UNIT 14 ECONOMIC ANALYSIS - EVALUATION NEW PRODUCT IDEAS/CONCEPTS

Objectives

After studying this unit you should be able to:

- explain the meaning and purpose of economic analysis for new product ideas
- discuss the variables used in economic analysis
- elaborate upon the process of estimation of first-time sales and repeat sales
- describe the sales forecasting methodologies used for economic analysis of new products
- discuss the various types of analyses used for evaluating new product ideas
- utilize the Economic Analysis Summary forms to arrive at comprehensive economic analysis of new product ideas.

Structure

14.1 Introduction

14.2 Purpose of Economic Analysis

14.3 Market Potential

14.4 Market Demand

14.5 Estimating Sales

14.6 Sales Forecasting Methodologies

14.7 Estimating Costs, Sales and Profits

14.8 Break-Even Analysis

14.9 Return on Investment

14.10 Economic Analysis Summary Form

14.11 Summary

14.12 Self-Assessment Questions

1.4.13 Further Readings

14.1 INTRODUCTION

Product managers are involved, directly or indirectly in the preparation and presentation of investment proposals for new facilities, new markets, new products, or new projects. What are the financial calculations required to make the case? Essentially, the product manager needs to present a financial logic that demonstrates a financial return at least as attractive as other identified opportunities before the top management.

Economic analysis is sales, cost, profit projections of a product proposal. It is only after these projections satisfy the company's objectives, that the product concept can move to the product-development stage, as the incentive for new-product development grows. These projections should be made over a period of five to ten years. In addition, market shares, relative prices, and relative costs also deserve attention. A measure of relative value indicate how vulnerable the product or product type is to possible substitutes.

The total economic analysis, or a complete-new-product business plan should include estimates from marketing, production, and accounting personnel. Marketers can provide-sales and market share projections, advertising and sales promotion budgets and pricing information. Engineering and production personnel can estimate research and

manufacturing costs. And, accountants can project profit margins. Such thorough economic analysis is expensive and time consuming but also prevents disasters.

14.2 PURPOSE OF ECONOMIC ANALYSIS

Economic analysis is only a continuation of the evaluative process that began when the new-product idea was first generated. Once the product concept is developed, economic analysis can evaluate the business attractiveness of the proposal.

The purpose of economic analysis is to provide a structure of analysis that will require all the parties involved to recognize the full realities of the situation. The idea is to give the persons (who will provide the money for the ultimate commercialisation process) a full and objective statement of what is supposed to happen financially. And, it is also possible that this type of analysis exercise motivates all the parties concerned to be more objective and thorough in their efforts.

The major purpose of economic analysis is to serve as a basis for a decision as to whether the corporate resources should be committed to the development of new product. The key question is, "What will be earned from the amount of money spent to develop and market the new product?" The issue is essentially of cash inflows compared to cash outflows.

As per Sachs and Benson*, the decisions of economic analysis hinge on the following considerations: demand, profitability, and return on investment. Will market demand be sufficient to meet the company's profit goals? *And, how* much investment will be necessary?'

They suggest that one way of reaching a solution is to evaluate demand and supply factors. The demand side concerns itself with revenue, the supply side with cost. Demand must be large enough to justify cash outlays for bringing forth and marketing the necessary supply. Accounting for both factors implies calculations of probable profits and return on investment.

14.3 MARKET POTENTIAL

The starting point for any economic analysis should be an estimate of total market potential. It is not a projection of actual sales. Rather, it is the maximum quantity an entire industry can sell if its marketing effort is the utmost. For example, the market potential for baby food logically should be `total number of infants' multiplied by (some estimated) `number of feedings', Or, the total market potential for books can be estimated by multiplying the `number of buyers of books' by the `number of books bought by an average buyer' and the `price of an average book'.

