

## MBA III SEM

### KMBNMK02: MARKETING ANALYTICS

#### **Unit-1: Introduction to Marketing Analytics (4 hrs)**

Meaning, characteristics, advantages and disadvantages of marketing analytics, Market data sources (Primary and Secondary). **Market Sizing:** Stakeholders, Applications & Approaches (Top-down and Bottom-up), PESTLE Market Analysis, Porter Five Force Analysis.

#### **Unit-2: Pricing Analytics (8 hrs)**

Pricing Policy and Objectives, **Estimating Demand Curve:** Price Elasticity, Estimating Linear and Power Demand Curves, Optimize Pricing, Incorporating Complementary Products, Pricing using Subjective Demand Curve, Pricing Multiple Products.

**Price Bundling & Nonlinear Pricing:** Pure Bundling & Mixed Bundling, Determine Optimal Bundling Pricing, Profit Maximizing strategies using Nonlinear Pricing Strategies, Price Skimming & Sales, **Revenue Management:** Markdown Pricing and Handling Uncertainty.

#### **Unit-3: Sales Forecasting (8 hrs)**

Introduction, Simple Linear Regression & Multiple Regression model to forecast sales, Forecasting in Presence of Special Events, Modeling trend and seasonality; Ratio to moving average forecasting method, Using S curves to Forecast Sales of a New Product.

#### **Unit-4: Customer Analytics (8 hrs)**

**Customer Lifetime Value:** Concept, Basic Customer Value, Measuring Customer Lifetime value, Estimating Chance that customer is still active, Using Customer Value to value a business

**Market Segmentation:** The segmentation-targeting-positioning (STP) framework, Segmentation, The concept of market segmentation, managing the segmentation process, Deriving market segments and describing the segments using Cluster analysis.

#### **Unit-5: Retailing & Advertising Analysis (8 hrs)**

**Market Basket Analysis:** Computing two way and three way lift, RFM Analysis, **Allocating Retail Space and Sales Resources:** Identifying the sales to marketing effort relationship & its modeling, optimizing sales effort.

**Advertising Analysis:** Measuring the Effectiveness of Advertising, Optimizing advertising, Pay per Click (PPC) Online Advertising.

#### **Suggested Readings**

1. Marketing Analytics: Data-Driven Techniques with Microsoft Excel by Wayne L Winston, Wiley India Pvt. Ltd.
2. Marketing Analytics: Strategic Models and Metrics by Stephan Sorger, Create Space Publishing.
3. Marketing Engineering and Analytics by Gary Lilen, Arvind Rangaswamy, and Arnaud De Bruyn Decision Pro, Inc.
4. Marketing Metrics by Dugar Anurag, SAGE Publishing India

## UNIT-1: INTRODUCTION TO MARKETING ANALYTICS (4 HRS)

Meaning, characteristics, advantages and disadvantages of marketing analytics, Market data sources (Primary and Secondary). **Market Sizing:** Stakeholders, Applications & Approaches (Top-down and Bottom-up), PESTLE Market Analysis, Porter Five Force Analysis.

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### MEANING OF MARKETING ANALYTICS

The practice of measuring, managing, and analysing the marketing performance of a firm so that the return on investment (ROI) can be optimised and increased is called marketing analytics. Marketers can achieve a greater level of efficiency and reduce wastage of marketing funds by understanding the concept of marketing analytics.

A lot of vital information related to the preference and requirements of the customer can be obtained with the help of marketing analytics apart from the most obvious reason of marketing activities, i.e., increasing sales and generating leads. Most of the organisations are still not able to understand the potential of marketing analytics, despite having several advantages from it. The following reasons induce the use of marketing analytics:

- 1) Getting information related with new marketing trends;
- 2) Identifying successful programmes and evaluating their reasons of success;
- 3) Analysing trends over time;
- 4) Completely analysing the ROI of each programme and
- 5) Forecasting the outcomes.

### CHARACTERISTICS OF MARKETING ANALYTICS

The characteristics of marketing analytics are as follows:

- 1) **Ensure High-Quality Data**→ The analytics rest on the data. That means marketer need a tool that mines both structured and unstructured customer data from all possible sources, including various interactions and touch points.
- 2) **Get Real-Time Insights**→ The marketing analytics solution also needs to deliver real-time insights to marketer. Marketer can't be effective if his information is out-of-date; tracking the right metrics at the right time is key.
- 3) **Perfect Dashboard**→ While it may be tempting to track as many metrics as possible, the analytics will not be as useful if marketer do. Rather, define the goals and measure results for the use cases most important to marketer.
- 4) **Choose Right Analytics Visualization**→ Marketing teams and stakeholders must be able to make something of the data if marketers are to gain meaningful insights from it. The key is to choose the most appropriate data visualizations so he can find patterns and interpret the data. Thus, marketer must choose a marketing analytics solution that allows him to choose or customize visualizations instead of using default charts for displaying data.
- 5) **Use a Tool Featuring Machine Learning and AI (artificial intelligence) to Predict and Prescribe**→ Marketing must be real-time and predictive to be effective today. Marketer must be able to make accurate predictions, analyse the data, and make data-driven decisions to enhance each step of the customer journey.

### COMPONENTS OF MARKETING ANALYTICS

Following are the components of marketing analytics:

- 1) **People**→ The marketing analytics process is created, executed, and managed by people who own it. In most marketing organisations, the process owner is the Chief Marketing Officer (CMO) or the marketing director.
- 2) **Steps**→ The marketing analytics process consists of a sequence of steps.
- 3) **Tools and Technology**→ While the marketing analytics process is not necessarily complex, tools and technology help marketing organisations deliver greater value faster than they ordinarily might be.
- 4) **Input and Output**→ Data feeds the process, with insights and decisions as the output of the process.

### A 3-STEP METHODOLOGY FOR MARKETING ANALYTICS

At the heart of every data-driven decision lie three essential elements that contextualize data and allow real business decisions to surface from the sea of numbers that are produced from marketing activity. These are:

- 1) **Understand**→ Analysis for the sake of analysis, provides little value and consumes precious time in a marketer's busy day. Develop a basic understanding of what you plan to accomplish with marketing analytics, i.e., improved customer knowledge, new segments, channel effectiveness, etc. It might even be appropriate to back into data requirements by defining a core business challenge or key question that the organisation would like to answer with the analysis. This will help determine exactly what data is required and possible, even identify new opportunities for capturing critical data in the future.
- 2) **Execute**→ After developing a core understanding of the data itself and translating that into business strategy, it is time to execute and act. Often involving some additional refinement of the information produced in the Understand Phase, execution may be done through reporting engines, analytical models, testing, and even spreadsheets.
- 3) **Monitor**→ It is critical for marketers to close the loop on analytical exercises through ongoing monitoring of a standard set of Knowledge Performance Indicators (KPIs). This might be accomplished via a dashboard or periodic report, but the goal should be to standardise metrics over time, so you can establish a benchmark for significant changes in the data that may alert you to opportunities to optimise marketing results. This information should also be available for marketers to better understand and initiate new campaign cycles.

### **ADVANTAGES OF MARKETING ANALYTICS**

- 1) **Gaining a Full View of Customers across Channels**→ With marketing analytics, marketing firms can obtain a full view of potential customers across different marketing channels such as bricks-and-mortar locations, kiosks, call centres mobile, partners, e-commerce, social media and so on. For this purpose, the firm needs to first establish a strategy for gaining access to customer data and then integrating and analysing it with different sources.
- 2) **Becoming More Effective and Proactive**→ With marketing analytics, firms can anticipate the behaviours of their customers and target markets and can respond accordingly in a more proactive manner. Solutions that conduct data mining or statistical methods are included under marketing analytics which helps the marketing organisations to establish predictive models based upon the arrangements of different variables.
- 3) **Personalising Customer and Market Engagements**→ With marketing analytics, firms can explore and assess the behaviour of customers in the targeted regions and predict their likely responses. This enables the firms to customise the content, timings and channels of delivery of products/services so as to fulfil the customers' preferences.
- 4) **Visualising Success across Enterprise**→ With the help of data visualisation, analytics become accessible for non-technical marketers which further enables collaboration, sharing, and decision-making for becoming more effective and efficient.
- 5) **Treating Data as a Strategic Asset**→ There are lot of hackers who try to steal or break into the customer data. This reflects the importance of customer information. Locking this data into a vault is not the solution of this problem as a balance is needed between privacy, data access and governance for protecting the interests of the customer as well as the organisation. Since marketing analytics treat customer data as a strategic asset, it helps the firm in maintaining such balance.

### **DISADVANTAGES OF MARKETING ANALYTICS**

The various disadvantages of marketing analytics are as follows:

- 1) **Misidentifying Market Needs**→ One of the elements of marketing analysis is identifying the needs of each market segment. It also identifies other businesses and products that are attempting to satisfy the needs of this segment. The disadvantage of doing this is twofold. Marketer may overestimate how well his competition is meeting the customers' needs and quit before he even try to market. Marketer also may misidentify the need that is being met. The marketer don't overlook the uniqueness of own offering. Just because competition wants the same customer that marketer do, that doesn't mean he is satisfying the same need.
- 2) **Evaluating Market Growth without Market Share**→ Marketers marketing analysis will include a look at how the overall market is growing, which can give him some idea of his range of opportunities. If his analysis discourages him, however, it can be a disadvantage. Marketer can successfully compete in a limited market if he capture market share. An analysis of the market size alone is not enough to indicate the opportunities. Improved market share can compensate for a slow-growth market.

- 3) **Market Segmentation versus Target Markets**→ Marketer must identify the segments of the market that have potential customers for the products or services. This will help him understand the varied approaches marketer may need to take to reach different types of customers. The downside is that marketer may spread himself too thin. Few businesses can afford to market to every single potential customer. Marketer should identify a target market that he choose from among the available segments, and go after that target market in a focused manner.
- 4) **Improper Interpretation of Data**→ A marketing analysis is only as good as the analyser. Marketer can collect a lot of data in market surveys, but interpreting that data correctly is vital. Marketer will be at an extreme disadvantage if he misinterprets facts and makes decisions based on that misinterpretation. Marketer should make sure that his analysis is not wishful thinking.

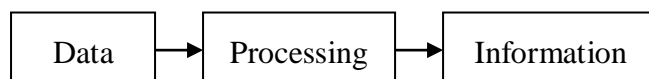
## **MARKET DATA**

### **MEANING OF DATA**

The term **data** has been derived from the Latin plural word “datum”. Any fact or figure that is collected by experience, experiment or observation within a computer system is termed as data.

**According to Davis**, “Data, raw material for information, is defined as groups of non-random symbols, which represent quantities, actions, objects, etc. Data item in information systems are formed from the characters. These may be alphabetic, numeric, or special symbols.”

Meaningful information can be generated after processing the data.



A research can be carried-out with the help of two types of data, viz., **primary data and secondary data**. The former can be defined as the data which is collected for the first time by the researcher, while the later can be defined as the data which are already collected and statistically processed for a particular event or problem. Secondary data are indirectly based on primary data or are directly calculated from the primary data.

In other words, secondary data can be called as processed primary data. Based on the purpose of the research study, researchers choose the primary or secondary data to find relevant solutions. The methods for collecting primary and secondary data are different.

Marketing data is information that can be used to improve product development, promotion, sales, pricing, distribution and related strategies such as branding.

### **Methods of Data Collection**

Depending upon the sources being utilised, any statistical data can be divided into two categories, which are as follows:

- 1) **Primary Data**→ The data which is directly collected by the researcher and was not available before is called as “primary data”. The sources of primary data are very useful in finding the real facts about the incidents or events. It includes the personal observation of the researcher and respondent. Primary data are the freshly collected data that provide information about a particular problem. These data can be gathered using techniques like, interview, observation, mailing, counselling, etc.
- 2) **Secondary Data**→ The previously recorded information about an event is very important in finding the solution of similar kind of problems. This readily available information is called “secondary data”. It is already processed and compiled with an evaluation. These can be gathered from the published reports like census reports, annual reports, financial assessment reports, and journals, as well as from unpublished sources. Various statements and records about the performance of a particular organisation and its departments like accounting records, minutes of meetings, inventory records, etc., fall in the category of secondary data sources.

### **SELECTION OF APPROPRIATE METHOD FOR DATA COLLECTION**

The required data collection methods for research purposes are determined by considering the following factors:

- 1) **Complexity of Topic**→ The data collection method is employed by analysing the seriousness and complexity of the topic chosen for the research study and the nature and types of questions to be involved. The method for data collection is also affected by the possible quality or length of the responses.

**For example**, the responses to complicated questions should not be obtained through telephone survey, on the other hand, personal interviews and in-depth explanatory notes will give more positive results. Moreover, the electronic version which is capable of performing the complicated sequencing better is preferred in place of a paper version.

- 2) **Types of Data**→ Data collection methods cover various types of topics. Self-administered techniques are normally preferred over interviews when it comes to sensitive topics, as they are considered to be more private. There are cases where, for this reason, a face to face interview is included in a self-administered technique. Self-administered techniques are also required where the respondents need to inquire from other people or inspect the previous records before responding. This can be done through a telephone survey in which the respondent is mailed a form to complete with his/her responses, and are required to deliver their responses over the phone.
- 3) **Non-response**→ The extent of response to a research study affects the reliability and quality of the data surveyed. While achieving a 100% response rate for any survey is very rare, choosing the data collection technique can have a significant impact on the obtained response rate. The fact that it is difficult to say no to a person's face, personal interviews are more effectual than mail surveys. However, the results of the method of response are also affected by other factors (if the survey is necessary, whether it is fresh or repeated, and how these methods are followed up).
- 4) **Respondent Preference**→ The answer to the question whether the chosen data collection method fits in with the respondent's working style and lifestyle influences the selection of the data collection methods. **For example**, much of the business of respondents is done over the phone which makes them comfortable in using this method as stated by the retail business survey and CATI survey. The preference of the respondents to complete their forms using electronic methods has given rise to the Electronic Transaction Act (July 2001) which gives the respondents the right to use it for ABS surveys.
- 5) **Resources Available**→ To obtain numerous and quick responses, the researcher might use a less suitable data collection method. This is mainly applied when there is scarcity of resources (time, money or manpower) on the part of the researcher. The survey must be conducted with appropriate quality, so choosing such data collection method in hurry gives rise to conflicts. There are various alternatives available to the researcher such as, compromising a planned reduction in quality of data, reducing the coverage, or selecting a less efficient method of choosing data. The researcher might also look for other sources for cost savings and for acquiring resources.
- 6) **Sampling Frame and the Population**→ The selection of data collection methods are influenced by the quality and type of sampling frame as well. **For example**, if survey is to be conducted on homeless people, a mail survey method is not at all a suitable method. Mail surveys are appropriate when the target population includes shift workers or those who are unavailable at their houses when the researcher can reach them.

### **PRECAUTIONS IN COLLECTION OF DATA**

Following guidelines which are based on various data collection sources should be considered while collecting data:

- 1) **Primary Data**→ It is a very difficult task to collect the necessary information. Also, it is difficult to collect data from the field situation in comparison to the data collected from the organisational situation. Various precautions which a researcher must observe to collect definite, unbiased and accurate information from field, and to overcome the difficulties like lack of cooperation, inaccurate information and stress are as follows:
  - a) **Friendly Attitude**: Interviewer should collect the information in a friendly manner and is presumed to be polite and disciplined. He should be focused towards creating and maintaining a good relationship with the respondents. The respondents should be acknowledged regarding their cooperation in the research work.
  - b) **Appropriate Use of Words**: The words and sentences must be proper and known to the respondents. Moreover, it should not hurt the emotions of respondents. Interviewer should replace the unfamiliar words with more suitable and familiar words so as to provide convenience to the respondents in understanding the questions.
  - c) **Avoiding Objectionable or Unsuitable Questions**: Interviewer must avoid socially objectionable questions. But, if it is necessary, then he must use indirect questions for the objective.

- d) **Transparency to the Respondents:** The researcher should always maintain the transparency with the respondents. He should clearly communicate the objective of research and fieldwork. At times, respondents are reluctant to answer the questions if research objectives are not explained clearly.
  - e) **Confidentiality and Privacy of Respondents' Identity:** The researcher should make sure to the respondents that adequate privacy and confidentiality measures have been adopted during the collection of data.
- 2) **Secondary Data**→ Similar to the primary data collection, there are some precautions that are needed to be taken during secondary data collection. Some of those precautions are described below:
- a) **Objective of the Study:** While collecting the secondary data, whether internal or external, the researcher should keep in mind that the data collected should be relevant with the objective of research. Also, the researcher should check the authenticity, accuracy and compatibility of the secondary data based on the objective of study, as it gives the idea of research procedures, research design, types of data used, etc. Hence, the researcher should focus on the objective of study and must collect the data accordingly, by using specific techniques.
  - b) **Reputation of Data Sources:** While collecting data from secondary sources, it should always be kept in mind that the quality of data differs vastly among the available data sources. Some sources contain credible, valid and accurate data as their sole emphasis is on quality work. While, on the other hand, other sources may contain inaccurate and false data that may disturb the analytical process and thereby provide inaccurate outcomes. The researcher should wisely select the reputed sources of data.
  - c) **Context of the Data:** The researcher should filter-out the available secondary data, as only some part of the data can be applicable on the research for accuracy and precision. Hence, the secondary data should match with the objectives of research.  
**For example,** if a research problem is associated with niche marketing, then secondary data on the core marketing concepts will not be applicable. Therefore, the researcher needs to collect data which is specific to the topic.
  - d) **Time of Information:** The time at which the data has been collected, influences the research outcome in a significant way. The time factor can also affect the measures and their definitions.  
**For example,** if the researcher has the research study on weather reports, then the time of the readings is vital; also if the research is done on the amount of traffic for a particular city, then alongwith the other factors, time of data collection is also significant as the amount of traffic in a particular area varies with time.
  - e) **Methodology Implemented:** The researcher should possess the knowledge of research methodology implemented during the process of data collection, so as to evaluate the quality of secondary data. He should have an in-depth knowledge about research design, sample size, response rates, questionnaires, schedules, interview procedures and other analytical techniques involved in the research study in order to examine the compatibility of the secondary data as per the research study.

## **PRIMARY DATA**

The data collected by the researcher himself for finding the solution of a particular problem or situation, is known as primary data. This type of data is characterised by its originality as it is freshly collected. Various organisations conduct surveys, observations, interviews, etc. and as a result generate primary data. Although secondary data provides a basic understanding to the research problems, but sometime, it becomes necessary to collect primary data as the previously generated secondary data may not serve the purpose.

Just like secondary data, researchers should also take additional care while collecting primary data such that it is accurate, reliable, and unbiased. For collecting primary data, researchers need to take many decisions regarding proper selection of relevant sources, sampling techniques, research tools, etc. To conduct any research effectively and produce valid results, researchers should collect primary data as it contains current and exact information about the incident or event. One of the major benefits of primary data is that its validity and reliability can be verified by other experts. There are many ways to collect primary data such as observation, interviews, group discussions, case studies, etc.

## **CHARACTERISTICS OF PRIMARY DATA**

Following are the characteristics of primary data:

- 1) **Collected for the First Time**→ Since the primary data are collected for the first time with an objective, they are natural and available in raw stage. They are required to be analysed in a systematic way to reach

the conclusions. However, status of secondary data is just opposite and they are already processed after analysis.

- 2) **Collected from the Source**→ These are generated after personal interactions or observations of original sources or through deputed personnel for the task. These are obtained after certain experimental results, close study of sample cases, first hand encounters of the situations and selection of resources at free will, without following any sequence or particular methods. The data thus collected is needed to be analysed by a team of experts to arrive at conclusions who may even decide to re-confirm the validity of data by re-examining certain observations.
- 3) **Considered Prospective in Nature**→ The data is generated from first adventure and provides some links on probable happenings in future. These can be taken as baseline and follow up action can be evolved only after the thorough analysis of the data.
- 4) **Volume of Data**→ The primary data is at raw stage and researchers need to do thorough study step-by-step and summarise it to use it efficiently. Researchers find the values of data statistically in a presentable format or in simple statements so that the outcome is easily understood by the general public.
- 5) **Specific Research Objective**→ Primary data is collected with specific objective and can be used to generate information which is reliable and effective to a large extent after extensive analysis and refinements. The primary data can be collected through different modes like close monitoring, in-depth study of results of different groups, opinion polling at different locations, recording reaction of general public and making tactical operations to unearth the truth hidden behind the screen.

