8 Product and portfolio analysis

OBJECTIVES

To investigate the competitive position of your business's products or strategic business units (SBUs) in the context of market development. By displaying products or a portfolio of products in a matrix fashion, insight is gained into the strategic position of the products, the likely direction in which they are developing, the cash flow implications and pointers as to what strategies should be pursued.

The analytical approaches covered in this chapter are:

- Experience curve and scale economies
- Product life cycle stage analysis
- Growth-share matrix
- Directional policy matrix
- Hofer matrix

Portfolio analysis is mostly relevant for existing, larger businesses with multiple products. For such businesses, matrix displays are helpful in making strategic decisions about the allocation of limited cash resources among a portfolio of products. Some products require further cash investments, some generate cash and others may have to be divested. This is an input into the generation of strategic options, which is addressed in Chapter 10.

Matrix displays can be generated for your business as well as for competitors. The displays can be used to make strategic comparisons between your business and competitors. This allows you to anticipate likely strategic moves by competitors and plan your own moves.

THE EXPERIENCE CURVE AND ECONOMIES OF SCALE

In most businesses, there is a relationship between volume and cost as a result of two factors: the experience curve and economies of scale effects.

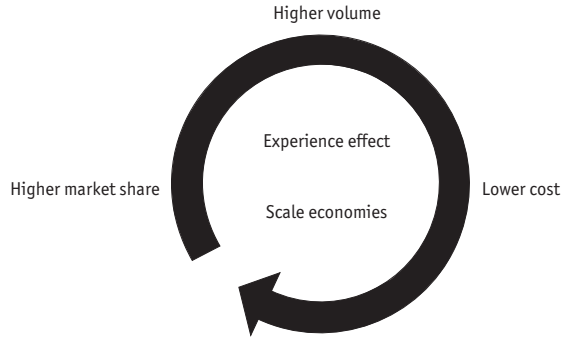
Research by the Boston Consulting Group, a business consulting firm, showed that there is a relationship between cumulative production volume and unit costs. Unit costs decline in a predictable manner as the cumulative quantity produced over time increases. The mathematics of the experience curve and its application in forecasting are discussed in Chapter 12. The main reason for the experience curve effect is that the organisation and people within the organisation learn how to do things better. Initially, substantial benefit is derived from this learning process, but it diminishes over time. It should be noted that this effect does not depend on production volumes increasing. Even if production remains static, over time costs will decline.

Economies of scale effects occur when production volumes increase. There are several reasons for scale effects:

- Fixed and overhead costs can be distributed over a larger number of units.
- Plant and machinery may operate more efficiently at larger volumes.
- Increased bargaining power vis-à-vis suppliers.
- Increased specialisation.
- Potentially a higher utilisation of capacity.

In practice, the experience curve effect and the economies of scale effect work together. When a new product is launched volumes are small, but they increase rapidly. If a company achieves higher production volumes more quickly than its rivals, it will experience lower unit costs. As a result, it could offer lower prices, thus increasing market share even further (see Chart 8.1). Therefore market share is of overriding importance when assessing the strategic imperatives of product life cycle, portfolio and matrix analysis.

Chart 8.1 **The virtuous circle of volume and cost**



An important aspect of portfolio analysis, which is discussed in detail below, is market share. The importance of market share in a mass market derives from the ability to pursue a cost leadership strategy and thus achieve higher overall returns on investments because of high-volume sales. Market share is therefore a key determinant of business position.

PRODUCT LIFE CYCLE STAGE ANALYSIS

The growth pattern for many products follows an s-shaped curve, from an introduction stage, through growth, then reaching maturity and eventually declining when the product is being replaced with substitutes. A similar life cycle can be observed for whole industries (see Chapter 7). The product life cycle concept has several uses, notably for market forecasting, which is covered in Chapter 12. This chapter discusses the product analysis and business planning implications of the product life cycle concept.

From the introduction to the withdrawal of a product, customer, demand, marketing, competitive and resource factors generally follow a pattern that is driven by the product life cycle. Knowing where a product is in the product life cycle allows you to anticipate and plan for the next stage. Chart 8.2 summarises the product life cycle characteristics and the impact on strategy.

Chart 8.2 **Product life cycle characteristics and strategies**

	Introduction	*Growth*	*Maturity*	*Decline*
Users/sales	Few	Increasing rapidly	Settling in	Declining
Costs	High R&D, unit and launch costs	Falling rapidly, utilisation, scale and experience effects	Declining production costs but higher marketing costs	Stabilising
Competitors	Few	New entrants, innovator may sell out	Consolidation	Some exit
Marketing objective	Successful introduction, gain opinion leader endorsement	Build market share by focusing on new customers and creating distinct brand image	Retain customers, get customers to switch, renewals and upgrades, extend life cycle, increase frequency of use, new product uses, cost reduction	Further reduce costs and exploit product or brand
Product	Basic, little variety, quality not high, frequent design changes	Increasing variety and features, good quality and reliability	Stable, standardisation, some tinkering, eg, "new improved xyz"	Declining variety, no further development
Prices	High, price-skimming strategy, introductory offers	Falling slowly, supply constraints may keep prices high	Falling rapidly, discounts, price competition	Stabilising, increasing in late decline stage
Promotion	Promote product, build awareness, user education, press relations, high advertising to sales ratio	Mass-market advertising, increased focus of brand	Focus on brand and its advantages, loyalty, bundling, affinity	Scaled down brand promotion
Place	Specialist retailers, dealers who can give advice, exclusivity deals	Mass-market channels, large multiples	Mass-market channels, large multiples, power of channels increases	Phase out marginal outlets, some multiples may de-list, specialisation
Cash flow	Negative	Break even	Positive	Positive, but declining
Profitability	Losses	Profitable	Margins decline, but offset by volume	Declining margins offset by low depreciation charges, possible write-downs
Risk	High business risk	Low demand side risk, but cash flow risks	Low business risk, cyclical factor impact	Low business risk, labour conflict in unionised industries

Introduction

The introduction stage is the period before sales start to increase exponentially. It is the riskiest stage and requires most management effort. The business will have already committed substantial resources. Despite convincing market research, the product may fail the test of the real market. There is still the opportunity to fine-tune the marketing mix or

even relaunch the product. If there are early signs of success and sufficient resources are available, managers may opt for penetration pricing, thereby driving up volume and capturing market share before competitors enter the market. However, this increases risk and failure will be catastrophic.

