Dr. Niharika
Department of applied economics and commerce, Patna University
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Course: - Project Management (MB206)
Unit- II
Email id:- nihaarika.red@gmail.com
Contact no.- 7903648114

Learning objective

In this chapter we will discuss:

Market and demand analysis (Market feasibility)

- Situational analysis and objective specification
- Collection of data
- Market survey
- Market description
- Demand forecasting
- Uncertainty in demand forecasting
- Market planning

INTRODUCTION

Once project ideas are generated and screen, they are evaluated to taste there marketability, technical feasibility, and cost consideration. Market and demand analysis provides detailed analysis of all all market conditions and technical analysis provides an assessment of all technical aspects of the project idea. Analysis estimate the size of the potential market, patterns of consumption, level of demand for a product or services for a particular period, variation in supply, hidden demands of the customers etc.

Market and demand analysis

A project manager should carefully study the market potential for a given project idea. Conducting market survey, collecting primary and secondary data, studying the characteristics of the market are some of the activities to test the market environment and see if the idea is feasible full stop demand analysis of a product includes the study of consumption patterns, income and price elasticity of demand, nature of competition, availability and prices of substitute and complementary products.

The activities of a project manager in conducting a market and demand analysis include:

- Situational analysis and objective specification
- Collection of secondary data
- Market survey
- Market description
- Demand forecasting
- Market planning

Situational analysis and objective specification

Situation analysis is the process by which a project manager studies customer preferences and their purchasing capacity and strategies of the competing farms and intermediaries. In the process, the project manager interact with the project stakeholders such as client, channel members, employees and competitors of the farm to better understand market requirements.

A project manager need not go in for a formal study when he is satisfied with the information generated through informal talks and feels that it is adequate to scale the present and future demand for a product. But if there is a need for a formal study, the project manager has to define the objectives of the study full stop once the objectives are clearly stated the questions in the survey should be framed in such a way so as to elicit the required response (answer relating to market demand, expected revenue etc).

Collection of data

The project manager collects a lot of data from all the possible sources to answer the question listed in questionnaire. Broadly, data is of two types: primary data and secondary data.

Primary data is the data that is collected for a specific purpose and for the first time. Secondary data is the data that is already available but might have been collected for some other purpose or by some other institutions. Secondary data is considered to be more useful in market analysis as it is easy to obtain and is also economical.

Primary data can be obtained from sources both internal and external to the organisation. Internal primary data is obtained from past and current sales of the farm, observations of employees of the farms etc. External primary data is obtained from the opinion of the dealers, sales personnel and sales trends full stop survey method are experimental methods are ideal for gathering primary data.

The survey method of data collection include personal interviews telephonic interviews and mail service with customers for middlemen full stop the experimental method include product testing psychological technique and consumer panel techniques. Product testing is an objective appraisal of the product performance done on a limited scale without using the farms brand name. In psychological technique, researcher who is trend in psychology, taste the sub conscience emotions of customers.

Another technique called consumer panel technique is done by selecting a group of customers (on a permanent basis) and interviewing the group and different intervals of time to observe their behavioural changes. This enables the project manager to understand market trends and changing preferences of customers. The primary data provides problem specific and accurate information but collection of primary data requires more time and it also incurs morecosts

Project managers preferred to use secondary data as it is readily available and economical. Secondary data are compiled by the government, non-profit organisations, or some social welfare institutions. Professional market research agencies like Market analysis and research group (MARG), publications of centre for monitoring Indian economy (CMIE), Journal of federation of India chamber of commerce and industry (FICCI), annual reports of Central statistical organisation (CSO), Census of India, various research these are available in the universities and research organisations are some sources of secondary data.

Project manager should carefully select the sources of secondary data the data was collected by other organisations for their own needs. He should also ensure that the sources are are authentic and the information is accurate, reliable, relevant and economical to obtain.since the data is not collected for a

specific problem, the project manager has to to correlate the available information with the existing problem.

