

# CHAPTER 6

## Product Commercialisation

### 6.1 Introduction

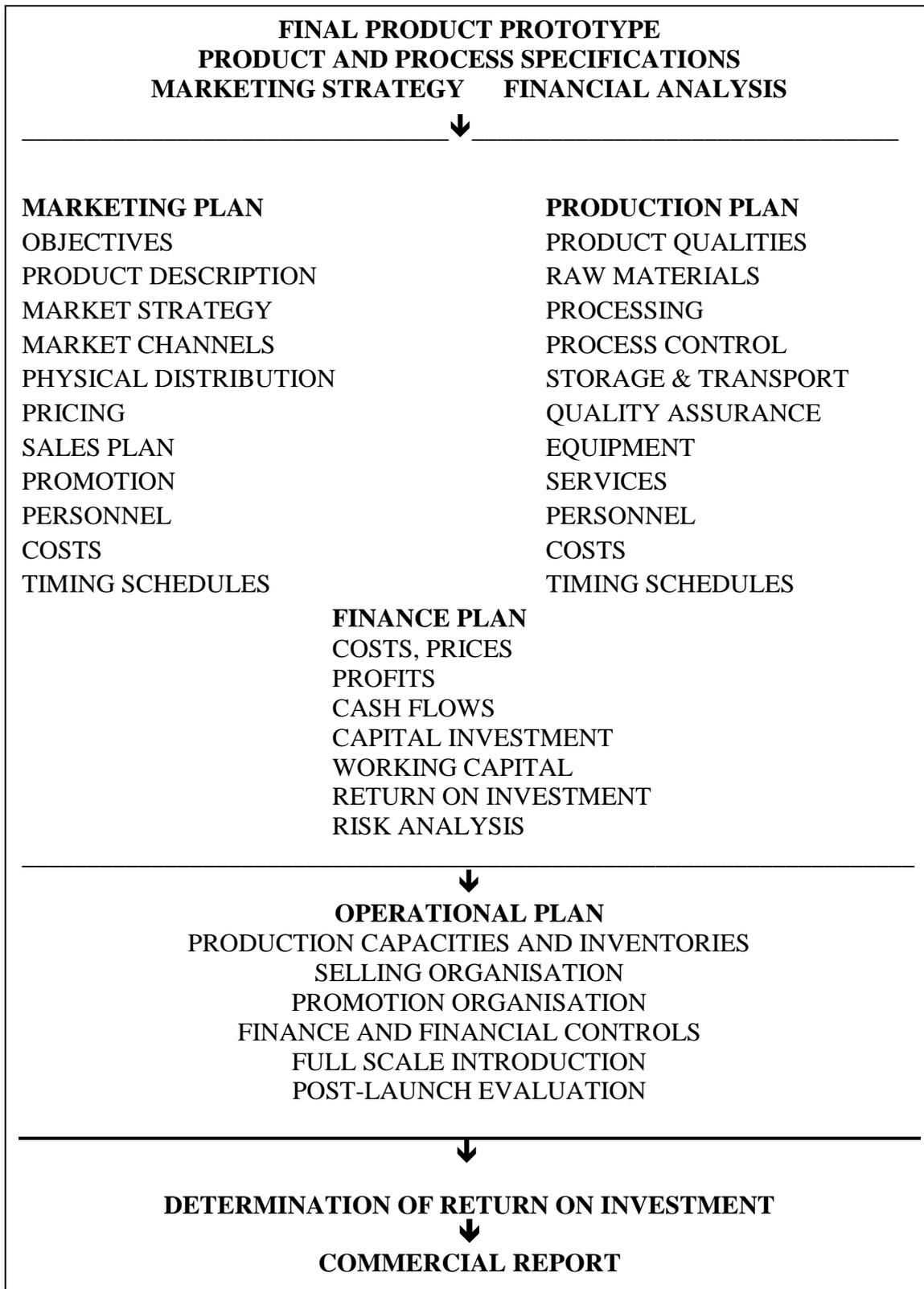
The aim of commercialisation is to change the final product prototype into an innovative commercial product that can be launched onto the market. This is still a creative procedure but it is extremely focussed so that the marketing is integrated with the production, and finance is making the funds available but controlling expenditure. It is an expensive stage and needs good financial control to ensure that resources are available at the right time and that costs do not overrun.

Time also needs to be planned and controlled so that there is no delay. Time is of the essence because there is now a launch date to be considered, and once that is determined then activities are timed and their timing controlled. The aim is to launch at a specific time. If the length of time for commercialisation is increased, either the launch may have to be delayed perhaps up to a year in order to market at the correct season, or everyone rushes to launch and the product is not of the correct quality, or production cannot produce it in sufficient quantities or marketing cannot obtain the correct distribution.

### 6.2 Outcomes and activities in product commercialisation

From the product specifications, the marketing strategy and the final prototype product, commercialisation builds into three important functional plans (marketing, production and finance) and then into an overall operational plan. These are combined together as shown in Figure 6.1, which shows the different outcomes needed in each plan. The outcomes from the three plans are combined in an operational plan for the launch. After the launch there is a review of the final outcomes.

**Figure 6.1 The outcomes from product commercialisation**



During commercialisation, the knowledge required to formulate these plans has to be found, organised and integrated. It starts with information from the product design and process development: product and packaging qualities, product concept, target market,

price range, market channel, physical distribution, process flow sheet, process conditions, product testing. At this point, final adjustments are made to the product so that it is acceptable not only to the consumers but also to the company's operational divisions, the retailers and other people in the distribution system. With industrial products, it has to be acceptable across the different groups in the buying company - product development, quality assurance, production and buying.

The product and its inner and outer packages need to be tested through production and distribution to determine if the packaging provides the necessary protection to the product and also meets the expected demands of distribution, sale and use. Some of the product prepared during the small plant tests can be tested in large consumer/customer 'use' tests. In industrial marketing, it is important not only that the new ingredient is acceptable in the manufacturer's plant but also that the manufacturer's product is acceptable to the consumers. In consumer marketing, there are further consumer 'use' tests and sometimes a small test market in a few supermarkets representative of the overall market to test the effects of different prices and promotions. There is constant comparison with competitive products on the market to confirm that the product has advantages to the users.

After these studies, there is enough information to detail the market for the product and to draw up a complete market plan for launching the product, including market trials, methods of selling, promotion and advertising, and methods of distribution.

The production development differs if the present plant is to be used or if a new plant is to be built or if new equipment is to be bought or built. A preliminary process equipment design can be made or, if current plant is to be used, the layout and adaptation of this equipment for the new process determined. The production is 'fine-tuned' and quality assurance developed.

Costs and prices are studied, the investments needed for marketing and for production are estimated and a financial analysis is made. Then the decision is taken to stop, or to test the market and production plans, or to allow the product to go forward to launching. The production and the marketing are integrated first in large-scale production and market testing, and then in an operational plan. A final commercial report, based on the

information collected, analyses whether the product fits in with the commercial and financial aims of top management.