Growth

A rapid acceleration of sales signals the start of the growth stage, which can be divided into the accelerating growth stage and the decelerating growth stage. In the accelerating growth stage, the incremental year-on-year sales increase. In the decelerating growth stage, sales are still growing but year-on-year incremental sales decline. The dividing point between the two is the point of inflection in the s-shaped product life cycle curve.

As the business changes to become more volume driven, the risks profile changes. Demand for the product is now proven and competitors enter the market. The expansion requires investment in capacity and working capital. The early growth stage may coincide with the highest funding requirement. Many businesses fail during the expansion stage, not because they are unprofitable but because they become insolvent. A strategy for a smaller entrepreneur may be to sell out to a larger, later entrant. The rationale for seeking a buy-out is not just access to resources. The introduction stage and the growth stage require different kinds of organisation and skills. Indeed, many business plans have an explicit exit strategy, seeking to sell out once the business is in the early growth stage.

In the early growth stage the focus is usually on winning new customers. This stage is crucial to positioning the product as a market leader. In the late growth stage more attention is given to customer retention.

Maturity

At this stage the focus shifts to a fight for market share and cost reduction. Some consolidation may take place. Because growth objectives remain, businesses may seek to increase sales through a higher repeat sales rate, increased frequency of use or finding new uses for an existing product. For example, faced with declining sales in an ageing market, Cognac producers started to promote drinking Cognac on ice (much to the horror of traditionalists) as an aperitif rather than a digestif. This rejuvenated Cognac by making it attractive to younger drinkers and gave Cognac a new use.

Decline

When decline sets in, the time for consolidation is probably past. The least efficient competitors will gradually exit the market. Management is likely to focus on cost reduction in order to maintain profitability despite declining sales. Some assets may be reallocated. Businesses can become highly cash generating, because capital investment is low and some working capital is freed up. A re-reorganisation and change of management style are likely. In moribund, large, unionised businesses it may be extremely difficult to exit profitably because exit costs are high. Demand for some products does not die away completely but settles down at a low level. This can constitute an extremely profitable niche business.

Product life cycle and competitive position

Arthur D. Little, a management consulting firm, suggested using the product life cycle analysis in combination with the competitive position. This yields pointers as to what strategies should be pursued for the business or the SBU (Chart 8.3). In this analysis, the product life cycle stages are replaced by industry maturity stages – embryonic, growth, mature and ageing – which correspond to the product life cycle stages identified above. The competitive position is measured as dominant, strong, favourable, tenable and weak. A dominant position implies a near monopoly whereas a weak position means that a business's long-term survival is threatened as a result of low market share.

Conceptually, the matrix is similar to the growth-share matrix and directional policy matrix (see below), inasmuch as the market growth rate is an indication of industry maturity and market share is one factor in determining the business position. The strategies suggested by the industry maturity/competitive position matrix are also similar to the implication of the directional policy matrix and are discussed in more detail below.

The fact that strategic choice is more complex than the strategies suggested by the matrix analysis is captured by the fact that each box contains multiple options in descending order of suitability. There may well be overriding reasons, not captured by the two-factor matrix, for a business to pursue one strategy rather than another.

Chart 8.3 **Industry maturity: competitive position matrix**

COMPETITIVE POSITION	STAGES OF INDUSTRY MATURITY			
	Embryonic	**Growth**	**Mature**	**Ageing**
Dominant	Fast growth Start-up	Fast growth Attain cost leadership Renew Defend position	Defend position Attain cost leadership Renew Fast growth	Defend position Focus Renew Grow with industry
Strong	Start-up Differentiate Fast growth	Fast grow Catch-up Attain cost leadership Differentiate	Attain cost leadership Renew Focus Differentiate Grow with industry	Find niche Hold niche Hang in Grow with industry Harvest
Favourable	Start-up Differentiate Focus Fast growth	Differentiate Focus Catch-up Grow with industry	Harvest, hang in Find niche, hold niche Renew, turnaround Differentiate, focus Grow with industry	Retrench Turnaround
Tenable	Start-up Grow with industry Focus	Harvest, catch up Hold niche, hang in Find niche Turnaround Focus Grow with industry	Harvest Turnaround Find niche Retrench	Divest Retrench
Weak	Find niche Catch up Grow with industry	Turnaround Retrench	Withdraw Divest	Withdraw

Source: Johnson, G. and Scholes, K., *Exploring Corporate Strategy*, Prentice-Hall, 1989, from Arthur D. Little

GROWTH-SHARE MATRIX

The original growth-share matrix was developed by the Boston Consulting Group and is also referred to as the BCG box. The purpose of the matrix is to analyse a firm's product portfolio or portfolio of SBUs. The matrix relates market growth (the key variable in the product life cycle stage analysis) to relative market share. The objective of the analysis is to