### **COLLECTION OF PRIMARY DATA**

Major methods for collecting primary data are as follows:

- 1) **Survey**→ This technique is one of the most common and widely used techniques for collecting primary data. Survey can be conducted using various methods such as using mails, telephones, internet, face-to-face, etc. The selection of survey method relies upon various factors such as the nature of population to be studied, size of sample, allotted time, allocated budget, etc.
- 2) **Interview**→ Interview is the exchange of ideas which takes place between two or more people with the purpose of getting information from the respondent. In this method, the interviewer organises a meeting with the respondent regarding an object or issue related to the research objective, and asks some questions. The responses of the interviewee are recorded and compiled to get a better insight into the research problem. Interview can be conducted through various methods such as personal interview, telephonic interview, mail interview, panel interview, etc.
- 3) **Observation**→ Another technique for gathering primary data is observation. When the researcher records information about a person, organisation, or situation, without making any personal contact, it is known as “observation method”. In this, the researcher or the field executive observes the activity of the concerned person or organisation, to draw a pattern of behaviour or response to a particular incident. Sometimes, an artificial environment is created to collect the actual responses of the participants.
- 4) **Experimentation**→ An important method to collect primary data is experimentation. In experimentation, the causal relationship is determined and analysed between variables. Experimentation is carried-out with the objective to study effect on a dependent variable by causing a change in the independent variable. **For example**, a research can be conducted to analyse the influence on learning due to guidelines and instructions in schools.
- 5) **Warranty Cards**→ Warranty cards are generally used by the dealers of consumer durables to get the feedback of products from their consumers. These are the postal sized cards placed within the package of product. These cards contain various questions regarding the performance of product and to know the needs of consumers. Customers are requested to fill and mail it back. It helps in new product development for the manufacturer.
- 6) **Auditing**→ Auditing is a technique for assessing the performance and current position of any department or the organisation. Sometimes, it is also used for understanding the market and buying behaviour of customers. Distributors or manufacturers use this tool for gaining the competitive advantage and satisfying the need of customers. It is also used by the researchers for inspecting the products, services or food purchased by consumers, also known as pantry audit.
- 7) **Simulation**→ Simulation is a quantitative technique for data collection. It is the creation of an artificial environment resembling a real life situation. This real life situation is simulated by using various

mathematical equations and variables. Researchers can determine the relation between different variables by altering one of the variables and finding its effect on the others.

- 8) **Depth Interview**→ When a small group of respondents is intensively interviewed on individual basis so as to measure their perception about a particular event, concept, idea or situation, it is called 'Depth Interview'. **For example**, a depth interview can be conducted to explore the reviews of participants of an organisational event about the nature of operations, activities, its usefulness or changes required if any. Numerous topics or issues like strategic planning, program improvement, problem identification, need analysis, etc., can be facilitated with the help of depth interviews. It is very helpful for getting in-depth information from a relatively small number of participants, with the help of asking only open-ended questions. As depth interviews allow researchers to intensely recognise the attitudes and perceptions of the respondents over a given issue, they are majorly used for designing and evaluating extension programs.
- 9) **Projective Technique**→ Projective techniques are used in those areas of qualitative research where the researcher aims to achieve a greater understanding of a subject. Under this technique, individuals are asked to express their opinions and feelings on a situation or behaviour of another individual. Hypothetical situations and/or behavioural patterns of individuals are created, which are ambiguous and vague in nature, and respondents are requested to express their beliefs and feelings on the same. In doing so, researchers are able to study the motivations and attitudes of the respondents themselves, thereby enabling them to dig deeper into the research. The degree of ambiguity of the situation determines the depth of motivations and emotions of the respondents that the researcher is able to unveil.
- 10) **Focus Group**→ Focus group is a method in which a group of respondents is selected so as to collect desired information through a formal interactive session. It is also called 'group interviewing method'. In this, the respondents response to the questions of a moderator (sometimes researcher himself/herself) to discuss about the given topic or research problem. Moderator asks specially designed questions so as to explore in-depth information. The information explored here is not possible to collect from other techniques like surveys, observations or interviews. Focus group method is characterised by the use of significant methods and strategies so as to collect and analyse the information generated here. This makes focus group method a reliable source of data collection. This type of method is used in areas like new product concept or new product development, improvement of production-line in an organisation, motivation program for new employees, etc.

### **ADVANTAGES OF PRIMARY DATA**

Primary data is advantageous in research due to following reasons:

- 1) **Reliability**→ As the primary data is collected originally by the researcher and it is current and accurate, it is more reliable than secondary data.
- 2) **Variety of Techniques**→ Primary data can be collected through various techniques. There are numerous tools and techniques available to record and analyse primary data such as interviews, questionnaires, observation, audits, etc. It allows the researchers to explore effectively in almost every area where research is possible.
- 3) **Wide Coverage Including Special Cases**→ Primary data is applicable in many areas including some special cases. Sometimes, researchers want information regarding particular cases for which previous literature is not available. Collecting primary data is the only solution for these specific research problems or issues. In these cases, primary data is the only source of information which can be trusted for effective solution.
- 4) **Complete Control over Process**→ Sometimes, organisations ask the researchers to conduct the research in specific area rather than in broader perspective. Collecting the primary data allows the researchers to collect the data of their concern and represent it in ways that can benefit the organisations. Researchers can also decide the length of study, location in which research is to be carried out, time duration, etc., as per their requirement and convenience.
- 5) **Cost Effective Collection**→ The collection of primary data is cost-effective. Many times unnecessary time and money is wasted in collecting secondary data, and the information proves to be useless. But in primary data collection, the researcher concentrates his efforts on potential sources of data which provide reliable information in optimal cost.
- 6) **Sole Ownership of Information**→ As the information processed from the primary data is fresh and original, it can be copyrighted. This way, the researcher becomes the owner of that information. He/she



can take the benefit of information by sharing it with organisations. This is not so in the case of secondary data, as it already belongs to other person or organisation.

### **DISADVANTAGES OF PRIMARY DATA**

Primary data has following disadvantages:

- 1) **Costly Affair**→ Primary data collection is an expensive task. It involves different activities like selecting type of technique, preparing questions, and hiring trained professionals for collecting information or observing targets, etc. In this process, a huge amount is spent, which is why it is costly to conduct.
- 2) **Time Consuming**→ Collecting primary data effectively takes more time. Developing research plan, deciding sources of information, and selecting the methods of data collection are time consuming activities.
- 3) **Infeasible Sometime**→ Although, primary data considered to be reliable source of information, but, sometimes it is not an easy task to collect the primary data, as the sources of information may not be in the reach of researcher or may incur a huge amount of money.
- 4) **Huge Quantity of Data**→ Sometimes data collected through primary sources are in huge quantity. This large volume of data leads to confusion about the accuracy of the information. The processing and analysis of the data becomes complex and cumbersome due to large size.
- 5) **Unwillingness to Answer**→ Sometimes, participants do not cooperate in data collection by showing unwillingness to answer or by giving wrong information. These factors act as hurdles in primary data collection and also reflect biasness in responses.

### **SECONDARY DATA**

When a researcher uses data which are previously collected by some other researchers, institutions, or agencies for their own purposes are called secondary data. The researchers collect secondary data either from an internal source of an organisation, or from the published sources like reports and journals. The purposes of data may vary from that of the current study. Hence, few portions of this data may be used for current research problem. It should be kept in mind that, secondary data needs to be processed before applying in research; as the contexts of data may have changed and modified as per their own purposes.

**For example,** Total contribution of different sectors to the GDP are published by the government or some trade association, which may be a secondary data source for analysing the current market position of a particular organisation within a particular industry. That published data may provide the required information or fraction of it.

Secondary data helps in various activities in a research study, such as, generating new ideas, analysing the needs previously addressed, understanding the tools and techniques used for similar cases, save the time, etc. Secondary data is given preference in the situation where a research has to be completed in shorter time duration.

### **CHARACTERISTICS OF SECONDARY DATA**

Different characteristics of secondary data are as follows:

- 1) **Available and Adequate**→ The information available from secondary data is also suitable and acceptable to make correct decision in solving the problem.
- 2) **Cheaper**→ Since the information received from secondary data can be received easily, it is comparatively cheaper than primary data collection. The analysis of secondary data information may also provide equally satisfactory results required for research. The information thus collected has wider spectrum compared to data collected through primary collection.
- 3) **Less Time Consuming**→ The search time involved in data collection is very much reduced in secondary data collection exercise compared to primary data collection.
- 4) **More Accurate Data**→ The secondary data is based upon official count or survey conducted by government departments or some organisations involved in research and is bound to be more accurate due to vast area coverage and extensive research work undertaken which is generally not done in primary data collection which is based on limited survey.
- 5) **Helps Defining Research Problem and Generating Hypothesis**→ The data obtained through secondary data can also significantly contribute to research work under initial stage where area is unfamiliar and some theory is evolved based upon limited inputs. The secondary data certainly helps

researchers to understand the ground realities, exposes too many options that can be followed and suitable alternatives may be adopted.

- 6) **Helps Defining the Population**→ Secondary data helps to define the general status of population of an area. **For example**, the statically per capita income of people in an area can reveal the financial categories of the people such as affluent, rich, average middle class or below poverty line. This is also applicable in various other fields like agriculture, weather, etc.

### **COLLECTION OF SECONDARY DATA**

The secondary data can be collected from following sources:

- 1) **Internal Secondary Data**→ Secondary data generated within the research conducting organisation is known as internal secondary data. Data generated within the organisation can be either formal or informal. Formal data are generated periodically in a structured layout such as reports of various departments, half yearly reports, etc. On the other hand, informal data are not periodically generated such as conceptual booklets, new policy frameworks, etc.

Formal internal data can be collected from following major sources:

- a) **Sales Analysis**: Sales analysis reports generated within the organisation are important internal source of secondary data. These reports contain the information about the sales pattern and fluctuations in market position. These can be very useful in drawing the solution of related problems.
  - b) **Invoice Analysis**: The invoices of an organisation also act as a secondary data source. These invoices help in understanding the sale and purchase pattern of the organisation in different situations or scenarios. The information collected through the invoices may be summarised carefully to reach a particular solution. Various data related to customer can be obtained with the help of invoices, such as name of customer, type of product, location of product delivered, etc.
  - c) **Financial Data**: Researchers can get a lot of financial data recorded within the organisation. These records may contain the information regarding production cost, storage cost, transportation cost, sales cost, etc. these data are very useful data for marketing research. These financial data are periodically generated from time to time, and hence are updated.
  - d) **Transportation Data**: The transportation data regarding the routes, vehicles, loads, etc., provide a lot of information regarding the transportation activities. These data allow the researchers to analyse the trade-offs between various costs and determine the ways to get maximum financial benefits.
  - e) **Storage Data**: Various costs associated with storage, such as, handling cost, maintenance cost, etc., are the important data that are generated within the organisation. These data help the researchers in analysing various pros and cons related to the storage of materials and therefore suggesting suitable methods to be adopted.
- 2) **External Secondary Data**→ Sometimes, important secondary data is not found within the organisation. The secondary data derived from different sources outside the organisation is known as “external secondary data”. Some important sources of secondary data are as follows:
- a) **Libraries**: Library is one of the external secondary data sources, which the researcher may use to collect the necessary information for the research. Different kinds of libraries provide a range of data for the research. Books related to research topics, journals, magazines, research papers, etc., are available in various libraries, maintained by different organisations and institutions.
  - b) **Literature**: A variety of literature is available on different subjects and issues. These literatures are the result of extensive research practices. There is plenty of valuable information in such kind of sources, which can be utilised for the resolution of current research problems.
  - c) **Periodicals**: Business periodicals are published at regular time intervals, **viz.**, yearly, half yearly, bi-monthly, fortnightly, quarterly, etc. The secondary data are published by various government and non-government agencies regarding finance, trade, transport, industry, labour, etc. These periodical contain various trends, future prospects, opportunities in market, etc., which can be used by researchers in their current research problem.
  - d) **References and Bibliography**: The references and bibliography of a particular research or journal can be a useful resource for deriving secondary data related to specific issue. Researchers can take a huge amount of data which can then be analysed to get deeper insight.
  - e) **Census and Registration Data**: Data collected through census and different registration programs may become very useful in deriving secondary data. As this data is collected through extensive effort

and field work, it contains the appropriate information about various issues like, agriculture, trade, transport, banking, etc.

- f) **Trade Associations**: Large amount of useful data may be derived from trade associations as these contain the relevant information about the changes and happenings in the industry. The information from one trade association is exchanged with other trade association for updating the information content. Research firms gain the access to different information from these associations.
- g) **Government Departments**: The information available from government departments may be utilized as secondary data in research process. Government departments can provide various information regarding position and growth of different sectors of an economy like finance, banking, trade and transport, agriculture, etc.
- h) **Private Sources**: There are many organisations which publish the statistically processed data for further use. These are the private institutions which perform primary research about particular events or situations and compile the final facts and figures. Some of the examples of such sources are Economic Times, Financial Express, Indian Marketing Association, etc. The researchers engaged in current marketing research can utilise the information available from these institutions by purchasing journals, magazines, newspapers, etc., which are publicly available.
- i) **Commercial Research Institutions**: Some institutions in the market deal in purchasing and selling of different kind of data or information, which are collected through research. Many market research institutions are in the business of providing statistically processed data or information, by taking help of secondary data or by conducting fresh surveys.
- j) **International Organisations**: Several international organisations like World Health Organisation, World Bank, International Monetary Fund, International Labour Organisation, Asian Development Bank etc. are helpful in deriving required information or data about a particular research. These organisations have plenty of information or resources to provide data about issues like population, inflation, agriculture, education, labour problems, child problems, women development, trade and transport, etc.

### **ISSUES TO BE CONSIDERED FOR COLLECTING SECONDARY DATA**

Secondary data are those data which already exist and are generated for some other purposes by different agency. These may be in published or unpublished form. However, before using the secondary data, following characteristic may be verified:

- 1) **Reliability of Data**→ For ascertaining the reliability of data, following points should be verified:
  - a) Name of source of data collection,
  - b) Name of respondent's source of data,
  - c) Methods used for data collection,
  - d) Time of data collection,
  - e) Verification of bias angle of compiler and
  - f) Level of accuracy needed and what is being delivered.

In case, data is collected by government institution, recognised institution or international agency, it is likely to be more reliable than collected by any private institution or individual. Secondary sources of data, such as government institutions, institutions coming under parliamentary act and international organisations are considered to be reliable and dependable.

It is important to check the reliability of data prior to using it for research studies. In the first place, it is important to check the experience, truthfulness, skills and capability on part of the researcher. Secondly, it is important to examine the methods of data collection. The method of data collection should be as objective and as scientific as possible.

- 2) **Suitability of Data**→ The data is collected based upon purpose, extent of area coverage and type of inquiry. These aspects are to be looked into before acceptance of the data. If these aspects are different, the secondary data remains useless. There is also a need to carefully analyse the various terms and units of data collection from the original primary sources.

The suitability of data solely depends upon the level of inquiry. The data may be suitable for one level of inquiry which may not be suitable for other level of inquiry. Hence, suitability is required to be ascertained before acceptance of data.

- 3) **Adequacy/Sufficiency of Data**→ There are cases like dying statement of a person, eye witness of an accident or a murder, version of a squad deputed on secret mission, etc., which cannot be generated from

the primary source and thus, secondary data has to be considered. In such cases, it is simply not possible to access the original source. However, in cases of availability of no data, fresh efforts are to be made to generate primary data from original sources.

Sometimes the level of inquiry rises and data collected from the secondary sources is not sufficient to satisfy the requirements. In such cases no final decision can be made and it remains useful for research work only. Sometimes limited area is selected for data collection and the information is required for much bigger area or information collected from much bigger area and information needed for a very limited area, in either case the secondary data may not be useful and cannot be relied upon. The data has to be reliable, suitable and adequate for the researchers.

For ascertaining if the data collected is sufficient or not, it is important to view it in relationship with the needs of the survey and the geographical area taken into consideration while collecting the secondary data. **For example**, in case the research aims at collecting the data pertaining to salary of the employees in the cotton industry and the literature provides insight about all the workers in the industry, then such a data might prove to be futile for this study at hand. Data adequacy is also questionable in terms of the time frame of its availability.

- 4) **Consistency of Data**→ Consistency of data means the absence of contradictory reports and this can be achieved by collecting the data from various sources without any bias and from different locations. **For example**, for the ground level evaluation of flood relief supplied from the government agencies, the data has to be collected from different sources other than the government agencies to arrive at the correct conclusions.

The tools used for collecting the information may be suitable questionnaire format, interviews, observation of official procedures and other different types of tools used for data collection. This ensures the data collected is accurate and consistent.

#### **ADVANTAGES OF SECONDARY DATA**

- 1) **Economic**→ The secondary data is easier and cheaper to access. It is more economically collected compared to the primary data. Some of the secondary data can be obtained with absolutely no cost.
- 2) **Less Time Taking**→ As secondary data is already processed and compiled by other researchers, it takes very less time to collect this data. There is variety of secondary data available from various sources. Hence, researchers just need to search the data from the sources.
- 3) **Quality**→ The quality of the secondary data is unique and rare as these are originally collected by trained professionals who have expertise in data collection. Hence, for a researcher it is very difficult to match that level of quality single-handedly.
- 4) **Measuring Instruments are not Required**→ In collecting secondary data, there is no need to decide the tools and techniques for gathering required information, as this data is already recorded and processed by other researchers. The researchers only need to identify the relevant section of this data which is of their concern.
- 5) **Availability**→ Secondary data is widely available and hence easily accessible. Secondary data are helpful especially when it is quite difficult to collect primary data. Majority of secondary data is available which can be utilised for a particular research.
- 6) **Bases for Comparison**→ Secondary data can also be used for comparative analysis with primary data. This way, researchers can make many interpretations regarding the data.
- 7) **Useful in Exploratory Research**→ As exploratory research is conducted with the purpose of getting better insight about an issue or phenomena, secondary data is very useful in serving its purpose by providing extensive available information from various sources. This helps the researchers to carry out the research accordingly.
- 8) **Generates Feasible Alternatives**→ Secondary data is a source which provides a variety of alternatives to researchers related to various problems in research. Researchers are required to analyse and study the solutions provided by these data through various approaches, sources, and methods, etc.

#### **DISADVANTAGES OF SECONDARY DATA**

- 1) **Relevance**→ As secondary data is collected by other researchers for other purposes, therefore, these data may not be relevant for the current research work. The secondary data may vary because of many reasons, such as, measurement and scaling, sampling technique, data analysis technique, purpose of research, time duration, etc.

- 2) **Accuracy**→ The accuracy of secondary data is questionable due to many reasons such as using inappropriate data collection method, researcher biasness, inappropriate sampling technique, etc., due to which Secondary data may not be accurate every time.
- 3) **Obsolete Data**→ There can be a significant time gap between the secondary data and present requirement, and it is obvious that many times secondary data may contain obsolete information which is not applicable for present scenario. Therefore, including such data can be a risk to the effectiveness of research work.
- 4) **Non-Disclosure of Research Findings**→ It is not always easy to have access to all the findings of a particular research. Some organisations or research institutions may not allow its disclosure.
- 5) **Difficulty in Tracing-Out Sources**→ Sometimes researchers or individuals are not able to identify the appropriate sources of secondary data. Due to this limitation, the validity of secondary data remains doubtful.

### **PRIMARY DATA VERSUS SECONDARY DATA**

| <b>Basis of Difference</b>  | <b><u>Primary Data</u></b>                                                                                                                                                                        | <b><u>Secondary Data</u></b>                                                                                                                                                          |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) <b>Meaning</b>           | The data is collected by the researcher himself for finding the solution of a particular problem or situation, is known as primary data.                                                          | When a data, which was earlier created by some researchers or organisations for their own purposes, is used in current research for a similar purpose, it is known as secondary data. |
| 2) <b>Cost</b>              | The collection of primary data is costly as it includes several tools and techniques.                                                                                                             | It is less costly than primary data collection. The secondary data can be obtained easily, involving zero or very less amount of money.                                               |
| 3) <b>Sources</b>           | It is directly collected from respondents.                                                                                                                                                        | It is collected from some already available published or unpublished sources.                                                                                                         |
| 4) <b>Methods</b>           | The methods used for primary data collection include interviews, questionnaires, observations, and surveys.                                                                                       | The methods used for secondary data collection include studying and analysing reports, journals, census, and different databases.                                                     |
| 5) <b>Reliability</b>       | Primary data is more reliable as it is original and new.                                                                                                                                          | The reliability of secondary data is comparatively less reliable, as this data belongs to different problem or situation.                                                             |
| 6) <b>Scientific Method</b> | The selection of primary data is scientific in nature. It includes forming hypothesis about the problem or situation, collecting data, and analysing data to prove the hypothesis right or wrong. | The selection of secondary data is manual. It is selected according to the content of the source and the current research topic.                                                      |
| 7) <b>Precaution</b>        | Precautions are relatively nominal in collecting primary data than secondary data.                                                                                                                | A lot of precaution is taken in the selection of secondary data.                                                                                                                      |
| 8) <b>Form of Data</b>      | Form of primary data is like raw which needs to be processed to get meaningful information.                                                                                                       | Secondary data are already processed data that needs to be analysed and studied to use in research study.                                                                             |
| 9) <b>Accuracy</b>          | Primary data is original and accurate, as it is developed according to the need.                                                                                                                  | The secondary data is not completely accurate as it was developed for some other purpose.                                                                                             |

### **MARKET SIZING**

Market sizing is the process of estimating the potential of a market. Understanding the potential of a market is important for companies looking to launch a new product or service.

Market size is a key component of strategic marketing planning. Knowledge of the size of target market allows fully assessing opportunities and accurately planning the firm's approach and investments - wisely.

