1 Decision-making: constraints and opportunities

How decision-making is influenced by economic changes

Firms cannot make effective decisions in a vacuum. The state of the market, the economy, the business cycle, interest rates, exchange rates, inflation, unemployment and many other factors will play a part in the final decisions made by managers and leaders. Legislation based in the UK and made by the European Union will also direct, challenge or even prevent certain decisions as will the need for some degrees of social responsibility.

State of the economy

The economy moves in cycles over the years. There are four main phases of each cycle and these fluctuate around what is known as the growth path of the economy. The economy will follow a path that is usually upward but it will deviate above and below the path at various times. These fluctuations from the normal growth of are called slumps and booms (or expansions). A business may experience these by way of a fall or rise in demand.

As the economy is approaching a recession, most economic activity slows down, some businesses fail and the number of people out of work rises. The slump will be a time of hardship for many firms and people and will require some changes in the economy for there to be signs of improvement. The recovery of the economy will be signalled by new firms appearing, existing firms gaining in confidence and possibly expanding, and more employment. The recovery will herald the way for a boom where living standards will rise, demand will be high and firms will find it difficult to meet orders.
Changes in the interest rate

This rate (now determined by the Bank of England and not the Treasury) is the price charged for borrowing money or the fee paid to a lender who is prepared to allow another party to use their money for a period. The key rates set by the Bank of England are followed by banks, building societies and other lenders across the country.

A high rate of interest means that money is costly to borrow and saving is encouraged. This tends to reduce business expansion and enterprise activities. A low rate allows businesses and consumers to borrow cheaply.

Changing exchange rates

The value of a currency will determine the price of exports (the goods and services going out of the country) and imports (those entering the country). A fluctuating exchange rate will cause instability for those who rely upon raw material from abroad or whose markets are in foreign countries.

Inflation

Inflation is the persistent and appreciable rise in the general level of prices. Firms facing rising prices of their inputs will attempt to pass on these increases in the form of higher prices to their customers. Once inflation begins to rise above generally acceptable levels (currently around 2% to 3% per year), there is the danger that there will be a loss of confidence in the stability of the economy. This may affect investment decisions and can be a signal for employees to demand high wage increases whilst producers continue to raise their prices.

The legal system

UK legislation

The UK legal system will directly affect the business community in many ways. The main areas are as follows:

- **Health and safety** – Legislation regarding the working environment and the safety of customers and employees.
- **Legal contracts (Contract Law)** – The basis of business law. Contracts must contain an offer, that offer must be accepted and there must be an agreed bargain or exchange (the consideration). If these fundamentals are not met then the deal is void.
- **Consumer protection** – There are various laws designed to protect the needs of the individual consumer. Some of the more widely quoted ones are: the Sale of Goods Act, the Trades Description Act, the Unsolicited Goods and Services Act, the Consumer Credit Act and the Food Safety Act.
11 Decision-making techniques

Operational research

Firms can use a range of decision-making techniques to help them find the optimum solution. The process of using scientific methods to make decisions is sometimes called operational research. This is the mathematical modelling that allow planners the chance of seeking a number of solutions to a project and then selecting the best one, given the various constraints.

A number of the techniques overlap in the way they use mathematical processes, but they are most familiarly defined into the following categories:

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<th>Technique/category</th>
<th>Definition</th>
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<td>Blending (linear programming)</td>
<td>A technique used to find the best allocation of resources when there are certain limitations on use or availability. Calculations are made in order to find the best mix of factors.</td>
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<tr>
<td>Decision trees</td>
<td>A diagram showing the alternative options and consequences of making a particular decision. The technique links the probability of an outcome to the expected financial cost or return of each possible outcome.</td>
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<tr>
<td>Network analysis</td>
<td>A diagram showing all the necessary stages in the completion of a task along with the time needed for each stage. The network will help planners decide on the critical path or the length of time taken by the project.</td>
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<td>Transportation (linear programming)</td>
<td>A method of calculating the most effective and efficient location of resources between various possible locations.</td>
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Linear programming: blending and transportation techniques

Overview

Linear programming is a process which involves the creation of mathematical models to find the optimum solution to a problem. The problems best suited to this technique involve a number of measurable variables and constraints. In essence the techniques are applied in order to make the decision for the decision-maker. The result is the scientific ‘proof’ that the combination or resources revealed by the calculation will best meet the requirements of the business.
Where the data, in terms of constraints on the business and the combination of factors of production, can be accurately predicted, linear programming offers accurate solutions. Decision-makers who have to combine factors in various proportions and are required to plan complex sequences of predictable events find the techniques cost saving and advantageous. There are four main steps in the linear programming process:

1. Establish the objectives – Typical objectives for linear programming will be the minimisation of cost or the maximising of profits.
2. Describe the relationship between all the variables and constraints – These could include the finances available, the number of vehicles to be used, the capacity of the machines used and so on.
3. Combine all the factors and isolate all possible solutions based on the data.
4. Select the best solution given the objectives set.

Blending

Case study

A factory has a certain number of machines, a fixed number of staff and stores containing the necessary raw materials to make a number of finished products. Each product that they make requires a slightly different combination of machine operations and machine time, raw materials and worker time. If the company is producing 50 different products with these resources, it will require a considerable amount of planning to establish the best combination of machines, workers and materials to get all the jobs done efficiently. This is blending and when dealing with such large possible combinations, firms will often resort to using a computer program to make the calculations for them. Software that allows the decision-maker to experiment with a range of combinations onscreen before making a decision that affects the actual resources of the business will be a cost-saving exercise.

Constraints

A constraint is anything which restricts the activity of the business. The business will be faced with a number of constraints and the blending technique will show all the constraints on the same diagram so that the decision-maker can select a combination of factors that fit within the constraints of the organisation but also achieve their objectives.

Case study

A firm can produce two different cakes using the same resources, but in combining these resources in different ways. Both cakes require preparation, baking and decoration.

If all of the firm’s resources were put into making cake type A then 100 could be prepared; if all efforts were put into type B then 150 could be prepared. Any combination of the two types would be shown on the straight line drawn between the two extreme points. No combination to the right of the line would be possible. Any combination below the line would be inefficient.