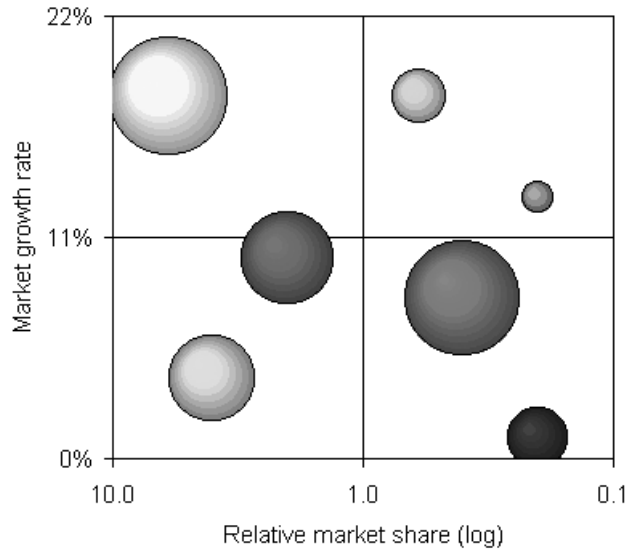
gain strategic insight into which products require investment, which should be divested and which are sources of cash.

The growth-share matrix (Chart 8.5) is constructed by plotting the market growth rate as a percentage on the vertical axis and the relative market share on the horizontal axis. Relative market share rather than absolute market share is used because it gives a better representation of the relative market strength of competitors. For example, if company A has 50% of the market for a particular product and there are two competitors, B with 40% and C with 10%, relatively speaking B's position is close to A. The relative market share for a business is calculated by dividing the sales of the business by that of its largest competitor. In the example, A's relative market share is 1.25 and B's is 0.80. A firm's portfolio of products is represented as circles, where the area of the circle represents annual sales of a product. Most spreadsheet programmes have the facility to create a growth-share matrix. Chart 8.5 was generated with the data shown in Chart 8.4 using the bubble chart option in Excel.

Chart 8.4 **Chart data for the growth-share matrix**

Product	*Relative share (%)*	*Market growth (%)*	*Annual sales ($m)*
Sky blue	4.0	4	100
Dark blue	0.2	1	50
Red	2.0	10	110
Purple	0.4	8	170
Green	0.6	18	40
Yellow	6.0	18	180
Orange	0.2	13	15

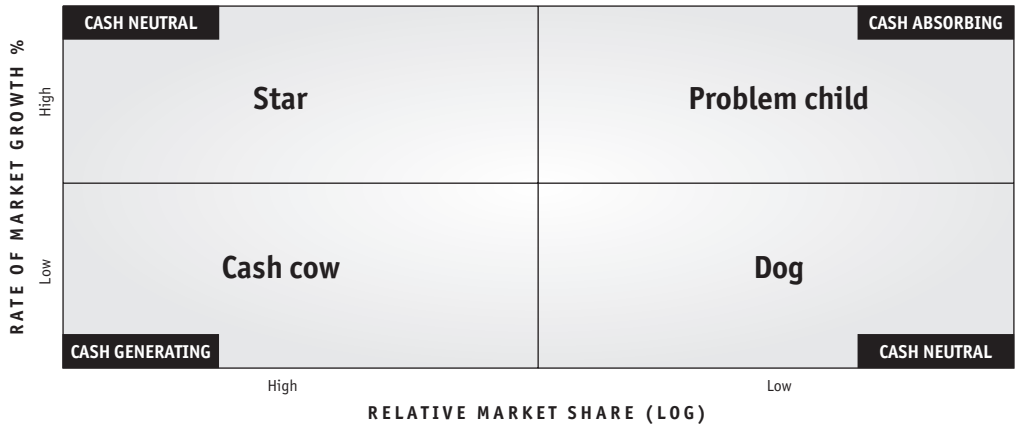
Chart 8.5 **Growth-share matrix**



Using the growth-share matrix for strategic planning

The growth-share matrix allows you to visualise which products are cash generating and which are cash-absorbing. This is helpful to understanding where resources should be allocated to change the strategic position of products or which products should be divested. Depending on the position of the products, they are classified as stars, problem children, dogs or cash cows (see Chart 8.6).

Chart 8.6 **Cash characteristics and classification of product portfolio**



Star

Stars have a high relative market share in a rapidly growing market; they are in the introduction or growth stage of the product life. Although gross margins are likely to be excellent and generate cash, the rapid growth means more cash is required to fund marketing and capacity additions. This means cash outflows and inflows are roughly balanced. If the business fails to spend to keep pace with market growth, the product will lose market share and become a problem child and eventually a dog. However, if the position is maintained through continued investment, the product will turn into a cash cow when market growth slows down.

Problem child

A problem child product creates a dilemma. The rapid market growth means investment is required. However, if investment is made only to keep up with market growth, the competitive position of the product will not be improved. In order to gain relative market share, additional cash is required, making problem children highly cash absorbing. The alternatives are to divest or to do nothing. Divestment will generate cash, which can be used, for example, to transform other problem children into stars. Although the market is still growing rapidly, it may be possible to sell the problem child for a good price to a rival who is in the same position. The combined market share may turn two problem children into one star. Doing nothing is probably the worst choice, because eventually the product becomes a dog.

Dog

Dogs are products with a low market share in a market that has reached maturity. Profits will be relatively low. At this stage it will be difficult to find a buyer for a reasonable price. As long as the product is slightly cash generating or cash neutral, the temptation may be to keep it going, but of course it ties up capital. Another strategy might be to reposition the product into a particular niche, where volumes may be even lower but a premium price can be obtained.