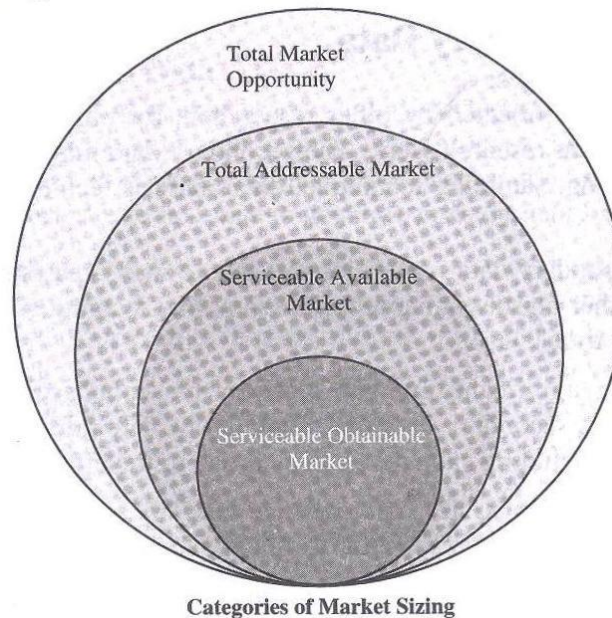
Market size is a measurement of the total volume of a given market. Calculating market size accurately, can be challenge, so it is important to be clear on what one is measuring. Variables are often dynamic, so they

must be clearly defined. Size can also be based on consumption or production figures, so it is important to know what approach marketers will take.

Marketers must take the time to assess market size and they may find answers that reveal how to achieve the level of growth they need. When they know their market size, they can more easily determine how to invest R&D budget for the year. It can also help to determine a wise level of sales and marketing investments - in the right areas. Marketing strategies become clear. Marketers do not want to spend too much in a market when return will be low, but they also do not want to under invest in a high growth, fast moving market. But be careful not to base investment decisions on rumour or expert opinions.

### **CATEGORIES OF MARKET SIZING**

Categories of market sizing are given below:



- 1) **Market Potential**→ Assuming 100% market Share, the total potential value of product/service sold over a specified timeframe.
- 2) **TAM (Total Addressable Market)**→ The potential value of Product/Service sold to a particular customer segment.
- 3) **SAM (Serviceable Available Market)**→ The total value of Product/Service that can fulfill the demand of a segment using a one revenue stream/channel.
- 4) **SOM (Serviceable Obtainable Market)**→ The total value of SAM divided by the expected percentage market share that the company can capture.

### **EVALUATING MARKET SIZING**

There are several kinds of market sizing techniques that businesses should consider and use in their market size analysis. The most important step, before considering anything that will help marketer estimate to market, is having good data that accurately paints the picture of the marketplace or industry. Having good data and research is necessary to understanding how to estimate the market size. Before working with any market size estimation techniques, marketer must make sure that he has solid information to draw from and analyse.

With good data, marketer can:

- 1) **Look at the Competition**→ The marketer must identify his number of competitors in the market. This will tell the marketer a lot about the potential size of the market. If the marketer has a lot of competition, he knows that he is competing with other businesses for customers, effectively reducing or limiting the potential market.
- 2) **Understand the Product**→ The marketer must be realistic about things that will affect who will buy the product. Things like cost, usefulness, reliability, or availability will influence how many people are truly in the market.
- 3) **Understand Customer**→ Similar to understanding the product, marketer must know something about his customer when doing market size calculation. Are customers likely to be male? That tells marketer something about the market. Are they likely to be college-educated? Found in cities? Make a certain salary a year? Knowing the target customer always leads to helping marketer to estimate the market size.

## MARKET SIZING APPLICATIONS

- 1) **Market Trends:** Take advantage of trends
- 2) **Sales Forecasts:** Forecast as % of total market .
- 3) **Sales force Sizing:** Number of salespersons to hire
- 4) **Distribution Channels:** Type of channel(s) to employ
- 5) **Market Segments:** Number and size of segments
- 6) **Market Share:** Need total size to calculate share
- 7) **Adoption Rate:** Keeping up with industry average?
- 8) **Life Cycle:** Growth or decline?
- 9) **Market Investment:** Continue investing in market? Explore new niche?

## APPROACHES TO MARKETING SIZING

There are fundamentally two different approaches to sizing a market: top-down analysis or bottom-up analysis. Ideally, in any market sizing exercise, both of these methodologies should be used to ensure the appropriate reliability of the data and to point out any areas requiring further research for reconciliation.

- 1) **Top-down Approach**→ In a top-down approach, the starting point is an existing (or easily developed) estimate of total demand for a given product that needs to be further segmented or refined based on the outlined scope of the exercise.
- 2) **Bottom-up Approach**→ In a bottom-up approach, demand is calculated by applying usage assumptions to an indicator or statistic that directly relates to the product being consumed (i.e., a direct indicator).

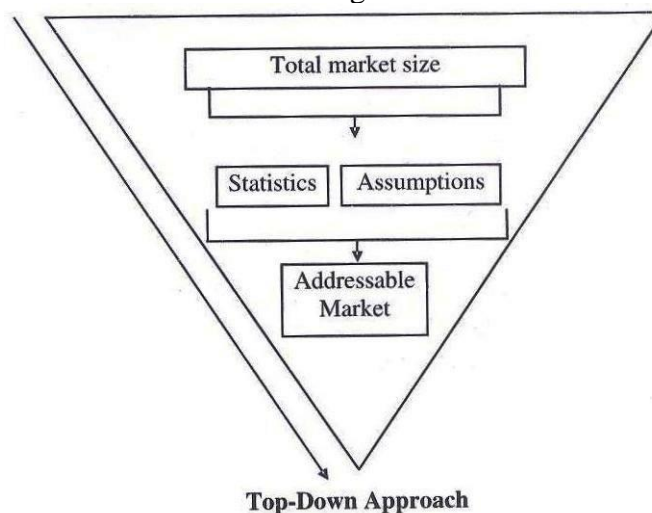
With both approaches, the estimate becomes more refined as more factors are taken into consideration, **for example**, accounting for differences in purchasing parity, oil component of GDP, local competition and selling prices, market maturity, brand awareness and value etc.

## TOP-DOWN APPROACH

When deciding whether to use this form of market sizing analysis, it needs to be determined if a reliable top-line demand estimate is available. There are numerous sources that one can turn to in search of a top-line demand estimate, each of which have advantages and disadvantages that need to be balanced in the performance of this analysis. Often times, more than one of these techniques can, and should, be used in conjunction with one another.

This is where a ‘big picture’ view of a market is used as a starting point and a series of filters are applied to give an estimate for the specific market. A simple example of this is taking a global market estimate and splitting it to a country estimate based on GDP.

The Top-Down Approach estimates the addressable market from above, by starting with a broad market size figure (e.g. an existing market research report for a bigger segment) and narrows it down to the target market segments by using assumptions and statistics. Some assumptions can be verified via existing data or statistics; others cannot and have to rely on the best guess or judgement of the market modeller. The top-down approach is usually considered as a less robust methodology. It is the “fast and cheap” of market sizing and tends to give market estimates that are too high.



## Top-Down Market Size Analysis

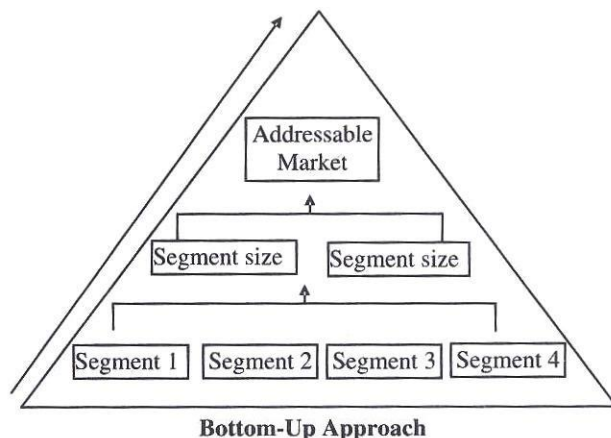
In comparison, a top-down analysis is a procedure in which a larger reference market is used and the percentage of that market that a company expects to capture is estimated. There are two different techniques for top-down analysis, as described below.

- 1) **Using a Known Reference Market**→ In this method, the size of a known reference market is required and then the amount of that market that is contributed by a specific segment of interest is estimated.
- 2) **Market Sizing Using Population Metrics**→ This can almost always result in misleading information. In this method, the size of a specific population is used and then a company estimates the percentage of that population that it can capture with its services.

### **BOTTOM-UP APPROACH**

The bottom-up approach is typically taken when no reliable sources of top-line demand exist or when a more reliable estimate can be developed by analysing product consumption as it relates to a direct indicator. This approach can be more time consuming than a top-down methodology and is sensitive to seemingly small assumptions that can cascade through the analysis.

This uses the reverse approach, building up the estimate from the lowest point where the product can be used. For example, if a product is sold into hospitals, we could start with the number of hospital beds. Assuming we see a £5 average sales data, we can multiply £5 by the total number of hospital beds. As with the top down approach, further refinement is often needed, for example, to account for different sizes and types of hospital as well as differences in bed use etc.



### **Bottom-up Market Sizing**

**Step 1: Identify Relevant Market Segments:** The very first step in bottom-up market sizing approach is to identify the relevant and potential market segment. **For example** if marketers are selling an educational product, two relevant criteria for that might be “user sophistication” and “resources.” Plotting all the different groups of customers might yield something like the below plot.

One can even go a step further with segmentation. **For example**, Universities come in all shapes and sizes. Universities may include: Research Universities, Liberal Arts Colleges, and Community Colleges. Likewise Government funded groups vary in size, from 100K students (small) to urban school programs (large) which may support up to 500K students.

**Step 2: Find the Market Contribution of Each Segment:** Use resources such as Census data, Bureau of Labour Statistics, or other public databases. **For example** if marketer is looking at Community Colleges, The National Centre for Education Studies reports that there are 1,669 Community Colleges in the India total. These schools spend 465 million dollars annually. Of this total, 15 million is allocated to IT services. If one can realistically capture 1% of this segment, then the Community Colleges segment can contribute \$150,000 to his total annual market potential. Repeat the process for the Research University segment, Liberal Arts College segment etc.

**Step 3: Iterative Market Analysis:** These projections are not set in stone and they will change as one can understand his market better. Refine this model as one learn more about competitors and customers. Maybe the market is much smaller than anticipated and you need to reposition the offering. Maybe it is much larger than expected, and one needs to rise funding, to achieve the necessary scale to become profitable.



## **STAKEHOLDERS FOR MARKET SIZING**

A stakeholder is a party that has an interest in a company and can either affect or be affected by the business. The primary stakeholders in a typical corporation are its investors, employees, customers and suppliers. However, the modern theory of the idea goes beyond this original notion to include additional stakeholders such as a community, government or trade association.

Stakeholders can be internal or external. Internal stakeholders are people whose interest in a company comes through a direct relationship, such as employment, ownership or investment. External stakeholders are those people who do not directly work with a company but are affected in some way by the actions and outcomes of said business. Suppliers, creditors and public groups are all considered external stakeholders.

1) **Internal Stakeholder**→ Investors are a common type of internal stakeholder and are greatly impacted by the outcome of a business. If, for example, a venture capital firm decides to invest \$5 million into a technology start-up in return for 10% equity and significant influence, the firm becomes an internal stakeholder of the start-up. The return of the company's investment hinges on the success, or failure, of the start-up, meaning it has a vested interest.

2) **External Stakeholder**→ External stakeholders are a little harder to identify, seeing as they do not have a direct relationship with the company. Instead, an external stakeholder is normally a person or organization affected by the operations of the business. When a company goes over the allowable limit of carbon emissions, for example, the town in which the company is located is considered an external stakeholder because it is affected by the increased pollution.

Conversely, external stakeholders may also sometimes have a direct effect on a company but are not directly tied to it. The government, for example, is an external stakeholder. When it makes policy changes on carbon emissions, continuing from above, the decision affects the operations of any business with increased levels of carbon.

## **STAKEHOLDERS WITH RESPECT TO MARKET SIZING**

The stakeholders involved in the market sizing are:

1) **Marketing Departments**→ The role of marketing department in estimating the market size is to investigate new markets and to calculate market share.

2) **Operations Departments**→ The operations department is responsible for the products manufacturing like how many units to make and in the service delivery such as how many people to hire.

3) **Channel Partners**→ In market sizing, channel partners refer to the number of units to move in channel.

4) **Financial Services**→ Financial services includes VC: Large and growing market, \$500M - \$1B

## **PROBLEMS WITH STAKEHOLDERS**

A common problem that arises with having numerous stakeholders in an enterprise is their various self-interests may not all be aligned. In fact, they may be in direct conflict. The primary goal of a corporation, **for example**, from the viewpoint of its shareholders, is to maximize profits and enhance shareholder value. Since labour costs are a critical input cost for most companies, a company may seek to keep these costs under tight control. This might have the effect of making another important group of stakeholders, its employees, unhappy. The most efficient companies successfully manage the self-interests and expectations of their stakeholders.

## **IMPORTANCE OF MARKET SIZING**

Importance of market sizing is given below:

1) Quantify the sales or profit potential of new product markets or customer segments.

2) Identify product lines and customer segments with lucrative growth opportunities.

3) Helps validate Business Model hypothesis.

4) Specify competitive threats and develop strategic responses to those threats.

5) Develop exit strategies or pivot points for the future.

6) Important to Investors. They want a scalable product addressing a large enough market to get the most bang for their bucks. Listen to them.

## **PESTLE ANALYSIS**

PESTLE stands for political, economic, socio-cultural, technological, legal, and environmental. It is an analytical tool available to companies to determine how external factors influence their operations and make them more competitive in the market.

This method looks at the factors in a nation or marketplace, and examines how those factors affect the consumer:

- 1) **Political factors**→ Includes government policy and legislative changes that affect the economy, such as tax and employment laws.
- 2) **Economic factors**→ These are inflation, exchange rates, recessions, and supply and demand.
- 3) **Socio-cultural factors**→ Includes consumer demographics, culture, and lifestyle.
- 4) **Technology**→ These are factors like changes in technology, how technology is used in different sectors and industries, and research.
- 5) **Legal factors**→ These are legal aspects that affect businesses such as consumer law, copyright law, and health and safety law.
- 6) **Environmental factors**→ These have little to do with the actual business, including climate, pollution, weather, and environment-related laws.

PESTLE analysis allows managers, marketing, and financial experts to examine specific factors (outside of money) when making decisions about the company's services or products.

Results from PESTLE analysis allow the company to make specific choices when planning the company's future, from how the brand should be presented, to any changes within the structure of the company's organization, to the development of new products.

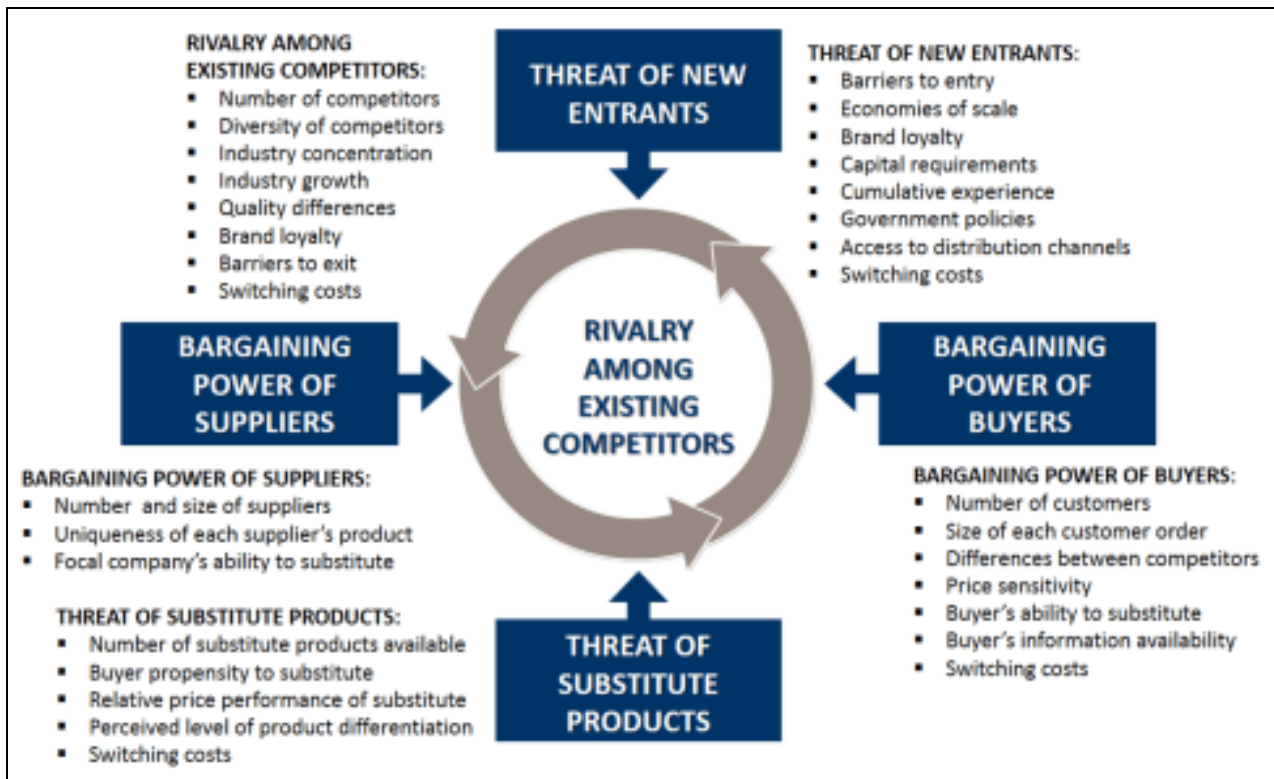
## **PORTER FIVE FORCE ANALYSIS**

Porter's 5 Forces is an analytical model used to help identify the structure of an industry and to help companies determine their competitive strategies. The model was developed by Harvard Business School professor Michael E. Porter as part of his book "Competitive Strategy: Techniques for Analyzing Industries and Competitors," published in 1980.

The model can be applied to any segment of the economy. It helps explain why various industries maintain different degrees of profitability.

The model is widely used to analyze the industry structure of a company as well as its corporate strategy. Porter identified five undeniable forces that play a part in shaping every market and industry in the world. The forces are frequently used to measure competition intensity, attractiveness and profitability of an industry or market.

These forces are:



- 1) **Threat of new entrants**→ This force determines how easy (or not) it is to enter a particular industry. If an industry is profitable and there are few barriers to enter, rivalry soon intensifies. When more organizations compete for the same market share, profits start to fall. It is essential for existing organizations to create high barriers to enter to prevent new entrants. Threat of new entrants is high when:
  - Low amount of capital is required to enter a market;
  - Existing companies can do little to retaliate;
  - Existing firms do not possess patents, trademarks or do not have established brand reputation;
  - There is no government regulation;
  - Customer switching costs are low (it doesn't cost a lot of money for a firm to switch to other industries);
  - There is low customer loyalty;
  - Products are nearly identical;
  - Economies of scale can be easily achieved.
- 2) **Bargaining power of suppliers**→ Strong bargaining power allows suppliers to sell higher priced or low quality raw materials to their buyers. This directly affects the buying firms' profits because it has to pay more for materials. Suppliers have strong bargaining power when:
  - There are few suppliers but many buyers;
  - Suppliers are large and threaten to forward integrate;
  - Few substitute raw materials exist;
  - Suppliers hold scarce resources;
  - Cost of switching raw materials is especially high.
- 3) **Bargaining power of buyers**→ Buyers have the power to demand lower price or higher product quality from industry producers when their bargaining power is strong. Lower price means lower revenues for the producer, while higher quality products usually raise production costs. Both scenarios result in lower profits for producers. Buyers exert strong bargaining power when:
  - Buying in large quantities or control many access points to the final customer;
  - Only few buyers exist;
  - Switching costs to other supplier are low;
  - They threaten to backward integrate;
  - There are many substitutes;

- Buyers are price sensitive.
- 4) **Threat of substitutes**→ This force is especially threatening when buyers can easily find substitute products with attractive prices or better quality and when buyers can switch from one product or service to another with little cost. For example, to switch from coffee to tea doesn't cost anything, unlike switching from car to bicycle.
- 5) **Rivalry among existing competitors**→ This force is the major determinant on how competitive and profitable an industry is. In competitive industry, firms have to compete aggressively for a market share, which results in low profits. Rivalry among competitors is intense when:
- There are many competitors;
  - Exit barriers are high;
  - Industry of growth is slow or negative;
  - Products are not differentiated and can be easily substituted;
  - Competitors are of equal size;
  - Low customer loyalty.

When a company's management uses the five forces, it can create ways to take better advantage of a situation of strength, overcome a situation of weakness, and avoid making mistakes that would provide someone else a competitive edge.

## UNIT-2: PRICING ANALYTICS (8 HRS)

Pricing Policy and Objectives, **Estimating Demand Curve**: Price Elasticity, Estimating Linear and Power Demand Curves, Optimize Pricing, Incorporating Complementary Products, Pricing using Subjective Demand Curve, Pricing Multiple Products.