But, different companies might define and estimate the `number of buyers' in a specific product/market differently, even when the product is identical. One firm, for example, might view the market for a fluoride toothpaste as composed primarily of families with children and choose to ignore all others - the singles, the childless, the retired. Another firm might include young adults also. Yet, a third firm might stretch its definition of potential customers to include senior citizens also. Or, all the three firms might decide on: the same age groups but assign different degrees of importance to each.

In case of industrial products, firms rather than people become the units of estimation.

Irrespective of the product type, consumer or industrial, market potential estimation is easier when markets/industries are well defined. An industry with few manufacturers and products is an analyst's dream. How wrong can one be in delineating the parameters of the auto industry? But, products flowing into numerous channels of distribution create difficulties because each segment and submarket may have its own special characteristics, and requirements.

Activity 1

Examine the method adopted by your company to define and estimate the number of buyers for its products/services. What are your reactions?

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14.4 MARKET DEMAND

"Market demand for a product is the total volume that would be bought by a defined customer group in a defined geographical area in a defined time period in a defined marketing environnent under a defined marketing program"

The ratio of company to industry sales gives a company's market share. Estimating market demand involves two steps: projecting industry --ales and projecting company sales.

If the new product is similar to one already in the market, estimates of market demand become easy. But, when the new product is very much different from existing ones, projections become subjective and uncertain. Practically all experts grossly underestimated demand for copying equipment in the formative period of plain paper copier (Xerox).

If an innovative product serves the same uses as conventional products, for example, the shaving foam, its demand will be governed by the rate at which it replaces the old.

In evaluating demand for a brand new product, the penetration patterns of an older product can sometimes be used. For example, demand patterns of Black and White TV in the sixties and seventies could have served as a model for the colour TV manufacturers, in the early eighties, to estimate sales.

Modified, revised, or altered products make the most predictable cases. The old product provides a customer base, a sales history, and a current demand. But products new to a company are less predictable as they have no past and no recorded body of information. They offer great uncertainties. Market demand depends on what a company does. But, the company's marketing effort, in turn, is affected by competition, customer preferences, and industrial growth rate. A new brand may have to spend relatively large sums of money to gain customers when brand loyalty runs high, or when the market is dominated by strong, established brands. On the other hand, rupee-per-new-customer expenditure may be relatively low in a market undergoing rapid growth.

If the new product is introduced for pre-emptive reasons - to prevent a competitor from making inroads then the economic analysis takes on different dimensions. For example, Colgate planning to introduce the costliest, plaque fighting toothpaste (most probably, Appeal) to pre-empt the entry of Crest (by Procter and Gamble) in India. Or, Balsara Hygiene Products introducing Babool at Rs. 10 for every 200 gm pack (when they already have Promise doing pretty well - about 13% of the market share, at the last count) to pre-empt the launch of Nirma Toothpaste by Nirma Chemical Works. The new brand is expected to take away a portion of the existing brand's sales. At the same time, some of that could go to the competitors in the absence of the new. brand. The net company gain, thus, is the difference between `what would have been the sales without the new brand' and `what would happen with it', Here, the market demand estimation becomes very complicated, but a complete economic analysis must address itself to such complexions.

* Philip Kotler in *Marketing Management Analysis Planning, Implementation and Control,* 6th ed., (New Delhi: Prentice-Hall of India Private Limited, 1988), p. 259.

14.5 ESTIMATING SALES

A firm needs to estimate the minimum and maximum of sales to determine if the sales will be profitable, in other words, to learn the range of risk. The firm can benefit from examining the sales history of similar products and also by surveying the market opinion. There is a need to set the minimum sales level that will cover the fixed selling expenses.

Sales can accrue from one-time purchase of a product, infrequent purchases of a product, or frequent purchases of a product.

In case of one-time purchase, sales won't become zero so long as new buyers keep entering the product's market. Sales will come to zero when all one-time purchasers have bought the product (once). This can happen with any product, consumer or industrial, durable or non-durables.

Sales from infrequent purchases of a product, like an automobile, or an industrial equipment, include sales from replacement due to wearing out of the product or its obsolescene. Therefore, both the first-time as well as replacement sales should be estimated.