Cash cow

Cash cows are products with a high market share in a relatively mature market. No further investment in growth or product development is required, and the dominant market position means margins are likely to be high. This makes the product cash generating. Some funds are likely to be returned to investors in the form of dividends or by paying back debt, but a substantial part of the cash should be used to fund new product development, stars or problem children. However, as decline sets in, cash cows will become less cash generating and may eventually die.

Portfolio strategy

Fundamentally, there is little businesses can do about the market growth rate. This is implicit in the product life cycle curve. In other words, movement along the growth axis is an externality. However, position and movement along the relative market share axis is the result of management action relative to the action of rivals. Ideally, a product enters the matrix on the upper left-hand corner and gradually moves to the lower left-hand corner.

The growth rate is highest in the early stages of the product life cycle (see Chart 8.7), so all products start at the top of the matrix. Ideally, products are first stars and then become cash cows. During the introduction stage of the product life cycle, growth rates are high and continue to be relatively high during the early growth stage. The early growth stage is defined as the period between the introduction and the point where volume growth is no longer increasing but starts to decrease. It is important to distinguish between the percentage growth rate and growth in absolute terms. The growth rate declines throughout the product life cycle, but growth in volume terms increases to a peak before declining (see Chart 8.8). This is the point of inflection in the product life cycle curve.

Chart 8.7 **Sales volume and growth rate**

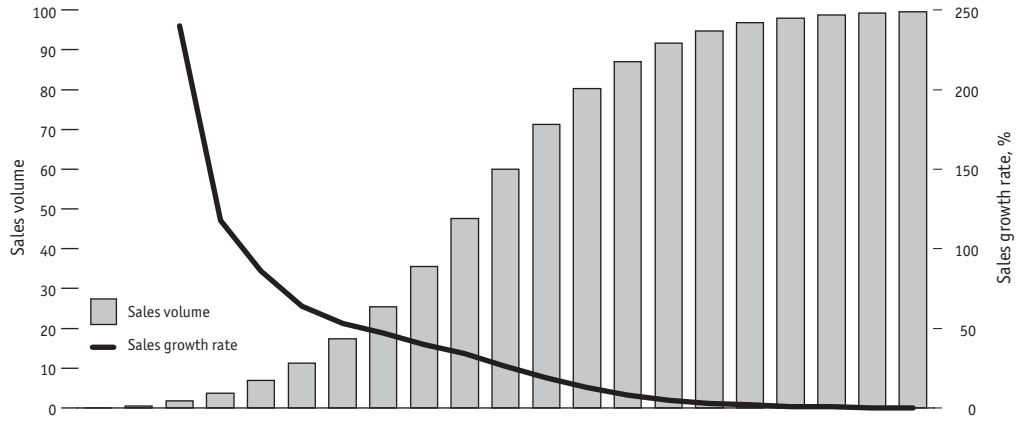
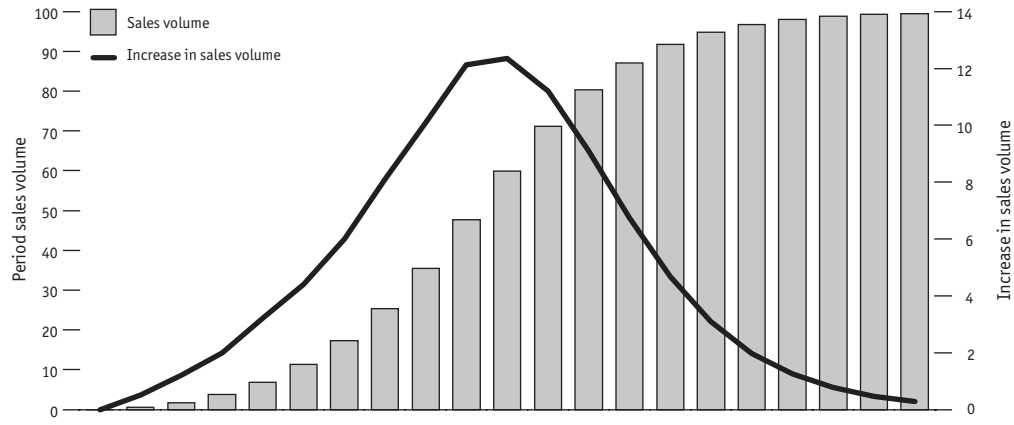


Chart 8.8 **Point of inflection in market growth**



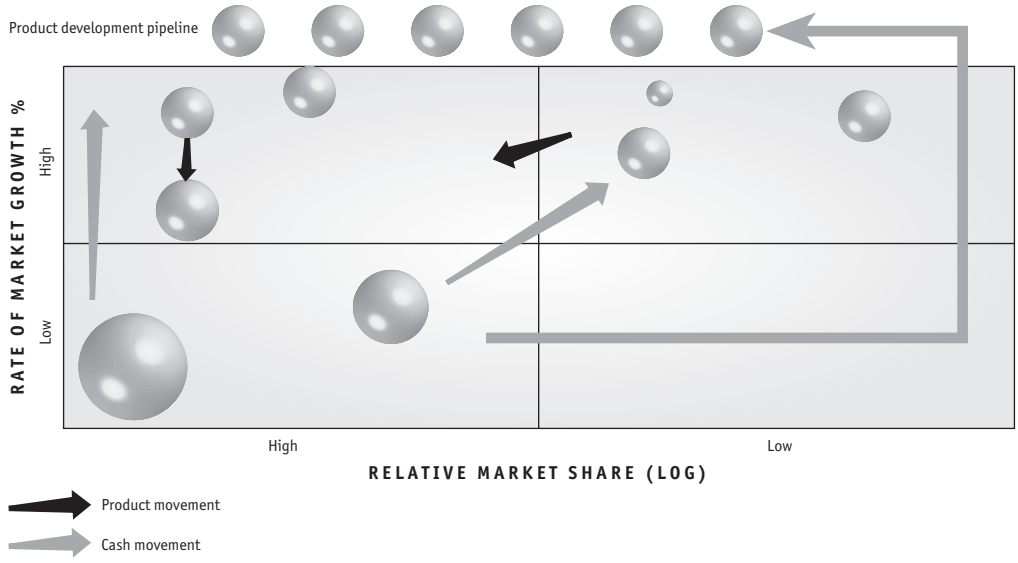
While markets are growing rapidly and overall volumes are still small, differences in market share are not very important. However, as the market moves into the late growth stage, it becomes increasingly more difficult to win market share. You should therefore have manoeuvred the product into a star position before reaching the point of inflection, or it will be in danger of becoming a problem child and eventually a dog.