**Price Bundling & Nonlinear Pricing**: Pure Bundling & Mixed Bundling, Determine Optimal Bundling Pricing, Profit Maximizing strategies using Nonlinear Pricing Strategies, Price Skimming & Sales, **Revenue Management**: Markdown Pricing and Handling Uncertainty.

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### MEANING OF PRICING ANALYTICS

Pricing analytics are the metrics and associated tools used to understand how pricing activities affect the overall business, analyse the profitability of specific price points, and optimize a business's pricing strategy for maximum revenue.

Pricing analytics is a way of analysing the effects of pricing, such as who is purchasing a product (e.g. age, class, income, etc.), best-selling locations (e.g. store, region, etc.), and also the effectiveness of deals or discounts. By understanding these types of data, salespeople can better determine how to adjust the price value of their items accordingly, thereby overriding competition other businesses pose and increasing profitability.

Pricing Analytics enables companies, across all industries, to dramatically improve profitability and market share by defining optimal prices and pricing strategy.

Deciding the price value of a product can be very challenging, even amongst the most experienced in marketing and business management. Despite the challenge, it is a skill that is extremely essential to learn and perform well, especially in today's economy.

Pricing analytics software can analyse previous pricing data and accurately predict the outcome of price inflation or deflation, sales and their effect on company profit, and much more. Pricing analytics software, models and analytics are such valuable assets to an organization, as they help businesses understand how much of an impact pricing has on sales and profit.

### NEEDS FOR PRICING ANALYTICS

- 1) **Learning about Customers**→ In spite of the increased availability of information, many companies are still blind (and deaf), when it comes to knowing their customers. For those companies, simple descriptive and diagnostic tools, including customer segmentation, can help dramatically improve performance. Many manufacturing firms observe its margins improving by 4% by simply aligning its pricing (and especially its discounting) along the customer segments.
- 2) **Identifying Pricing Opportunities**→ The implementation of pricing analytics tools often leads to uncover "quick wins", or extra revenue and/or margin that can be generated over a short period of time by fixing the most obvious cases of price misalignment or leakages. The quick wins are very often the first building block of a longer term effort to realign prices and increase margins.
- 3) **Planning Pricing Changes and Promotions**→ Companies with a pricing strategy already in place have different needs, typically revolving around the necessity to closely monitor the market and to anticipate the impact of a price change or a promotional campaign. Those companies usually require predictive models, capable of reproducing what actually happened in the past, and hence to predict what will happen in the future with great accuracy.  
For instance, one consumer packaged goods industry uses a predictive model to plan its price changes and promotions. Using the model over time, they have learned a lot about what to do and even more about what NOT to do. Ultimately, this saved the company millions of dollars by putting an end to inefficient promotions.
- 4) **Optimizing Pricing**→ Building upon the predictive pricing models they use to manage their prices and promotions, some companies take it to the next level and implement full-fledged profit optimization tools. Companies that successfully manage the shift typically have had a sound pricing strategy in place for several years and at the same time excel at execution.
- 5) **Getting Stakeholders to buy into the Pricing Strategy**→ Generally speaking, this need applies to all companies, regardless of their industry, size or the degree of sophistication of their pricing strategy. As every pricing manager knows too well, getting all the internal stakeholders (whether from sales, marketing, finance or even production) to agree upon the pricing strategy and execute it accordingly, can

prove to be a major challenge. The very fact of backing the strategy itself with “cold hard facts” and a scientifically robust analysis of the data can help facilitate this process and get approval from the various stakeholders more easily.

### **BENEFITS OF PRICING ANALYTICS**

- 1) **Helps in Identifying Competitor Price Tracking**→ Businesses can track and monitor competitor pricing in real-time by leveraging pricing analytics solutions. Additionally, it helps businesses to formulate pricing strategy by comparing it with that of the competitor’s strategy. Furthermore, this can improve customer responsiveness and market standing. Price tracking of competitors can also help businesses in customer retention.
- 2) **Improves Price Triggers Tracking**→ For businesses, tracking the price triggering points has become very important with the frustrating competition. This is where pricing analytics helps. It helps companies in improving their capabilities to analyse the factors triggering the price of a product or service and then change their pricing strategies accordingly.
- 3) **Aids in Price Elasticity Analysis**→ Price elasticity is one of the foundation of pricing strategy and pricing analytics helps in analysing price elasticity efficiently by leveraging customer’s buying behaviour and purchasing data. Furthermore, these solutions can help companies in measuring the quantity demanded of a good or service by the customers.
- 4) **Helps in Decision Making**→ Effective business decisions based on tightly defined issues including the customers who need to be focused on and the products to rationalize. These decisions are based purely on clear-cut data rather than intuition
- 5) **Quick Response towards Marketing Changes**→ Improved agility (quickness) in responding to changing market conditions or shifting competitive environment.
- 6) **Helps in Getting Feedback**→ Provides clear feedback loops so that pricing teams can assess the effectiveness and adjust as needed.
- 7) **Reduce Costs**→ Pricing analytics provides the ability to avoid costly mistakes or missed opportunities by running advanced scenario modelling—for instance; it helps identify the potential impact of a pricing change on the overall demand and profitability.

### **PRICING OBJECTIVES**

- 1) **Profits-related Objectives**→ Profit has remained a dominant objective of business activities. Company’s pricing policies and strategies are aimed at following profits-related objectives:
  - a) **Maximum Current Profit**→ One of the objectives of pricing is to maximize current profits. This objective is aimed at making as much money as possible. Company tries to set its price in a way that more current profits can be earned. However, company cannot set its price beyond the limit. But, it concentrates on maximum profits.
  - b) **Target Return on Investment**→ Most companies want to earn reasonable rate of return on investment. Target return may be:
    - Fixed Percentage of Sales;
    - Return on Investment; or
    - A Fixed Rupee Amount.Company sets its pricing policies and strategies in a way that sales revenue ultimately yields average return on total investment. For example, company decides to earn 20% return on total investment of 3 crore rupees. It must set price of product in a way that it can earn 60 lakh rupees
- 2) **Sales-related Objectives**→ The main sales-related objectives of pricing may include:
  - a) **Sales Growth**→ Company’s objective is to increase sales volume. It sets its price in such a way that more and more sales can be achieved. It is assumed that sales growth has direct positive impact on the profits. So, pricing decisions are taken in way that sales volume can be raised.
  - b) **Target Market Share**→ A company aims its pricing policies at achieving or maintaining the target market share. Pricing decisions are taken in such a manner that enables the company to achieve targeted market share. Market share is a specific volume of sales determined in light of total sales in an industry. For example, company may try to achieve 25% market shares in the relevant industry.
  - c) **Increase in Market Share**→ Sometimes, price and pricing are taken as the tool to increase its market share. When company assumes that its market share is below than expected, it can raise it by appropriate pricing; pricing is aimed at improving market share.

- 3) **Competition-related Objectives**→ Competition is a powerful factor affecting marketing performance. Every company tries to react to the competitors by appropriate business strategies. With reference to price, following competition-related objectives may be prioritized:
- To Face Competition**→ Pricing is primarily concerns with facing competition. Today's market is characterized by the severe competition. Company sets and modifies its pricing policies so as to respond the competitors strongly. Many companies use price as a powerful means to react to level and intensity of competition.
  - To Keep Competitors Away**→ To prevent the entry of competitors can be one of the main objectives of pricing. To achieve the objective, a company keeps its price as low as possible to minimize profit attractiveness of products. In some cases, a company reacts offensively to prevent entry of competitors by selling product even at a loss.
  - To Achieve Quality Leadership by Pricing**→ Pricing is also aimed at achieving the quality leadership. The quality leadership is the image in mind of buyers that high price is related to high quality product. In order to create a positive image that company's product is standard or superior than offered by the close competitors; the company designs its pricing policies accordingly.
  - To Remove Competitors from the Market**→ The pricing policies and practices are directed to remove the competitors away from the market. This can be done by forgoing the current profits – by keeping price as low as possible – in order to maximize the future profits by charging a high price after removing competitors from the market. Price competition can remove weak competitors.
- 4) **Customer-related Objectives**→ Customers are in center of every marketing decision. Company wants to achieve following objectives by the suitable pricing policies and practices:
- To Win Confidence of Customers**→ Customers are the target to serve. Company sets and practices its pricing policies to win the confidence of the target market. Company, by appropriate pricing policies, can establish, maintain or even strengthen the confidence of customers that price charged for the product is reasonable one. Customers are made feel that they are not being cheated.
  - To Satisfy Customers**→ To satisfy customers is the prime objective of the entire range of marketing efforts. And, pricing is no exception. Company sets, adjusts, and readjusts its pricing to satisfy its target customers. In short, a company should design pricing in such a way that result into maximum consumer satisfaction.
- 5) **Other Objectives**→ Over and above the objectives discussed so far, there are certain objectives that company wants to achieve by pricing. They are as under:
- Market Penetration**→ This objective concerns with entering the deep into the market to attract maximum number of customers. This objective calls for charging the lowest possible price to win price-sensitive buyers.
  - Promoting a New Product**→ To promote a new product successfully, the company sets low price for its products in the initial stage to encourage for trial and repeat buying. The sound pricing can help the company introduce a new product successfully.
  - Maintaining Image and Reputation in the Market**→ Company's effective pricing policies have positive impact on its image and reputation in the market. Company, by charging reasonable price, stabilizing price, or keeping fixed price can create a good image and reputation in the mind of the target customers.
  - To Skim the Cream from the Market**→ This objective concerns with skimming maximum profit in initial stage of product life cycle. Because a product is new, offering new and superior advantages, the company can charge relatively high price. Some segments will buy product even at a premium price.
  - Price Stability**→ Company with stable price is ranked high in the market. Company formulates pricing policies and strategies to eliminate seasonal and cyclical fluctuations. Stability in price has a good impression on the buyers. Frequent changes in pricing affect adversely the prestige of company.
  - Survival and Growth**→ Finally, pricing is aimed at survival and growth of company's business activities and operations. It is a fundamental pricing objective. Pricing policies are set in a way that company's existence is not threatened.

## **PRICE ELASTICITY**

The price elasticity for demand is the percentage of decrease in demand resulting from a 1 percent increase in price. When elasticity is larger than 1, demand is price elastic. When demand is price elastic, a price cut will increase revenue. When elasticity is less than 1, demand is price inelastic. When demand is price inelastic, a price cut will decrease revenue. Studies by economists have obtained the following estimates of elasticity:

- Salt : 0.1 (very inelastic)
- Coffee : 0.25 (inelastic)
- Legal fees : 0.4 (inelastic)
- TV sets : 1.2 (slightly elastic)
- Restaurant meals : 2.3 (elastic)
- Foreign travel : 4.0 (very elastic)

A 1 percent decrease in the cost of foreign travel, for example, can result in a 4 percent increase in demand for foreign travel. Managers need to understand the price elasticity at each price point to make optimal pricing decisions.

## **DEMAND CURVE**

The demand curve is a graphical representation of the relationship between the price of a good or service and the quantity demanded for a given period of time. In a typical representation, the price will appear on the left vertical axis, the quantity demanded on the horizontal axis. The demand curve will move downward from the left to the right, which expresses the law of demand — as the price of a given commodity increases, the quantity demanded decreases, all else being equal.

Demand schedules can be drawn up to show how a single individual reacts to price changes, or to show how a whole market will react to price changes. A market demand curve will be derived by adding up the sum of all individual consumers in a market.

## **ESTIMATING DEMAND CURVE**

Demand curve estimation refers to the exercise of estimating the demand curve, typically the market demand curve (as opposed to the individual demand curve) for a good. Demand curve estimation is typically done for the following purposes:

- 1) It may be done by sellers (and in some cases buyers) with significant market power, so that they can decide the appropriate price to set. Note that buyers or sellers who do not have market power simply set the price as the market price and know that whatever quantity they produce will get sold. In contrast, in the extreme case of a monopoly, the seller chooses both the price and quantity but is not guaranteed to sell everything. In order to be so guaranteed, the seller needs to have a plot of the market demand curve so that the (price, quantity) pair can be chosen as a point on the demand curve.
- 2) It may be done by buyers or sellers in order to better estimate prices and quantities to buy or sell for the future. Note that this is advantageous even in a perfectly competitive market: with knowledge of the future demand and supply curves, sellers can estimate future prices, and therefore optimize their long-run choices (i.e., make appropriate fixed cost investments).

The two most common forms for estimating demand curve is as follows:

- 1) **Linear demand curve**
- 2) **Power demand curve**

## **ESTIMATING LINEAR DEMAND CURVE**

A linear demand curve is the graphical representation of the relationship between the price of a good and the quantity of those good consumers are willing to pay at a certain price at a point in time. The slope, or rate that the line rises or falls, is equal to the difference between two quantities of a product, usually represented on the horizontal axis on the graph, divided by the difference price of two points of the graph, usually on the vertical axis.

Linear curves rarely exist in the real world because demand depends in large part on elasticity of demand, or how consumers react to a change in price. Also, the relationship between demand and price is not always constant. Some products are in demand regardless of price.



For example, customers probably use about the same amount of electricity regardless of price because it is essential to living. On the other hand, televisions are a luxury, so consumers usually become exponentially more willing to buy a unit as the price drops.

In linear demand curve, there is a straight-line relationship between price and demand. Symbolically, it can be represented as:

$$D = a - bp$$

Where,

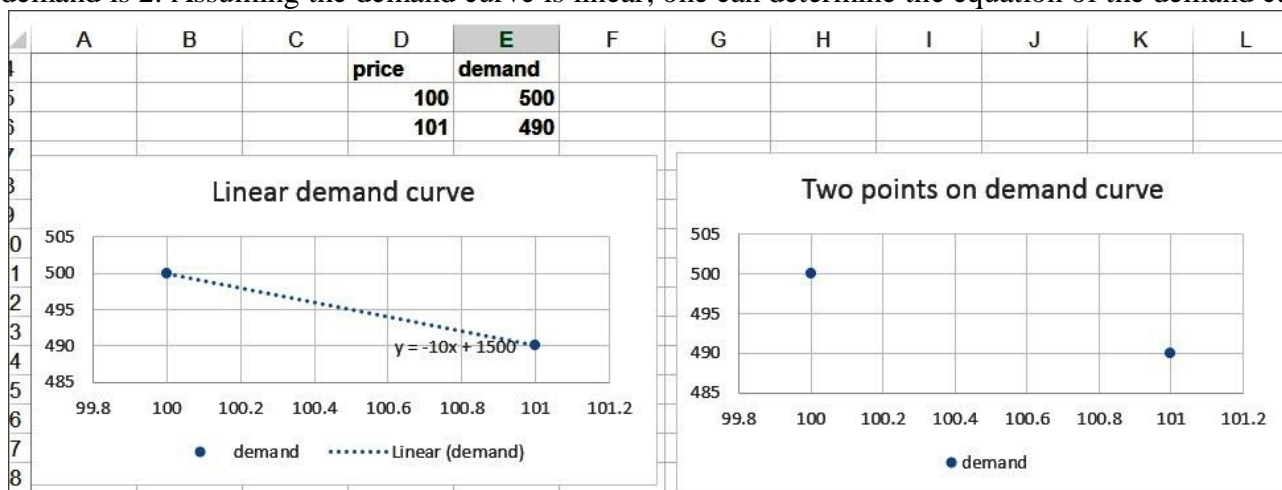
D: units of product demanded by customers

p: per-unit price

a and b: adjust curve to fit product's price elasticity

Suppose that a product's demand curve follows a linear demand curve. Given the current price and demand for a product and the product's price elasticity of demand, determining the product's demand curve is a simple matter. The following example illustrates how to fit a linear demand curve.

Suppose a product is currently selling for Rs.100 and demand equals 500 units. The product's price elasticity for demand is 2. Assuming the demand curve is linear; one can determine the equation of the demand curve.



Given two points, one should know that there is a unique straight line that passes through those two points. You actually know two points on your demand curve. One point is p=100 and q=500. Because elasticity of demand equals 2, a 1 percent increase in price results in a 2 percent decrease in demand. Thus, if p=101 (a 1 percent increase), demand drops by 2 percent of 500 (10 units) to 490. Thus p=101 and q=490 is a second point on the demand curve. You can now use the Excel Trend line to find the straight line that passes through the points (100,500) and (101,490).

### ESTIMATING POWER DEMAND CURVE

Arc that shows relationship between price and demand, when product's price elasticity is not affected by product's price is referred to as power demand curve. Symbolically, it can be represented as

$$D = ap^b$$

Where,

D: units of product demanded by customers

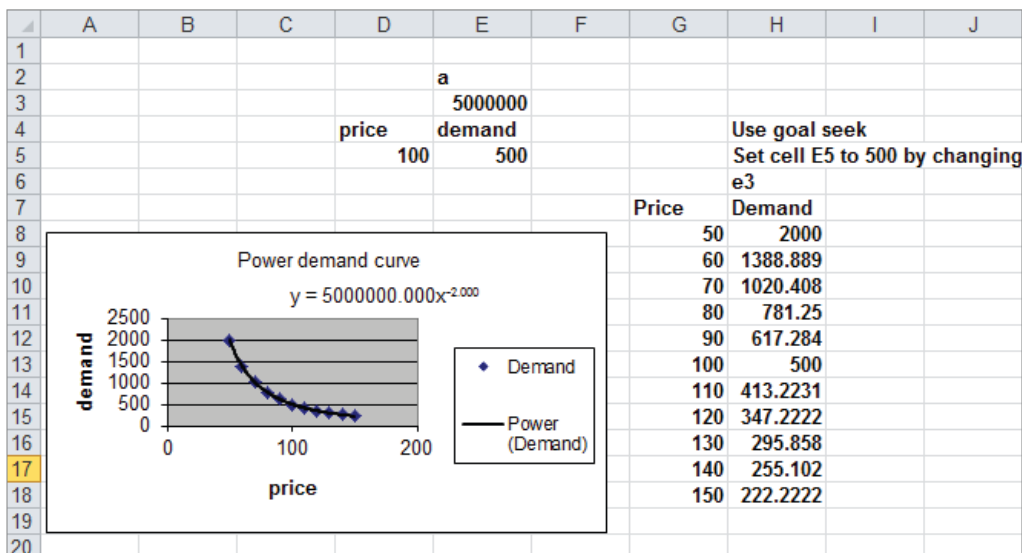
p: per-unit price

a and b: adjust curve to fit product's price elasticity

b is additive inverse of price elasticity (ex: b = -2 if elasticity = 2)

In this situation, the demand curve is described by a power curve of the form  $q = ap^b$ . If demand follows a power curve, for any price, the elasticity equals  $-b$ . Thus, for the demand curve  $q = 100p^{-2}$  the price elasticity of demand always equals 2.

Recall that for a linear demand curve the price elasticity is different for each price point. If the marketing analyst believes that elasticity remains relatively constant as price changes, then one can use a power demand curve (which has constant price elasticity) to model demand for a product. Again assume that a product is currently selling for Rs. 100 and demand equals 500 units. Assume also that the product's price elasticity for demand is known to equal 2. You can fit a power demand curve to this information by performing the following steps in the Powerfit.xls file, as shown in figure below.



- 1) After naming cell E3 as a, enter a trial value for a.
- 2) In cell D5, enter the current price of \$100. Because elasticity of demand equals 2, you know that the demand curve has the form  $q = ap^{-2}$  where a is unknown.
- 3) In cell E5, enter a formula that computes the demand when the unit price equals \$100. The demand is linked to your choice of the value of a in cell E3 with the formula  $a \times D5^{-2}$ .
- 4) Now use the Global Seek command to determine the value of a. This formula makes the demand for price \$100 equal to 500 units. Goal Seek enables you to find a value of a cell in a spreadsheet (called the By Changing Cell) that makes a formula (called the Set Cell) hit a wanted Value. In the example you want to change cell E3 so that the formula in cell E5 equals 500. Set cell E5 to the value of 500 by changing cell E3.
- 5) To invoke Goal Seek, switch to the Data tab and select What-If analysis from the Data Tools Group, then choose Goal Seek from the drop down arrow. With these settings, Excel changes the changing cell (E3) until the value of the set cell (E5) matches your desired value of 500.

A value for a = 5 million yields a demand of 500 at a price of \$100. Thus, the demand curve is given by  $q = 5,000,000p^{-2}$ . For any price, the price elasticity of demand on this demand curve equals 2.

## OPTIMISE PRICING

Pricing optimisation is using data from customers and the market to understand how one should most effectively be pricing the product. The optimal price point is the price where companies can best meet their objectives, whether that means increased profit margins, customer growth, or a blend.

Price optimisation is the use of mathematical analysis by a company to determine how customers will respond to different prices for its products and services. It is also used to determine the prices that the company determines will best meet its objectives such as maximizing operating profit. The data used in price optimisation can include survey data, operating costs, inventories, and historic prices & sales. Price optimization practice has been implemented in industries including retail, banking, airlines, casinos, hotels, car rental, cruise lines and insurance industries.

Information used in price optimization includes things like:

- 1) Customer survey data
- 2) Demographic and psychographic data
- 3) Historic sales data
- 4) Operating costs
- 5) Inventories
- 6) Machine learning outputs
- 7) Subscription lifetime value and churn data (for subscription business models)

Pricing optimisation is a similar process to dynamic pricing strategies used in hospitality, travel, ecommerce, and other industries, although dynamic pricing tends to change much more rapidly as companies tweak pricing to match real-time demand.

