

# Competing through innovation

# 13



*The key to long-term success in business is what it always has been: to invest, to lead, to create value where none existed before.*

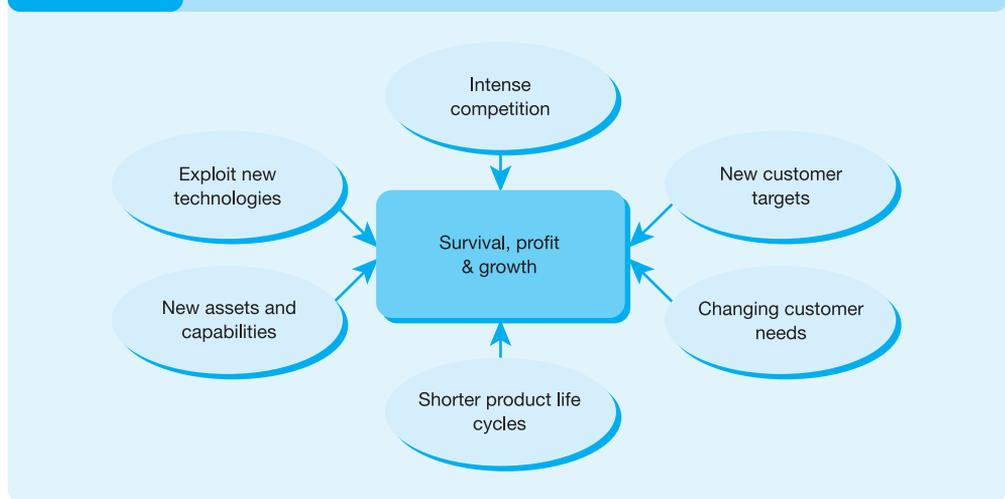
**Robert Hayes and William  
Abernathy (1980)**

## Introduction

Innovation may emerge on many fronts: an innovation in customer service experience and store atmospherics to reinvent a business by a firm such as Jordan's Furniture with two of their stores boasting IMAX theatres and restaurant facilities, a brand extension strategy by Virgin, or a new access method for conventional products by First Direct in financial services. However, the nature of innovation in marketing strategy is best understood by examining the new product development process. The lessons here may be applied more generally to understanding innovation in the services and brand elements of marketing strategy.

There are many factors that may spur an organisation to innovate (see Figure 13.1). These include internal pressures to exploit existing and new technologies to the full, together with the desire to use the organisation's resources, its assets and capabilities, as effectively as possible. External pressures include the push from intense

**Figure 13.1** Pressures and spurs to innovation



competition, increasingly demanding customers and the technological drive of shortening product life cycles (see Chapter 3).

It is imperative for new product managers to appreciate the reasons for new product failure and to avoid these pitfalls. By understanding the drivers of new product success managers can check if their firm has the requirements for effective product innovation. If it does not they should develop means by which the requisites of successful innovation are acquired to minimise the likelihood of market failure.

This chapter starts by examining new product success and failure, then uses that knowledge to help understand the new product development process and how to organise for innovation.

### 13.1 New product success and failure

Studies that compare new product successes with failures are consistent in their observations of the key factors that govern a new product’s success in the marketplace. Getting to grips with these helps us understand successful product innovation.

Figure 13.2 shows the types of new products firms often come up with:

**Figure 13.2** The new product zoo

- |              |                                 |
|--------------|---------------------------------|
| The DINOSAUR | – Fit for a museum              |
| The OSTRICH  | – Blind to the future           |
| The FLAMINGO | – Beautiful but unsaleable      |
| The PEARL    | – Source of a profitable future |

- **Dinosaurs** are products that have missed their niche, the market has moved on and the demand for them has passed. Where product development times are long there is a danger that even well-researched products take too long to come to market. By the time they are launched the market has moved on, customer requirements have changed, and/or competitors have more successfully met those needs. The Brabazon was designed to carry few passengers in great comfort, but was heavy, slow and could only fly at low level. During its gestation the development of turboprops and jet engines meant that passengers could travel faster and above the bad weather so by the time the plane could have been commercialised it was a totally outdated concept.
- **Flamingos** are products that are beautiful but unsaleable. The development process has resulted in products with well-designed features and a multitude of characteristics – but unfortunately the costs of producing are now so high, due to over-specification, that customers could not afford to buy. Unless there are enough potential customers willing and able to buy, the flamingo runs the risk of following the dodo to early extinction. Nokia's N-Gage was not a commercial success: it was a smart mobile phone, a handheld game unit, an MP3 player, a PDA rolled into one. However, it was more than twice as expensive as a Game Boy Advance SP when it was launched and had a poor selection of games.
- **Ostrich** products are blind to the future. They may meet today's market needs but take no account of future changes in the market, and are not well placed to adapt and change as customer requirements and competitive pressures evolve. An example is Iomega PocketZip drive which saved on a disk and was launched just when self-sufficient flash memory cards came on the market.
- **Pearls** are the constant quest of effective new product development. A pearl will always be of value, and even if its popularity wanes it can be modified into jewels or traded for other resources required. The pearl offers the source of a profitable future for a foreseeable period. The iPod has proven to be such a pearl for Apple.

### 13.1.1 Successful new products

Successful new products provide better performance than existing products; they succeed often, despite being offered at higher prices than competing offerings (Doyle and Bridgewater, 1998). Most failures offer price parity or inferior value. Successful products offer advantages that matter to customers (see Figure 13.3). Failures too have performance advantages, but in fringe areas where customers see little benefit (Davidson, 1987).