The steps and some of the activities in commercialisation are shown in Figure 6.2.

**Figure 6.2 Activities in product commercialisation**



### **Think Break 6.1**

#### **Outcomes from commercialisation: marketing plan objectives**

Compare the marketing plan objectives in launching the following new products:

- high protein bread by a group of small bakers with their own retail shops
- a tomato flavoured potato puffed snack by a potato chip company with national distribution
- a line of salami products by an Italian meat processor into supermarkets in Britain

## **6.3 Knowledge required for the marketing plan**

The following operating functions are included in the marketing plan:

- **market information** - market research and analysis, particularly the targets to be set for the launch and post-launch and the methods to monitor these;
- **product** - product proposition (product concept), packaging, branding, image;
- **market channel and distribution** - choice, control and development of market channels, transportation, storage;
- **pricing** - price range, relation of price to demand, margins, discounts, specialing;
- **promotion** - retailer and consumer promotion, advertising, public relations;
- **sales** - methods of selling, terms of sale, sales reporting, analysis and forecasting.

### **6.3.1 Market information**

The aim of information is to provide knowledge of both the consumer and the retailer as the basis for a successful marketing strategy, and also to predict the number of units that will be sold and revenue generated in order to set the targets for the post-launch analysis of the success of the marketing. The questions to answer are:

- What will be the consumers' purchasing and repurchasing behaviour?
- What will be the consumers' reactions to the prices, the promotions?
- What are the predicted pessimistic, most likely and optimistic sales units and revenue over the next months, years?
- What are the predicted competitive reactions?
- What are the predicted market shares?

Before the marketing plan is developed, there should already be a comprehensive description of the potential consumers in the target market segment. With the 'line-filler' type of product, the company will know the consumer from previous marketing efforts. For the innovative product, market research, using either a survey or a product test or both, will provide information to predict the potential consumption rate. For the purpose of sales forecasting, the company needs to know the total number of potential customers and the potential consumption rate. From this type of data and allowing for direct competition, it is possible to make an estimate of the probable sales in conjunction with estimates from other sources.

There are short-term or launch forecasts and also monthly or yearly long-term forecasts. The intervals of forecasting depend on the predicted product lifecycle. If it is a one-season product with a life between three and six months then monthly sales at least need prediction. For the longer life product of five to ten years, then monthly sales for the first year and yearly predictions after that are often used.

### ***Think Break 6.2***

#### ***Knowledge required for the marketing plan: customer information***

For the industrial marketing of a new fat ingredient, compare the introduction of the new product to large bread bakers and to small bakers and confectioners.

Contrast the needs of the two different types of customers, their possible buying methods, the types of products they make, the services they need.

Discuss the marketing methods the company could use for each group of customers..

### **6.3.2 Product**

The aim is to have a product the consumers will buy. Some of the questions to answer are:

- Is the product what the consumers want?
- Does it have the benefits wanted by the consumers?
- Does it have the desired characteristics wanted by the consumer (sensory, ease of use, safety, nutrition, psychological)?
- Is it packaged correctly?
- Is the pack the right size?
- Is the pack attractive at the point of sale?

- Are the product and the pack legal? ethical?
- Does the brand suit the product?

The product characteristics, benefits, packaging type and size, brand and packaging aesthetics, product image and the final product proposition to be presented to the retailer or the industrial customer are identified and then integrated into the complete product description for the market plan. The services provided for the industrial customer need to be identified such as delivery, packaging, technical help.

### ***6.3.3. Packaging***

The aim of packaging is to present a unique design which will stand out on the retailers' shelves and in the kitchen, encouraging consumers to buy and use the product. The packaging design consists first in choosing a brand and a product name, and then developing a graphic package design. In choosing the brand, there is the decision whether to use a family brand name or a product brand name or both. Products have been seen on supermarket shelves with three brand names, but this is confusing to the buyers! A family brand name gives recognition and reassurance to the consumer but must have strong associations with the new product. The product name needs to be readily recognised by the target consumers and instantly related to their food preferences and also related to the benefits they see in the product. Name selection is achieved through the typical process of idea generation and screening, with strong involvement by the consumer. The graphic design should be attractive but also informative, giving details on the ingredients, the nutritional value and how to use the product. There are also legal requirements from the Food Regulations which must be followed.

### ***6.3.4 Market channel and distribution***

The aim is to make the product available at the right price at the right place at the right time. The questions to answer on the marketing of the product are:

- Who will sell it?
- How will it be sold?
- How much will be sold?
- How will it be transported?
- How will it be stored?
- How will it be displayed?

- How will it be promoted by the retailer?

The type of market channel will have been identified but there is also a need to analyse the people/organisations involved so that the product can be sold effectively with control over and integration of selling and buying.

The overall system of food production is so complicated today, with international movement of raw materials, ingredients and consumer products, that the whole system from the agricultural and marine producers to the final consumer needs to be studied, not just the immediate market channel of the product from the company to the retailer. The domination of large multinational agricultural companies, processing companies, supermarkets and fast food restaurants means that they control or at least strongly influence the market channels. But there are still many small companies such as family bakeries, restaurants, coffee shops, market stalls, family stores, which need to be reached and the distributing company has to decide if they do this themselves or work through agents and wholesalers. Small companies, especially in food exporting, need to have agents or distributors to organise their market channel.

In studying the market channel, the coverage of the target market achieved is determined, the costs estimated and the sales predicted for the different types of outlets in the market channel. The logistics are important, especially in export marketing. The locations of the plants, storage facilities and the customers in the distribution system, the transport available, the inventory held in the total distribution system and the losses in quantity and quality of product in the system need to be investigated so that the optimum system for quality of product, sales and costs can be determined.

Most companies have an established distribution system and cannot change it to suit one new product. However, the launch of a new product is a good opportunity to study the alternatives if there are any. In the marketing of pre-packaged consumer food products, the supermarket has become the all-important means of achieving distribution, but there may be an opportunity to look at alternatives such as home selling.

### ***Think Break 6.3***

#### ***Knowledge required for the marketing plan: market channel and distribution***

A company is planning to export frozen fish fillets from New Zealand to restaurants in California. Discuss the advantages and disadvantages of the three possible methods of distribution:

- (1) their own salespeople,
- (2) a frozen fish distributor/merchant and
- (3) an import agent.

#### ***6.3.5 Pricing***

The price aim is to have a product giving 'value for money' for the consumer but at a price that will produce the desired sales revenue and profit for the company. Company pricing issues include the list price, discounts, allowances, payment period and credit terms. The list price is based not only on the company costs plus the profit and the advertising budget, but also on external factors that affect price. The questions to answer are:

- What price range will the consumer accept?
- Does the consumer have any psychological attitudes to price?
- What is the relationship between sales forecasts and prices?
- How does the price relate to competitors' prices?
- What are retailer and wholesaler margins, agent percentage?
- What price specials, discounts may be needed?
- What are the subsidies, the taxes, the exchange rate?
- What are the basic company costs, the advertising allowances, the company profit? Do they vary at different levels of outputs and sales?