Irrespective of your efforts, some products may become problem children. If a business also has cash cows, funds can be used to transform a problem child into a star (see Chart 8.9 on the next page). Alternatively, the problem child can be divested and the funds used to grow a new star. Most products will eventually reach the decline stage of the product life cycle. This means standing still is not an option for most businesses. A balanced product portfolio should include cash cows and stars, and possibly problem children that can be turned into stars. The cash generated from cash cows funds stars and problem children as well as returning money to shareholders and bondholders.

Because cash cows will eventually enter the decline stage of the product life cycle where they no longer generate much cash, there must be a flow of new products. The development of new products is financed by cash cows. Given that funding is a significant constraint, maintaining a balanced portfolio must include a product development pipeline or the business will cease to exist.

Generally, cash cow products will have a large sales volume (represented by a larger than average circle in the matrix), because the market is mature and because the product has a high relative market share. This means the volume of cash generated will be correspondingly large. This needs to be the case because one cash cow has to fund several new products, of which some may not make it to launch and others may become dogs.

Chart 8.9 **Strategic movement of portfolio products and cash**



Plotting product movements over time

Ideally, you will carry out an annual strategic planning exercise so you should have a time series of matrix displays. This means you will be able to track the movement of your portfolio over time and thus obtain feedback on how well strategies have been working. This can lead to a reappraisal of strategic choices.

DIRECTIONAL POLICY MATRIX

A limitation of the growth-share matrix is that it relies only on two factors: the market growth rate and relative market share. Market growth is only one factor that affects business prospects. Similarly, relative market share is only one aspect of the business position. The directional policy matrix seeks to overcome this limitation by including many more factors (see Chart 8.10 on page 76). In doing so, the exercise becomes less numerical and involves judgment.

Joseph Guiltinan and Gordon Paul developed the directional policy matrix while working at Shell Corporate Planning during the late 1970s. It is based on the growth-share matrix (see above), originally developed by the Boston Consulting Group, but the work done at Shell enhanced the perspective specifically with a view to managing a portfolio of products competing for limited funds within Shell. The method of developing a directional policy matrix shown here is based on Patrick McNamee's *Tools and Techniques for Strategic Management*.[1]

In the directional policy matrix, the vertical axis is used to map business-sector prospects and the business position is plotted against the horizontal axis. Completion of a directional policy matrix involves considerable environmental and resource analysis. The evaluation factors used to generate the data for the directional policy matrix could be limited to the critical success factors or could be a broader collection of factors. The list provided in Chart 8.10 is only indicative and should be adapted to meet the industry's and your firm's particular circumstances.

Quantification of business-sector prospects and business position

The factors identified in Chart 8.10 on the next page must be converted into values so that the products or SBUs can be positioned in the directional policy matrix. This requires judgment, so this method is more subjective than the growth-share matrix. Subjectivity is not necessarily a bad thing, because it involves thinking through the issues affecting the business in a structured manner. Clearly, businesses are not managed by just two numbers but by an understanding of the wider environment and the business position in that environment.

The same method is used to quantify the business-sector prospects and the business position.

1. An importance score is assigned to each factor. The importance scale ranges from 0 to 5. A factor with a zero importance score could be omitted for the purposes of the calculation, but it is still valuable to record the fact that a particular factor is of no importance and has not just been missed.
2. A score is assigned to indicate the strength of the influence of the factor on your firm's product or SBU. The scale ranges from −5 to +5. A negative number indicates a negative influence.
3. The two scores for each factor are multiplied to produce a total score for business-sector prospects and the business position for your firm's product.
4. The score achieved by your firm's product is expressed as a percentage of the maximum score (all scores set to +5 and totalled). This produces the co-ordinates to position the product on the matrix. The area of the circles should be proportional to the annual sales value of the product.

The scale on the axis of the matrix ranges from −100% to +100%: −100% is the worst possible business-sector prospect and −100% is the worst possible business position; +100% indicates the best business-sector prospect and strongest business position. Charts 8.11 (page 77), 8.12 (page 78) and 8.13 (page 79) provide an example of how to calculate and display a particular product for a company.