In case of sales from frequent purchases of a consumer or industrial non-durable, repeat-purchase sales also contribute. Repeat purchases prove that the product is satisfying to a per cent of the customers.

Estimating First-time Sales

Bass° has used an epidemic (sometimes called contagion) equation to forecast sales of appliances when they were first introduced, including room air-conditioners, refrigerators, black and white television, etc. He used sales data for the first few years of product introduction to estimate sales for the subsequent years until replacement demand became a major factor. His sales projection for room air-conditioners fit the pattern of actual sales with a coefficient of determination, $R^2 = 0.92$. The predicted time of peak was 8.6 years as against an actual time of 7 years. And, the predicted magnitude of peak was 1.9 m as against an actual peak. of 1.8 m.

In this model, the probability of purchase at time T is:

p (T) ='p + q [Y(T)/m];

where:

P = probability of first purchase at t = 0, or the co-efficient of innovation
q = coefficient of imitation,
m = total number of potential adopters,
Y (T) = the number of adoption purchases by T, and,
Y(T)/m = the fraction of potential adopters who have purchased.

Bass defines an "innovator" as an "early adopter of a new product" and an "imitator" as a "late adopter of a product whose purchase decision is influenced by earlier buyers and users".

The number of adopters at T is:
$S(T) = pm + (q-p) Y(T) - (q/m) (Y(T))^2$.
The maximum number of adoptions will occur at T^+:

The number of adopters at T is:
$$S(T) = pm + (q-p) Y(T) - (q/m) (Y(T))^2$$
The maximum number of adoptions will occur at T^+ :
$$T^+ = (p+q)/m \ (q/p)$$
and
$$S(T^+) = \frac{m(q+p)^2}{4q}$$

Bass, Frank M., "A New Product Growth Model for Consumer Durables", *Management Science,* January 1969, pp. 215-17.

Fourt and Woodlock' developed a first-time sales model that, they tested with several new consumer non-durable products. Their observation cl~ n-,w-product-market-penetration rates showed that (1) cumulative sales approached a limiting penetration level of less than 100% of all households, and (2) the successive increments of gain declined. The equation is:

$q, = eq (1-r)`"$

where,

$q,$ = percentage of total households expected to try the product in period t,
 r = rate of penetration of untapped potential,
q = percentage of total households expected to eventually, try the new product, and
t = time period.

Say, it is estimated that 40% of all households will eventually try a new product, or q = 0.4. Also, in each time period, 30% of the remaining new-buyer potential is penetrated, or r = 0.3. Therefore, the percentage of households trying the new product in the first 4 periods are:

$$q_1 = \overline{rq}\ (1-r)^{1-1} = (0.3)\ (0.4)\ (0.7)^0 = 0.120$$
$$q_2 = \overline{rq}\ (1-r)^{2-1} = (0.3)\ (0.4)\ (0.7)^1 = 0.084$$
$$q_3 = \overline{rq}\ (1-r)^{3-1} = (0.3)\ (0.4)\ (0.7)^2 = 0.059$$
$$q_4 = \overline{rq}\ (1-r)^{4-1} = (0.3)\ (0.4)\ (0.7)^3 = 0.041$$

That is to say, as time moves on, the incremental trial purchase percentage moves toward zero. To estimate rupee-sales from new buyers in any period, th6 estimated trial rate for any period, %, is multiplied by the total number households times the expected first-purchase expenditure per household of the product. °

Estimating' Replacement Sales

The estimate of replacement sales begins with an idea of products' life, or survival age. The first replacement sales can then be guessed more accurately. But, when exactly the replacement will take place is a matter of alternatives before the customer and his economic condition, on one hand, and product's price and the company's selling efforts, on the other hand.

Practically, replacement sales are difficult to estimate before the product is actually in use. That is why marketers prefer estimates of first-time sales for launching a new product.