Pricing is not a simple matter for a new product because of the many factors to be taken into account, but in food marketing there is little scope for a great deal of movement in price once the company has decided on its basic cost structure, pricing policy and the position of the product on the market. A major decision is where to position the product in the price range for this type of product: at the top as high quality, in the centre as good quality or at the bottom as 'cheap'. In launching new products, two pricing policies are particularly important: market skimming, where the price is set high to recover

development costs quickly, and market penetration where the price is set so that the consumers will buy quickly and the main market is penetrated before competitors can react.

### ***Think Break 6.4***

#### ***Knowledge required for the marketing plan: pricing***

Discuss the following two pricing situations and decide which of the two pricing strategies you would choose in each situation:

- market skimming or market penetration in launching an environmentally friendly, nutritionally acceptable soft drink by a large soft drink manufacturer;
- top of the market pricing or bottom of the market pricing for a new blue vein cheese from a small dairy company.

### ***6.3.6 Promotion***

The aim of promotion is to make the consumers aware of the product and encourage them to buy the product at the rate of sales growth desired by the company. Promotion includes advertising, personal selling, sales promotion and publicity. The questions to answer are:

- Who are the target consumers?
- What is the product image?
- What is the message that has to reach the consumers?
- What promotion is needed to convey this message?
- What promotional methods are available?
- What budget is there?

For a food innovation, the consumer is made aware of the product, educated about its use and benefits, and encouraged to try it. Although TV advertising is often used for new food products because it reaches a large number of consumers very quickly, it may not be the most effective choice. Demonstrations and tasting can encourage the consumer to try the product and to remove some of their doubts about it because of its 'newness'. Promotion is also to the retailer, an important intermediary on the way to the consumer. Because of the difficulty of persuading supermarket managers and owners to give shelf space to a new product, retailer promotion is being given a larger proportion of the promotional budget.

The promotional budget is the sum of money available for spending on the launch and is usually calculated as the amount needed for a given annual sales target rather than a fixed percentage on expected sales. Promotion as percentage of turnover may be as high as 30% or 40% in the initial stages of a product's life; this may be justified as being necessary to achieve maximum distribution quickly and to bring notice to the company's other products as a whole. How much should be allocated to a new product for the purpose of the launch is difficult to decide rationally - there is seldom a model correlating sales with promotion for a new product. The next step is to assess whether or not the product is worth such a promotional budget, taking into account the purpose for which the product is being introduced. If it is not, then either work on a reduced sales forecast and budget or leave the market to someone who will find it worthwhile. As can be seen in some of the Case Studies throughout the text, even some large companies have not learnt this lesson. The whole situation is rather unsatisfactory but there are techniques to put the promotional budget decision on an analytical footing if the company and the industry has collected the requisite data.

Selection of the advertising mix presents similar problems to budget determination, and sometimes precedes it. Decide what you want to do and then allocate the budget to do it! The obvious prerequisites to the selection of methods of promotion are to know whom the promotion is aimed at and what it is trying to do. The people to influence are usually the purchasers and all those who affect their decisions, and of course the final consumers who eat the food. The aims of the promotion may be to produce immediate sales, to stimulate brand recognition and to 'educate' the consumer on a new type of product benefit or characteristic. When the target people and the reasons for the promotions are decided, logical selection of media can commence. There are reasonably good quantitative techniques for this task, but it is still frequently left to experience and value judgements.

### ***Think Break 6.5***

#### ***Knowledge required for the marketing plan: promotion***

A dairy company is launching a new high protein, high calcium, reduced fat, fresh milk which is to be sold under the brand name 'Active', and has asked you for a promotional brief.

- Prepare a promotional brief clearly describing the product concept, the people to whom the milk is to be promoted and the advertising objectives.
- From this develop a theme for the promotion.
- Discuss possible methods of promoting the milk, and outline a promotional campaign.

#### ***6.3.7 Sales***

The sales aim is to achieve the sales targets that have been predicted at the budgeted costs. This needs organisation of the sales areas and the sales personnel. Sales targets are set for the sales areas and the individuals, and the sales people are organised to achieve these sales. Training is provided before the market launch, so that sales people have knowledge of the product, the market research, pricing and promotion and know how to sell the product. Sales calls before the launch and merchandising (shelf display organisation) during the launch are needed to achieve the necessary shelf space for the new products. In the marketing plan the number of such special calls must be detailed to allow adequate planning by the area managers.

The product proposition is the material presented to the buyer by the sales person. This will include the product itself, written and oral details of the research behind the product, the advertising programme, the margins and suggested retail price and any introductory offer. In supermarkets, the sales person will contact the buyer who then has the choice of whether to recommend the product to the new products selection committee or to make the decision themselves. Some companies will sell through a wholesaler, a food broker or a manufacturers' agent. The sales person has to be equipped with facts which will convince the buyer, the wholesaler or the agent that the product is a 'must' to enable them, in turn, to 'sell' the product to the buying committee.

## 6.4 The marketing plan

There are several factors that need to be considered when developing the market plan:

- product position in the market;
- stage of the lifecycle for the product class, and therefore the position of the new product on the product class lifecycle;
- relationship of the new product marketing mix to the overall company marketing mix;
- interaction of the parts of the marketing mix - market channel with price, promotion with price, product with promotion;
- quantitative relationship between sales volumes and the various parts of the marketing mix;
- marketing profitability and efficiency of the marketing mix;
- reactions to the marketing mix of the industrial, social, legal and political environments.

A summary of the parts of the market plan is shown in Table 6.1.

**Table 6.1 Summary of a marketing plan for a new product**

***Overall Marketing Plan***

*Objectives:* volume of sales, market area, profit.

*Predicted environment:* economic, political, social, industrial.

*Place of product in product mix (product line):* type of product, quality level, price range, place in line (leader, minor product).

*Market segment(s):* type(s), location, size, characteristics.

*Market channel:* type of channel, retail, food service, institutional, industrial; intermediate organisations (wholesalers, agents, brokers); geographical positions of all organisations in the channel.

*Marketing strategy:* strategy outline, target markets, marketing mix, marketing expenditure level.

***Product plan***

*Product:* proposition, uses, characteristics.

*Packaging:* branding, information, legal requirements, size(s), aesthetics.

***Costs and prices***

*Costs:* fixed and variable costs, marginal costs.

*Prices:* company list price, distributors' margins, retail price.

***Sales and distribution plan***

*Sales organisation:* personnel, training, launch, post-launch.

*Physical distribution:* transport, store location, inventory plan.

*Sales:* reporting, analysing, forecasting.