## **NEED OF PRICE OPTIMISATION**

The goal of pricing optimisation is to find that perfect balance of profit, value, and desire. Since one cannot control which products and features customers want, and adding valuable product features takes time and effort, most companies start finding that balance by setting two things: the starting price of their product or services, and any discounts or promotions they might offer.

- 1) **Starting Prices**→ Marketer's starting price, or base price, is important since it lets customers know whether the product or service is worth their time and investment. Starting prices should be optimised to match the baseline demand for the product before any discounts or promotions are applied. Optimising the starting price works well for companies with products and services that remain fairly stable over time, like groceries, office supplies, or even SaaS products.
- 2) **Discounted Prices**→ If one is in sales, he/she needs to know what works best to pull in new customers. Offering the product at a discount—or, in some cases, even offering a freemium version—is a great way to bring in new customers (customers acquired through freemium offerings cost nearly half as much to acquire as those who sign up for paid offerings directly).
- 3) **Promotional Prices**→ What promotional offers would serve the marketer and his/her customer's best? Will markdowns create any additional profit, or are the marketer better off charging the starting price? How big of a discount should one can offer below the starting prices? How long will something take to sell at a specific price point? Optimising the promotional prices can help boost sales for newly introduced products and promotional bundles—for example, a SaaS company launching a new product, or bundling multiple products.

## **HOW TO OPTIMISE PRICING**

Finding the right price for the product—a price that maximises value for customers and profit for marketer— starts with gaining a deep understanding of the customers. Marketers need to understand who the best customers are, what features they like, and what features they need. Once marketers understand that, he/she can align the pricing with what they value, tracking the results of the price changes he/she make and improving over time.

- 1) **Get to Know Your Customers**→ Optimising the pricing is all about the data—both qualitative and quantitative. Hard data is the only way to find out how much customers are willing to pay for the product, and it is the key to breaking free from the guessing cycle. Quantitative data, like transactional data, customer reviews, supply and demand data, churn rate, MRR, and more show marketers how he/she is doing and what needs to be changed. Software like Price Intelligently can help marketer make sense of those metrics and turn them into pricing insights by slicing and dicing the data based on demographic, psychographic, and customer preferences. Just as helpful, qualitative data comes from talking to customers. Surveys are great, but they're no match for picking up the phone and actually talking to customers, asking them about topics such as their price sensitivity and what features or benefits they value most in the product.
- 2) **Quantify Value**→ Once marketers have collected all the customer data, it is time to work out what “value” actually means to the customers. That means working out the value metric. Marketer's value metric is essentially what and how he/she is charging for the product—identifying and pricing along the proper value metric is the difference between surviving and thriving.
- 3) **Analyse the Data**→ Marketer's have collected some customer data and worked out what the customers value—now it is time to look for patterns in the features, benefits, price points, and value metrics that drive or detract from value. One can also find out how willing different segments and personas are to pay different prices for the products. One can use findings to create tiers and proper packages for the product or services. Each tier should be priced along the value metric, and should align with the different buyer personas so that marketer's offering the right amount of product or service to each customer segment.
- 4) **Adjust Pricing and Monitor**→ Even once marketers set the prices, they are still not done—the value one can provide versus the competitor's is constantly changing, so one needs to be constantly monitoring and adjusting the pricing. Pricing is an ongoing process. One need to continually collect data and analyse the value customers are getting from the product to make sure that what one is offering still meets the customer's needs and pricing desires. One can make sure to keep a very close eye on the pricing, and see how customers respond. If need be, re-evaluate and change things up—but don't be too quick to switch, since one might alienate potential or existing customers.

## **REASONS FOR FAILURE OF COMPANIES TO OPTIMISE PRICING**

To make a long story short, most companies are not willing to put in the effort to optimise their pricing decisions. All the customer research needed to figure out the right valuations takes time and effort. Surprisingly, the average company only spends less than ten hours per year on their pricing strategy, which is not enough. Instead, companies turn to strategies like guessing, relying on discounts, and not pricing based on value.

- 1) **Guessing**→ Many companies simply guess what an optimal price point would be instead of using analytics and metrics that their customers have given them. With the right positioning and promotion, even guessing at the prices will work to some extent—it is easy to take that as a sign that the pricing is “good enough.”
- 2) **Misunderstanding Tiers**→ Many companies don’t know how many different pricing tiers or levels they should incorporate into their pricing structure. It’s a common misconception that more tiers equals more conversions. Data shows that too many or too few options push away potential customers, with a clear decrease in conversion rates as the number of tiers gets higher.
- 3) **Relying Heavily on Discounts**→ The problem with discounting is that many companies wield discounting like a sledgehammer instead of a scalpel. Yes, it juices the acquisition metrics in the short term, but over time discounting can reduce the SaaS lifetime value by over 30%. Discounted customers have just over doubled the churn rate of those who pay full price—they’ve either been trained to devalue the product, or they just were not the right customers in the first place.
- 4) **Not Pricing for Value**→ Value-based pricing is the best price optimization model since it includes both marketer and the customer’s optimal prices. The goal with value-based pricing is to figure out how much each customer is willing to pay for the product, so one can maximize revenue by charging each customer exactly what they are willing to pay. Figuring out what that price should be, though, is not easy.
- 5) **Target**→ That is why so many companies lose out on revenue by setting their prices based on those of their competitors or on their costs—they don’t want to put in the effort.

## **INCORPORATING COMPLEMENTARY PRODUCTS**

A complement refers to a complementary product or service used in conjunction with another product or service. Usually, the complementary product has little to no value when consumed alone, but when combined with another product or service, it adds to the overall value of the offering.

A product can be considered a compliment when it shares a beneficial relationship with another product offering, for example, bread & butter.

The joint demand nature of complementary products causes interplay between the consumer need for the second product as the price of the first product fluctuates. In economics, this connection is called negative cross-elasticity of demand. So, as the cost of a product increase, the user’s demand for the complement product decreases. Further, as consumer demand weakens, the market price of the complementary product or service may fall. For example, when the price of a product rise, the demand for its complement falls because consumers are unlikely to use the complement product alone.

Additionally, complementary pairs are not two-sided and often have one-sided effects. Using another example, if the price of car tires decreases, it will not necessarily increase the demand for cars. However, if the price of automobiles decreases, it will increase the demand for car tires as more are sold.

## **COMPLEMENTS AND ELASTICITY**

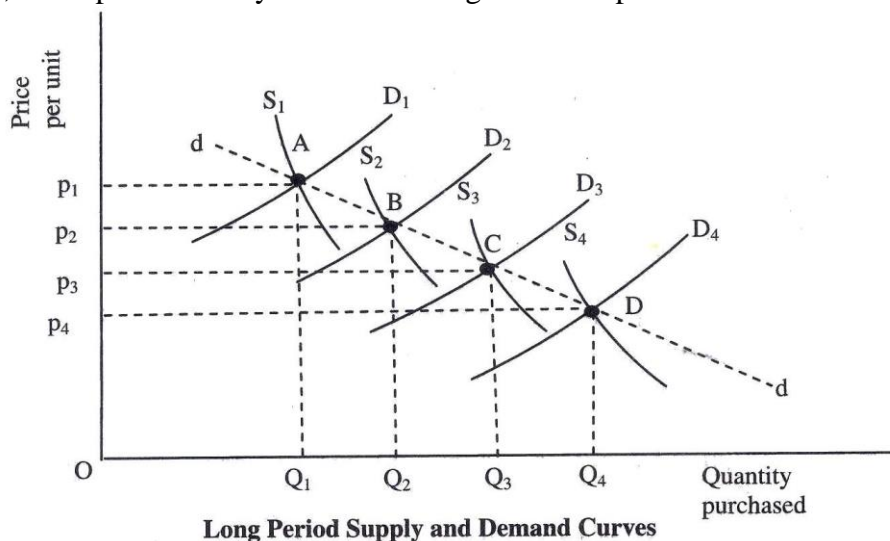
There are weak complementary products and strong complementary products. Weak complements have a low cross-elasticity of demand. For example, if the price of coffee increases it will only have a marginal impact on reducing the consumption of cream. In the case of Apple increasing the price for iPhones, this would reduce sales of iPhones and the demand for iOS apps.

Complementary products differ from substitute products, which are different products or services that satisfy the same consumer need. The Apple iPhone is a substitute for Samsung phones. These two products can, therefore, replace each. So, rather than complement each other they become substitute products. For this reason, if the price of the iPhone increases, the consumer demand for a substitute will also increase.

- A complementary product is one used in conjunction with another product or service.
- Such a product may have little value without its complement.
- When the price of a particular product rises the demand for its complement drops because consumers are unlikely to use the complement alone.

## PRICING USING SUBJECTIVELY TO ESTIMATE DEMAND CURVES

Sometimes one may not be able to accurately calculate price elasticity of demand for a product. In other situations, one may believe the linear or power demand curve is not relevant. In these situations, one way to determine a product's demand curve is to identify the lowest price and the highest price that seem reasonable (perhaps using like products). One can then try to estimate the product's demand with the high price, the low price, and a price midway between the high and low prices.



Suppose due to changes in income, population and other factors, the theoretical demand curve shifts from  $D_1$  to  $D_2$ ,  $D_2$  to  $D_3$  to  $D_4$  in above figure. The corresponding supply curve at each of these points occupies positions  $S_1$  to  $S_4$ . The price-quantity observation which is recorded in period 1 (say, 1981) is given by the intersection of  $D_1$  to  $S_1$ , namely, A. The next one is determined by the intersection of  $D_2$  and  $S_2$  at B (in 1982).

Thus we get a series of observations A to D for four years, viz., 1981, 1982, 1983 and 1984. These together trace out a demand curve  $dd$ . But this is not the same demand curve discussed in theory. More specifically, it is not reversible. It is improbable (unlikely) that we can move back from C to B and B to A.

It is unlikely that the precise combination of conditions which prevailed at these points will be repeated. In practice, the demand and supply curves may not move consistently in the same direction, as is assumed in this diagram. They may move up or down rather erratically.

In above figure, points A, B and C are not three points on a single demand curve for, say, product X. Each point is on a different demand curve — one that is shifting over a period of time. So just by connecting them we cannot trace out the product demand curve.

A firm may interpret the line  $dd$  (which is a locus of points A, B, C and D) as the demand curve by mistake. Thus it might assume that a reduction in price from  $P_1$  to  $P_2$  increases sales from  $Q_1$  to  $Q_2$ . An expansion of demand may well justify the price reduction.

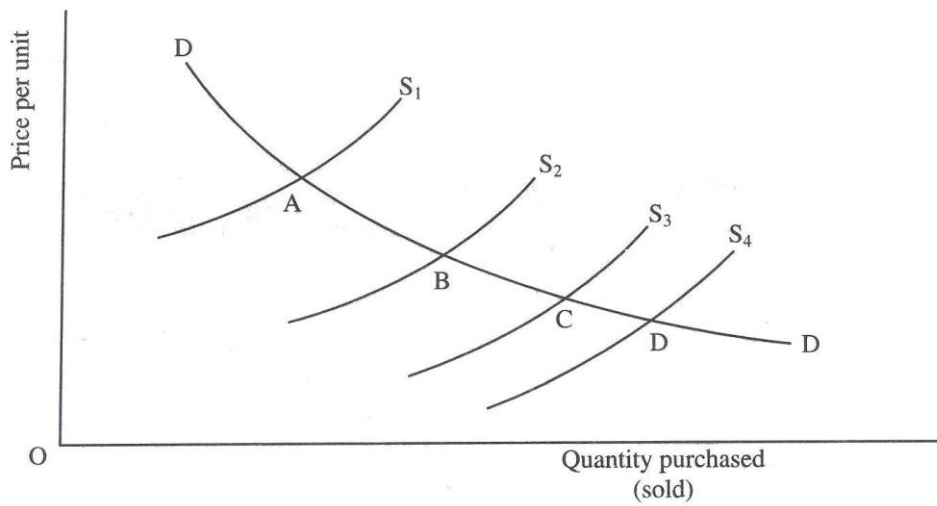
But, in practice, such a price cut will result in a much smaller increase in demand. The true demand curve ( $D_1$ ) is much less elastic than the line  $dd$ . Thus, a price cut is much less desirable than it appeared at the first sight.

## SIMULTANEOUS RELATIONSHIP

So there is interrelationship between demand and supply curves. Now, data on prices and quantities purchased can be used to estimate a demand curve only under two sets of conditions:

- 1) The demand curve has not shifted, but the supply curve has shifted; or
- 2) We have almost complete information to determine just how each curve has shifted during the observation period (which covers four years in this case).

Suppose there is a technological change in the production of X. So costs in the industry will fall sharply within a short period but demand conditions are likely to be stable. The situation is illustrated in below figure. Here the demand curve, which initially was unknown, is now assumed to be stable. The supply curve shifts from  $S_1$  to  $S_2$ ,  $S_2$  to  $S_3$  and  $S_3$  to  $S_4$ .



**Estimating a Stable Demand Curve**

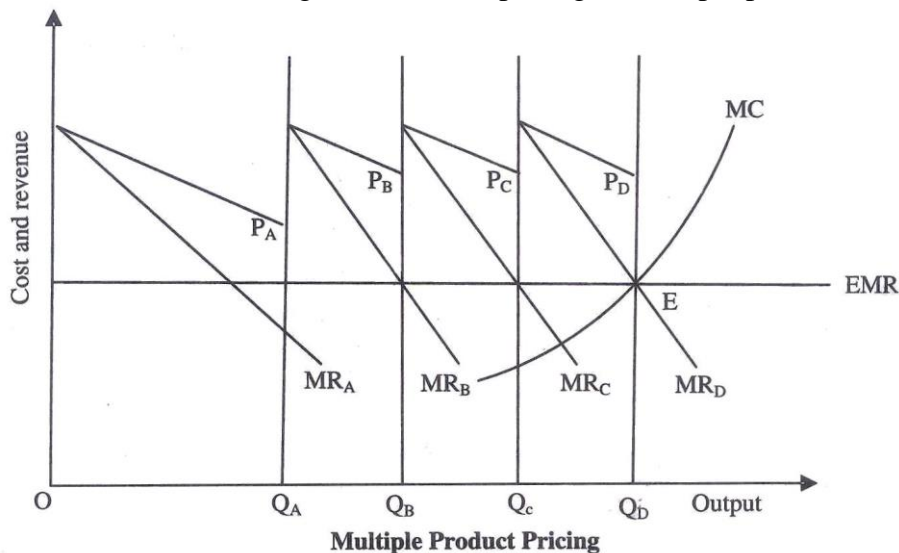
It is clear that each price/quantity point represents the intersection of the supply and demand curves. Since all the demand determinants except price are assumed to be stable, points A, B, C and D must be on the same demand curve. So the demand curve DD can be estimated by connecting the four points.

**PRICING MULTIPLE PRODUCTS**

Generally, organisations produce more than one product in their line of production. Even a single product of an organisation can differ in styles and sizes. For example, a refrigerator manufacturing organisation produces refrigerators in different colours, sizes, and features. Similarly, an automobile organisation manufactures vehicles in different colours, sizes, and mileage. The pricing in case of multiple products is called multiple product pricing or Portfolio Pricing or Category Pricing.

The demand curve for multiple products would be different. However, the MC curve of these products is same as these are produced under interchangeable production facilities. Therefore, AR and MR curves are different for each product. On the other hand, AR and MC are inseparable. Therefore, the condition of  $MR=MC$  cannot be applied directly to fix the prices of each product.

The solution of this problem was provided by E.W. Clemens who stated how the multi-product organisations fix prices of their products. Suppose there are four differentiated products. A, B, C, and D produced by an organization. The below figure shows the pricing of multiple products:



As shown in above figure, the AR (price) and MR curves for four products are shown as four different curves and MC curve is shown as the total of MC of all the products. Suppose the aggregate MR curve, which is the total of all individual MR curves, passes through point E on the MC curve.

From point E, a parallel line, equal marginal revenue (EMR) is drawn towards Y- axis (parallel to X-axis). This parallel line passes through the MRs of A, B, C, and D. The output and prices of these four products are determined at the points where their respective MC and MR curves intersect each other.

As shown in above figure, OQa, QaQb, QbQc, QcQd are the output levels of products A, B, C, and D and PaQa, PbQb, PcQc, PdQd are the prices of the products respectively. These are the maximum price and output levels of an organization.

## **PRICE BUNDLING**

Bundling is when companies package several of their products or services together as a single combined unit, often for a lower price than they would charge customers to buy each item separately. This marketing strategy facilitates the convenient purchase of several products and/or services from one company. The products and services are usually related, but they can also consist of dissimilar items which appeal to one group of customers.

**According to Gultinan**, price bundling can be defined as “the practice of marketing two or more products and/or services in a single ‘package’ for a single price”.

The overall aim of a bundling strategy is to promote multi-item purchase in consumer groups that would normally purchase one good or the other but not both.

For example, mobile phone retailers frequently bundle the prices of several products and services together for their new customers. They offer the phone itself with a package that also includes the 2-year phone plan, internet access, and phone charger. This bundle benefits the customer because it provides them with all the tools they need for their phone all at once and it benefits the mobile phone retailer because they are selling the customer supplementary products and services other than just a phone.

The main appeal to sell things in a bundle is that you can introduce new or complementary products packaged with a consistent high seller. Many businesses do this to try to promote new products and get customers interested enough to buy more.

Bundle pricing is built on the idea of consumer surplus. Every customer has a price that he is willing to pay for a particular good or service. If the price set by the marketer is equal to or lower than what the customer is willing to pay, the customer will buy, as he considers the price a bargain. The difference between what the customer pays and what the customer was willing to pay is known in economics as the consumer surplus. Bundle pricing is an attempt to capture more of the customers’ consumer surplus.

## **FORMS OF PRICE BUNDLING**

There are two forms of price bundling — pure bundling, where the seller does not offer buyers the option of buying the items separately, and mixed bundling, where the seller offers the items separately at higher individual prices. Mixed bundling is usually preferable to pure bundling, because there are fewer legal regulations forbidding it, and because the reference price effect makes it appear even more attractive to buyers.

## **PURE BUNDLING**

Pure Bundling is the practice of offering two or more goods in bundled form only. This type of bundling occurs when the products in the package can only be sold together. If they’re sold separately then they cease to function or the usefulness is greatly reduced.

Pure bundling is when products are only sold together. In some cases, products do not exist outside the bundle. In other words, pure price bundling is a pricing strategy in which a firm bundles two or more products/services for one fixed price, without integrating the products or offering them separately. **For example**, restaurants that offers a fixed price menu (thali).

## **Sub-Categories of Pure Bundling**

Pure bundling has three subcategories: joint bundling, leader bundling, and mixed-leader bundling.

- 1) **Joint Bundling**→ Joint bundling is when the two products are offered together for one bundled price.
- 2) **Leader Bundling**→ Leader bundling is when a leader product is offered for a discount if purchased with a non-leader product, accessory, etc.
- 3) **Mixed-Leader Bundling**→ Mixed-leader bundling is a type of leader bundling with the added possibility of buying the leader product on its own.

## **Advantages of Price Bundling**

Bundle pricing has many advantages.

- 1) **Helps in Selling of Less Popular Products**→ The most important one is it that it allows companies to sell their lesser known or unpopular products with the popular ones.
- 2) **Attracting Different Kinds of Buyers**→ It will also help attract different kinds of buyers like, buyers looking for deals, buyers looking for convenience or buyers looking for advice on items that complement each other.

- 3) **Attract Customers by Offers**→ Some consumers will be spending more than they initially wanted when they see an offer they like (if marketer offer the product that they already wanted to buy with something they wanted to try but never got to it).
- 4) **Promoting Two or More Products at a Time**→ Product bundles have lower marketing cost because marketers are promoting two or more products with an effort and resources for one.

### Disadvantages of Price Bundling

No matter how great a strategy is there is always a downside to it. The various disadvantages of price bundling are as follows:

- 1) **Cannibalisation of Product**→ The biggest disadvantage for this one is that it can lead to cannibalisation of products that can be bought outside of the bundle. For example, one is selling a laptop and a printer together, but also separately. Because of this more printers could be sold through the bundle than on its own. This does cause lower profit for that particular product.
- 2) **Customers Feel Forced to Buy More**→ There is also a chance that some consumers won't buy something if it cannot be bought separately because they feel forced to buy more.
- 3) **Less Revenue**→ Another limitation of price bundling is that company has to give some discounts for the bundled product or service leading to loss of revenue for the company. For example, if an electronic company can sell DVD and television separately comfortably then price bundling can be revenue losing proposition for the company.

### MIXED BUNDLING

Mixed bundling is the most popular type of bundling. Mixed bundling, also called custom bundling, is when customers are offered to purchase a bundle or separate products on their own. Mixed bundling allows the consumer to either purchase the products separately or in bundled form.

In this bundle pricing strategy, two products which tend to be sold separately are combined as a package with a reduced price. It works best when the product is something people buy more than one of.