Estimating Repeat Sales

Both the first-time sales as well as repeat sales are to be estimated for a frequently purchased new product. Sales, in the long run, result because of repeat purchases and also after all first-time purchases have taken place. Repeat purchases also show customer .satisfaction with the product. Repeat purchases are to be noted in different classes of repeat buyers: those who buy once, twice, thrice, four times, and so on. The product may be bought only a few times and dropped. Usage rates may differ from buyer to buyer. Initially, the potential market for consumer products like automatic washing machine are ill-defined and the useful life of a purchased product changes over time. .

14.6 SALES FORECASTING THODOLOGIES

Sales forecasts for new products can be made using different techniques. The output of the most new products forecasting systems is "sales' or,, `share of market'. The systems also use variables that will determine the sales or market shares which demonstrate how purchasing units go through an awareness-trial-repeat purchase sequence. And, the systems also include casual forces that will determine sales.

* Fourt, Louis A. and Woodlock, Joseph N., "Early Prediction of Market Success for New Grocery Products", *Journal* of *Marketing,* October 1960, pp. 3 k-38.

Structurally, `causal forces', like product, price, distribution, competition, etc., give 'forecasting behaviour', such as awareness, trial, and repeat purchase. And, then, sales can be forecasted from behaviour through projections.

Sales can also be forecasted directly frorn the causal forces by using judgmental estimates judgment by executives, sales force, or users.

Thus, new product's sales forecasts can be made in two ways. First, by studying the causal forces to predict the awareness-trial-repeat factors, and calculating sales from those factors. Second, by going directly from casual forces to sales forecasts.

Forecasting via Judgmental Estimates

In the past fifty years different methods of mechanically predicting sales have been developed, e.g., time-series analysis, and regression analysis. But, since there is a lack of historical data in case of a new product, judgment' methods predominate. `Executive judgment' is the most common - 90% of all sales forecasts on new products are principally executive judgments. Executives may use data, mechanical connectors or formulae, parallels, information, opinions, etc., to arrive at their judgments.

`Sales force judgment' is also used - sales' people, sales managers, or even dealers can be asked to make forecasts for their respective market areas, and these forecasts can be totalled. This method is very reliable in case of new products that are close to the current line or that will go to the current markets.

'Users' can also be researched to know their intentions or for their judgments. This method works better in case of new industrial products.

Forecasting via awareness-trial-repeat Purchase

Say, for example, a market consists of 3 million customers. The purchasing rate per customer is 15 units per year. Also, say, the firm has the following data from controlled sales test:

Awareness = 40% of customers.

Trial = 30% of those who are aware.

Repeat purchase = 60%, of those who tried.

The method suggests that the awareness trial and repeat data can be multiplied by the total market availability to get a forecast of sales.

3,000,000 customers x 40% x 30% x 60% = 2,16,000 customers who are repeat buyers.
$\qquad$ 2,16,000 x 15 units = 3,240,000 unit sales per year.

$$\text{Therefore,} \quad \frac{3,240.000}{45,000,000} = 7.2\% \text{ market share.}$$

(45 in = 3m x 15 units per year = total unit market)

Necessarily, there are many assumptions in a calculation such as this for there have been no actual free marker sales as yet and the awareness, trial and repeat data are always partly suspect.

Forecasting via Mathematical Models

The few simplistic mathematical models used to forecast new product-sales are of almost no help. One method translates 'intent-to-buy' percentages directly into market shares. Another method does the same with 'rank order preference data'. A third method extrapolates from test market sales figures to national sales figues by extending test area share of-' market' percentages.

The more recent developments in the use of mathematical, models vary greatly and it is difficult to classify them in a way that clearly and quickly indicates their differences. It is better to consult with experts in this field if you wish to try any of the models. However, it should be noted here that not all mathematical models are complicated and advanced.

Some are simple representations of common issue in model form for ease of calculation and for consistency.

Activity 2

Which of the sales forecasting methodologies discussed in the section is/are used by your company or a company that you are familiar with? Why? What do you think, should ideally be used?