**Figure 13.3** Characteristics of innovations that accelerate diffusion

- Advantage over previous solutions
- Compatibility with existing processes
- Low complexity for ease of understanding
- Divisibility to facilitate trial
- Communicability

Besides the price and performance advantage, successful new products often provide benefits that are dramatically different from current offerings. Examples include Linx printing technologies (Doyle and Bridgewater, 1998), Innocent smoothies (which contain nothing else but fruit) and the Toyota Prius with its hybrid technology. New products need to have a significant advantage over existing products. That may mean going against industry trends: Motorola, when competitors were including more and more features into their phones, decided to do the opposite and focus on form and developed the smallest and thinnest handset on the market – the Razr. It exceeded Motorola's total lifetime projections within its first three months of commercialisation (see Anthony *et al.*, 2006).

Even though companies such as Spring Ram Corporation in kitchen and bathroom products, Honda in motorcycles and Amstrad in PCs have succeeded despite their late market entry, it is almost always better to be first.

Despite the inevitable risk of being a pioneer, first to market is often best for several reasons. The news value of an innovation peaks in the early stages, and this offers maximum communication impact and a chance for widespread consumer trial. The innovator catches consumers first; this means that competitors who follow must improve their market positioning and produce better and/or cheaper products to make consumers switch. This is not so easy to achieve once the pioneer has secured strong consumer loyalty and a reputation for innovation in the marketplace.

### 13.1.2 Business product success

Studies of new business-to-business product successes and failures make the following distinctions between successes and failures (Cooper and Kleinschmidt, 1993):

- product uniqueness (innovativeness) or superiority;
- management's possession of market knowledge and marketing proficiency;
- presence of technical and production synergies and proficiency.

The first dimension – industrial product uniqueness/superiority – is very close to that for consumer products. In this respect industrial and consumer products are similar. It is likely that industrial and consumer products are similar in other ways too. Successful industrial innovators study their customers and market well. They carry out market research to gain knowledge of customer's requirements/needs; they are sensitive to price as well as to the intricacies of buyer behaviour. Before the launch of the Land-Rover Discovery, for example, extensive and sophisticated marketing research was conducted to reveal customer requirements and the deficiencies in competing offerings.

Successful innovators acquire as much of the required information as possible to enable them to forecast market size and determine potential demand for their new product. They test the market prior to product launch. There is strong and often well-targeted sales support, which recognises the need for forceful communications to stimulate primary demand and to prise open new markets. Glaxo's forceful and focused marketing efforts were significant factors contributing to the astounding market success of their anti-ulcer drug, Zantac, while Wellcome's failure to maximise new drugs sales has been attributed to the company's poor marketing skills.

Successful industrial innovations are clearly not the result of sophisticated technology alone. Mismanagement of technical and technological resources can have a detrimental effect on new product performance. Successful industrial innovators ensure there is synergy between the firm's engineering and production capabilities and the new product project. They also undertake a range of technical activities and do these proficiently – preliminary technical assessment, product development, prototype testing with customers, production start-up, with facilities well geared for launch. Their technical staff know the product technology well. They are familiar with the product design.

### 13.1.3 Types of new product failure

In what way do new products fail? Answering this question helps us appreciate what actions the firm should take to avoid different types of product failure. There are six classes of product failures (Cooper and Kleinschmidt, 1990): the better mousetrap no one wanted, the me-too meeting a competitive brick wall, competitive one-upmanship, environmental ignorance, the technical dog product and the price crunch (see Figure 13.4):

- 1 **The better mousetrap no one wanted** is the classic 'technology-push' type innovation for which little or insufficient market demand exists. Customers do not perceive they have a real need for the technology and, consequently, are not prepared to buy the innovation. Sinclair's C5 electric car falls firmly into this category – an innovation without an obvious market.
- 2 **The me-too meeting a competitive brick wall** is the result of followers failing to reconcile with the market leader's or established competitors' strengths (e.g. Lidl's attack on the UK grocery market against Asda, Sainsbury's and Tesco).
- 3 **Competitors** can spring surprises and come up with a better product that is preferred by customers. 'Competitive one-upmanship' is not easy to predict but can be seen in the case of decaffeinated Nescafé Gold Blend upstaging innovative Café Hag in the coffee market. Innovations may achieve great short-term advantage, but if competitors can easily and simply imitate the innovation (and have other advantages as well), then the innovator is likely to achieve little long-term value. For example, Direct Line had a major impact on the financial services market by offering simple products and fast telephone access for customers. This was a major success story in the early 1990s. By 1997 Direct Line was close to a loss-making position. Direct telephone marketing is easily copied by established firms and this is exactly what they have done.

**Figure 13.4** Causes of new product failures

- The better mousetrap no one wants
- The me-too meeting a competitive brick wall
- Competitive one-upmanship
- Environmental or market ignorance
- The technical dog
- The price crunch

- 4 **Environmental or market ignorance** occurs when the innovating firm fails to study market or customer requirements or to monitor and scan its external environment for signals of change. Socio-economic, technological, political and/or legislative conditions and/or changes are ignored, overlooked or misunderstood, resulting in poor sales after launch. In the case of Concorde, society's resistance to the noise it makes was grossly underestimated – this resistance was a major barrier to rapid adoption of supersonic aircraft by other airlines.
- 5 **The technical dog** product does not work or users are dogged by technical problems (e.g. Amstrad's PC2000 business computer, or first the Rover SD1 and then the Rover Stirling in the US market).
- 6 **The price crunch** comes when the innovating firm sets too high a price for a new product whose value is not perceived by target customers to be better or greater than existing products. Often if competition offers a lower-cost product the innovating firm has to cut its price so fails to obtain the required return on investment from the innovation. Despite repeated relaunches, Sony's mini-disc seems to be falling into this category, as did video discs.

Sinclair C5



Alamy/Motoring Picture Library

## 13.2 Planned innovation

Since innovation is so uncertain, can innovation be managed? Using formalised new product development processes achieves greater new product success than does an ad hoc approach to product innovation. There is, however, a distinction between invention and innovation. The former is the discovery of a new device or a new process. It is fair to say that managers cannot specify deadlines for the discovery of new ideas or predict when a particular invention will occur or, indeed, when exactly a scientific discovery will be made. Invention cannot be planned for. Often it is left to chance, or the perseverance and ingenuity of the scientist/inventor. Innovation is different. Once the new scientific or technical discovery is made, or a novel product idea has been conceived, its chances of being successfully commercialised rest predominantly on the astuteness of the firm's management in new product planning

and strategy determination as well as the proficiency with which certain new product developments and launch activities are undertaken. From discovery/conception of the idea to marketplace, management and employees of the firm have direct control and influence over the fate of the discovery/idea.