Market survey

Sometimes information collected from secondary sources may not be enough to understand the market conditions completely. Hence, information of obtained from secondary sources should be supplemented by primary data, which is problem specific. Market survey is a useful method of obtaining the primary data.

Market survey is a technique that is aimed at gathering all possible information by conducting interviews. The project manager chooses a convenient sample ok, as it is not possible to study the entire population in the market. He conducts personal interviews with stakeholders of the project either directly or by phone to gather the information. An opinion survey, attitude surveys, information surveys, future invention surveys helps the project manager to understand what the customer wants.

The project manager considered the entire market population for the project like manufacturing intermediate goods and investment goods, where the project customers are limited in number. These surveys are called census survey. The results obtained from this survey are more reliable then the sample survey, but conducting the survey is more expensive.

Market survey is useful in determining the total market demand coma demand growth rate in difficult segments of the market, understanding the inner motives of the customer and measuring the unsatisfied needs of the customers.

Since it is not possible to interview the entire population of the market, sample survey is a good method to to assess the market characteristics. The project manager conduct the sample survey by choosing a sample that best represents the characteristics of the population. A small sample is more convenient and economical as well.

The following are the steps in a sample survey:

- **Defining the target market**
  The project manager defines the target market of a project idea in terms of market population. He then divides the population into the various segments based on the buyer's characteristics. For example, the various segments of the customers for a power project are household customers, commercial consumers, industries and all states/Central government offices.
- **Selecting the sample**
  The project manager carefully selects a sample that represents all the characteristics of the population from various segments. The sample should not be very small as it cannot represent the characteristics of the population. In the same way, the sample should not be large, as it is not economical for the farm conducting the survey.
- **Developing the questionnaire**
  A questionnaire is a formalized set of questions for generating information the questions can be structured or unstructured or a combination of both, depending on the requirement. Structured questions are questions followed by a fixed number of choices from which the respondent should

choose an answer unstructured questions required the respondent to give descriptive answers. However, it is tedious to analyse and unstructured questionnaire.

The questions in a questionnaire can be classified into three types based on the content:

1.) Administrative question: administrative questions include respondent's identification, interviewer identification, and date and place of the interview etc.
2.) Classification questions: classification questions are about the respondent's characteristics, socio-demographic and behavioural information. This provides information on sex, age, family size, household income, social class education and attitudes.
3.) Target questions: the target questions are about the present project and its products. Questions should carefully be sequenced so as to be understood by all segments of target customers. And understanding of end product or service of the project, its uses and knowledge of human psychology are essential in developing the questionnaire.

Training the surveyors

The management has been diligent while recruiting the market surveyors who actually conduct the survey. And survey methods are mostly personal; the project manager should ensure that these surveyors are able to tap the hidden interest of the customers. Proper training of the surveyors will ensure good results.

Recording the information

The information obtained from the server should be recorded for future use. This is done by thoroughly scrutinizing the obtained information to avoid inconsistent and unreliable data. Project manager does auditing and tabulating of information before recording the information. The recorded information is used whenever required.

Interpreting the information

The recorded data is interpreted by analysing it by using some standard statistical techniques such as chi -square test, correlation, regression, ANOVA analysis etc.

Market description

Based on the information obtained from the secondary data sources and market survey, the project manager describes the marketability of the project idea in terms of its effective demand, breakdown of demand, price, consumer's interest, methods of by distribution, types of sales promotion, supply and competition, impact of government policies, etc.

Effective demand

In a perfect market, effective demand for a particular product or services is nothing but apparent consumption. Apparent consumption is calculated as the the sum of production and trade surplus/deficit minus changes in stock level. Because of limitations like exchange restriction and government control over production and distribution, the effective demand is less then apparent consumption. Apparent consumption takes into account only the desirability and ability of the buyers. But effective demand also considered willingness of the buyers. The project manager analyses the present and past effective demand for the product or service.