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14.7 ESTIMATING COSTS, SALES AND PROFITS

The next required estimates, after the sales forecasts, will be the expected costs and profits of the new product project. These estimates can be made by the finance, manufacturing, marketing and R/D departments. The following table* shows a six-year projection of a (hypothetical) new product's costs, sales, and profits (in lacs of rupees):

					YEAR		
		0	1	2	3	4	5
1.	Sales revenue	0	118	153	196	282	324
2.	Cost of goods sold	0	39	51	65	94	108
3.	Gross margin	0	77	102	131	188	216
4,	Development costs	35	0	0	0	0	0
5.	Marketing costs	0	80	64	82	118	136
6.	Allocated overheads	0	11	15	19	28	32
7.	Gross contribution	-35	-14	23	29	42	48
8.	Supplementary contribution	0	0	0	0	0	0
9.	Net contribution	-35	-14	23	29	42	48
10.	Discounted contribution (15%)	-35	-12	.17	19	24	24
11.	Cumulative discounted cash flow	-35.	-47	-30	-11	13	'37

Sales revenue: The firm expects to earn about Rs 120 lacs by selling about 500,000 units at Rs 24 per unit. Sales are expected to grow by about 28% in the second and the third year; by about 47% in the fourth year; and come down to 15% in the fifth year. These **Projections** are based on assumptions about the `rate of market growth', the `firm's market share', and `price'.

Cost of goods sold: This is arrived at by calculating the `average cost' of 'labour', `raw materials/components'. and 'packaging' per unit: Here, in this case, it works out to be about 33% of sales revenue.

Gross margin: It is the difference between `sales revenue' and `cost of goods sold'

Development costs: These costs include the `product development costs' (researching, developing, and testing the physical product); `marketing research costs' (brand name testing, package testing, test marketing, *etc.);* and the `manufacturing development costs' (new equipment, new plant and inventory).

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*   Adapted from Philip Kotler's *Marketing Management: Analysis, Planning, Implementation and Control,* 6th ed.(New Delhi: Prentice-Hall of India Private Limited, 1988), p. 425-28.

Marketing costs: These costs cover advertising, sales promotion, and personal selling expenses, mainly marketing administration costs are also included. Initially, marketing costs are likely to he a high per cent of sales. But, over the years, it would lower down. For example, here, in this case, these are about 67% of the sales revenue in the first year, but come down to 42% in the fifth year.

Allocated overhead: This covers the cost of executive salaries, electricity, office space, etc.

Gross contribution: It is found by subtracting the preceding three costs from the gross margin'.

Supplementary Contribution: It is used to include any change in income from other company products caused by the introduction of the new product. This change in income may be a `reduced' income on other company products (Cannibalized Income) or may be an `additional' income on other company products (Drag along income).

Net contribution: It is the final contribution arrived at after adjusting the supplementary contribution' with the `gross contribution'.

Discounted contribution: It is the `present value" of each future contribution (discounted at 15% per annum). For example, the firm will not receive Rs. 48 lacs until the fifth year, which means that it is worth only Rs. 24 lacs today if the firm can earn 15% on its money.

Cumulative discounted cash flow: This is the cumulation of the annual `discounted contributions'. It helps the marketer in deciding the fate of the new product project by showing the `maximum investment exposure', or the highest loss that the project can create, e.g., in one year, the firm will be down a maximum of Rs. 47 lass - this will be the firm's loss if the project is dropped after one year. It also helps the marketer decide better by telling the 'payback period', or the time by when the firm recovers all its investment, e.g., the payback period here is about $3^{1}/2$ years.

The marketer, therefore, has to decide whether he can expose the firm to a loss of Rs. 47 lacs and wait $3'/_2$ years for payback.

