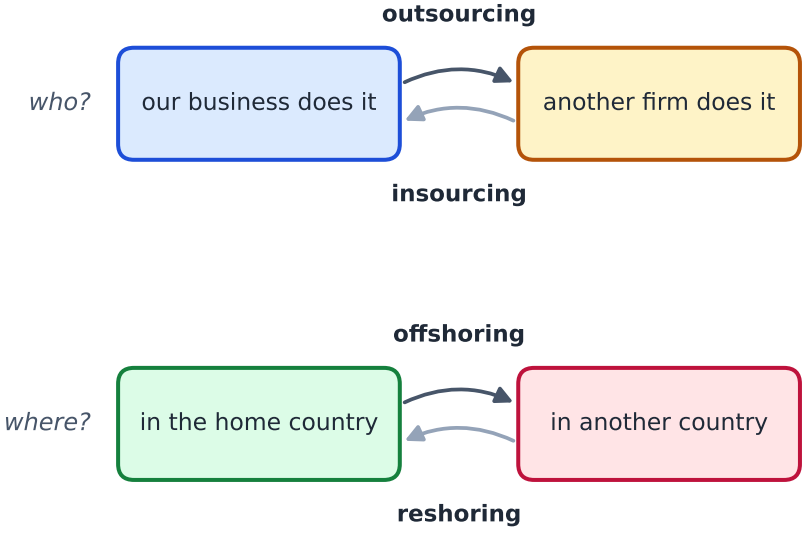
Stacked shipping containers: being near a port cuts the cost of moving materials and products

- costs: land, rent, wages and transport;
- the labour available and its skills;

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- nearness to customers (most important for services, such as repairs) and to suppliers (important for heavy materials);
- infrastructure: roads, ports, power and internet;
- government: taxes, grants, rules and political stability;
- culture and language, for a business moving abroad.

A business can also change who does the work and where.



Outsourcing and insourcing change who does the work; offshoring and reshoring change where

- **Outsourcing** 外包 (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** 离岸外包 moves work to another country, for lower costs or to be near new markets.
- **Insourcing** 内包 brings an outsourced task back inside the business, usually for better control or quality.
- **Reshoring** 回流 brings work back to the home country, often after supply problems abroad.

Break-even analysis

Contribution 边际贡献 per unit is the price minus the variable cost per unit. It is the amount each sale adds towards paying the fixed costs.

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

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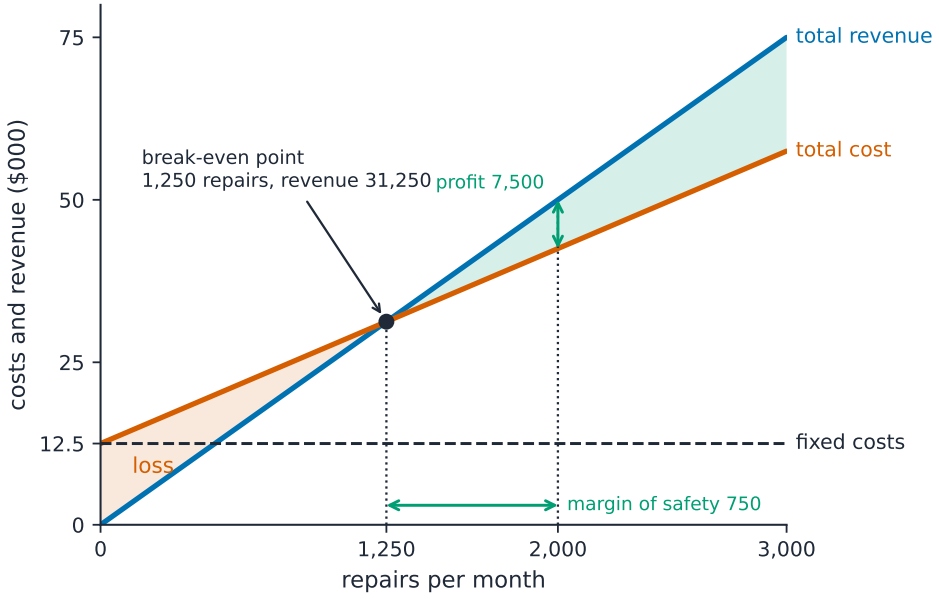
Total contribution is contribution per unit × output. At 2,000 repairs a month it is $2{,}000 \times 10 = 20{,}000$. Profit is total contribution minus fixed costs: $20{,}000 - 12{,}500 = 7{,}500$ a month.

The **break-even** 盈亏平衡 output is where total revenue equals total cost, so there is no profit and no loss.

$$\text{break-even output} = \frac{\text{fixed costs}}{\text{contribution per unit}} = \frac{12{,}500}{10} = 1{,}250 \text{ repairs a month}$$

The **margin of safety** 安全边际 is how far sales can fall before the business makes a loss.

$$\text{margin of safety} = \text{actual output} - \text{break-even output} = 2{,}000 - 1{,}250 = 750 \text{ repairs}$$



Break-even at 1,250 repairs a month; at 2,000 repairs the margin of safety is 750 repairs

A business can also work out the output or price it needs for a **target profit** 目标利润:

- 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: $(12{,}500 + 10{,}000) \div 2{,}000 + 15 = 26.25$.

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Worked example: a change in price and cost. The business raises its price to 27, so contribution rises to 12. In the same month the rent rises by 3,000, so fixed costs become 15,500. The new break-even output is $15{,}500 \div 12 = 1{,}291.7$, which rounds up to 1,292 repairs. If sales stay at 2,000, profit rises to $2{,}000 \times 12 - 15{,}500 = 8{,}500$, but the margin of safety falls from 750 to 708. If the higher price drives some customers away, the business is closer to a loss than before.

Break-even analysis is quick and easy to show on a chart, and it helps when planning prices or a new product. But it assumes that every unit made is sold, that the price and the variable cost per unit stay the same at every output, and that fixed costs never change. In real life, buying in bulk lowers variable costs, a bigger output may need a new workshop, and sales forecasts can be wrong.

Checklist

- The transformation process and value added; links between operations and the other functions; sustainability (5.1).
- Job, batch, mass and mass customisation, with an example and the advantages and disadvantages of each (5.2).
- Location factors; outsourcing, offshoring, insourcing and reshoring (5.4).
- Contribution 10, total contribution 20,000, break-even 1,250 repairs, margin of safety 750, target output 2,750 for a profit of 15,000, target price 26.25; the change to price 27 and rent +3,000 (break-even 1,292, margin 708); the limits of the model (5.5).

Paper 2 tests the calculations: write the formula, put in the numbers and give the answer with its unit, then say what it means for the business. Paper 1 asks about operations methods, quality and location in the case-study business. All numbers here are original.

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