*Sales targets and budgets:* area targets, sales persons' targets, areas and sales budgets.

*Sales promotion:* merchandising, sales communications.

*Sales evaluation:* targets and costs analysis.

***Advertising and promotion***

*Message selection:* creative development.

*Consumer advertising:* press, television, cinema, radio, outdoor posters, public relations, internet

*Consumer promotions:* price specials, reduced price offers, competitions, coupons, free samples

*Point-of-purchase:* display material, tasting, cooking demonstration.

*Trade promotions:* incentive schemes, display competitions, sales contests.

*Trade advertising:* trade journals, trade displays, conferences, publications.

***Schedules***

*Production:* times, quantities, quality, losses

*Distribution:* times, quantities, quality, losses.

*Selling:* times, launch quantity, future predicted quantities.

*Promotion and advertising:* times.

An example of a market plan is given in Example 6.1.

### ***Example 6.1 Low-calorie chicken hotpot***

A medium-sized canning company decided that it would move into the nutritional diet market. The general manager thinks the present products - beans in tomato sauce, soups, spaghetti, meat and vegetables - have a poor nutritional image. The product designer has produced a low-calorie chicken hotpot and the marketing manager has produced the following market mix plan.

#### **Marketing objectives**

- Enter the diet food market segment emphasising the nutritional/low calorie/convenience aspects of the product.
- Recover development costs within two years.
- Maximise profits.

#### **Predicted Environment**

At present, the country is in an economic recession but there is predicted to be a minor resurgence in the economy. This will justify the product launch in this year. The social environment is changing, with an increased awareness of the nutritional value of foods, personal fitness and weight control. If the market follows overseas trends, this trend could continue affecting a greater proportion of the population. This means the product should be readily accepted with little social resistance. At present, there are no calorie reduced, nutritionally balanced, canned convenience meals on the market. This could be expected to change rapidly once the product is launched. Thus the company must have a flexible marketing plan to adjust to the changing competitive environment.

#### **Product**

The product has the appeal of being:

- a balanced meal of nutrients and minerals;
- low in calories;
- convenient.

These factors were established from the market trial and from this a product image developed of 'calorie reduced, highly nutritious, convenience meal'. Factors such as 'good for you', 'balanced', 'quick' and 'healthy' could be emphasised as product benefits.

#### **Product name**

As the sponsoring company is diversifying into the product area of diet foods, it could be preferable to establish a new brand with a 'health' image. Brand suggestions include 'LITEWEIGHT', 'VITALITE' or 'NUTRILITE'. The latter brand name tends to be better suited to the product image of a calorie reduced, nutritional product line.

The product name decided on is 'CHICKEN HOTPOT' as this describes a chicken and vegetable mix suitable for a quick but special meal. It also implies the product is different from competing canned meat and vegetable products. This distinction must be emphasised as the developed product is establishing a different product image

As the product is to be canned, it is important that the label be distinctive to attract consumer attention. The label must meet the Food Regulations.

### ***Example 6.1 Low-calorie chicken hotpot – continued***

#### **Consumer**

The product has to appeal to two distinct consumers:

- consumers on calorie reduced/health food diets;
- general consumers of convenience foods who would buy the product for the reduction in calories, nutritional attributes and possibly taste preferences to competing convenience products on the market.

#### **Price**

There are three alternative pricing strategies:

- price high, to the upper end of the diet market;
- price intermediate, to the low calorie/convenience market;
- price low, to the convenience canned meals market.

One of the marketing goals set was to maximise profits. To achieve this, the company's demand, cost and profit functions were analysed. The production cost was estimated at \$1.71 and to cover company costs and profits the wholesale list price was set at \$3.22. If there was a retailer mark-up of 30%, this would give a retail price of \$4.19. As the product would have to be promoted, it was decided that the price should be first set to the upper end, i.e. the diet market, and then as production increases and development costs are recovered the price should be dropped to the low calorie/convenience market.

The price set allows for 'specials', 'discounting' and other retail discounts that may be necessary in the marketing of the product and establishing good relationships with retail outlets.

#### **Market channels**

The alternative market channels are:

- market through supermarkets and convenience stores via a wholesaler;
- market direct to major supermarket chains (eliminating wholesaler);
- market to smaller health food shops and delicatessens via wholesaler;
- market to all retail stores directly.

It was established from the market trial that the main retail outlets at which the consumer would expect to buy the product were supermarkets and convenience stores. A smaller proportion of the respondents indicated buying the product at health food shops and delicatessens. The company could use the latter if they adopted the high price strategy (i.e. price to the upper end of the market).

The market channel for sale of the product through a wholesaler to supermarkets and convenience stores is already established. Using this would minimise the cost and marketing effort required in moving the product through the channel.

Marketing to delicatessens and health food shops requires marketing through a wholesaler or using a manufacturers' agent to a large number of retail outlets in small volumes. This may suit the initial small volume produced. Alternatively, during the initial low throughput, it may be more useful to market the product only to one or two supermarket chains in one of the major cities.

On considering the effectiveness, experience and cost of the alternatives, the first alternative (supermarkets and convenience stores via a wholesaler) would appear to have the greatest potential.

### ***Example 6.1 Low-calorie chicken hotpot - continued***

#### **Physical Distribution**

The product is canned and has an estimated shelf life of two years at ambient temperatures. Due to the nature of the product, damage is restricted to dented cans and torn labels, occurring only with excessive handling.

The existing company's physical distribution system is by road or rail, which can be adapted to the Chicken Hotpot. The product is distributed to warehouses in main city centres. On analysis of transport costing, it would appear rail is the cheaper method for this initial distribution. Distribution to the smaller centres could be by road or rail as dictated by local costs and availability of the transport.

The company adopts a policy of minimising the level of capital invested in inventory. During the initial product launch, it is estimated a three-month supply of product is required to fill the market channel. As the market establishes, this level of inventory in the warehouses can decrease to approximately a two-month supply. This does not allow for any possible seasonal trends such as increased consumption during winter; these can only be established during the initial years of marketing the product.

#### **Promotion**

The promotional mix consists of a combination of four promotional methods:

- advertising;
- personal selling;
- sales promotion;
- publicity.

The mix must be coordinated and conform to the overall market plan.

The theme for all promotional work is:

#### ***CHICKEN HOTPOT a calorie reduced, highly nutritious, convenience meal***

This theme emphasises that the product is a convenience product giving a balanced meal of essential vitamins and nutrients for those people on calorie-reduced diets or interested in weight control. It is felt that the main product benefit to emphasise is convenience: quick to prepare, calorie-reduced meal.

*Advertising aims* are to stimulate sales, and generate the new product image and the NUTRILITE brand image.

The advertising media available for marketing the product, in order of increasing cost and increasing penetration, are:

1. newspapers;
2. magazines;
3. mail pamphlets with discount offers;
4. radio;
5. television.