In other words, mixed price bundling is a pricing strategy in which a firm sells the separate products/services (unchanged) in a price bundle and also sells them separately at their regular prices. **For example**, Samsonite's strategy of selling different sizes of suitcases separately as well as in a bundle.

### DETERMINE OPTIMAL PRICE BUNDLING

The optimal bundle price is a single lump sum amount equal to the total area under the demand curve at that point. One can understand the optimal price bundling with the help of a given example.

#### Consumer Surplus under Unbundling, Pure Bundling, and Mixed Bundling

|                               | Unbundling                 |              | Pure Bundling | Mixed Bundling                      |              |               |
|-------------------------------|----------------------------|--------------|---------------|-------------------------------------|--------------|---------------|
| <b>Price (\$)</b>             | $P_F = 800$<br>$P_H = 400$ |              | $P_B = 1,000$ | $P_F = 800, P_H = 700, P_B = 1,200$ |              |               |
| <b>Consumer Surplus From:</b> | <b>Flight</b>              | <b>Hotel</b> | <b>Bundle</b> | <b>Flight</b>                       | <b>Hotel</b> | <b>Bundle</b> |
| <b>Consumer 1</b>             | 200                        | N/A          | 250           | N/A                                 | N/A          | 50            |
| <b>Consumer 2</b>             | 0                          | 0            | 200           | N/A                                 | N/A          | 0             |
| <b>Consumer 3</b>             | N/A                        | 300          | 0             | N/A                                 | 0            | N/A           |

- 1) Consumer Surplus (\$) = Reservation Price – Price
- 2)  $P_F$ ,  $P_H$ , and  $P_B$  represent the prices of flight, hotel, and the flight + hotel bundle respectively.
- 3) N/A represents a consumer does not purchase the product since its price exceeds her reservation price. In contrast, 0 (zero) means that a consumer actually purchases the product, but cannot enjoy any positive consumer surplus because the price she pays is equal to her reservation price.

This simple example indicates that bundling has an ability to generate greater revenue than unbundling, and furthermore, mixed bundling may work better than pure bundling in increasing revenues.

However, it should be noted that this example holds true only under a number of strict assumptions on consumer reservation prices, market competition, costs, the number of products, etc., hence it is rather difficult to apply this example to more general situations. Indeed, most bundling literature in economics and marketing considered a series of attempts to examine the relative optimality of the three bundling strategies (i.e., unbundling, pure bundling, and mixed bundling) under various assumptions and create more generally applicable principles.



We can now understand why online travel agents offer travel “packages” as well as individual travel products and under what conditions mixed bundling is more profitable than either pure bundling or unbundling. However, there remains a question regarding the pricing of a bundle. That is, what prices should be set for a bundle and for its component products under mixed bundling?

Most of the previously reviewed studies explicitly or implicitly assume that mixed bundling accompanies discounts. Indeed, as **Adams** and **Yellen** acknowledge, the additivity assumption (i.e., independence in demand), which is very common in traditional economics bundling literature, makes mixed bundling a distinct strategy only if the price for a bundle is lower than the sum of the prices for its component products; otherwise, nobody would buy the bundle. In addition, if bundling indeed brings about considerable cost savings and the market is competitive rather than monopolistic, firms will probably have strong motivation to offer discounts for bundled sales.

**Venkatesh** and **Mahajan** develop a probabilistic model for determining optimal prices of a bundle and/or its component products under unbundling, pure bundling, and mixed bundling strategies. They apply the model to pricing ten single music/dance performance tickets and the season ticket, which is in this case the bundle of the ten individual performances over a certain time period.

The results are consistent with the traditional view that mixed bundling yields more profits than the others. The results also confirmed that mixed bundling generally occurs with considerable discounts on the bundle: the optimal prices were \$14 for the single ticket and \$55 for the season ticket. However, this model did not consider complementary relationships among the products.

**Venkatesh** and **Kamakura** develop another pricing model that considers the degree of complementarity or substitutability among products. The model suggests that a bundle of complements be priced higher than a bundle of individually valued products under mixed bundling.

### **NONLINEAR PRICING**

Nonlinear pricing is a broad term that covers any kind of price structure in which there is a nonlinear relationship between price and the quantity of goods. In other words, nonlinear pricing is the phrase used to describe pricing schemes in which the price is not strictly proportional to the amount purchased (hence nonlinear). An example is affine pricing.

A nonlinear price schedule is a menu of different-sized bundles at different prices, from which the consumer makes his selection. In such schedules, the larger bundle generally sells for a higher total price but a lower per-unit price than a smaller bundle.

Nonlinear pricing can be used as a broad term to offer discount schemes where different pricing bundles offer higher total revenue for the seller with a lower per unit price for the buyer. In layman terms, the seller benefits from customers buying more of his products while the customers benefit from getting the goods at a reduced price.

As sellers usually benefit from selling more of a specific product -even at a reduced price, this is pretty much a win-win situation where both the seller and the buyer get something they want.

### **PROFIT MAXIMISING STRATEGIES USING NONLINEAR PRICING STRATEGIES**

Non-linear pricing is prevalent in many markets, from phone and electricity tariffs to supermarkets items. There is an extensive literature that studies non-linear pricing as a tool for surplus extraction, often as a device for price discrimination in the context of heterogeneous buyers. However, the contrast with linear pricing is particularly stark when consumers are homogeneous: in this case, the optimal non-linear pricing policy involves a monopolist selling the socially optimal quantity and extracting the entire surplus.

A nonlinear tariff is much like a product line: offered a menu of quantities and corresponding charges, each customer chooses a preferred quantity and pays the associated charge. Each customer’s decision is essentially to select how many incremental units to buy or, when use is continual, the average rate of usage.

Agricultural, commercial, and industrial customers account for the majority of sales in the main industries that use nonlinear pricing. Most of these customers are systematic and careful to obtain the maximum net value from service; **for example**, it is increasingly common to employ specialized managers aided by computerized control systems for services such as communications, power, and transportation.

Moreover, these customers usually have stable preferences determined by production technologies, facility configurations, and sales and distribution systems. Among residential customers, an important segment is

equally careful to obtain maximum advantage from the menu of options offered. Among utilities, the primary motive for pricing above marginal cost is to obtain sufficient revenue to cover periodic operating costs and to repay the cost of capital used to install capacity such as durable equipment.

In oligopolistic industries where entry is limited by the magnitude of fixed costs in relation to profits, nonlinear pricing plays a similar role in maintaining profits sufficient to retain the maximum number of viable competing firms: this works to the ultimate advantage of customers even though it represents an exercise of monopoly power.

### **Practical Uses for Nonlinear Pricing**

Nonlinear pricing has several roles in practice. In some cases nonlinear pricing promotes more efficient utilization of resources. In others it is used to meet utilities' revenue requirements. And, it can also be used by firms with monopoly power to increase their profits.

Nonlinear pricing is often necessary for efficiency. This is the case when the firm's cost per unit of filling or shipping an order varies with the size of the order. Similarly, if the firm has higher inventory costs than customers do then inducing customers to make periodic large purchases promotes efficiency. In the case of electric utilities, purchasers of large quantities of power typically have higher load factors, so quantity discounts recognize lower costs of idle capacity for these customers. Quantity discounts of this sort are motivated by cost considerations.

1) Nonlinear pricing can be used by a regulated monopoly to recover administrative and capital costs. In important contexts, using its monopoly power to obtain operating profits sufficient to meet its revenue requirement is the most efficient means available to a utility or other public enterprise.

Efficiency in these contexts refers to avoiding allocative distortions caused by deviations from prices set equal to marginal costs. In particular, if the regulatory objective is to maximize an aggregate of customers' net benefits from the firm's operations, then a nonlinear tariff minimises allocative distortions.

2) Nonlinear pricing is often a useful strategy in competitive markets. For example, newspapers and magazines offer quantity discounts to attract large advertisers who have substitutes available in other media such as television.

Telephone companies offer quantity discounts for long-distance calls to retain large customers who otherwise might elect to bypass local exchanges. Frequent-flier plans offered by airlines were initially competitive tactics designed to appeal to business travellers. Quantity discounts of this sort are motivated primarily by competitive pressures in submarkets segmented by customers' volume of purchases.

3) Nonlinear pricing can also be used as a means of price discrimination that enables a firm with monopoly power to increase its profits. In this case, it is used mainly as a means of market segmentation in which customers are classified into volume bands. The extent to which it increases profits depends on the degree to which higher-volume customers have higher demand elasticities for incremental units.

An example is a product line of machines, such as copiers or printers that appeal to different volume bands because more expensive machines have higher rates of output and lower marginal costs. Nonlinear pricing of this sort is motivated primarily by market segmentation, but the prices are determined less by competitive pressures to survive than by profit opportunities that arise from differing elasticities of demand in various submarkets.

### **ADVANTAGES OF NONLINEAR PRICING**

The advantages of using nonlinear pricing are as follows:

1) **Profit to Heterogeneous Customers** → This role emerges if consumers have heterogeneous tastes for a firm's products. In this case, a nonlinear tariff can be used to sort different types of consumers endogenously (so-called second-degree price discrimination).

If some consumers gain higher utility from the product than others, then if the firm offers a tariff where the marginal price declines with volume, it will typically make higher profit than if it offers the same marginal price to all consumers.

2) **Efficient Way for Regulated Monopoly to Recover Costs** → It follows an efficient way for regulated monopoly to recover costs benefits large customers via quantity discounts.

- 3) **Selling More of Products**→ As marketers already know, getting more for less is something that people can hardly resist. When one uses a nonlinear pricing strategy, people are tempted to buy more of the products to make the most out of offers. If the business benefits from selling more items, this is an advantage that makes this strategy worth considering.
- 4) **Generate Consumer Surplus with Homogenous Customers**→ Nonlinear pricing provide a more efficient means by which to generate consumer surplus. With linear pricing, the only way to make profit is to set prices above costs, which entails deadweight losses.  
With a two-part tariff, however, a firm can extract profit using the fixed charge, while leaving marginal prices close to marginal costs (which then maximizes the size of the “pie” to be shared between consumer and firm). This role for nonlinear pricing exists even if all consumers are similar.

### **DISADVANTAGES OF NONLINEAR PRICING**

The disadvantages of using nonlinear pricing are as follows:

- 1) **Making Products Look Cheap**→ One major downside of using a nonlinear pricing strategy is that it makes your products look cheap. Imagine a company like Apple offering two iPhones with a 10% discount, or a fancy restaurant offering a discount on target portions.
- 2) **Uniform/Non-discriminatory**→ Fixed charge in nonlinear pricing may discourage some people from taking service at all.
- 3) **Loss of Efficiency**→ Some consumers are driven out from the market if the fee exceeds their individual consumer surplus at hence efficiency loss, as these customers might have been willing to pay price/unit (without the fixed fee).

### **PRICE SKIMMING**

Price skimming can be defined as a product pricing strategy where a consumer will pay the highest initial price demanded by a firm. Once the demand of the initial consumers is fulfilled, it reduces the price of the product to interest other customers who have a price sensitive approach while making purchase decisions. Thus, ‘skimming’ term is derived from skimming of the creamy layer of customer segments because later the prices are lowered for attracting other customers.

Price skimming is one of the methods selected by firms who intend to launch new product in the market. Here, the launch price of the product is kept high, which is gradually decreased within a given time period to recoup the value of the product in a faster way. For example, mobile phones having new and improved attributes are launched at high prices, which are gradually decreased by the company after a certain period. One more example can be of newly launched 3D televisions available at high prices.

Price skimming strategy is the method of selling a product or service at relatively high price. It is generally implemented during the introduction stage of a new product. During this stage, the demand for the new product is comparatively inelastic; hence, it becomes most convenient time to apply this strategy. This method is used to earn significant profits during the initial period of product launch, in order to recover the investment made in the manufacturing of product. However, by doing so, a company might lose its better chances of having high sales volume, by selling its product at comparatively low prices. In due course of time, the company exercising price skimming, should relax its product’s price as competitors may take advantage of this situation by offering their products at lower prices in market. Hence, price skimming strategy is appropriate only for a short term.

The market is comparatively small when a firm gets involved in price skimming because only initial adopters are obliging to pay for such an expensive product. Therefore the sales volume at such high prices often falls as the rest of the potential customers are not ready to purchase the product at the price demanded by the seller. If the company wants to see itself in a stable position in near future then such strategy will make the company incompetent in the market. Hence, price skimming technique is best suited for companies which develop a constant series of new products and give emphasis on research and development. They do not aim to become the low-cost provider in the market.

### **CONDITIONS OF PRICE SKIMMING**

Skimming policy is desirable in the following cases:

- 1) If a limited supply exists, the company may follow a skimming approach to match demand and supply.
- 2) Where the exporter wants to skim the cream before competitors enter the market.
- 3) Where a company wants to maximize its revenue.

- 4) When initial cost of production is very high which has to be recovered as early as possible.
- 5) Where the products are of specialty goods such as fashion-oriented goods.
- 6) Where the segment of the market is willing to pay a premium price for the value received.
- 7) Where the price and quality relationships are viewed favorably. High prices imply high quality for quality conscious customers.

### **ADVANTAGES OF PRICE SKIMMING**

Following are the advantages of using the price skimming method:

- 1) **Establish the Brand**→ Price skimming is advantageous in creating value for a product by establishing its brand image. In order to attract customers towards a new product, a strong brand, which is able to link up with the target market, is required to be established. Firms may use price skimming strategy to reach target market segment for developing a brand on the basis of status or quality.
- 2) **Perceived Quality**→ The advantage of skimming priced products is that they are perceived as high quality products by the customers. Every customer desires to get the best quality of products or services when he/she is buying it for his/her business or family members. Price is one of the many criteria considered by mostly every customer, while purchasing various items including essentials like food grains or high end products like electronics items.
- 3) **Attract Status Conscious Consumers**→ Another advantage associated with this method is that they help in attracting status conscious customers. Customers who are conscious of their social ranking or class usually go for purchasing highly priced products, since price corresponds to quality. Price skimming strategies are used by different firms to sell their products to target segment including luxury items, designer labels, etc. These status conscious customers help develop an instinct for recognition of the product or brand in the opinion of other consumers who may be inspired to buy such products when their prices fall.
- 4) **Early Adopters Brand Promoters**→ In price skimming strategy, the early adopters of the products proves advantageous for they serve as brand promoters. They purchase the product when it is launched with no competition in the market, thus, help as brand campaigners for the company. Price skimming strategy does not deter them from purchasing the product. Early adopters playing the role of brand campaigners publicise about the new product through the most common medium of marketing, i.e., word of mouth. The stimulation created by these early adopters helps increase sales volume and promotes the products or services priced under price skimming.
- 5) **Recoup Costs of Goods Sold**→ Price skimming is also advantageous because it helps in recovery of the costs involved in production of the products. Heavy investment is involved to develop new and innovative products such as procuring raw materials, supplies, plant and equipment, research expenses, salaries of employees, costs incurred for advertising and marketing the product, etc. A price skimming strategy is opted by companies who wish to recover the costs incurred by them during manufacturing of the product.
- 6) **Effectiveness Short Lifecycle Products**→ Another advantage of price skimming strategy is that it can be readily applied to products like electronics and computer equipment which have a short lifecycle. It is most suitable for these types of products. For example, a new model of computer generally offers better features like enhanced graphics and calculation power than any previous model. Therefore, customers are generally ready to pay premium price for a latest and powerful model of computer which has all the latest features and applications.
- 7) **Subsidy**→ In price skimming strategy, the early adopters help in providing products to the other potential customers segment at subsidised rates. For example, products such as television, stereos, computers, play station, etc., which were quite costly at the introduction stage, can be purchased by prospective customers at an affordable price later.
- 8) **Saves Money on Advertising**→ Price skimming technique enables a firm to save the expenses related to advertising. The buyers who buy the product at a later stage are influenced by pricing factor and have different preferences in comparison with those who are the early buyers and who buy the product immediately as they can shell out more money for the same. The preferences of early adopters of products differ from that of customers who buy the products later. Different ads are developed for different target segments. This helps in preventing the unnecessary expenditure on advertising.
- 9) **Discount**→ Slamming price strategy helps the seller to offer their products at discounted price at later stage, to attract more customers. Discount offer always prompts a buyer to buy the commodity because it seems to be an effective deal. The product is priced at a higher price using price slamming method

during the introduction phase. Later if the firm offers a discount of 50 per cent or more on the same product, the customers would be allured by the opinion that such an expensive product is being made available at a sale price.

### **DISADVANTAGES OF PRICE SKIMMING**

The following are disadvantages of using the price skimming method:

- 1) **Competition**: The biggest disadvantage of price skimming strategy is that there will be continuous entry of one or more competitors in the market offering low priced products, creating a challenge for the skimmed priced products.
- 2) **Sales Volume**: Another disadvantage of price skimming strategy is that it lowers down the sales volume. The concept of decreasing the price of the product by increasing sales volume is not possible with firms adopting price skimming approach.
- 3) **Consumer Acceptance**: High prices of product continued for longer time period is not accepted by the prospective customer segments. This is another big disadvantage of price skimming.
- 4) **Annoyed Customers**: Company adopting the price skimming technique can experience bad publicity and very low level of brand loyalty from the early adopters of the product. This may happen when the firm reduces the price of the product at a later stage which displeases the early adopters, who had purchased the product at a very high price.
- 5) **Cost Inefficiency**: The firms using skimming pricing are not able to maintain same profit margin (at the time of launch) when lowering their prices in later stages. This is so because they find it difficult to cut the cost of production.
- 6) **Difficult to Maintain Stock**: Difficulty in maintaining the highly priced stock is another disadvantage of price skimming strategy. The distribution chain of the firm may find this approach difficult, and therefore, retailers can demand a higher profit margin to carry on with the distribution of such product. The manufacturer's distribution chain is also affected due to the very low inventory turnover rate of these products. In order to maintain the commitment and willingness of the retailers towards the product, it becomes necessary for the firm to give high profit margins.
- 7) **Slow Rate of Stuff Diffusion and Adaptation**: Lastly, slow rate of stuff diffusion and adaptation is also a disadvantage of price skimming. Hence, a substantial amount of demand remains untapped or unexploited.

The time gap between diffusion and adaptation of product gives competitive edge to the competitors. Meanwhile, they either create a replica of the product or modify the existing product and launch it in market at comparatively low prices. In the process, the company may lose the opportunity which is now in the hands of their competitors.

### **SALES**

In simple terms, selling is the act of persuading, i.e., convincing the buyers to make a purchase. In other words, "selling is a business deal in which goods and services are sold in exchange for money." This is done by explaining the benefits of the products to the buyers.

If a deal is to be made, then a certain sum of money has to be given by the buyer to the seller (this sum is already agreed upon by both), and the buyer gets the product in exchange.

Exchange process has two branches, i.e., buying and selling. Selling plays a major role in the concept of marketing. It does not matter if the salesperson is able to strike a deal or not. There can be a bad salesperson and a good salesperson but the success of the seller does not act as the basis of selling. Selling is the process in which goods are sold to buyers for money.

### **ROLE OF SELLING IN MARKETING**

One of the important components of marketing is selling. Marketing refers to the concept of development of products, carrying out promotions to communicate the benefits of those products to the potential customers and taking care of the continuous value exchange in the process. The process of selling holds significance for organisations which are fully customer-oriented.

The role of selling in marketing is described below:

- 1) **Prospect Qualification**→ Appropriate market segments are identified with the help of marketing research. In the same way, potential customers are identified by the salespersons through the use of

questionnaires and more direct methods. The most profitable potential customers can be screened by the salespersons by following a certain criteria.

A criteria for preliminary screening customers can have the following segments:

- a) Requirement of the product by the prospect,
- b) Their ability to pay,
- c) Their authority to buy, and
- d) Willingness to purchase.

- 2) **Art of Persuasion**→ Selling is the art of persuading customers. Unlike manipulation, sellers try to convince their customers to purchase a particular product, since it can benefit them in some way or other. This is possible through following a customer-centric approach whereby the salespersons attempt to generate trust with the potential customer, ask relevant questions, handle the buyer related issues and give proper suggestions. Persuasive selling mainly focuses on the satisfaction of the needs of the customers by highlighting the benefits of the products.
- 3) **Interactive Communication**→ Communication is involved in most of the tools of promotion like, selling, advertising and public relations. Communication is a two way process in selling. Before getting into the act of convincing, an effective salesperson actively listens to the prospect's needs and asks relevant questions. Unlike PR or advertising, this provides the sellers a greater advantage in dealing with the queries of the customers and generating more sales.
- 4) **Personal Relationships**→ An integrated element of the salesperson's role and the process of selling is developing personal relationships with clients. The traditional concept of selling focussed on generating immediate sales and high-pressure sales tactics.

In this modern world of marketing, the main aim of the companies is to attract more potential customers so as to get them to make repeat purchase. As a result, it becomes the responsibility of the salespersons to understand the changing tastes and preferences of the customers and maintain constant follow-ups.