14.8 BREAK-EVEN ANALYSIS

Marketers use other financial measures also to evaluate the merit of a new-product proposal. The simplest is Break-even Analysis, in which the marketer estimates how many units of the product the firm will have to sell to break-even (no-profit, no-loss) with the given price and cost structure. If the marketer believes that the firm can sell at least the break-even number of units, he will like to go ahead with the project.

The break-even point, in terms of rupee-value, can be derived from the formula

$$\frac{FC}{1-\frac{VC}{SR}}$$

Where,

FC = Fixed Costs
VC = Variable Costs
SR = Sales Revenue

Thus, if the total fixed cost of the project is estimated to be Rs. 14 lacs, variable costs Rs. 33 lacs, and the total revenue Rs. 118 lacs, the break-even point will come to

$$\frac{14,00,000}{1-\frac{33,00,000}{118,00,000}} = \frac{14,00,000}{0.72}$$

or Break even point = **Rs.** 19,44,444.40

The present value (V) of a future sum (1) to be received
t years from today and discounted at r interest rate is given by $V \frac{1_t}{(1+r)^t}$

At a price of Re.24 per unit , the firm will have to sell about 81,019 units to be able to break-even

The unit volume at which the marginal contribution will just cover fixed costs can also be calculated by the formula,

$$\text{Break even Point} = \frac{FC}{MC} = \frac{FC}{P - VC}$$

Where,

MC = Marginal contribution

P = Selling price per unit of the product

VC = Variable cost per unit of the product

$$\frac{14,00,000}{24 - 6.6^*} = \frac{14,00,000}{17.4} = Rs. 80,459.77$$

or, about 3,353 units

The greatest value of break-even analysis in new product planning is its (indirect) suggestion of risk. It is an indicator of danger. How low the sales of the firm can go before it starts making any loss?

The analysis also indicates `leverage' : the marginal contribution signifies the incremental profits associated with incremental sales once the break-even point is reached. Such estimates of profits for various sales levels are, extremely helpful in developing a marketing plan for a new product.

Activity 3

Develop/Find out a formula for calculating the break-even point when a target profit is also to be covered along with fixed costs by the contribution.
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14.9   RETURN ON INVESTMENT

Profit is important, but not the end of economic analysis. Equally important is the capital expenditure as it may .eventually be a sunken cost. Returns anticipated must be seen in relation to the investment involved. Large profits shown by a new product may be less attractive when compared with the capital outlays 'necessary in the beginning,

Return-on-investment (ROI) analysis involves four considerations: amount of return, duration, timing, and risk. The amount of return must be sufficiently large to justify the investment. Timing for a short-time project is of little consequence. Bait, for long-time projects, early inflows of cash are preferable as early cash can be re-invested.

The most common methods of assessing return on investment are `payback', `rate of return', and `discounted cash flow'.

Payback

It is mainly concerned with how long it will take the firm to get back its initial investment. It adopts the commonsense rule that projects with shorter payback periods are

- Total number of units to be produced and sold is assumed to be 500,000. Therefore, Rs. 33,00,000 / 500.000 = Rs. 6.6 per unit. −

more valuable than those with longer. This, at the same time, may be taken as a method that favours new product proposals with high short-term profits, while discouraging others whose impact may eventually be greater and more lasting. However, in an environment where cash inflows are uncertain, e.g., cosmetics and healthcare products, a quick investment recovery means lower risk. A payback period of one year or even shorter is not uncommon in these industries.

Rate of Return

It relates net earnings to the cost of the investment. The average (annual) rate of return can be calculated as

$$\frac{\text{Average net annual income}}{\text{Average net investment}}$$

To illustrate the calculations in the simplest terms, suppose a Rs. 8 million investment is projected to produce a net annual income of Rs. 400,000, on an average. The average investment is derived by dividing Rs. 8 million by 2, which would roughly correspond to the midpoint of the life of the project. The average rate of return, therefore, will be

$$\frac{Rs. 4,00,000}{4,000,000} \times 100 = 10\%$$

Discounted Cash Flow

The discount method of handling cash inflow accounts for the time value of money. The idea is that the future value of an investment is enhanced by the cash accumulating at compound interest. Thus, the future value can be calculated by the standard compound interest formula.

$$FV = \frac{I}{(1+i)^n},$$

where,

> FV= Future value of an investment
>
> I = Initial sung invested
>
> I = Interest rate for each period
>
> n = Number of periods in which interest is paid.