Due to limited finance, the possibility of television as a promotional medium is eliminated. Radio tends to be specific for local regions and has intense competition and short attention span. Thus it was also eliminated. The final media are within the company's budget allocation. Newspapers have a wide coverage but date quickly and have a short attention span. Magazines reach a specialist target audience and have a longer life due to magazine circulation. The mailing of pamphlets provides a rapid means of informing the public (important during the product launch) but is relatively expensive.

### ***Example 6.1 Low-calorie chicken hotpot - continued***

Two possible magazines for advertising the Chicken Hotpot throughout the market could be:

- a high circulation women's magazine;
- a high circulation general magazine.

Both magazines have a high reach (i.e. a large number of people exposed one or more times to the advertisement). The frequency of exposure will be determined by the number of times the product is inserted.

Coordinating the advertising schedules is important to achieve a high reach at product launch. A possible schedule is outlined below:

- Delivery of pamphlets to householders with a discount on the product.
- At the same time, concentrated magazine advertising in both magazines.
- Periodical burst advertising in magazines as the product is established on the market.

*Personal selling* in the company consists of a sales force of two area managers with eight sales persons. The sales persons establish contact with potential customers. To ensure the presentation is effective, sales staff must be informed of the product, sales method, any possible discounts, trade benefits, advertising and promotion to be used.

*Sales promotions* are to gain retailer and consumer confidence in the product. To gain trade acceptance of the product and achieve prime shelf space and in-store displays, cooperative advertising and buying allowances could be offered.

*In-store displays* portray the calorie reduced, convenience, health aspect of the product, for example a poster with a slim, healthy young couple eating the casserole and a caption underneath stating the ease of preparation. The displays could show methods of serving the product and, if possible, in-store cooking demonstrations will be used. Samples could also be given. In-store promotion is important to show the attractive eating qualities and to emphasise the lower calories than the existing canned meals.

*Publicity* is to gain widespread awareness of the product in the trade and among the consumers. At the product launch it may be possible to obtain media coverage of the revolution in food - a calorie reduced, convenience meal balanced in nutrients and vitamins. This is justified by the fact that the type of product is not presently available but corresponds to the new awareness in health and fitness. Promotion of this type would require careful planning to be effective but in general publicity has a high level of truth attached to it, i.e. consumers tend to believe it is more authentic than advertisements.

Overall, the promotional mix will be informative, building up an awareness of the product at the time of launching. As the product establishes a market, the mix will become more persuasive.

***Example 6.1. Low-calorie chicken hotpot - continued***

**Timing and test market**

The most suitable time for launching of the product is prior to winter. This is because the hotpot may show a seasonal trend with increased demand in the winter months for a hot meal. The extent of the trend can only be determined by actual marketing, but it will probably not be very marked due to the 'light' sauce.

Prior to national launching of the product, it may be advantageous to test market the product in a small region. The cost of this is justified by the newness of the product.

It is essential the product is launched soon to obtain maximum benefit from the change in consumer awareness of health and fitness combined with the increasing demand for convenient, quick-to-prepare foods.

***Think Break 6.6***

***A marketing plan: low-calorie chicken hotpot***

Imagine you are the general manager of the company and you have been presented with this market plan.

1. Do you think this should be a single product launch or a product line launch?
2. Do you agree with a new brand name? How would you test the suggested name?
3. Do you want to sell high priced, top of the market product when you only go to the cheap convenience market at the moment?
4. What changes would you suggest to the market plan?
5. Would you give permission for the product launch?

In preparing the marketing plan, there are some points to remember:

- The promotional artwork must be completed before the package manufacture.
- There must be sufficient capital to finance the stocks of product and the introduction costs - the money available will set the limits on your marketing plan.
- The sales force must be adequately trained before product stocks are built up in the different distribution centres but after the promotion has been designed.
- Adequate stocks of the product must be available at the time of introduction.

- The promotion should give sales which are related to the sales forecast but also the production capacity of the plant.

The marketing plan is summarised in a marketing programme, which is an integrated plan of all activities together with their timing and costs. It includes a marketing budget with the sales forecasts - volume, revenue and the costs and the gross profits. The plan is evaluated before final approval. Is it feasible, comprehensive and flexible? Does it include a schedule, a budget? Is it in written form, in line with company policy? Does it provide for effective implementation? Has it been carefully reviewed and agreed by the people who will carry it out? Is it integrated with the production plan?

### ***Think Break 6.7***

#### ***Marketing plan: differences with innovation level***

Discuss the differences between the market plans for an innovative product, an improved product and a me-too product.

Show diagrammatically the main sections of the three plans.

## **6.5 Knowledge required for the production plan**

A production plan is developed along the same lines as the market plan to ensure that all the tasks are carried out and completed in time. The main areas in production planning are:

- raw materials;
- processing;
- quality assurance.

### ***6.5.1 Raw materials***

The aim here is to ensure that the raw materials are delivered at the right time and in the right quantities and of the right quality and at the right cost so that the process runs successfully. The factors to be considered when sourcing raw materials for both the product and the packaging are:

- location of the source relative to the plant;
- level of quality required for the raw material;
- price that the product can afford;

- reliability of the supplier regarding specifications and delivery;
- services provided by the supplier;
- uniqueness of the supplier for this raw material.

These factors are listed in order of importance. The most important factor is met first and so on down the list to determine the most suitable supplier(s) for each raw material. The raw material might need to be of a specified quality but as it is highly perishable it needs to be sourced near the plant. Therefore quality and location would be considered first when choosing suppliers. An important decision is to have either a long-term association with a supplier or to choose the supplier according to the factors as conditions change.

It is important to determine the timing and the quantities of ordering, arrival, storage and use of the raw materials. Some raw materials have very long lag times before delivery, especially packaging materials and imported ingredients, therefore a schedule for ordering materials is made out and followed so that all the materials arrive in time to start production. It is also important that the materials do not arrive too early as this can cost the manufacturer a great deal for inventory and also materials may deteriorate in storage. There has been a great deal of emphasis on 'just-in-time' production in recent years, but this can cause a great deal of trouble when starting production for a new product. It is easier to manage a less tight schedule as it is never certain what is going to happen. The quantity to be ordered and held in stock depends on the time from order to delivery, the costs of delivery and storage, the quantity required for a production run and the number of experimental runs planned. It is preferable to have the same raw materials for all runs so that the processing effects can be studied.

Another important factor in raw material planning is to study if alternative raw materials can be used and also if raw materials from different suppliers can be substituted for the first choice. Then if there are any problems in supply, there are alternatives which can be obtained quickly. If the product is a greater market success than predicted, it would be embarrassing and might even kill the product if production had to stop because of lack of a raw material.

The ways of handling, sorting and preparing raw materials are very important in the food industry. There is a need to study the materials handling so that it is not labour

intensive and fits into the main process. Also in-line sorting equipment gives a tighter control and reduces human sorting and judgement.