### **SELLING AS A PART OF MARKETING**

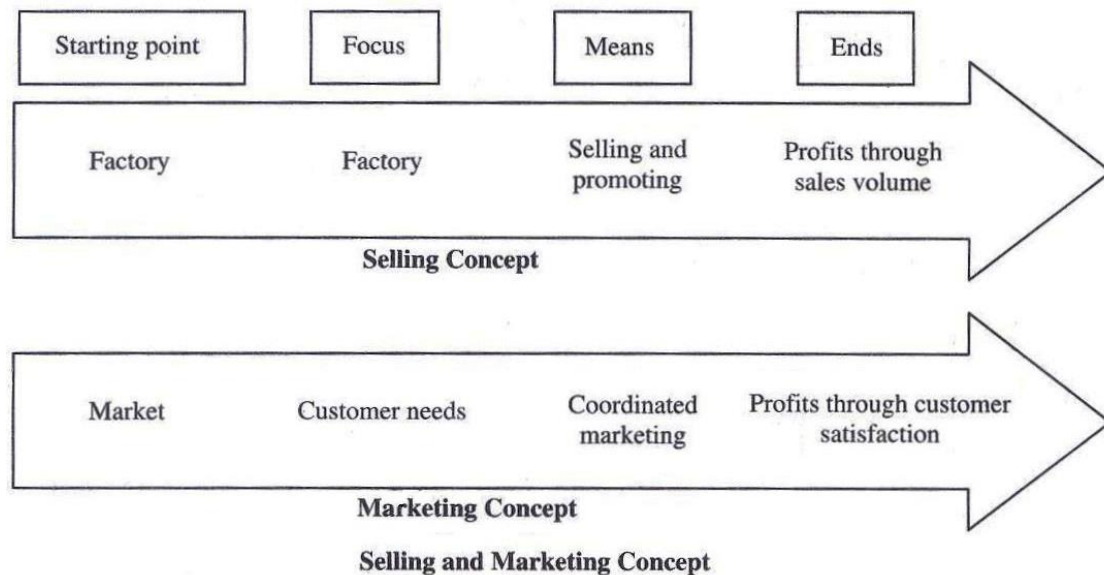
Selling and marketing are two different concepts. Through marketing, a product is introduced in a market whereas, through selling, an attempt is made to convert a potential buyer into a customer and close a deal.

Marketing based firms can be differentiated with the help of seven elements as' given by Bower and Garda:

- 1) For the marketing-based firms, the chief measure of marketing success is the market share and not the volume. However, profits will be inadequate if the cost of obtaining the market share is ignored.
- 2) The principles of market segmentation are analysed and utilised by them.
- 3) The needs of the customers, their usage and trends as well as the activities of the competitors are tracked and monitored by the marketing based firms.
- 4) All the non-marketing activities are coordinated in a way to attain the goals of marketing. This is done with the help of a process or structure.
- 5) There are a set of specific marketing objectives and goals of the marketing based firms.
- 6) A particular corporate based culture and style is followed by the marketing based firms, where a major role is played by marketing,
- 7) They attempt to provide unique value to the customers by adopting a market oriented business concept.

Hence, it can be said that selling is an inward looking concept where the seller convinces the customers to purchase the product which has been produced by the manufacturer. The process of selling starts only after the product is manufactured and ready to use.

On the other hand, marketing is an outward looking concept. Here, the firm identifies and analyses the needs of the customers and then introduces a product to meet those needs and requirements.



### DIFFERENCE BETWEEN SELLING AND MARKETING

| Basis of Difference             | Selling                                                                                       | Marketing                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1) Emphasis                     | In selling, emphasis is given to the product.                                                 | In case of marketing, consumers' needs and wants are emphasised.                                                          |
| 2) Approach                     | Traditionally, selling approach involves manufacturing and then sales of the product.         | In marketing approach, first the needs and wants of customers are identified and then the product is delivered.           |
| 3) Primary and Secondary Motive | The primary and secondary motive of selling is sales and company's satisfaction respectively. | In marketing, the primary motive is to satisfy the customers and secondary motive is to meet the consumers' expectations. |
| 4) Orientation                  | It is a sales-volume oriented process.                                                        | It is a profit-oriented process.                                                                                          |
| 5) Planning                     | It is a short-term plan based on prevailing products and markets.                             | It is a long-term plan phased on the tastes and preferences of the consumers.                                             |
| 6) Need Priority                | It focuses on the needs of sellers.                                                           | It focuses on the needs and demands of consumers.                                                                         |
| 7) Philosophy                   | Business is considered as a source of profit generation.                                      | Business is considered as a way to satisfy consumer needs.                                                                |
| 8) Technology                   | Selling process is based on existing technology with limited costs.                           | Marketing process is based on superior technology to provide better value and innovative products to customers.           |
| 9) Work Delegation              | Different departments perform individually, with distinct objectives.                         | There is common goal to all departments and they work as a team.                                                          |
| 10) Price Determination         | Price is determined by cost.                                                                  | Cost is determined by price and price is determined by consumers.                                                         |
| 11) Customers                   | In selling, customers are considered as the last link.                                        | In marketing, customers are considered to be the prime link.                                                              |

### REVENUE MANAGEMENT

**Revenue management** is the application of disciplined analytics that predict consumer behaviour at the micro-market levels and optimize product availability, leveraging price elasticity to maximize revenue growth and thereby, profit. The primary aim of revenue management is selling the right product to the right customer at the right time for the right price and with the right pack. The essence of this discipline is in understanding customers' perception of product value and accurately aligning product prices, placement and availability with each customer segment.

Revenue management to this point had been utilized in the pricing of perishable products. In the 1990s, however, the Ford Motor Company began adopting revenue management to maximize profitability of its

vehicles by segmenting customers into micro-markets and creating a differentiated and targeted price structure. Pricing for vehicles and options packages had been set based upon annual volume estimates and profitability projections. The company found that certain products were overpriced and some were underpriced. Understanding the range of customer preferences across a product line and geographical market, Ford leadership created a Revenue management organization to measure the price-responsiveness of different customer segments for each incentive type and to develop an approach that would target the optimal incentive by product and region. By the end of the decade, Ford estimated that roughly \$3 billion in additional profits came from revenue management initiatives.

### **MARKDOWN PRICING**

A price markdown is a deliberate reduction in the selling price of retail merchandise. It is used to increase the velocity (rate of sale) of an article, typically for clearance at the end of a season, or to sell off obsolete merchandise at the end of its life.

The timing and level of markdowns in a selling season is critical to maximising return on sales. This is often measured as revenue realization: the proportion of the potential original selling price achieved. For example, a revenue realization of 50% means that only half the potential full-price sales value was achieved by the end of the season. It is also important in minimizing terminal inventory, i.e. the amount of merchandise left when the season is finished.

### **HANDLING UNCERTAINTY**

#### **Relationships will matter no matter what happens**

Communicate with your customers and make sure you understand how the pandemic is impacting them personally, their business and their customers. No one understands all of the implications of the pandemic, and the only way to find out is to ask and to listen.

You're listening for changes in value drivers, the value that you're providing your customers and the value that your customers are providing to their customers. Emotional, Economic and Community value drivers all matter, but for the short term it is emotional and community value drivers that will come to the fore.

#### **Don't offer discounts**

There's going to be pressure to offer discounts. Resist this pressure. Instead of offering discounts, look at making concessions on terms of trade. Defer payment terms if you can. Allow customers to carry volume commitments forward.

If there's a serious drop in use due to the pandemic, consider extending the subscription for a period of months. If you fail to acknowledge the current economic conditions, as reflected in the use of your service and the value it delivers, you may contribute to higher churn. In uncertain times, you want to be doing what you can to reduce churn.

#### **You've started worrying about money. So have your customers.**

If you define value drivers based on how you impact unit economics (Customer Acquisition Costs, Lifetime Value of a Customer and so on), take a close look at everything you can do to help your customers reduce or manage their own churn.



## **UNIT-3: SALES FORECASTING (8 HRS)**

Introduction, Simple Linear Regression & Multiple Regression model to forecast sales, Forecasting in Presence of Special Events, Modeling trend and seasonality; Ratio to moving average forecasting method, Using S curves to Forecast Sales of a New Product.

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### **SALES FORECASTING**

In general terms, 'forecast' refers to the process of prediction of some future outcome. Such definition may be technically appropriate, but in managerial perspective, the definition is very general.

**According to Stults**, "A sales forecast is an estimate of the amount or unit sales for a specified future period under proposed marketing plan or program".

Sales forecasting can be used as a tool for evaluating company's performance. It allows the business owners to gauge how effectively a company is being managed. The sales forecast measures, graphs, and analyses the various parameters of the business. Sales forecasting not only ensures the survival of the organisation in the competitive environment but also transforms it into a high profit making body. It is also an important element of company's budget. The prospective success and direction of a business is greatly influenced by the effectiveness of company's sales forecasts.

**According to American Marketing Association**, "Forecasting is an estimate of sales in dollars or physical units for a specified future period under a proposed marketing plan or program and under an assumed set of economic and other forces outside the unit for which the forecast is made. The forecast may be for a specified item of merchandise or for an entire line".

### **OBJECTIVES OF SALES FORECASTING**

Sales forecasting is undertaken with the following objectives:

- 1) **Short-Term Objectives** → The objectives formulated for a short period of time, generally for more than 90 days and less than a year are known as short-term objectives. As compared to long-term sales forecasting, short-term sales forecasting is more accurate and useful for an organisation: Sales forecasting may be undertaken for the daily and routine functioning of the organisation. The various short-term objectives for which sales forecasting is done are as follows:
  - a) To formulate appropriate production policy for meeting the demand forecasted by the organisation.
  - b) To ensure continuous availability of raw materials for supporting the production process as per the sales forecast.
  - c) To optimise the use of machinery.
  - d) To determine appropriate pricing policy for specified time period.
  - e) To make a robust estimate of the working capital required by the business and also make provisions for the same.
  - f) To fix the sales quotas and targets for different segments in which the company operates.
  - g) To make an estimate of the inventory requirements for the finished, unfinished, and semi-finished products for a given time period.
  
- 2) **Long-Term Objectives** → Long-term objectives are generally meant for time period extending beyond one year. Here, sales forecasting is undertaken with an objective of formulating plans and policies regarding production and distribution functions. Prospective growth of the organisation is one of the most important considerations in long-term sales forecasting. Long-term forecasting is done with the following objectives:
  - a) To get an estimate of the cash inflow from the sales operations of the business.
  - b) To make provisions for the capital expenditure of the organisation.
  - c) To plan and estimate the plant/production capacity of the organisation for meeting the increasing future demands.
  - d) To plan for adequate manpower required for production and distribution activities.
  - e) To make arrangements for procuring the necessary raw materials as per future demand of the organisation.
  - f) To plan for the dividend policy of the organisation.
  - g) To minimise the selling cost so that the total cost of the product can be kept at minimum.
  - h) To initiate budgetary and planning activity.

- i) To forecast the future profits that the organisation is likely to earn.

### **CRITERIA FOR EFFECTIVE FORECASTING**

The criteria for effective sales forecasting is as follows:

- 1) **Accuracy**→ Forecasting is effective in use only if it is reasonably accurate. Inaccurate sales forecasting may result in higher stocks of inventory, increased customer order lead-times and longer delivery periods. This will result in companies losing revenues and customers being dissatisfied. Therefore, it is very important for firms to forecast their sales accurately. Accuracy in forecasting can be obtained by integrating past sales data through the use of statistical models, coupled with moves to gain extensive knowledge about customers and their preferences.
- 2) **Plausibility**→ Forecasting and especially sales forecasting has to be done with determination and sincerity, and there should be no manipulation of figures under influence or pressure. First of all, forecasting has to be reliable and the people of the organisation should be able to believe it. A forecaster may manipulate figures to avoid displeasing his higher-ups. He may suppress negative sales forecasts and project acceptable figures to the top management.
- 3) **Durability**→ The durability of the forecasts can be improved by following certain principles, such as combining the techniques utilised for forecasting, by simulating a series of inputs and by using quantitative forecasting approaches rather than relying largely on intuition. By combining forecasting techniques rather than applying a single technique, a company can ensure that the sales forecast is more durable.
- 4) **Flexibility**→ The forecasting technique will be more effective if it is flexibly applied by the management. In today's volatile business environment, there are sudden changes in both the micro- and macro-level environment of a firm. In such a situation, a rigid sales forecast which cannot be changed according to changes in the market, will be of little use to the management. Therefore, flexibility in forecasting is essential.
- 5) **Availability of Statistical Indexes**→ Quantitative forecasting methods are more appropriate for the firm than qualitative methods that are based on intuition. For sales forecasting to be developed using quantitative methods, availability of required statistical indexes and related data is highly essential.

### **USES OF SALES FORECASTING**

The various uses of sales forecasting are:

- 1) **Sales Planning**→ A sales manager is also planning for the future sales of his territory when he makes his sales forecasts. All activities in the territory are based on the level of sales done. Depending on the level of sales forecast done, the sales manager has to plan the number of customers that he needs to acquire.
- 2) **Demand Forecasting**→ The sales forecast also gives a very good idea of the kind of demand that exists for the product. The sales team are best placed to give an estimate of the customer demand as they are closest to the customers.
- 3) **Inventory Control**→ The sales forecasting helps in proper controlling of the business inventories, raw materials, intermediate goods, semi-finished products, finished products, spare parts, etc., by evaluating the future requirements.
- 4) **Supply Chain Management**→ Effective sales forecasting also allows the company to plan and manage its supply chain in a better way. There is greater cohesiveness in the supply chain and there are fewer shocks to the system. This also allows the company to manage its resources more effectively and there are greater instances of just in time management practices.
- 5) **Financial Planning**→ It also improves the financial performance of the organisation through lesser costs and greater profit.
- 6) **Price Stability**→ As sales forecasting leads to better inventory management, it also results in lesser instances of panic sales to clear excess inventory.
- 7) **Marketing**→ Sales forecasting also facilitates marketing to plan for the future. It helps to plan advertising and promotion activity in periods where the sales of the product look weak. Sales forecasting may also lead the organisation to identify slow moving products which can be removed from the product stable.

## **METHODS OF SALES FORECASTING**

A sales forecasting method basically involves trying to estimate the sales of a product if a particular course of marketing is followed. The methods of sales forecasting cannot produce accurate results as each one of them are having one or the other type of error. Broadly sales forecasting methods can be quantitative or qualitative in nature:

- 1) **Qualitative Methods of Forecasting**→ Qualitative methods of forecasting rely on the judgements of experts or the collective opinions of stakeholders or the customer. These methods can be categorised as follows:
  - a) **Executive Opinion**→ The experts of various departments of the company form a panel which is responsible for doing the sales forecast. The panel uses the data from all the departments for framing the plan and also appoints a staff analyst for analysing the data. The forecasts presented by expert do not show the extremes which could happen if they had been made by the individuals. Such type of forecasting is done in two ways:
    - i) By a single experienced individual (typically done in a small company)
    - ii) It can also be done by a group of individuals or jury members who have got expertise in one or the other field.
  - b) **Delphi Method**→ It comprises of certain rounds of the structural surveys and those who participate in the survey are the experts of their own field. This survey is conducted in different rounds and the results of the initial rounds are given as feedback in the later round for the purpose of follow-ups. It can be observed that the expert's responses in the second round are influenced by the opinion of the others. It is basically a group communication system which is structured for survey so that the incomplete information or knowledge is utilised to derive the most appropriate outcomes. This process generally stops when adequate answers or consensus is obtained for any significant deviations. The co-ordinator then carries on statistical analysis of the responses using various parameters like obtaining common answers, analysing variations, etc.
  - c) **Sales Force Composite Method**→ It is also termed as **Collective Opinion Method**. Under this, rather than approaching the consumers for their opinions, the verdicts of those affecting the sales are given the priority, i.e., the shopkeepers and the salesmen. The salespersons who are engaged with the company are to make spate projections of their sales to the respective regions. These individual forecasts are put forth for further study and final data for the organisation as a whole is prepared.
  - d) **Survey of Buyer's Expectations**→ In this type of forecasting method, the intention and motivations of the buyers are estimated to develop a forecast for the product. This requires selecting a small sample of the prospective buyers of the product and seeking information regarding their future buying intentions. The information hence obtained is further generalised for estimating the overall future demand. However, the intention to purchase does not often get translated into a purchase for the product. Also, the responses can also get clouded because of the biasedness of the targeted buyers. Most of the organisations employ survey methods to gauge the intentions of both actual and potential buyers of the product. Such customers may range between individual households to various intermediaries. Organisations also constitute panels which provide data on the quality, features, and price of the product. In most cases however, buyers have problem in providing a feedback regarding their future buying behaviour.
  - e) **Historical Analogy Method**→ The forecast for the sale of new business depends upon the analogy of past sales of the existing product. The new product can be a substitute of existing product, complementary products or product related to consumer belonging to same income groups as being targeted by the existing product. **For example**, the expensive sunglasses manufacturing company should study the customer's demand pattern of expensive watches for launching a new watch in the market.
- 2) **Quantitative Methods of Forecasting**→ Quantitative methods have lot of relevance in sales forecasting. The main quantitative methods which are employed in sales forecasting are as follows:
  - a) **Trend Projection Method**→ The data from the past can be used as a stepping stone for the future demand projections. A trend can be established on the basis of the past figures. Such trend can be graphically or equationally established. The equation method is accurate.
  - b) **Exponential Smoothing**→ Exponential smoothing is a very common method and is also useful in operation management. The basic reasons for acceptance are as follows:
    - i) They are immediately available in standard computer software packages.

ii) They basically need less data storage and calculations.

Under this method, the past data of demand is used considering the weights. The weights used are however exponential in nature. Higher weights are allotted to the most recent period and it goes on decreasing exponentially as we go down. It can also be said that the weights used are not linear, rather they are exponential and their magnitude decreases for later years.

- c) **Naive/Ratio Method**→ Naive method is the most economical and effective forecast method. In the stable time series data, this method states that the forecast for any period equals the actual figures for the preceding period.
- d) **Econometric Method**→ The econometric model forecasting involves estimating several simultaneous equations, which are generally behavioural equations, mathematical identities and market-clearing equations. The econometric model technique is also known as simultaneous equations method and complete system approach to forecasting. This technique uses sophisticated, mathematical, and statistical tools.

## **REGRESSION MODEL TO FORECAST SALES**

Regression analysis is a statistical tool used to calculate a continuous dependent variable from various independent variables and is commonly used for prediction and forecasting. **For example**, if agriculturist knows that the yield of rice and rainfall are closely related then he will want to know the amount of rain required to achieve a certain production. In this situation, he will use the regression analysis.

Like time series analysis, regression analysis requires the use of historical sales data. In regression analysis, the forecaster seeks to find a relationship between past sales (the dependent variable) and one or more independent variables, such as population, per capita income, or gross domestic product. Simple regression analysis uses one independent variable, whereas multiple regression analysis includes two or more independent variables. The objective of regression analysis is to develop a mathematical formula that accurately describes a relationship between the firm's sales and one or more variables. However, the formula indicates only an association, not a causal relationship. Once an accurate formula is established, the analyst plugs the necessary information into the formula to derive the sales forecast.

Regression analysis is useful when a precise association can be established. However, a forecaster seldom finds a perfect correlation. Furthermore, this method can be used only when available historical sales data are extensive. Thus, regression analysis is not useful for forecasting sales of new products.

This technique is used for modelling and analysis of mathematical data using the value of a **dependent variable** and one or more **independent variables**. Dependent variable, also known as **response variable**, is the single variable predicted by the regression model. Independent variable, also known as **predictor variable**, is used to predict the values of dependent variable.

Regression analysis is the process to calculate the unknown value of one variable from the known values of the other variable.

**According to Blair**, "Regression is the measure of the average relationship between two or more variable in terms of the original units of the data."

**According to Taro Yamane**, "One of the most frequently used techniques in economics and business research, to find a relation between two or more variables that are related causally, is regression analysis."

Regression may be classified as follows:

- 1) Simple Regression
- 2) Multiple Regression
- 3) Linear Regression
- 4) Non-Linear Regression

## **APPLICATION OF REGRESSION ANALYSIS**

Following are the basic uses of regression analysis:

- 1) Used to know the relationship between different (one or more) variables.
- 2) Used to find out the value of dependent variable from the value of independent variables.
- 3) Used to find out the coefficients of correlation ( $r$ ) and coefficients of determination.
- 4) In corporate sector it is useful to check the quality.
- 5) Also very useful to determine the statistical curve (demand, supply, etc.).

## REGRESSION LINES

The lines of the best fit between two variables and stating the common average relationship are known as regression lines. There are two regression lines for two variables.

When we take two variables X as dependent variable and Y as independent variable, then the straight line is called as the **regression line of X and Y** and *vice versa* is also true.

The regression line of **Y on X** gives the finest possible values of Y for the given values of X. So this line is the sum of squares of deviations of the 'calculated values of Y' and 'observed values of Y is minimum'; i.e.,

$$\sum(Y_c - Y_0)^2 = \text{minimum}$$

Where,  $Y_c$  = Calculated value of Y

$Y_0$  = Observed value of Y

Now, for the regression line of **X on Y**:

$$\sum(X_c - X_0)^2 = \text{minimum}$$

Where,  $X_c$  = Calculated value of X

$X_0$  = Observed value of X

This is why, to understand the concept of regression line, two regression lines are required. If there is only one regression line existing between two variables then it means  $r = \pm 1$ .

