

Research and Product Development

Research.

Research is the inquiry into and discovery of, new ideas. Methods used to generate new ideas include:

- **pure research** - that is research just to find out how or why, with no product objective, this type of research is often carried out by universities or research institutes.
- **laboratory research** - for example the testing of new pharmaceutical compounds on animals .
- **evaluation of existing products** - are there problems with this product, how can we resolve these problems ?
- **brainstorming** - the original AppleMac with its 'office' desktop was developed as a result of a brainstorming exercise.

Development

Development is the process that changes ideas that result from the research process, into commercially viable products. Development is a costly and complicated process, which for some products may take 5 or more years. Concorde was originally conceived in 1962, but it did not enter regular service until 1975.

It is important that businesses reduce the development time of new products, Shorter product life cycles are now the norm. Once, with a few cosmetic adjustments, a car model could last a decade. Now for motor manufacturers to stay competitive, a new model launch or major revamp of an existing model

three times a decade is the norm. Development can be phenomenally expensive, £100's millions for car manufacturers, and product success is not guaranteed.

Note. Although the need for new or improved products may be seen through the use of market research, R&D is an entirely separate process from field and desk research. So please do not confuse the two!

Why carry out R&D?

Research and development is needed because there is a constant requirement for invention and innovation in a business. New products are required not only for a business to grow but also to survive. This applies to virtually all business sectors, and as competition increases then the need for effective and timely R&D increases.

It is true though, that many businesses can wait for others to take the risk of launching new products or technologies, and then move into the market once an idea has been proved.

The expression, 'it is the second mouse that gets the cheese', is one that is worth remembering.

Which type of companies rely on re-search and development?

For pharmaceutical companies, aircraft industries, and electronics firms, R&D is their life-blood, without new products they will die. This is because their existing products are guaran-

ted to be redundant within a small number of years.

For a second group which include car manufacturers, and the construction industry, R&D has an important role to play, but in these industries there can be an element of wait and see what the competition are up to. For example I am sure that it was only with

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the launch of the first successful people carrier, that design departments in major motor companies throughout the world suddenly became covered in drawings of Scenics, Picassos and the like.

For a third group R&D can take a back seat, instead marketing comes to the fore. This group

of industries includes retailers (who often just borrow ideas from each other or abroad), public transport (just think of railways), and financial services.

UK firms and R&D

In the past Britain had been a world leader in research. One study showed that of all the inventions and resulting products of the last 50 years that had a major effect on peoples lifestyles, over 50% were originally conceived by British businesses, British inventors or British research scientists. In fact Cambridge University has had more Nobel prize winners than the entire French nation!

So in the past, especially since the last war, Britain's problem has not been research, but

the development of new ideas. British industry has demonstrated a lack of commitment to investing in new products. As a result many British inventions have had to be developed abroad. The study referred to above, also showed that in regard to development, only 20% of new British inventions were developed to the production stage in Britain.

Research and development has to be budgeted for, companies must reinvest profits into R&D to grow. Britain has a poor investment record in this area, with many companies looking for short term gains and profits, turning away from organic growth (growing from within), to the easier external growth (take-overs and mergers).

More recently there has been some reversal of this trend. Businesses have started to link with universities, providing funding and research fellowships, so that the latest science and technology can be used in R&D. Money is now more often used for pure research, and many universities now have attached science parks, where small companies develop ideas that are based on university research work.

The links between R&D and product design, product life cycles and market research.

Product Design

Product designs are continually being updated, often as a response to consumer demand, but also in an attempt to simplify production and reduce the costs of the production process.

Two simple examples can demonstrate this: **Consumer Demand.** You may recall large soft drinks bottles with black plastic bases. These

black bases were used to add stability to the bottles, but they are seen no more. Why? Simply because plastics manufacturers have improved the product (the bottle), so that the bottles now have in built stability. Large bottles are demanded by the soft drinks industry (the customer for the bottle makers) because if consumers bought larger bottles, they will drink more soft drinks and so buy more soft drinks!

Simplification of production process. In my main teaching room I have 2 OHPs. The first is about 15 years old, with a metal case, you probably have seen the type. The external shell is made up of 6 different parts. I counted the screws used to hold the separate parts together - 18. The second model is 3 years old, made of black plastic, 3 separate parts make up the external shell, I could find no screws. Which is the cheaper and easier to manufacturer?

Product Life Cycles

Effective research and streamlined development, shortens life cycles and is used in a response to shorter life cycles. The example of cars used above demonstrates how R&D allows firms to stay competitive, but also forces continually higher spending on R&D.

One effect of this shortening of product life cycles is that small companies find it hard to survive because of the resulting R&D costs. In the UK, Lotus, Rolls Royce, Aston Martin and Rover have all become parts of larger motor groups as direct result of being unable to afford the increased costs of R&D spending which had to be spent if they were to stay competitive.

Market Research

Market Research can be the foundation of targeted R&D. If there is discovered to be latent (unfulfilled) demand, then products need to be developed to meet this demand. This product development to satisfy market demand is part of being market orientated.

Also Market Research is used to develop existing products. Market research is continuously being carried out, with the objective of discovering consumer attitudes to products. Product revamps and redesigns often occur as a direct response to market research findings.

Notes