Businesses can reduce the risk of product innovation while improving the likelihood of success by adopting a planning orientation and sophisticated new product development process (Wong *et al.*, 1992). There was nothing accidental or ad hoc about the results achieved by Glaxo for Zantac in the anti-ulcer drugs market, or McDonald's in fast foods – they succeeded through careful preparation of the strategies for product development and market entry.

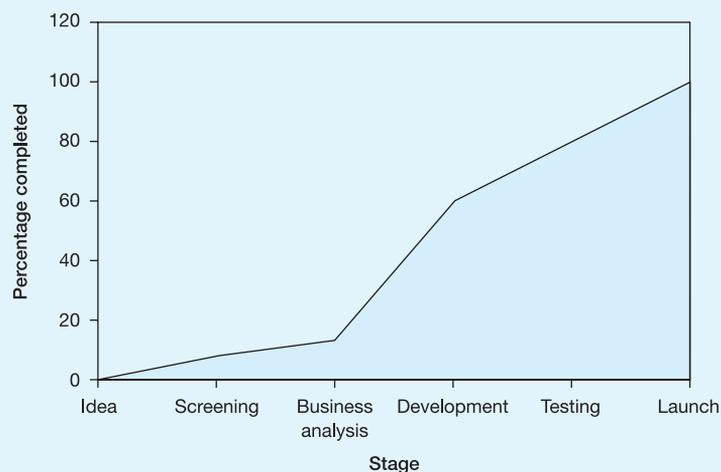
### 13.2.1 The new product planning process

Most successful innovating companies develop a new product process, such as that shown in Figure 13.5, which is linked to their company's overall longer-term planning process.

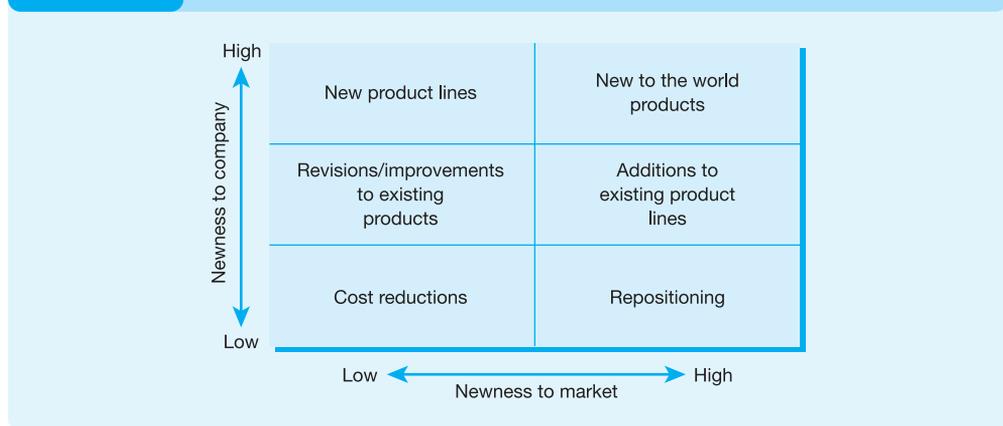
First, companies should define their business mission by asking: What business are we in? And what business do we want to be in? By considering the growth potential of the sales and market share and profitability of the company's current range of products, and the extent to which growth objectives will be fulfilled, management can begin to identify gaps in achievable and desired growth. The role of new products and how the firm's portfolio of businesses might be changed to achieve planned growth can be determined.

Firms also have to decide on the types of new product that are to be developed. It is usual to classify new products according to the degree of newness to the company and to the customers (Figure 13.6).

**Figure 13.5** New product development stages and time lapse



Source: Adapted from Booz *et al.* (1982).

**Figure 13.6** Types of new products

Six categories of new products emerge, each one taking the company further and further away from its current activities and, therefore, being more risky.

- 1 Cost reductions**, which provide similar performance at lower cost, as Mercedes achieved with their new C series saloon.
- 2 Repositionings**, which are current products targeted at new customer segments or new markets. For example, Lucozade, a soft drink, traditionally aimed at the 'convalescent', is now targeting the youth and sporty user segment.
- 3 Improvements** or revisions to existing products, which enhance performance or perceived value and replace existing products. For example, Intel Pentium IV is an incremental improvement on the Pentium III. Japanese car manufacturers tend to upgrade existing models, supplying 'new products' with improved performance and/or more features, as opposed to developing radically new models from scratch.
- 4 Additions** to existing product lines that supplement a firm's established product lines. The Razer line of mobile phones is a 'stylish' addition to Motorola's more standard offerings.
- 5 New product lines**, which enable a company to enter an established market for the first time, such as Virgin's Personal Equity Plans.
- 6 New to the world products**, which create an entirely new market, for example Sony's personal hi-fi, the 'Walkman', Apple's iPod MP3 player and JCB's original digger.

Depending on the sales, market share and financial objectives set by the firm, and the overall strength of its current range of products, management has to select the appropriate type, or combination of types, of new product to develop. Usually a firm would have to invest in various types of new product development to maintain a healthy and balanced portfolio of products. The firm's functional capabilities and available resources have to be taken on board when deciding the strategic direction to be taken. Table 13.1 shows the various strategic roles for new products and the types of new product that are likely to fulfil each of these roles.