### ***6.5.2 Processing/manufacturing***

The aim of processing/manufacturing is to produce the right quality and quantity of product at the right time and cost, not only for the launch but for the months ahead. After the production trial at the end of product design and process development, many problems will have been identified and discussed with production staff and hopefully solved in order to make 'start up' as trouble-free as possible. However, just because it works, it may not be the most efficient and effective way of producing the product. The factors which need to be studied in processing can be grouped under technical, economic and human reactions.

***Technical factors*** to consider are the plant design and commissioning, and the process analysis and control. New plant or new equipment may be needed and this has to be designed and built or bought; in both cases there need to be engineering specifications based on the processing requirements, mechanical/electrical design and computer control. The plant layout and supply of services is important. Sometimes imaginative new thinking in this area can increase product quality and yields and improve the overall efficiency and conditions of the plant. It is too easy to be complacent, so look carefully at movement of materials, employment of staff and bottlenecks in production.

***Economic factors*** in processing can be summarised as initially setting the lowest practicable capital and running costs and the required financial returns from the project, and then ensuring by constant monitoring and fine-tuning that the budget is implemented. Experience during the development may show a need for reconsideration of the budget; if a change is required then it is essential that all implications for prices, profits, predictions and so on are fully explored, understood and taken into account.

***Human reactions*** in a processing line are critical both in getting a new development off the ground and in the evolving stages. Commitment is a most important ingredient in implementing change, and development always means change. If the staff want to make it work then they will, and often this means an extensive selling job to staff at all levels from the most senior manager to the floor operators. This needs to be done systematically and comprehensively, and the more effectively it is done the more smoothly the product development project will move.

In commissioning new plants, several points to remember are:

- Does the product meet specification in terms of quantity, quality, consistency?
- Can the plant be operated and controlled reliably, conveniently, without stress?
- Are the running costs for services, staffing and maintenance as planned?
- Do the plant components match the design stipulations, pricing schedules?
- Has adequate information material been prepared for the instruction of operating, quality assurance, trouble shooting and maintenance staff?
- Have arrangements been made to remove 'out of spec' products and other waste materials from the plant without loss of secrecy?

### ***Think Break 6.8***

#### ***Knowledge required for the production plan: processing and manufacturing***

In planning the production of the Chicken Hotpot in Example 6.1:

1. Identify the raw materials that could be used in the Chicken Hotpot, including a nutritional mix to give the balanced nutrition.
2. Identify the unit operations in a processing flow sheet.
3. The present canning line is to be used which includes washing equipment for vegetables, sorting belts, mixers, canning line, steam jacketed pans, stationary autoclaves/sterilisers, water cooling stands, labelling machines. Plan how you would use the equipment.
4. Develop a check list for all the activities needed before the trial runs.
5. How would you communicate your plans with the factory staff, engineers and quality assurance staff?

### ***6.5.3 Quality assurance***

The aim of quality assurance is to ensure a product correct for its intended use. Quality and safety are absolutely essential elements which must be built into new products. The first step in analysing product safety and quality is to set up systems for Hazard Analysis Critical Control Points (HACCP) or Hazard Analysis/Risk Assessment (HARA) or Hazard Analysis and Operability (HAZOP). The steps in studying a process using HACCP are as follows:

- Establish full specifications for raw materials, processing, product, packaging and distribution.

- Identify and quantify risks.
- Prepare a full flow diagram for the process.
- Identify critical control points (CCPs) along the processing and distribution line using risk assessment techniques.
- Establish measurements and set points and limits necessary at each CCP for adequate and safe control.
- Establish and define criteria for tolerable departure from set points, and corrective action to be taken to maintain control.
- Establish a monitoring regime; review the procedures for the HACCP system.

HACCP was originally introduced to ensure the safety of food, but it is now also used to ensure product quality. Process control is based on the HACCP system, using computer controls, total process modelling systems and process optimisation, and in-line testing. Process control techniques are improving rapidly and will make this area of the product development process more quantitative and less empirical. The process study also needs to ensure that there is integration of the new process technology into the existing system with minimum disruption and cost.

From these studies a quality assurance plan is developed, which includes the controls and testing required during the process and the testing of the final product. Quality assurance includes the sampling, testing and control procedures, the targets for each, and the statistical control methods needed to study any changes that are occurring. Companies must decide how far to take these when choosing the quality assurance standard (ISO 9001, 9002, 9003) for their production. There may be a need for new testing equipment and certainly for the training of staff. Once the plant is running, tolerance limits will be finalised but they should be provisionally set well before then. Production as well as quality assurance staff need to know the new requirements as they are often the first to notice 'out-of-specification' product. Quality assurance is integrated into the company's TQM (total quality management) which takes into consideration all aspects of the business that affect quality. Process analysis is one of the most important tools in TQM.

The most important factor in building quality into production is the staff and the communications between them. There is a need to have regular exchanges of information both verbal and written between production and marketing, but especially

between the designers of the process and the production and quality assurance staff. There should be cooperation between staff. Nothing is more likely to be disastrous than the design team running the production trials. The production staff needs to run the production with back-up and technical advice from the designers. Accurate and timely information is not only crucial for effective management control, but it also improves staff commitment and morale across departments.

A set procedure is needed; the production trial will require details from the design and production managers on:

- quantity required, plant capacity/capability;
- reasons for trial;
- trial control methods;
- review methods for problems;
- personnel involved and contact methods.
- contingency plans;
- contamination and safety potential.

Other useful communication methods include factory trial requests, production sheets, quality assurance sheets, product costing and a planning schedule, as well as the production specifications and an outline marketing strategy. The regular critical decision points should be identified so that all understand when production development is to continue and when it is to stop. Staff education about the new process is important.

There are information security problems during these trials, as there is a need to keep information away from competitors, so there will be constraints on communication and staff must fully appreciate and respect the need for confidentiality.

## **6.6 The production plan**

The production plan includes careful consideration of:

- product specifications,
- raw materials,
- processing,

- distribution,
- quality assurance,
- personnel,
- costs,
- timing schedules.

The production trial is developed after trial runs have solved any problems with the raw materials and processing. This may be just two or three runs if a standard process is to be used but many months even years for an innovative process. The initial production plan usually is gradually changed as the production outputs are increased. The product developers should cooperate with the production staff in developing the plan, but responsibility for the production plan is with the production/technical manager.

### ***Think Break 6.9***

#### ***The production plan: fruit drink powder***

For the fruit drink powder described in previous Think Breaks in Chapter 5, Think Break 5.5 (Section 5.4.4) and Think Break 5.7 (Section 5.7), study your information.

What further information would you need to develop a production plan, using the areas listed above?

Whom would you contact to get this information?

Outline a production plan for the fruit drink powder, showing the stages in the production plan development.