Chart 8.10 **Factors for evaluation in a directional policy matrix**

Business sector prospects

Market factors
Market size
Market growth
Price elasticity
Product life cycle stage
Cyclicality
Bargaining power of suppliers
Bargaining power of buyers

Competitive environment
Degree of concentration
Threat from new entrants
Exits
Consolidation
Vertical integration
Threat from substitutes

Technology factors
Scope for innovation
Speed of change
Product diversity
Complexity
Differentiation
Flexible manufacturing
Capacity utilisation
Patents and copyrights

Financial and economic factors
Margins
Fixed versus marginal costs
Trend in input costs
Capital intensity
Contribution
Share prices
Cost of capital
Synergies

Political factors
Social trends
Barriers to exit
Subsidies
Regulation and legislation
Environmental impact
Threat of litigation
Pressure groups

Business position

Marketing factors
Market share
Relative market share
Sales growth
Relative product quality
Image
Brand
Product diversity
Relative maturity
Positioning
Distribution strength

Technology factors
R&D strength
Product development pipeline
Patents and rights
Manufacturing technology
Degree of flexible manufacturing
Scalability

Production
Cost relative to competitors
Scope for cost reduction
Capacity utilisation
Inventory
Degree of vertical integration

Organisational factors
Relative skill level
Stakeholder interest and backing
Attitude to risk
Strategic interests
Union reaction

Financial factors
Margin
Contribution to profit
Cash flow
Cost of capital
Access to funding
Capital structure
Capital intensity
Fixed versus marginal costs
Potential impairment charges
Taxation

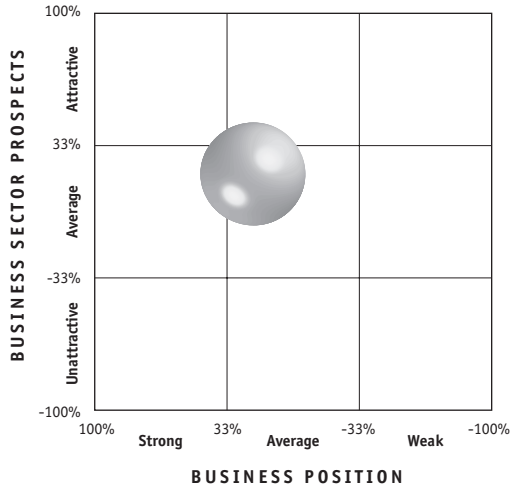
Chart 8.11 **Quantification of business-sector prospects**

Factor	*Importance*	*Strength*	*Score*
Market factors			
Market size	5	2	10
Market growth	4	3	12
Price elasticity	2	–3	–6
Product life cycle stage	4	2	8
Cyclicality	0	0	0
Bargaining power of suppliers	2	3	6
Bargaining power of buyers	3	–1	–3
Competitive environment			
Degree of concentration	3	–2	–6
Threat from new entrants	1	–1	–1
Exits	1	2	2
Consolidation	2	–4	–8
Vertical integration	2	1	2
Threat from substitutes	5	–4	–20
Technology factors			
Scope for innovation	1	1	1
Speed of change	2	–2	–4
Product diversity	3	2	6
Complexity	4	5	20
Differentiation	3	–2	–6
Flexible manufacturing	3	–5	–15
Capacity utilisation	4	4	16
Patents and copyrights	0	0	0
Financial and economic factors			
Margins	4	3	12
Fixed versus marginal costs	5	5	25
Trend in input costs	4	–1	–4
Capital intensity	5	5	25
Contribution	5	3	15
Share prices	3	2	6
Cost of capital	3	2	6
Synergies	0	0	0
Political factors			
Social trends	3	5	15
Barriers to exit	4	–3	–12
Subsidies	0	0	0
Regulation and legislation	2	–1	–2
Environmental impact	2	–1	–2
Threat of litigation	1	–1	–1
Pressure groups	1	–1	–1
Total score			96
Maximum possible score			480
Percentage score			20

Chart 8.12 **Quantification of business position**

Factor	*Importance*	*Strength*	*Score*
Marketing factors			
Market share	5	5	25
Relative market share	4	–1	–4
Sales growth	1	1	1
Relative product quality	4	2	8
Image	3	1	3
Brand	3	3	9
Product diversity	0	0	0
Relative maturity	5	2	10
Positioning	4	3	12
Distribution strength	2	1	2
Technology factors			
R&D strength	2	1	2
Product development pipeline	1	0	0
Patents and rights	0	0	0
Manufacturing technology	4	3	12
Degree of flexible manufacturing	5	5	25
Scalability	3	–2	–6
Production			
Cost relative to competitors	5	2	10
Scope for cost reduction	5	4	20
Capacity utilisation	5	2	10
Inventory	2	–2	–4
Degree of vertical integration	0	0	0
Organisational factors			
Relative skill level	2	0	0
Stakeholder interest and backing	3	–2	–6
Attitude to risk	2	–4	–8
Strategic interests	3	–2	–6
Union reaction	2	–4	–8
Financial factors			
Margin	3	–2	–6
Contribution to profit	4	1	4
Cash flow	3	–1	–3
Cost of capital	3	–2	–6
Access to funding	1	–2	–2
Capital structure	0	0	0
Capital intensity	4	–2	–8
Fixed versus marginal costs	4	2	8
Potential impairment charges	0	0	0
Taxation	0	0	0
Total score			94
Maximum possible score			485
Percentage score			19

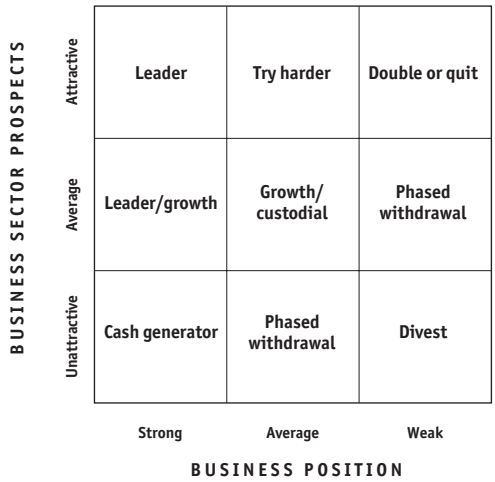
Chart 8.13 **Directional policy matrix**



Using the directional policy matrix to develop strategic direction

The nine squares in the directional policy matrix and the labels assigned to it (see Chart 8.14) are similar to those in the growth-share matrix, but they provide a finer degree of analysis. The labels provide an indication as to what strategic directions may be most appropriate for a particular product or SBU.