**Table 13.1** The strategic role of new product types

<i>Strategic role</i>	<i>New product type</i>
Maintain technological leadership	New to the world New product line
Enter future/new markets	New to the world
Pre-empt competition or segment of the market	New to the world New product line Repositioning
Maintain market share	New product line Repositioning Additions to existing product line
Defend market share position/prevent decline	Repositioning Cost reduction Revisions/improvements to existing product lines
Exploit technology in a new/novel way	New to the world New product line
Capitalise on distribution strengths	Additions to existing product line

*Source:* Based on Wong (1993).

The magnitude of the risk attached to innovation alters with the type of new product being developed. Planning can help; failure to do so increases the risks, while decreasing the chances of new product success.

## 13.3 The new product development process

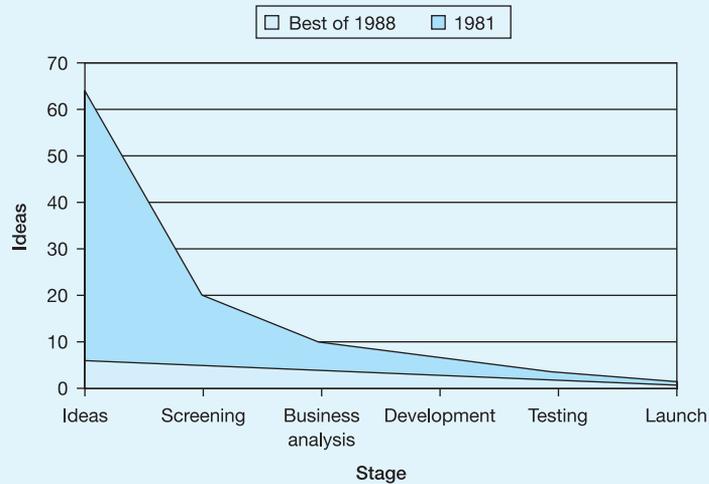
Figure 13.7 presents the key stages in the new product development process that show the mortality rate on new product ideas. It shows two rates of decay: the first shows average performance; the second contrasts the achievements of best performing companies.

### 13.3.1 Idea generation

For new products, a firm has to find novel ideas, do new things and do things differently. This is the essence of product innovation. New ideas trigger the innovation process and the development of new products. Ideas are where all new products start. Both the creativity of individuals and the methods of idea generation can be employed to obtain novel ideas.

#### *Creativity and productive ideation*

Really innovative ideas come out of inspiration and use appropriate techniques. Because of the high mortality rate of new ideas it is desirable to generate and consider a large number of ideas. The use of appropriate methods to generate new

**Figure 13.7** Mortality of new product ideas

Source: Wong (1993).

product ideas can improve the productivity of in-house ideas generation. A company can also facilitate the generation of innovative new product ideas by creating an environment that will induce and facilitate creativity. How can the creative potential of individuals be harnessed, and what techniques aid the creative ideas generation process?

### *Defining creativity*

Creativity is the combining of previously unrelated parts into a useful whole so that one can get more out of the emergent whole than one has put in (Miller, 1996). This explanation of creativity suggests that one condition has to be satisfied for really novel ideas to emerge, which is that many widely disparate ideas must coexist long enough in the individual's mind to combine, to yield a 'useful whole'.

The creative process is not easily achieved and many managers would assert that creativity cannot be supervised, as can the pursuit of quality or other functional operations. It is not possible to predict when a creative person will generate a novel idea. It is almost as if management should leave outbursts of creative thinking to nature and chance. However, contrary to conventional wisdom, creativity can be managed. Rather than spotting creative individuals within the firm and encouraging them to tap their creative potential, the manager would do better by asking if barriers to creative thinking exist and, if so, how these barriers might be overcome.

### *Aids to ideas generation*

Some of the many techniques that can help creative thinking are shown in Table 13.2. Avoid using one of these methods all the time. It is best to use a variety of approaches, where possible; leeway is a must; try out, adapt and fit approaches to

**Table 13.2 Aids to thinking**

<i>Thinking aid</i>	<i>Process</i>	<i>Blocks confronted</i>
<i>Question the problem</i> (ask, ask, ask a lot of questions about the problem at hand)	Inculcate a questioning attitude; ask questions about the problem to gain familiarity with it rather than hiding ignorance	<ul style="list-style-type: none"> <li>● Perceptual (overcomes problem of having narrow viewpoints, clarifies problem)</li> <li>● Emotional (addresses fear of looking like a fool, betraying ignorance – individual is forced to ask questions instead of hiding ignorance by not questioning)</li> <li>● Intellectual (questions about the problem stimulate generation of information/ideas that later help conception of solution to problem)</li> </ul>
<i>Listing</i> (force individual to make a list of ideas to facilitate generation of many ideas)	Encourage problem solvers/ideas generators to make a list of the ideas, whatever comes to mind. Once the individual's thoughts are flowing, this simple but disciplined ideas-listing exercise can facilitate 'fluency' of thought (i.e. aid individual to generate many ideas)	<ul style="list-style-type: none"> <li>● Emotional (attacks inflexibility of thinking and triggers creation of a large volume of ideas)</li> </ul>
<i>Attribute listing</i>	Break a product into its main components. For each component list all the physical attributes or functions and then examine possible alternatives for fulfilling each of these in isolation	<ul style="list-style-type: none"> <li>● Perceptual (helps individual examine the problem from a variety of angles/see it more clearly)</li> </ul>
<i>Applied imagination checklist</i>	Use an explicit checklist to identify new product opportunities. Questions act as triggers: <ul style="list-style-type: none"> <li>● Can the product be used in any new way?</li> <li>● What else is like it and what/whom could we copy?</li> <li>● Can the product be changed in meaning, function, form, usage pattern?</li> <li>● What can be added to the product? To make it bigger; stronger; longer; thicker; etc.?</li> <li>● What can be deleted from it? How to make it smaller, lighter, etc.?</li> <li>● What can be substituted? Other material, process, ingredient, etc.?</li> <li>● Can we rearrange its components?</li> <li>● Can it be combined with other things?</li> </ul>	<ul style="list-style-type: none"> <li>● Perceptual (by encouraging problem solver to extend thinking/look at problem from a variety of perspectives)</li> <li>● Emotional (pushes the imagination)</li> </ul>

the problem at hand. There are many other approaches: suggestion box, competitive products analysis or negative engineering, patents search, customer need assessment and problem-detection studies; there are almost as many techniques as there are creative people (Townsend and Favier, 1991).