## **6.7 Knowledge required for the financial plan**

From the marketing and the production studies comes information on the costs, prices, quantities and investment needed to launch the product and to continue producing and marketing the product in the future. There are predictions on the relationship between production outputs and costs, the fixed costs and variable costs, the price range and the relationship between price and demand, the capital investment for new plant, the investment needed for launching both by production and marketing, and the working capital needed during the launching and post-launch.

From this information the finance team, with its knowledge of loans, interest rates, taxes, subsidies, import duties and exchange rates, can determine inward and outward cash flows (sales revenue and costs) for future years and the investment costs during the same periods. From this, they can determine the profits and the total investment, and then determine the return on the investment. The cash flows are usually discounted so that future cash flows are brought to present-day values. These predictions are compared with the company's financial targets and constraints. As these are predictions, it is important that the probabilities of achieving them are estimated.

## **6.8 The financial plan**

This consists of the prediction for the next few years of:

- costs;
- prices;
- profits;
- inward and outward cash flows;
- investments, both investment capital and working capital;
- returns on investment;
- predictions of financial variations due to product, market, company and economic changes.

Possible changes in technology and consumer expectations also have to be taken into account in developing the production and market plans (see Case Study 6).

## ***Case Study 6.***

### **Consumer Expectations of the Food Industry**

The food industry's primary mission is to convert raw materials into safe, high quality, consumable food products. As we do that we add value - reflected in price, and hopefully always in meeting consumer needs in increasingly better ways. In our early history; added value meant preservation to allow food to be stored between growing seasons; later preservation techniques allowed food to be distributed and consumed away from the growing region; more recently added value has focussed on food safety, convenience, better taste and nutrition. Each of these increased added value over prior inventions.

But today's consumer? Firstly there is a growing, but changing concern about health. The negative aspects are concerns about additives, excess calories and food safety; however, a newer interest in diet as a source of improved health and well-being is emerging. Secondly there is a yearning for what is called 'essence'. That is a longing to strip away the unnecessary, the superficial; to refocus on the genuine and authentic, the simple and basic. Is this a start of a move from the added value of processed food back towards the original agricultural raw material?

There are two other consumer aspects. Firstly food is consumed away from home, which has implications for food safety. Secondly are the changes in where food is being purchased for home consumption, which has resulted in growth of alternative channels, such as home sales and delivery, mail order, and interactive media and computer linkages.

So what does this mean for the future?

(*Source: Ruff, J. (1995) 'Consumer expectations of the food industry - a vision for the 21st century', Food Science and Technology Today, 9(4), 195-205.*)

## **6.9 The pre-launch trial**

The next stage is to integrate the production, market and financial plans in one pre-launch trial. Once the results of this are known, the final overall operational plan for the launch can be organised. With a product which is using the existing production and marketing facilities, there may not be a need for additional test production and

marketing and the product will go straight into the launch; or if there is some doubt there can be a 'rolling' launch, with the product introduced into a series of areas. But there is still a need to research the production and the marketing so that it can be improved as the launch proceeds.

Test marketing is not undertaken when:

- time into the market must be as short as possible because the product is vulnerable to competitors who can easily copy the product and launch their competing product onto the market;
- research is convincing that the product will be successful and it does not justify the extra expense;
- the new product is a line-filler or a me-too; the launch costs will not be high and so the losses are small in the event of a failure;
- there is confidence that any technical problems will not affect the product quality.

Production and market testing brings the product through the production sequence in the production plan and puts the product on the market under the market plan in controlled conditions in a restricted area. On the production side, the raw material quality and quantity need to be monitored along with, most importantly, the yield and quality of the product. Any equipment problems such as breakdowns and the staff needed also need to be monitored. Also there is a need to monitor the process variables and to identify any tendency to wander outside the set limits, either intermittently or in a set pattern.

It is very important to monitor not just the sales of the product, but to check how the product is performing in distribution, storage and in the supermarket, the retailers' attitudes to the product and their placement and promotion of the product in the supermarket, and of course the consumers' attitudes and behaviour towards the product. Are they buying again? How much are they buying? What do they like/dislike in the product?

This monitoring usually leads to improvements in product, production and quality assurance and also often signals desirable changes in distribution and marketing methods. The pre-launch trial is a time of constant improvement of the product, of reduction in production costs and of increase in the effectiveness of the marketing methods. In industrial marketing, the general stages are the same but the product is

being developed for use by a customer in their process or the chef in food service, so there has to be knowledge of how the ingredient is behaving in the customers' processes and their products. Product testing is preferably undertaken with the customer in their own plant, but because of the customer's needs for secrecy it may have to be undertaken in the supplier's pilot plant.

Other factors to consider are the area of market testing and the length of time the marketing and production testing will last. The test market area needs to be representative of the total market in terms of the consumers, the retailers and the marketing mix. The time for the market test depends on the average repurchase period, the competitive situation and the cost. It is necessary to observe a few repeated purchases of the product to see if the product will be a long-term success. If this period is likely to be very long, then buyer interviews can be used to predict repeat purchasing. Competition may come in very fast and either launch their product or upset the market by pricing specials, forcing the test to be shortened. Production testing is continued until the process stabilises.

The test market can be in one or two market areas, or just in one or two supermarkets. The sales of competitive products are determined before the new product is introduced and during the test both the competitive products and the new product sales are monitored. With two areas, one area can have the product introduction and the other area does not; this gives some idea if the observed effects arise from the product or from some other cause in the whole market. Usually as well as undertaking a retail sales audit, consumer panels or buyers' surveys are conducted to determine consumer reactions.

From the production and market tests, information can be found on production efficiency, product quality variations, costs, market share, and relationship of new product to main competing products in terms of consumer acceptability and sales, and also the predicted sales for the total market. The company will then have a realistic idea of how the product will fare in the national market, and of any minor improvements needed to the production and the marketing.

## 6.10 Overall operational plan

The overall operational plan gives the final directions for the production and marketing.

It contains information on:

- building production capacities and inventories,
- organising selling and promotion
- organising financial controls,
- full-scale introduction,
- post-launch evaluation.

The different activities in the operational plan are shown in Table 6.2.