Chart 8.14 **Strategic directions**



Leader

This is the position that is most likely to generate the highest return on investment in the longer term. It is similar to the star in the growth-share matrix. A product in this category is well positioned with regard to the most important industry attractiveness factors. Rapid market growth is probably one of the reasons for its attractiveness, so the product will

require investment in capacity and marketing, for example brand building and distribution channel development. If the position as leader is maintained, the product will become a cash generator.

Try harder
A product in this category is not the market leader but it has a good chance of catching up. The market is still growing fast and positions can change. To move the product to the leader box, additional cash above that required to keep up with market growth is required.

Double or quit
Here the chances of catching up with the market leader are slimmer. The product is in an attractive market but its position is weak. Substantial investment is required to improve the business position and success is not guaranteed. The easier option may be to divest, by selling out to a competitor whose product is in the try harder box, for example. It is highly likely that the net present value of a product to a competitor is higher than it is to your business. In other words, you would maximise your return on investment by selling out.

Leader/growth
These products are leaders in a market of medium attractiveness. To ensure that they do not lose their business attractiveness, some investment is required. If the position is maintained, they are likely to become cash generators.

Growth/custodial
A product in this category has good business-sector prospects and there are no particular business advantages. Sales are likely to be too large to reposition the product as a niche player. Given that sector prospects are only average, a holding strategy may be appropriate. This is likely to release some cash, but returns will be below average.

Phased withdrawal
Products that are either in an unattractive market and have only an average business position or in an average market but with a weak business position fall into this category. In both cases returns are below average. Although these products are probably cash generating, they can easily turn into the growth-share matrix dog and become a drain on resources. The best strategy may be to withdraw the product and reallocate resources.

Cash generator
Products in this category are similar to the cash cow products. They are in a relatively unattractive market but with an excellent competitive position. Because business prospects are not good, making further investments is not recommended. The strong competitive position means that cash flow will be highly positive. However, in the directional policy matrix the business prospect does not depend on growth rates alone. Other factors may be responsible for the unattractive business prospect, such as a reduction in import tariffs which may allow the market to be flooded with cheap imports.

Divest
This is the least enviable position. The product's business-sector prospects are bleak, its business position is weak, and it is likely to lose money. This is a true dog identified in the growth-share matrix. The best strategy is to divest the product. It is unlikely that a high price could be obtained in these circumstances, but at least the cash haemorrhage could be stopped. Shutdown and write-off may be the only alternative.

THE BUSINESS/INDUSTRY ATTRACTIVENESS SCREEN

Following the development of the directional policy matrix, McKinsey & Co, a management consultancy, developed a similar approach working with General Electric (GE). The matrix is commonly known as the GE business/industry attractiveness screen (see Chart 8.15) and the approach is similar to the directional policy matrix. It comes in several versions, but they all have the same basic structure and strategy implications.

The version shown in Chart 8.15 is based on the work of Charles Hofer, Dan Schendel and Michael Porter. The competitive position of the SBUs to be analysed is plotted on the horizontal axis and the industry attractiveness on the vertical axis. The criteria used to quantify the position are similar to those in the directional policy matrix and can be selected according to what is relevant for your industry.

SBUs in boxes 1, 2 and 4 are those that should be protected or developed (they require funding), those in boxes 6, 8 and 9 should be carefully managed, harvested or even divested (they provide cash), and those in boxes 3, 5 and 7 should be managed in a cash flow neutral manner.