### 13.3.2 Screening

Take ten new product ideas. The chances are that two will pay, seven will fail, and only one will be a big winner. New product idea screening and selection is not about dropping bad ideas but catching the winner. Picking a potential 'winner' is not an easy task. What should managers take into account when evaluating new product ideas? What are the critical screening criteria? How do managers choose the best from among a pool of apparently viable ideas?

#### *Systematic screening*

If resources are committed to the development of a new product idea, management should assess the commercial potential and technical (including production) feasibility of the idea. If there are alternative ideas or projects competing for development funds and management time, these have to be screened and the more viable and attractive ideas selected.

Ideas screening is, therefore, an important component of the product innovation process. Screening can take up management's time. It is often tempting for the management team to devote a minimum amount of time and effort to it, and even to skip the exercise, in the rush to get idea development started and new products out to market quickly. An idea coming from a senior manager in the firm may sometimes also escape thorough screening and evaluation because of the assumed credibility of the source – which could turn out to be a costly error of misplaced confidence! Or ideas may not be systematically evaluated because management regards screening as a superfluous exercise given the lack of concrete data, in the early stages, on what are still apparently vague and ill-formed ideas.

Whatever the barriers, it pays to give serious attention to screening. There are good reasons for doing this. Screening helps avoid potentially heavy losses by reducing the possibility of bad ideas being accepted, and raises the chances of good ideas being developed. It encourages more efficient resource allocation by directing the firm's attention to the 'best' ideas and encourages firms to pursue those ideas that build on its core strengths. Also, as screening experience accumulates, it improves the managers' precision in ideas selection, so increasing the chances of success.

#### *Initial screen*

Screening can be conducted at different levels of detail. The preliminary screening may be treated as a coarse filter, enabling managers quickly to separate out useful ideas for further investigation. Figure 13.8 shows the key screening questions. Remember that the initial screen is only a crude filtering device. Sometimes a new product idea might hit a legal, technical or marketing barrier which might not be particularly insurmountable. It is therefore important for the management team to use the tool cautiously, taking on board internal company, as well as market and technological, developments that could be exploited to avoid premature closure of new product opportunities.

#### *Formalised screening system*

Potentially viable ideas should be evaluated more thoroughly for selection purposes. It is important for management to appreciate that full screening requires

**Figure 13.8** Initial screening of new product ideas

1. Is idea compatible with company objectives?	Yes – Go on No – terminate
2. Is idea legally acceptable?	Yes – Go on No – terminate
3. Can idea be technically developed within desired time and budget constraints?	Yes – Go on No – terminate
4. Is there a demand for the proposed product?	Yes – Go on No – terminate
5. Does the idea fit the firm's current and desired marketing objectives and resources?	Yes – Go on No – terminate
6. Are the commitments and risks involved acceptable?	Yes – proceed to further investigation and development No – terminate

identification of specific information and the investment of resources to obtain these data. Formalised screening means that new product ideas are evaluated logically and within a systematic structure. It is less impressionistic than initial screening and attempts to increase the objectivity of idea selection.

When actual data are unobtainable the management team doing the screening must exercise subjective, qualitative judgements. It is important to record all major assumptions and quantitative estimates so that they can be used as control standards for future reference.

The screening devices are not a panacea for a poor innovation record. The analyses rely on the ability of the firm's management team to combine high-quality subjective judgements with good objective data. The tools do not absolve management using them from exercising creativity, nor are these techniques a substitute for management vision.

The analyses are time- and resource-consuming. The many uncertainties at the early stage of ideas selection make detailed and sophisticated evaluation somewhat meaningless. This encourages rejection of screening. But it is certainly misguided to make no attempt to consider the determinants of project success and failure, or the attendant risk and uncertainty when committing resources to major product innovation programmes.

The output of screening and evaluation is only as good as the input data. This means that, to benefit from utilising screening systems, management must commit time and resources to building an information system geared to supporting ideas screening, evaluation and selection decisions. As with building any management information system, this takes time but, if implemented properly, yields a lasting and positive effect.

Screening based on the opinions and judgements of staff within the firm can be highly biased. Judgements can be distorted because of undue pressure applied on

individuals, information sparseness/inaccuracy, psychological pressures, personal influences, etc. The market viability of an idea should always be tested against criteria judged important by the customer/potential customer.

### 13.3.3 Business analysis

Business analysis considers the attractiveness of the market for the proposed new product idea and the company's capabilities and whether it has the business skills required to cater to the needs of the market in a way that gives it a distinct edge over the competition.

Sales, costs and profit projections for a new product show whether they satisfy the company's objectives. To estimate sales, the company looks at the sales history of similar products and surveys market opinion. Estimates of minimum and maximum sales give the range of risk. Starting with sales forecast (see Chapter 7), the expected costs and profits for the product, including marketing, R&D, manufacturing, accounting and finance costs, are calculated.

Management has to decide which criteria are the most critical and what level of accuracy in the data is needed for decision making. This is to avoid wasting resources on refining information pertaining to factors to which the project's viability is relatively insensitive. While the desired criteria may vary according to the nature of the industry and the circumstances of the individual firm, some criteria are likely to be relevant to most companies. With measures of market attractiveness and business position decided, the process becomes similar to segment selection described in Chapter 10. If the market is attractive and the company has a sufficiently strong position relative to the competition, the product can move to the product development stage.

### 13.3.4 Product development

At this stage R&D or engineering convert the concept into a physical product. So far the new product development process has been relatively inexpensive; the product has existed only as a word description, a drawing or perhaps a crude mock-up. In contrast product development calls for a large jump in investment. It will show whether the product idea can be turned into a working product.