Breakdown of demand

The project manager can better determine the total demand of the product by dividing it into various segments as per nature of the product, type of customers, or by geographical location. For example, the total demand for steel is some of the demand of all products that are made of steel.In case of power projects, the total demand can be divided into to domestic customers demand and industrial consumer's demand. The demand as per geographical location would be demand in rural and urban areas.

Price

The project manager collects the price statics of the proposed project idea to understand the market fluctuations and the changes of price of the products. This allows him to arrive at at the best price for his product. The project manager can also explore the possibilities of keeping the price high by maintaining high quality or he can look for ways to reduce project cost and keep the prices low.

Consumers' interest

The project idea is evaluated on the basis of the customer's demographical, sociological, cultural interest and values. A project idea that goes against these interest and values should not be taken up. The project manager has to observe different purchasing motives of the different consumer groups for a specific project idea.

Methods of distribution

The 'reach' of a product or service plays an important role in determining the success of the product. As Different products require different 'reach', project ideas should be evaluated by its reach. Depending on the nature of the product (consumer/industrial products), the project manager select the method of distribution and plans the promotional practices to generate more sales.

Sales promotion

The project manager adopts different techniques of sales promotion after considering the characteristics of the market, nature of product and the distribution channel. Discounts, free gifts, coupons are some of the sales promotion techniques used to increase sales of the product.

Supply and competition

To survive competition, a project manager analyse the 'supply and demand situation' for all project ideas. Any product or service that has demand exceeding supply is worth taking up. a project manager also considered the supply of complementary and substitute products while studying the market competition.
Government policy

The government provide incentives to certain industries for the benefit of the country five year plans, export incentives, preferential purchases and subsidies.Therefore, the project manager has to understand government interest to evaluate the process Idea better. If the government provides certain incentives to a particular industry, then the prices of the product are lowered. This Change in the price intern will affect the demand for the product.

Demand forecasting

The project manager forecast the demand for a particular product or service using information obtained from secondary sources, market survey and market description. Statistical techniques like trend projections are useful in forecasting the demand for a particular product. These methods extrapolate past trends into the future to forecast future demand, revenues or sales.
Apart from statistical methods, the project manager forecast future demand using techniques like chain ratio technique, consumption level technique, end use technique, leading indicator technique and econometric technique. These techniques study the cause and effect relationship of several variables on demand of the product.

Chain ratio technique

This is a simple technique that applies a series of factors to forecast the demand for a particular product or service. For example, a farm manufacturer office bags for men. The farm estimates the aggregate demand of the office bags for men in the following manner by using the chain ratio technique.
- Population of males in the country : 55 crore
- Population of educated males in the population :0.68
- So, population of educated male : 37.4 crore
- Proportion of employees in the educated male : 0.42
- Population of male employees : 15.7 crore
- Proportion of male employees who will purchase an office bag : 0.61
- So, potential sale of office bags: 9.58 crore

The method seems simple to use, but the applicability of this method mainly depends on the the accuracy of the ratio used full stop project manager should carefully estimate these ratio to estimate demand for a particular product or service.

Consumption level technique

The consumption label technique estimates the demand for a particular product or service on the basis of income and price elasticity of demand.

Income elasticity of demand

Income elasticity represents the effect of the change in the demand as a proportion to change in the income. It is calculated as:

$$e_i = \frac{Q_2-Q_1}{I_2 - I_1} \times \frac{I_2 + I_1}{Q_2+Q_1}$$

e= Income elasticity of demand

Q_1= Quantity demanded in base year

Q_2= Quantity demanded in the following year

I_1= Income level in the base year

I_2= Income level in the following year

The practical use of income elasticity of demand is explained below. Suppose per capita annual demand for rice in the country is 70 kg. The elasticity of demand for rice is 1.02. Assume the projected per capita annual income 4 years hence is 12% more the present.

Then the projected demand for rice would be,

= (present per capita demand)(1+ capita income level x income elasticity of demand)

= (70 kg){1+(0.12x1.02)}

= 78.57 kg per capita per annum

Price elasticity of demand

The price elasticity of demand represents the effect of the change in the demand as a proportion to change in the price. This is also calculated like income elasticity of demand. Both these technique are useful in estimating the sensitivity of demand to changes in income and price levels.