**Table 6.2 The operational plan**

### ***Building production capacities and inventories***

- Complete production facilities and organise raw materials
- Organise warehouses, stores and shipping patterns
- Determine inventory levels
- Ensure production is operating to specification
- Ensure quality assurance is operating to specification
- Produce and distribute the required volumes

### ***Organising selling***

- Organise the market area
- Organise the selling method
- Set targets for areas and individuals
- Decide on approach to buyers
- Train the sales people
- Make introductory visits

### ***Organising promotion***

- Finalise promotion design
- Book television and radio time
- Prepare television films and radio sound tracks
- Design and print in-store promotional material
- Design newspaper and magazine advertisements
- Negotiate space in newspapers and magazines
- Distribute final material to merchandisers and media

**Table 6.2 The operational plan (cont.)**

<p><b><i>Organising finance and financial controls</i></b></p> <ul style="list-style-type: none"><li>▪ Organise capital investment funds</li><li>▪ Organise working capital</li><li>▪ Set cost targets</li><li>▪ Set price targets</li><li>▪ Set sales revenue</li><li>▪ Set profits</li><li>▪ Set returns on investment</li></ul> <p><b><i>Full-scale introduction</i></b></p> <ul style="list-style-type: none"><li>▪ Organise sales meetings</li><li>▪ Introduce generally to trade</li><li>▪ Introduce to specific retailers by sales people</li><li>▪ Deliver stock to retail stores and ensure it is displayed correctly</li><li>▪ Start advertising and promotions</li><li>▪ Release the product</li></ul> <p><b><i>Post-launch evaluation</i></b></p> <ul style="list-style-type: none"><li>▪ Quantitative targets</li><li>▪ Qualitative targets</li></ul>
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These marketing, production and financial activities need to be coordinated, and time and resources allocated to them. The development of a critical path network of the activities ensures the completion of the launch at the correct time as the critical activities can be recognised and taken into account. It is important to set the standards and methods for the post-launch evaluation before the launch that is in the operational plan.

## **6.11 Financial analysis**

By this stage costs are more accurate. Predictions can be made of costs at different production levels and of the sensitivity of costs to changes in raw material prices, energy prices and personnel wages. The price range and the different types of discounts necessary will have been confirmed. This means that the profit per unit can be

predicted. Also the sales of units at the launch and in the future will have been predicted from the test market, so the total sales revenues over time can be forecast. From the sales and costs, the profits can be determined and the cash flows for the next few years set out.

Financial analysis is vital before the decision is taken to launch the product. Product development requires adequate resourcing, paid for through financing which has to be planned.

Both the capital investment and the working capital investment are determined for the launch and also to support the future. It may take some time before the cash flow becomes positive and there needs to be cash available to overcome this. For small companies failure in new product introductions is often the result of insufficient cash reserves or an inability to borrow money to sustain the project through this period of loss.

The return on investment can be predicted and compared with the company's policy. Usually discounted cash flows are used in analysing the return on investment. The risk is also assessed by setting probabilities on the most pessimistic, most likely and most optimistic cash flows.

Important aspects of financial analysis are:

***Finance quantity***, in that sufficient capital or credit has to be assured to meet the total costs of the project as they arise and as the project progresses. In a large organisation, this may be met from R&D budgets, by effectively borrowing resources from other operational parts of the company, through short-term credits from suppliers, overdrafts and so on. Smaller organisations may have to formally borrow from outside, even set up a new corporate structure and raise external funds by the sale of shares. In any event, what can be thought of as the project balance sheet has to *balance*. In the longer term it is expected to generate profits and pay its way in full.

***Finance quality***, in that the cash is provided when the need occurs. Each time a decision is made to proceed a further step with the project, new resources are committed, and when these are actually bought, appropriate payments must be made at that time. It should be borne in mind that new steps are generally more costly than those

taken already, that the launch is probably the most costly, and that income only comes after sales. Negative cash flows will accumulate and accelerate and the debt balance is expected to peak around launch time.

*Working capital* must be adequate to pay for work in progress, production, marketing, storage, distribution, wages and overheads. It is easy to underestimate and if insufficient can lead to cutting the very corners which are essential to the speedy conclusion and success of the project.

## 6.12 Summary

Commercialisation is difficult and costly; mistakes can be made and these can be major hurdles for the project. The aim is to set out the details of the production, marketing and financial plans, and then integrate them into one operational plan and so produce success in launching the product on the market. There are many people involved in commercialisation and therefore communication and coordination are vital.

Bringing in a commercially viable new product is the object of the product development project, but it is only fully successful if it comes in on-time and on budget. Well organised and resourced commercialisation can ensure that this happens. Only when the launch is fully successful can the development managers be satisfied, and the general managers have the confidence in development to commission the next project. Finance is the yardstick whereby this confidence is measured.

## 6.13 Suggested readings

Banks, J.G. (1994) 'Process control and quality assurance through the application of HACCP and predictive microbiology', in Singh, R.P and Oliveira, F.A.R. (eds), *Minimal Processing of Food and Process Optimisation: An Interface*, Boca Raton, Fla.: CRC Press, pp. 191-99.

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### **Some more recent readings**

Earle, M. and Earle, R. (2000) 'Adapting product commercialisation to the changes' *Building the Future on New Products*, Leatherhead, Surrey, LFRA Ltd. pp 95-110,

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Mayes, T. and Mortimore, S. (eds.) (2001) *Making the Most of HACCP*, Cambridge, Woodhead

Russell, A. (2008) 'Process innovation from research and development to production in a large company – development and commercialisation of a low temperature extrusion process.' *Case studies in food product development*, by Earle M. and Earle R., (eds.) Cambridge, Woodhead, pp 202-222.

## ***Project Break 6***

Either for your company project or for another Project you have been using in earlier chapters or for Project 6 at the end of the Chapter.

- Identify the marketing, production and financial knowledge that is needed to develop the plans for commercialising the product(s).
- Outline the production, marketing and financial plans.
- Describe how the various plans can be integrated to give a successful launch.
- Do you think the launch will be successful?

## ***Project 6: Splash: Water in a Bottle***

Spring, distilled, purified or enhanced, there's no purer packaging problem than bottled water!

What is the product? What is the packaging?

The basic waters are:

- distilled and purified water which has been treated by distillation, deionization or reverse osmosis to remove particles and minerals - most notably chlorine - leaving almost no detectable taste;
- mineral waters from geologically and physically protected underground sources;
- ordinary drinking water, carbon filtered;
- artesian water, basically spring water drawn from a well above the aquifer.

Most products are 'naturally pure' but some recent ones have had artificial additives such as caffeine and herbs, and have been mixed with fruit juices.

The most important distinction between products is the packaging, mostly plastic or glass. The packaging is mainly cylindrical bottles, but top market products have unusual shapes. Many bottles have nipples so that the consumers can drink directly from the bottle. At the same time, bottle and label designs have become more fashionable and eye-catching.

The brands also bring variety. Most products have a mania for attaching themselves to a distinctive place of origin. One of the simple strategies for grabbing the attention of shoppers is to give their products a fanciful or downright silly name.

The gesture of indulging in bottled water has switched from one of sedentary contentment, poured in a glass, to chin-cocked confidence swigged from the bottle. And yet drinking water retains its sense of self-denial, rendering it a promiscuous display of abstinence.

A company is now planning to introduce a Water of the Month Club, each month an exotic water shipped straight to your home.

(Source: Pratt, S. and Nemerov, A. (1997) 'Splash', *International Design Magazine*, November, 6-9. Reprinted with permission. © 1999 Aspen Publishers, Inc.)