However, the `present value' method of evaluating an, investment proposal has been more in use. The present value (PV) of a future sum (I) to be received n years from today and discounted at i interest rate is given by the formula.

$$PV = \frac{I_n}{(1+i)^n}$$

The present value of an investment can also be arrived at by conversion from future value, PV=FV (1 / 1 +1)°.. The expectecd cash flow. from the new project is discounted to the present time at a compound rate of interest and then compared with today's investment. Present worth tables are normally used to aid calculations. The choice of interest rate to discount the annual cash inflow can be made in two ways. A firm can take the prevailing interest rate in the money market (as its cost of capital), or it can use the rate' currently earned on its invested capital (as an opportunity cost).

In the final assessment, the new-product proposal should he acceptable ₋₇ if the total' of present values of annual earnings is equal to/greater than the pry..-,it value of the investment as, otherwise, the project does not meet the firm's capital cost requirement (of a particular per cent).

## 14.10 ECONOMIC ANALYSIS SUMMARY F'OW

Table l contains the basic preparation sheet which precedes the final summary (Table 2) statement and permits calculations in whatever mode is preferred by the firm. In actual

* See Crawford. C. Merle. *New **Product Management*** (Illinois: Richard D. Irwin. Inc., 1983), pp.

use, formats of the tables can be simplified to cover only what the firm wants. The given forms are comprehensive and cover all options.

Table 1

Proposal : ....
Date of. this analysis : .... Previous analysis: ....
1. Economic conditions prevalent:
2. The market (category) : ....
3. Product life : .... years
4. List price: Rs. .... Other discounts : ....   Distributor discounts .... Promotion : .... Net to factory: Rs. ....   Quantity : .... Average rupees per unit sold: Rs. ....
5. Product costs: Applicable rate for indirect manufacturing costs: ....   Explanation of any unique cost procedures being used :
6. Future expenditure, other capital investments. or extraordinary expenditures:.
7. Working capital : .... % of sales
8. Applicable overheads :   Corporate : .... % of sales   Division: .... % of sales
9. Indirect benefits to be included in the calculation, if any (e.g., support to product line):
10. Indirect costs to be included in the calculation, if any (e.g., early closing of plant being caused by cannibalization) :
11. Net loss on cannibalized sales, if any, expressed as a percentage of the new product's sales: .... %
12. Future costs/revenues of project abandonment if that is done instead of marketing the new product: Rs. ....
13. Tax credits; if any on new assets or expenditures   Rs. ....
14). Applicable depreciation rate(s) on depreciable assets: ....% on %...............................% on ....
15. Central/State income tax rate applicable ....%   Comments:
16. Applicable cost of capital : ....%   ± Risk premiums or penalties : .... %   Required rate of return : .... %
17. Basic overall risk curve applicable to the Net PV :   Standard or ....
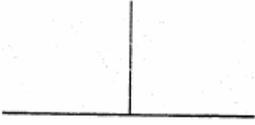
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│ 18.  Key elements to be given sensitivity testing (c.g.. sales, price cuts): │
│      _____  │
│ 19.  Sun costs :                                                 │
│      Expenses to-date : Rs. ....................                  │
│      Capital investment to date : Rs. .........................  │
│ 20.  Elements of new product strategy that are especially relevant on this proposal │
│      (e.g., diversification mandate or cash risk):               │
│ 21.  Basic sales and cost forecasts:                             │
│        Year          Unit sales    Direct production cost   Marketing expenses │
│                                       per unit                   │
│      ....................   ........................   ................................   ........................ │
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│ 22.  Other special assumptions or guidelines:                   │
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The following terms used in Table I are intended to mean as given:

Economic conditions = Differences from the on-going economic forecasts, if any.