The R&D department will develop physical versions of the product concept: a prototype that will satisfy and excite consumers and which can be produced quickly and at budgeted costs. Depending on the product class, developing a successful prototype can take days, weeks, months or even years. It may be some time before the prototype of Airbus's 550-seater A380 superjumbo aircraft takes its first commercial flight, while Schweppes developed a prototype of their Oasis soft drink within a week (Doyle and Bridgewater, 1998).

Prototypes must have the required functional features and convey the intended psychological characteristics. When Mercedes launched its 'Smart' small city car, for example, it was essential for the car to strike consumers as being well built and safe. Management must learn what makes consumers decide that a car is well built. Some consumers slam the door to hear its 'sound'. If the Smart's doors did not sound like other Mercedes' doors, consumers may have thought it was poorly built.

When the prototypes are ready they must be tested. Functional tests are then conducted under laboratory and field conditions to make sure that the product performs safely and effectively. A new car, for example, must start easily; it must be comfortable; it must be able to corner without overturning. Consumer tests are conducted, in which consumers test drive the car and rate its attributes.

When designing products the company needs to look beyond simply creating products that satisfy consumer needs and wants. Too often companies design their new products without enough concern for how the designs will be produced – their main goal is to create customer-satisfying products. The designs are then passed along to manufacturing, where engineers must try to find the best ways to produce the product.

Increasingly, businesses use Design For Manufacturing and Assembly (DFMA) to fashion products that are both satisfying *and* easy to manufacture. This often results in lower costs while achieving higher quality and more reliable products. For example, using DFMA analysis Texas Instruments redesigned an infrared gun-sighting mechanism it supplies to the Pentagon. The redesigned product required 75 fewer parts, 78 per cent fewer assembly steps and 85 per cent less assembly time. The new design did more than reduce production time and costs; it also worked better than the previous, more complex version. Thus DFMA can be a potent weapon in helping companies to get products to market sooner, while offering higher quality at lower prices.

### 13.3.5 Market testing

By this point in the product innovation process there is a physical product or complete specifications for a new service. The product has passed a use test which has suggested that the product works and fulfils the need as originally expressed in the concept. The next phase is market testing or trial sell. Test marketing is not one, but a range of techniques, from a simulated sale using carefully selected customers to a full test market in one or more regions of a country (for more details of the alternatives, see Chapter 7).

Up to this stage in the overall new product development process testing has not been conducted under realistic market conditions. It is dangerous to trust any customer judgement wholeheartedly until it is made under typical market conditions. This is where market testing plays a role in helping the firm to gauge whether its marketing plan for the new product will work and to confirm that the product, with its attendant claims, does, in fact, motivate customers to buy it and that they keep on doing so, if repeat purchase is an important factor. Market testing could be regarded as a form of 'dress rehearsal' that enables management to gather information to forecast new product sales and test effectiveness of the marketing plan (i.e. pricing, advertising and promotion, distribution). It checks that all key operations fit with each other and are adequately geared up for launch, and provides diagnostic information to help managers revise/refine the marketing plan. Full test markets can test competitive response and gauge if their efforts affect the judgements of customers. This is a mixed blessing since full test markets can be deliberately spoiled by competitors and give them an early warning of intended activities.

### 13.3.6 Commercialisation

Commercialisation is often the 'graveyard' of product innovation, not because new products die here but because real innovation often stumbles at this point of the process. By this we mean that things are going wrong and the product concept that seemed so feasible in the beginning is now tarnished and facing considerable pressure of compromise because of time, cost and other resources. Managers who are impatient to get the product to market fail to allocate sufficient time and resources to developing an effective launch campaign. Surprisingly, after all that has gone into development, products often fail because they are launched with insufficient marketing support. Most new products fail, not because of any inherent deficiency, but because the market launch strategy and tasks were poorly conceived and executed.

The launch managers should work closely with sales and other operating staff to achieve good coordination of the timing and scheduling of all these activities. Every effort must be made to ensure that critical activities (e.g. salesforce training, sales and promotions materials) are completed proficiently to secure launch success. In conjunction with key operating personnel, the launch manager has also to put together a launch plan, which consists of a programme outlining the sequence of tasks to be performed, a schedule that relates the programme to a time sequence, and budgets for the programme and schedule.

Launch programmes easily turn into a complicated and unwieldy task. There is little point in turning out project control or milestone events charts hundreds of pages long because this is bound to break down, providing hardly any basis for effective project control. Except for the most complex technological developments, as found in car, aerospace and defence projects, complex, computer-based systems for project control are usually not necessary. For the small to medium-sized company simple 'checklists' may suffice. Remember, there is also 'eyeball control', which relies on managers being constantly on the go, visiting every area of the firm (daily, if possible), gathering their own information, and becoming 'expert' enough to exercise sound judgement and keep launch tasks under control.

## 13.4 Speeding new product development

Managers must appreciate the value of being fast at innovation. A company that takes less time to develop and commercialise a new product can be expected to be more competitive than a slower competitor. The firm would be able to launch more new products in a given period of time, therefore building a strong innovation leadership image. Speedy companies are also able to respond faster to changing customer requirements, thereby securing sales and building customer loyalty. Also, by increasing the frequency with which it introduces new products into the market, the firm could pre-empt competition, thereby creating and maintaining a market leadership position.

The cost of new product development could be reduced by undertaking innovation of an incremental, as opposed to radical, nature, with substantial reduction in the risks of innovation. Companies should, however, ascertain if they have the capabilities for accelerating new product development. Also, management should

ensure that the firm supports a balanced innovation programme such that opportunities are not forgone because of failure to fund more radical (and longer-term) product innovation programmes in view of the obsession with speed.