End use technique

This technique is useful in estimating demand for intermediate products such as investment good and industrial tools. The project manager estimates the consumption coefficient of the product for various uses for all users in the country.

For example, crude oil is purchased by four companies A, B, C, and D for several purposes. The project manager calculates the consumption coefficient of crude oil for all companies on the basis of each company's consumption.

The sum of the product of conception coefficient and projected output of each company gives the total demand for crude oil. Following Table represents the calculation of total demand using the 'end use' technique.

Company	Consumption coefficient (tones per unit output)	Project output in year X	Projected demand
A	1.10	13000	14300
B	0.92	18000	16560
C	0.78	16000	12480
D	1.60	8000	12800
Total			56140

Leading indicator technique

The change in the value of a particular variable leads to a change in the value of another variable. For example, A change in the level of literacy of a country leads to a change in the demand for paper. From the above example, the variable, literacy level is called a leading variable and the change in the demand for paper is called a lagging variable.

There are two steps involve in using this technique;

- Identifying the appropriate leading indicators.
- Establishing a relationship between the leading variables and lagging variables to find the demand.

In practice, identifying appropriate leading indicators is difficult and it cannot be assumed that the relationship between leading and lagging variables remain stable over a period of time.

Econometric technique

This technique explains the behavior of the economic variables as per the equations developed. The equation may be a single equation or multiple equations. In a single equation model, the dependent variable is explained by several other independent variables.

For example, the demand for rice is explained by the variation in population and income a:

$$D_t = a_0 + a_1 P_t + a_2 I_t$$

Where D_t= demand for rice in year 't'

P_t= population in year 't'

I_t= income in year 't'

a_0, a_1 and a_2 are the constant.

Another model, called 'simultaneous equation model' explain the economics relationships between different variables in terms of two or more equations.

For example, the demand for paper is explain by the number of newspapers printed and the number of computers. Again, the variable, number of newspapers is explained by increase in population and the number of computers is explained by income levels.

$$P_t = a_0 + a_1 N_t + a_2 C_t$$

$$N_t = a_3 + a_4 P_t$$

$$C_t = a_5 + a_6 I_t$$

Where P_t = demand for paper in year t

N_t = rise in number of newspapers

C_t = rise in number of computers

I_t = income level

This technique is useful while understanding complex cause and effect relationships and in judging the sensitivity of certain variables.

Uncertainties in demand forecasting

The statistical techniques and causal method explained above are prone to errors because of the many uncertainties involved.

The major sources of uncertainties are:

- Techniques of forecasting
- Past and present market data
- Environmental change

Techniques of forecasting

Forecasts obtained by using statistical techniques are prone to error as they take into account only quantitative factors and ignore qualitative factors. Also, as some factors are non-quantifiable, the outcome of these techniques is not accurate. Similarly, certain unrealistic assumption may lead to the change in the estimate of future demand. For example, the consumption coefficients used in end-use method may be unrealistic assumptions.

Past and present market data

Past and present market data are very useful in forcasting the demand for a product. But the data may not be completely reliable if some unusual events had occurred at the time when the data are collected. Then, this data can't be considered for forcasting because of the influence of these unusual factors.

Environmental changes

The changes in business environment like technological shifts, changes in the government policies , discovery of new raw materials, international trade developments, vagaries of monsoons influence projects in several ways.

Market planning

The four P's of marketing – product, price, place and promotion should be well designed to achieve the expected level of market penetration. When dealing with services, the market planning should be include the process, people and physical evidence.

For example, planning a thermal power station project should include determining its production capacity, likely cash inflows, place of construction and transportation and sales programs. For service projects like medical camps, the planning requires to find out the numbers of the people involved, the structure and schedule of the project.

Reference:-

1.) 'Project management' ICFAI University textbook.

Question:-

1.) What do you mean by market survey? Explain the steps involving in market survey.
2.) Describe the demand forecasting and its different techniques.