The market (category) = The defined market for the new product, the growth rate assumption, and the total current market in unit as well as rupee volumes.

Product life Number of ,years used for the economic analysis of the new product.

Pricing = The intended selling price of the new product.

Future expenditure = Every future outflow of money. Any expenditure that will not be covered by the regular Income Statement.

Working capital = An estimate of cash, inventories, and receivables that will be needed. to support the sales volumes.

Applicable overheads = Overheads usually related to the new product, e.g,, an **expanded** sales force.

Indirect benefits or costs = Any special berifits or costs that are of significant size and are fairly easy to quantify.

Tax credits = Any central or state incentives for the new-product activity in the public interest.

Basic overall risk curve = The curve of possible outcomes around a profit mean.

Sensitivity testing = Effects of changes in the input element which require special consideration in the analysis.

Elements of strategy = Strategy that prompts the new product proposal.

Table 2

		Date ....
Proposal :		

	Years on the market					
	0	1	2	3	4	5
1. Unit sales						
2. Rupee sales						
3. Productions costs:						
(a) Direct						
(b) Indirect						
(c) Total						

contd.

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4. Gross profit							
5. Direct marketing costs							
6. Profit contribution							
7. Overheads (excluding R&D) :							
(a) Division							
(b) Corporate							
(c) Total							
8. Other expenses/income							
9. Depreciation							
10. Indirect benefits							
11. Indirect costs							
12. Loss on cannibalization							
13. R&D (yet to be incurred)							
14. Extraordinary expenses							
15. Project abandonment costs/revenues							
16. Salvage							
17. Sunk costs							
18. Total overheads and expenses							
19. Income before taxes							
20. Tax effect:							
(a) Taxes on income							
(b) Tax credits							
(c) Total							
21. Income after taxes							
22. Cash inflow:							
(a) Income after taxes							
(b) Depreciation							
(c) Production facilities							
(d) Working capital: Inventory							
(e) Working capital : Receivables							
(f) Net cash inflows							
23. Discounted cash inflows							
24, Net present value: Rs.							
25. Internal rate of return : ....%							
26. Accounting rate of return : .... %							
27. Payback : .... years							

Activity 4

Try and select a company that has a Financial Summary statement on a new product project? Compare it with Table 2/1 and see what are the similarities and differences. Make an attempt to redo the exercise.

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14.11   SUMMARY

Once the screening process has forwarded the seemingly viable new product ideas, it becomes necessary to choose the best ones through a process of economic analysis. The process of economic analysis enables the study of sales costs and profit projection of a new product proposal. Economic analysis, therefore, would involve a study of the market potential and market demand as well as on estimation of sales and costs for future-periods. The unit discusses the methods of estimating costs and forecasting sales analyses like the break-even analysis and return on investment have also been discussed. Summary form of economic analysis have also been discussed to enable an overall framework for economic analysis.

14.12   SELF-ASSESSMENT QUESTIONS

1) It is said that economic analysis is a continuation of screening. As practiced by some firms, it may be difficult to determine when one ends and the other starts. How, then, does economic analysis differ from screening and what does it seek to achieve?

2) Since market potential is a theoretical concept more than an actual forecast, how is it useful for economic analysis?'

3) Examine the difficulty of formulating an initial sales forecast for:

   a)   a product distinctly different from the existing ones, and

   b)   a "me-too" product.

4) How can the sales history of existing products guide the new product's sales forecaster?

5) What is the purpose of doing break-even analysis in economic analysis?

Project Questions

Compare a consumer goods manufacturer's approach to estimating market potentials with that of an industrial goods manufacturer.

If the economic analysis stage ends with a "go" decision, a new product project proposal will be prepared vide a report to top management. This report will provide guidance for the firm's future efforts. Prepare a proposed outline of such a report indicating the type of information to be included.

14.13   FURTHER READINGS

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