Speeding the new product development process needs action at all stages of the process. At the start, avoid delays in approving budget for developing product idea and pay early attention to ‘snagging’ at the end of the process. Overlapping product and process design and development phases has two benefits. It means that processes take place in parallel and forces the formation of multi-functional project teams (design, engineering, production, sales, marketing, etc.). Big technological breakthroughs are not necessary to make big commercial gains, so take an incremental approach to product improvement and development, making many small steps rather than attempting giant leaps forward. New product innovation often clashes with the systems and controls designed to make firms ‘well managed’. To overcome this, successful businesses adapt operational and organisational procedures to give the flexibility and freedom that new product innovation needs.

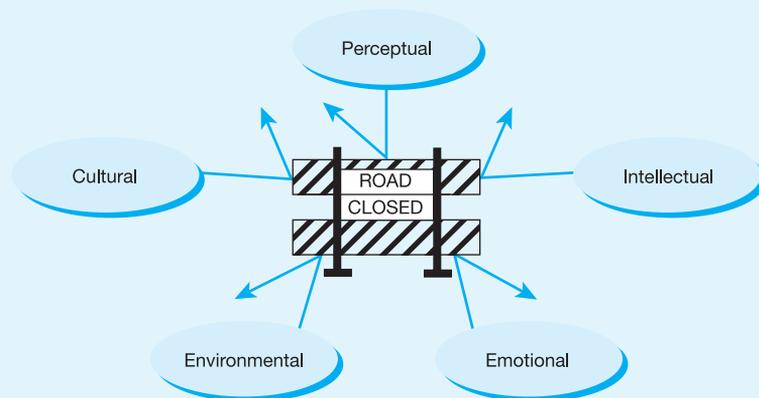
## 13.5 Organising for new product development

‘Mental walls . . . block the problem solver from correctly perceiving a problem or conceiving its solution’ (Adams, 1987). The nature and intensity of these blocks vary from individual to individual, but organisations that innovate recognise and avoid them (see Figure 13.9).

### 13.5.1 Blocks and bugs

- **Perceptual blocks** prevent the person from perceiving clearly either the problem itself or the information needed to solve the problem (e.g. problem isolation difficulty; narrow definition of problem; limited viewpoints examined).

Figure 13.9 Roadblocks and barriers to innovation



- **Cultural blocks** are acquired as a result of exposure to a given set of cultural values or patterns (e.g. tradition is preferable to change; intolerance of subjectivity; fantasy/reflection/playfulness is a waste of time; humour is out of place where problem solving is concerned).
- **Environmental blocks** are imposed by our immediate social and physical environment and are, therefore, closely linked to cultural barriers (e.g. autocratic boss; lack of trust/cooperation among colleagues; distractions; unsupportive organisation; lack of financial support to implement ideas).
- **Emotional blocks** interfere with the freedom with which we explore and play with ideas, and prevent us from communicating them effectively to others (e.g. fear of failing or looking like a fool; intolerance of ambiguity; preference for judging ideas rather than generating them; inability to incubate and 'sleep on it').
- **Intellectual and expressive blocks** arise because intellectual capabilities are limited and verbal/writing skills needed to communicate ideas, not only to others but to yourself, are deficient (e.g. lack of information; incorrect information; poor language skill; failure to apply appropriate mental problem-solving tactics).

### 13.5.2 Organisational needs for innovation

It is people, not plans or committees, who create ideas and achieve innovation. It is their efforts that truly determine whether businesses succeed or fail. If managers have grand visions for their business the surest way of bringing these to fruition is to have their staff on their side, to encourage, enthuse and motivate them and, above all, to reward them for their achievements.

Three conditions are required for a firm to innovate successfully:

- 1 **closeness to customers:** managers must know their customers and understand their needs and requirements well (see Johnson, 2006);
- 2 **cross-functional communications:** innovation in most companies (except the 'one-man-band', which is not stereotypical of the average established small/medium-sized firm anyway) is about the flow of information between key functions;
- 3 **multi-functional teamwork:** successful product innovations are almost invariably the result of people in the firm working together in teams rather than independently.

These are three deceptively simple criteria for innovation success. In practice, they are difficult for the firm to achieve. Large, bureaucratic firms face this problem most of all. Small companies that can still maintain a cohesive unit may find criteria 2 and 3 easy to achieve, but, if led by excessively product-oriented technocrats, frequently drift away from 1. The manager of a small company must, however, take note of the 'fast-forgetting' syndrome: as the business grows and the organisation expands the three principal requirements for innovation become increasingly difficult to preserve, frequently resulting in management losing sight of the very factors that brought success to the business in the first place. Entrepreneurship, although highly desirable, is, on its own, insufficient for successful innovation, especially continual innovation. To remain successful innovators, business managers must continually review their firm's ability to meet the above three conditions for effective innovation.

### 13.5.3 Organisational alternatives

Although marginal product changes can be managed within conventional organisations, radical innovations need suitably radical organisations. Six broad approaches are suggested that differ in their isolation from day-to-day business activities. All help small groups escape from entrenched departments and attitudes.

- 1 **The functional approach** has people from different business areas (such as finance or marketing). Tasks are carried out by the various departments. Individuals meet to make the necessary decisions. Usually a new products or product planning committee reviews project progress. Members do not commit all their time to the project, which must mesh with their normal duties.
- 2 A **taskforce** consists of several individuals who either are hand-picked by the boss or have volunteered to join the team. Taskforce members come together more regularly to work on the project, which they pursue with slightly greater urgency than in the previous approach. The taskforce should have a balance of engineering, production and marketing talents. Members' primary commitment is still very much to their function rather than the project.
- 3 A **project team–functional matrix** is appropriate when project demands are high. Team members commit themselves to the project as much as to their normal functional responsibilities. However, this type of 50/50 thinking often results in indecision and delay because members involved still need to see to their regular job, while project needs require greater 'push'. There may also be a conflict between what the project team needs to achieve and their parent function's main interests.
- 4 **Venture teams** are mostly associated with very small firms that have few people and no entrenched departments. The venture group should contain a mix of people with different functional skills, not just specialists. For bigger companies the venture option is used to free people from current functional pressures so that they can focus their entire effort on the project. The group is given complete autonomy and power to forge ahead, and incentive compensation for taking the risks.
- 5 **Spin-outs** are completely detached from the parent company. Big companies use this option to support very risky product innovation projects that do not currently fit the corporation's core business. Outside capital could be sought. The venture is sold off for an equity stake in the new start-up firm. For small firms, spin-offs are not a logical route for nurturing innovation but they could consider another type of venture approach – the joint venture.
- 6 **Inside–outside venture** approaches fit both big and small/medium-sized firms. Smaller firms with the advantages of advanced technology, flexibility, vigour and/or entrepreneurial flair could team up with larger firms with the capital, distribution network and marketing muscle to gain market entry. The big firm gains through achieving entry into promising technologies that were too risky and ill-fitted to their mainstream business (the alliances between pharmaceuticals and biotechnology firms are a case in point).