Chart 8.15 **Industry maturity: competitive position matrix**

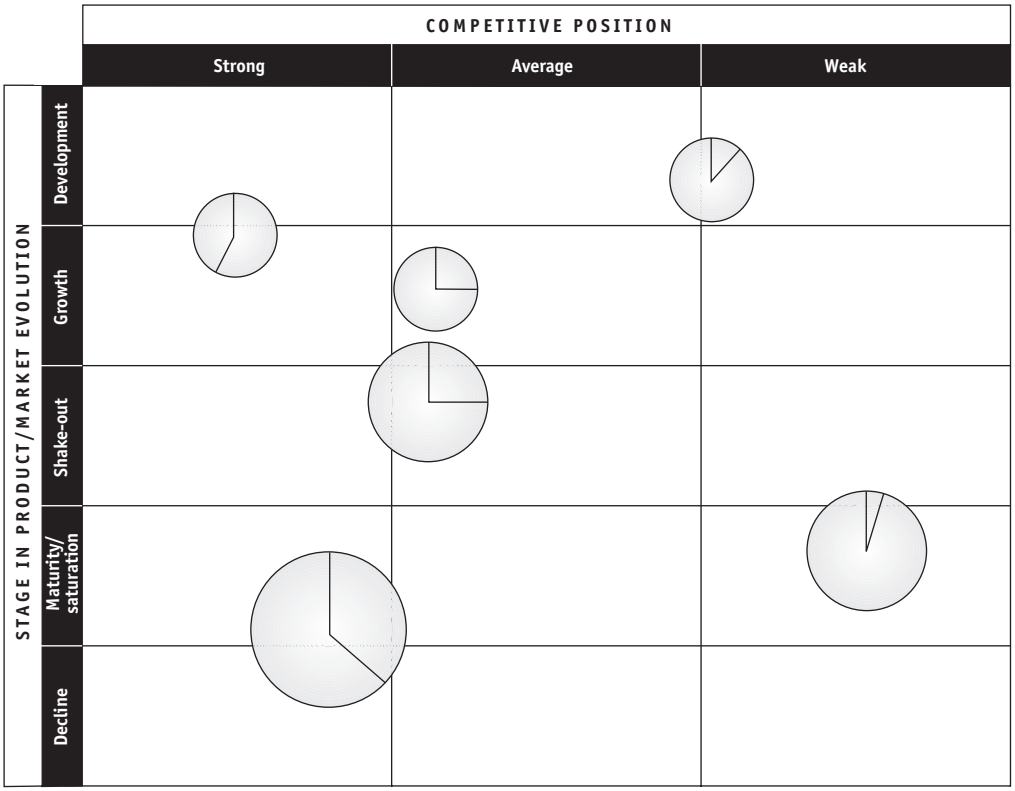
		COMPETITIVE POSITION		
		Strong	**Average**	**Weak**
INDUSTRY ATTRACTIVENESS	**High**	**1 Protect position** ◩ Invest to grow at maximum rate ◩ Focus effort on maintaining strength	**2 Invest to build** ◩ Challenge for leadership ◩ Built selectively on strengths ◩ Reinforce vulnerable areas	**3 Built selectively** ◩ Specialise around limited strengths ◩ Seek ways to overcome weaknesses ◩ Withdraw if indications of sustainable growth are lacking
	Medium	**4 Built selectively** ◩ Invest heavily in most attractive segments ◩ Built up ability to counter competition ◩ Emphasise profitability by raising productivity	**5 Selectivity/manage for earnings** ◩ Protect existing programme ◩ Concentrate investment in segments where profitability is good and risks are relatively low	**6 Limited expansion or harvest** ◩ Look for ways to expand without high risk; otherwise minimise investment and rationalise operations
	Low	**7 Protect and refocus** ◩ Manage current earnings ◩ Concentrate on attractive segments ◩ Defend strengths	**8 Manage for earnings** ◩ Protect position in most profitable segments ◩ Upgrade product line ◩ Minimise investment	**9 Divest** ◩ Sell at time that will maximise cash value ◩ Cut fixed costs and avoid investment

THE HOFER MATRIX

Hofer's product market evolution matrix adds an additional dimension to the display of market evolution and business position and uses a finer grid. The competitive position is plotted on the horizontal axis and the stage of product or market evolution on the vertical axis. The competitive position, which is similar to the business position in the directional policy matrix, can be calculated in the same way as for that matrix. The market evolution axis is similar to the product life cycle, where development equates to the introduction stage, growth to the accelerating growth stage and shake-out to the decelerating growth stage. The products or SBUs are shown as circles and, unlike in other matrixes, the area of the circle represents total product turnover. Within the circle the share of a firm's product is shown as a slice of the circle.

The Hofer matrix includes more information, but is also more difficult to construct and exceeds the capabilities of Excel. However, there are specialist software tools (see below) to facilitate the creation of matrixes such as this.

Chart 8.16 **Hofer matrix**



Source: Hofer, C. and Schendel, D., *Strategy Formulation: Analytical Concepts*, West Publishing Co, 1978, p. 34

USING SOFTWARE FOR PRODUCT LIFE CYCLE AND MATRIX ANALYSIS

Many of the diagrams in this chapter can be created using Excel, but it has charting limitations. There are specialist PC-based software tools that facilitate the task of analysis and create the associated charts as an output. Some of the programmes can be interfaced with Excel, so that your projections can be made in Excel and then read into the specialist software. For example, Market Modelling Ltd (www.market-modelling.co.uk) has developed an easy-to-use set of software tools for strategic marketing analysis.

LIMITATIONS OF MATRIX PORTFOLIO ANALYSIS

Product life cycle stage and portfolio and matrix analysis provide a structured approach to the analysis of products, particularly for larger, multiple product businesses. They should be part of a strategic and business planning process. If a business plan includes some of the above diagrams, it will gain credibility. This is not because fancy charts impress people, but because it demonstrates that you have gone through the strategic planning process and thoroughly researched and thought through the strategic implications before presenting the business plan.

Any such tool or model is only an abstraction of the real world, which is extremely complex with diverse influences. It may not always be possible to capture these in a matrix. For example, the cash flow issues, which are central to the growth-share matrix, depend on much more than the market growth rates and relative market share. Matrices should not be used blindly for strategy formulation but as a key input into strategic thinking and business planning.

Lastly, the models need not be used in exactly the way they have been devised by the authors; often it will be better to take the basic ideas and adapt them to the circumstances of the business that is planned.

USES OF OUTCOMES IN THE BUSINESS PLAN

One of the main outputs of product life cycle and portfolio analysis is the insight into cash flow implications. Funding is central to any business plan. It may not be possible to develop all products in the manner planned, because access to funds is limited. If a business embarks on an ambitious strategy to turn “problem children” into “stars”, it must ensure adequate funding. The portfolio analysis should be checked against funding plans.

The analysis helps to ascertain the need for future product development to maintain the business as a going concern. If there are no stars or problem children to be developed, turnover will decline in the medium to long term. A business that consists mainly of cash cows but does not see an opportunity to develop products internally may embark on an acquisition strategy or, although this is rare, return funds to shareholders, for example through a share buy-back plan.

The matrix analysis produces recommendations on the strategic direction in which products should be developed. The prescriptive aspects of matrix analysis, such as "build" or "harvest", are an input into the generation of strategic options. This is discussed fully in Chapter 10.

If the portfolio analysis is carried out not only for your business but also for competitors, this provides useful insight into the strategic direction your rivals may take and is therefore an input into the competitor analysis.

Reference

1 McNamee, P.B., *Tools and Techniques for Strategic Management*, Pergamon Press, 1985.