The more radical the new product project (which means higher risk), the greater the need for project focus and its protection from current departmental and operational influences and constraints. The functional and taskforce options are therefore appropriate for low risk, incremental product innovations (e.g. improvements, repositionings, new sizes, etc., involving present product lines).

A project team–functional matrix is most suitable for marginally riskier projects, involving expansion in the number of product lines. Venture teams, spin-outs and inside–outside venture options are for radical, high risk projects where internal constraints and opposition are expected to be very high (e.g. the IBM PC project and GM’s Saturn car).

The proposed radical structures help large firms capture the benefits of a small firm. Ironically, the idea that ‘small is good’ stems from the observations that large, innovative firms work in non-bureaucratic, smaller settings. They try to gain the advantages of being small (Quinn, 1985). But, of course, size is not a determinant of innovation success. Many new products introduced by small firms fail because they should never have come about – it may be that they were badly conceived, they failed to meet market needs, or that the company lacked the marketing skills required to prise open new markets.

## Summary

Product innovation is not a one-off activity. A successful, profitable innovation can see a firm through for a while, but long-run survival depends on new products to balance its future portfolio (Chapter 2), replace declining products and cater for new customer needs. Glaxo cannot thrive on the back of its blockbuster drug Zantac alone.

Many businesses are caught out because management has failed to use the profits from current innovations to develop more innovations for future markets. Today’s breadwinners will eventually dry up as competitive forces intensify over the product’s life cycle. New products – tomorrow’s breadwinners – are necessary to maintain the firm’s position in the marketplace. One win is insufficient; multiple wins are necessary for corporate longevity!

The more the firm innovates, the greater the experience accumulated; the greater the experience gained, the better it gets at innovation; the better the firm becomes at this daunting activity, the greater its chances of competitive survival. A virtuous cycle of innovation is established.

Increasingly, a multidisciplinary, team-based approach to product innovation is required. Team work is important and has been one of the most significant organisational factors behind Japanese companies’ ability to accelerate new product development in the drive to achieve lasting competitive advantage, as observed, for example, in the consumer electronics, computer and motor vehicle markets.

There are many factors that affect new product performance. Neglect of one factor alone can bring about failure. Management should check that their firm is pursuing

a balanced and realistic new product development strategy, that customer/market needs are clearly identified and well understood and that requisite technical and technological skills are married with a market orientation to ensure success.

## Gillette

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## Case study

Alamy/David Crausby



Gillette on Wednesday set out to prove that men who shave are ready for a five-bladed razor and are willing to pay a premium for it by unveiling two razors featuring battery power, microchips and a goatee-trimmer.

The launch of the Fusion and Fusion Power razors, billed by Gillette as its most ambitious product launch, is the most striking sign this year that consumer goods companies are betting on innovation to drive margin growth.

This comes at a time of competition from own-label rivals, rising commodity costs and a scramble to gain shelf space with the strongest retailers.

Gillette's razor trumps a four-bladed version from the Schick brand of rival Wilkinson Sword, confounding sceptics who believed the industry had reached the limit on the number of blades that could be accommodated on a standard razor. Not to be outdone, Schick plans to offer a battery-powered version of its four-bladed razor this year.

Peter Hoffman, president of Gillette's razor and blades unit, said that the two Fusion blades, one a manual version and the other battery-

powered, would command a 30 per cent price premium compared with Gillette's three-blade Mach3 razors.

'Pricing research confirms that at these prices consumers in significant numbers will trade to our newest flagship brands,' he said. A pack of four Fusion razors would sell for \$12–\$13.

Mr Hoffman said Gillette had spent less developing the razors than on the Mach3 products, which were launched in 1998.

Yet the company expected the new razors to have sales of \$1bn within three years, outstripping the \$500m Mach3 business, itself bigger than the combined shaving businesses of Gillette's rivals.

The launch of the Fusion razors comes as Gillette is preparing to be integrated into Procter & Gamble, which agreed to buy its Boston-based rival for \$57bn in January.

It will provide a test of the rationale for the merger, which was partly to use P&G's global distribution to boost sales of Gillette's premium-priced products.

'We will take full advantage of P&G's ability to execute initiatives around the world,' said Jim Kilts, Gillette chief executive.

Gary Stibel, chief executive of The New England Consulting Group, said: 'This is going to prove that P&G got Gillette for a steal, despite what they paid.'

A microchip in the Fusion Power regulates voltage, providing consistent power over the life of the blade. Gillette claims the razor brings 'advanced electronics to wet shaving'. The products will be launched in North America in the first quarter of next year, before being introduced abroad.

Source: Jeremy Grant, 'Gillette sharpens innovation edge', *The Financial Times*, 14 September 2005.

### Discussion questions

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- 1 What type of innovation is Gillette's Fusion, and how likely is it to be a success in the marketplace?
- 2 Are Gillette's sales expectations justified in view of what is happening in the marketplace, and why do you think new products often have to succeed against resistance both within the company developing them and in the marketplace?
- 3 What are the organisational alternatives that Gillette could use to manage innovation? Which alternative is best suited to a product like 'Fusion'?