Now If the value of r is 0, then both the variance are independent and lines will cut each other at a right angle (i.e., lines will be parallel (II) to x-axis and y-axis).

## REGRESSION EQUATIONS

Regression equation is used to show the regression line and there are two regression equations because there are two regression lines. So if there are two variables, say X and Y, then the two regression equations are written as:

1) **Regression Equation of X on Y** → The regression equation of 'X on Y' is written as follows:

$$X = a + bY$$

To calculate the values of a and b, following normal equations are solved simultaneously:

$$\sum X = Na + b\sum Y$$

$$\sum XY = a\sum Y + b\sum Y^2$$

2) **Regression Equation of Y on X** → The regression equation of 'Y on X' is written as follows:

$$Y = a + bX$$

To get the value of a and b, following normal equations are to be solved simultaneously:

$$\sum Y = Na + b\sum X$$

$$\sum XY = a\sum X + b\sum X^2$$

In the normal equation  $\sum X$ ,  $\sum XY$ ,  $\sum X^2$  and  $\sum Y^2$  gives the summations and can be determined from the observed pairs of values of two variables 'X and Y'. N is the number of observed pairs of values.

## REGRESSION COEFFICIENT

If 'b' is the slope of regression line of 'Y on X', then  $b_{YX}$  is known as coefficient of regression of 'Y on X'.

So,  $b_{YX} = \text{Regression Coefficient of Y on X} = r \frac{\sigma_y}{\sigma_x}$

Similarly, for the regression line of 'X on Y',

So,  $b_{XY} = \text{Regression Coefficient of X on Y} = r \frac{\sigma_x}{\sigma_y}$

## PROPERTIES OF REGRESSION COEFFICIENTS

1) Coefficient of correlation is calculated by determining the geometric mean of the two regression coefficients i.e.,

$$r = \pm \sqrt{b_{XY} \times b_{YX}}$$

Where r = Coefficient of correlation and its value is positive when both the regression coefficients are positive.

Because r lies between +1 to -1, so the value of regression coefficient is not more than one.

2) It is independent from origin but not from scale.

- 3) If one regression coefficient is greater than unity, then remaining must be smaller than unity.
- 4) Both the regression coefficients have the same sign (i.e., if one is positive then the other is also positive and if one is negative then the other is also negative).
- 5) The value of coefficient of correlation is less than the mean value of regression coefficients.

### DETERMINATION OF LINEAR REGRESSION EQUATION

To determine the parameters of a fitted regression equation following methods are used:

- a) Method of Least Squares
- b) Regression Equations when Deviation taken from Actual Mean
- c) Regression Equations when Deviation taken from the Assumed Mean

### METHOD OF LEAST SQUARES METHOD

1) Let  $X = a + bY$  be the line of X on Y. To determine the values of a and b, the following two normal equations are to be solved simultaneously:

$$\begin{aligned}\sum X &= Na + b\sum Y \\ \sum XY &= a\sum Y + b\sum Y^2\end{aligned}$$

**Example 1:** Consider the following data obtain the two regression equations

|          |   |    |    |   |    |
|----------|---|----|----|---|----|
| <b>X</b> | 5 | 3  | 10 | 8 | 9  |
| <b>Y</b> | 8 | 12 | 6  | 5 | 14 |

**Solution:**

#### Calculation of Regression Equations

| <b>X</b>                        | <b>Y</b>                        | <b>X<sup>2</sup></b>               | <b>Y<sup>2</sup></b>               | <b>XY</b>                         |
|---------------------------------|---------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| 5                               | 8                               | 25                                 | 64                                 | 40                                |
| 3                               | 12                              | 9                                  | 144                                | 36                                |
| 10                              | 6                               | 100                                | 36                                 | 60                                |
| 8                               | 5                               | 64                                 | 25                                 | 40                                |
| 9                               | 14                              | 81                                 | 196                                | 126                               |
| <b><math>\sum X = 35</math></b> | <b><math>\sum Y = 45</math></b> | <b><math>\sum X^2 = 279</math></b> | <b><math>\sum Y^2 = 465</math></b> | <b><math>\sum XY = 302</math></b> |

Regression equation of **X on Y**:  $X = a + bY$  and the two normal equations are:

$$\begin{aligned}\sum X &= Na + b\sum Y \\ \sum XY &= a\sum Y + b\sum Y^2\end{aligned}$$

Substituting the values

$$35 = 5a + 45b \quad \dots\dots (1)$$

$$302 = 45a + 465b \quad \dots\dots (2)$$

Multiplying equation (1) by 9:

$$315 = 45a + 405b \quad \dots\dots (3)$$

Subtract equation (2) from (3),

$$13 = -60b \quad \text{or} \quad b = -0.22$$

Substituting the value of b in equation (1);

$$35 = 5a + 45(-0.22)$$

$$\Rightarrow 35 = 5a - 9.9$$

$$\Rightarrow 5a = 35 + 9.9 = 44.9$$

So,  $a = 8.98$

Putting the value of a and b in the equation,

The regression equation of X on Y:

$$X = 8.98 - 0.22 Y$$

2) Let  $Y = a + bX$  be the line of Y on X. To determine the values of a and b, the following two normal equations are to be solved simultaneously

$$\begin{aligned}\sum Y &= Na + b\sum X \\ \sum XY &= a\sum X + b\sum X^2\end{aligned}$$

Substituting the values,

$$45 = 5a + 35b \quad \dots\dots (1)$$

$$302 = 35a + 279b$$

..... (2)

Multiplying equation (1) by 7,

$$315 = 35a + 245b$$

Subtracting equation (2) from (3),

$$13 = -34b \quad \text{or} \quad b = -0.38$$

Substituting the value of b in equation (1),

$$45 = 5a + 35(-0.38)$$

$$5a = 45 + 13.3 = 58.3 \quad \text{or} \quad a = 11.66$$

Putting the values of a and b in the equation Regression equation of Y on X:

$$Y = 11.66 - 0.38X$$

### REGRESSION EQUATIONS WHEN DEVIATION TAKEN FROM ACTUAL MEAN

Following formulae are used to find out the deviation of X and Y series when deviation is taken from the actual mean.

#### 1) Regression Equation of X on Y

$$X - \bar{X} = r \frac{\sigma_X}{\sigma_Y} (Y - \bar{Y})$$

$\bar{X}$  = Mean of X series and  $\bar{Y}$  = Mean of Y series

$$r \frac{\sigma_X}{\sigma_Y} = \text{Regression Coefficient of X and Y or } b_{xy}$$

$$b_{xy} = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sum (Y - \bar{Y})^2} = \frac{\sum xy}{\sum y^2} \quad \text{Or} \quad \frac{\sum XY - \frac{(\sum X)(\sum Y)}{N}}{\sum Y^2 - \frac{(\sum Y)^2}{N}}$$

Where,  $x = (X - \bar{X})$ ;  $y = (Y - \bar{Y})$

#### 2) Regression Equation of Y on X

$$Y - \bar{Y} = r \frac{\sigma_Y}{\sigma_X} (X - \bar{X})$$

$\bar{X}$  = Mean of X series and  $\bar{Y}$  = Mean of Y series

$$r \frac{\sigma_Y}{\sigma_X} = \text{Regression Coefficient of Y and X or } b_{yx}$$

$$b_{yx} = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sum (X - \bar{X})^2} = \frac{\sum xy}{\sum x^2} \quad \text{Or} \quad \frac{\sum XY - \frac{(\sum X)(\sum Y)}{N}}{\sum X^2 - \frac{(\sum X)^2}{N}}$$

Where,  $x = (X - \bar{X})$ ;  $y = (Y - \bar{Y})$

**Example 2:** Using the following data obtain two regression equations:

|          |    |    |    |    |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|----|----|----|----|
| <b>X</b> | 15 | 19 | 24 | 21 | 25 | 22 | 16 | 20 | 27 | 21 |
| <b>Y</b> | 31 | 36 | 48 | 37 | 50 | 45 | 33 | 41 | 39 | 20 |

**Solution:**

#### Calculation of Regression Equations

| <b>X</b> | <b>Y</b> | <b>x = X - <math>\bar{X}</math></b> | <b>y = Y - <math>\bar{Y}</math></b> | <b>x<sup>2</sup></b> | <b>y<sup>2</sup></b> | <b>xy</b> |
|----------|----------|-------------------------------------|-------------------------------------|----------------------|----------------------|-----------|
| 15       | 31       | -6                                  | -7                                  | 36                   | 49                   | 42        |
| 19       | 36       | -2                                  | -2                                  | 4                    | 4                    | 4         |
| 24       | 48       | 3                                   | 10                                  | 9                    | 100                  | 30        |
| 21       | 37       | 0                                   | -1                                  | 0                    | 1                    | 0         |
| 25       | 50       | 4                                   | 12                                  | 16                   | 144                  | 48        |
| 22       | 45       | 1                                   | 7                                   | 1                    | 49                   | 7         |

|                  |                  |                |                |                    |                    |                   |
|------------------|------------------|----------------|----------------|--------------------|--------------------|-------------------|
| 16               | 33               | -5             | -5             | 25                 | 25                 | 25                |
| 20               | 41               | -1             | 3              | 1                  | 9                  | -3                |
| 27               | 39               | 6              | 1              | 36                 | 1                  | 6                 |
| 21               | 20               | 0              | -18            | 0                  | 324                | 0                 |
| $\Sigma X = 210$ | $\Sigma Y = 380$ | $\Sigma x = 0$ | $\Sigma y = 0$ | $\Sigma x^2 = 128$ | $\Sigma y^2 = 706$ | $\Sigma xy = 159$ |

$$\bar{X} = \frac{210}{10} = 21 \quad \text{and} \quad \bar{Y} = \frac{380}{10} = 38$$

$$b_{XY} = \frac{\sum xy}{\sum y^2} = \frac{159}{706} = 0.225; \quad b_{YX} = \frac{\sum xy}{\sum x^2} = \frac{159}{128} = 1.242$$

**Regression equation of X on Y is given by**

$$X - \bar{X} = b_{XY}(Y - \bar{Y})$$

$$\Rightarrow X - 21 = 0.225(Y - 38)$$

$$\Rightarrow X = 0.225Y - 38 \times 0.225 + 21$$

$$\Rightarrow X = 0.225Y - 8.55 + 21$$

$$\Rightarrow X = 12.45 + 0.225Y$$

**Regression equation of Y on X is given by**

$$Y - \bar{Y} = b_{YX}(X - \bar{X})$$

$$\Rightarrow Y - 38 = 1.242(X - 21)$$

$$\Rightarrow Y = 1.242X - 21 \times 1.242 + 38$$

$$\Rightarrow Y = 1.242X - 26.1 + 38$$

$$\Rightarrow Y = 11.9 + 1.242X$$

### REGRESSION EQUATIONS WHEN DEVIATION TAKEN FROM THE ASSUMED MEAN

If we take the deviation from the assumed mean then the following formulae are used to solve the regression equation.

**Note:** Assumed mean is taken because value of actual mean is in the fraction form.

**Regression Equation of X on Y is:**  $X - \bar{X} = r \frac{\sigma_X}{\sigma_Y} (Y - \bar{Y})$

Now find out the value of  $r \frac{\sigma_X}{\sigma_Y}$  by applying the following formula:

$$b_{XY} \text{ or } r \frac{\sigma_X}{\sigma_Y} = \frac{\sum d_x d_y - \frac{\sum d_x \times \sum d_y}{N}}{\sum d_y^2 - \frac{(\sum d_y)^2}{N}} \text{ or } \frac{N \sum d_x d_y - \sum d_x \sum d_y}{N \sum d_y^2 - (\sum d_y)^2}$$

**Regression Equations of Y on X is:**  $Y - \bar{Y} = r \frac{\sigma_Y}{\sigma_X} (X - \bar{X})$

Now find out the value of  $r \frac{\sigma_Y}{\sigma_X}$  by applying the following formula:

$$b_{YX} \text{ or } r \frac{\sigma_Y}{\sigma_X} = \frac{\sum d_x d_y - \frac{\sum d_x \times \sum d_y}{N}}{\sum d_x^2 - \frac{(\sum d_x)^2}{N}} \text{ or } \frac{N \sum d_x d_y - \sum d_x \sum d_y}{N \sum d_x^2 - (\sum d_x)^2}$$

Where,  $d_x = X - A_x$ ,  $d_y = Y - A_y$

**Example 3:** From the following data find the regression equations, and estimate the likely value of Y when X = 100.

|          |     |     |     |     |    |     |     |    |    |
|----------|-----|-----|-----|-----|----|-----|-----|----|----|
| <b>X</b> | 74  | 98  | 76  | 82  | 58 | 76  | 94  | 88 | 51 |
| <b>Y</b> | 124 | 131 | 117 | 131 | 96 | 121 | 136 | 97 | 85 |

**Solution:** Let assume that the mean for X-series is 80 and for Y-series is 120.

| <b>X</b> | <b>Y</b> | <b><math>d_x = (X - A_x)</math></b> | <b><math>d_y = (Y - A_y)</math></b> | <b><math>d_x d_y</math></b> | <b><math>d_x^2</math></b> | <b><math>d_y^2</math></b> |
|----------|----------|-------------------------------------|-------------------------------------|-----------------------------|---------------------------|---------------------------|
| 74       | 124      | -6                                  | 4                                   | -24                         | 36                        | 16                        |
| 98       | 131      | 18                                  | 11                                  | 198                         | 324                       | 121                       |
| 76       | 117      | -4                                  | -3                                  | 12                          | 16                        | 9                         |
| 82       | 131      | 2                                   | 11                                  | 22                          | 4                         | 121                       |



|                  |                   |                    |                    |                         |                       |                       |
|------------------|-------------------|--------------------|--------------------|-------------------------|-----------------------|-----------------------|
| 58               | 96                | -22                | -24                | 528                     | 484                   | 576                   |
| 76               | 121               | -4                 | 1                  | -4                      | 16                    | 1                     |
| 94               | 136               | 14                 | 16                 | 224                     | 196                   | 256                   |
| 88               | 97                | 8                  | -23                | -184                    | 64                    | 529                   |
| 51               | 85                | -29                | -35                | 1015                    | 841                   | 1225                  |
| $\Sigma X = 697$ | $\Sigma Y = 1038$ | $\Sigma d_x = -23$ | $\Sigma d_y = -42$ | $\Sigma d_x d_y = 1787$ | $\Sigma d_x^2 = 1981$ | $\Sigma d_y^2 = 2854$ |

$$\bar{X} = \frac{697}{9} = 77.44 \quad \text{and} \quad \bar{Y} = \frac{1038}{9} = 115.33$$

$$b_{XY} = \frac{N \Sigma d_x d_y - \Sigma d_x \Sigma d_y}{N \Sigma d_y^2 - (\Sigma d_y)^2} = \frac{9 \times 1787 - (-23)(-42)}{9 \times 2854 - (-42)^2} = \frac{16083 - 966}{25686 - 1764} = \frac{15117}{23922} = 0.632$$

$$b_{YX} = \frac{N \Sigma d_x d_y - \Sigma d_x \Sigma d_y}{N \Sigma d_x^2 - (\Sigma d_x)^2} = \frac{9 \times 1787 - (-23)(-42)}{9 \times 1981 - (-23)^2} = \frac{16083 - 966}{17829 - 529} = \frac{15117}{17300} = 0.874$$

Regression equation of X on Y is given by,

$$X - \bar{X} = b_{XY}(Y - \bar{Y})$$

$$\Rightarrow X - 77.44 = 0.632(Y - 115.33)$$

$$\Rightarrow X - 77.44 = 0.632Y - 115.33 \times 0.632$$

$$\Rightarrow X - 77.44 = 0.632Y - 72.88$$

$$\Rightarrow X = 0.632Y - 72.88 + 77.44$$

$$\Rightarrow X = 4.56 + 0.632Y$$

Regression equation of Y on X is given by,

$$Y - \bar{Y} = b_{YX}(X - \bar{X})$$

$$\Rightarrow Y - 115.33 = 0.874(X - 77.44)$$

$$\Rightarrow Y - 115.33 = 0.874X - 77.44 \times 0.874$$

$$\Rightarrow Y - 115.33 = 0.874X - 67.68$$

$$\Rightarrow Y = 0.874X - 67.68 + 115.33$$

$$\Rightarrow Y = 47.65 + 0.874X$$

When X = 100, Y = 47.65 + 0.874 × 100 = 47.65 + 87.4 = 135.05

**Example 4:** Find equation of regression line Y on X for the following data:

|   |    |    |    |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|----|----|----|
| X | 25 | 23 | 28 | 26 | 29 | 21 | 30 | 24 | 33 | 36 |
| Y | 28 | 26 | 28 | 24 | 29 | 26 | 31 | 32 | 36 | 27 |

Also estimate Y, if X = 55.

**Solution:**

#### Calculation of Regression Equations

| X                | Y                | XY                 | X <sup>2</sup>      |
|------------------|------------------|--------------------|---------------------|
| 25               | 28               | 700                | 625                 |
| 23               | 26               | 598                | 529                 |
| 28               | 28               | 784                | 784                 |
| 26               | 24               | 624                | 676                 |
| 29               | 29               | 841                | 841                 |
| 21               | 26               | 546                | 441                 |
| 30               | 31               | 930                | 900                 |
| 24               | 32               | 768                | 576                 |
| 33               | 36               | 1188               | 1089                |
| 36               | 27               | 972                | 1296                |
| $\Sigma X = 275$ | $\Sigma Y = 287$ | $\Sigma XY = 7951$ | $\Sigma X^2 = 7757$ |

Regression equation of Y on X is: Y = a + bX

To determine the value of a and b, the following two normal equations are to be solved:

$$\Sigma Y = Na + b \Sigma X$$

$$\Sigma XY = a \Sigma X + b \Sigma X^2$$

Substituting the values,

$$287 = 10a + 275b \quad \dots (1)$$

$$7951 = 275a + 7757b \quad \dots (2)$$

Multiply 275 in equation (1) and 10 in equation (2),

$$78925 = 2750a + 75625b \quad \dots (3)$$

$$79510 = 2750a + 77570b \quad \dots (4)$$

Subtract equation (3) from equation (4),

$$585 = 1945b$$

$$\Rightarrow b = 0.3$$

Putting the value of b in equation (1),

$$287 = 10a + 275 \times 0.3$$

$$\Rightarrow 287 = 10a + 82.5$$

$$\Rightarrow 10a = 204.5$$

$$\Rightarrow a = 20.45$$

So, regression equation of Y on X is:

$$Y = 20.45 + 0.3X$$

When, X = 55 then,

$$Y = 20.45 + 0.3 \times 55 = 36.95$$

**Example 5:** The following data gives the experience of machines operator and their performance rating as given by number of good parts out of 100 pieces:

|                   |    |    |    |    |    |    |    |    |
|-------------------|----|----|----|----|----|----|----|----|
| <b>Debaters</b>   | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
| <b>Marks by A</b> | 16 | 12 | 18 | 4  | 3  | 10 | 5  | 12 |
| <b>Marks by B</b> | 87 | 88 | 89 | 68 | 78 | 80 | 75 | 83 |

Calculate the regression line of performance ratings on experience and estimate the probable performance of operator has 7 years experience.

**Solution:** Let experience be denoted by X and performance by Y.

Let  $Y = a + bX$  be the line of Y on X. To determine the values of a and b, the following two normal equations are to be solved simultaneously

$$\sum Y = Na + b\sum X$$

$$\sum XY = a\sum X + b\sum X^2$$

**Calculation of Regression Equations**

| X                               | Y                                | X <sup>2</sup>                      | XY                                 |
|---------------------------------|----------------------------------|-------------------------------------|------------------------------------|
| 16                              | 87                               | 256                                 | 1392                               |
| 12                              | 88                               | 144                                 | 1056                               |
| 18                              | 89                               | 324                                 | 1602                               |
| 4                               | 68                               | 16                                  | 272                                |
| 3                               | 78                               | 9                                   | 234                                |
| 10                              | 80                               | 100                                 | 800                                |
| 5                               | 75                               | 25                                  | 375                                |
| 12                              | 83                               | 144                                 | 996                                |
| <b><math>\sum X = 80</math></b> | <b><math>\sum Y = 648</math></b> | <b><math>\sum X^2 = 1018</math></b> | <b><math>\sum XY = 6727</math></b> |

the values,

$$648 = 8a + 80b \quad \dots\dots (1)$$

$$6727 = 80a + 1018b \quad \dots\dots (2)$$

Multiplying equation (1) by 10,

$$6480 = 80a + 800b \quad \dots\dots (3)$$

$$6727 = 80a + 1018b \quad \dots\dots (4)$$

Subtracting equation (3) from (4),

$$247 = 218b \quad \text{or} \quad b = 1.13$$

Substituting the value of b in equation (1),

$$648 = 8a + 80(1.13)$$

$$8a = 648 - 90.4 = 557.6 \quad \text{or} \quad a = 69.7$$

Putting the values of a and b in the equation

Regression equation of **Y on X**:

$$Y = 69.7 + 1.13 X$$

When, X = 7 years then,

$$Y = 69.7 + 1.13 \times 7 = 69.7 + 7.91 = 77.61$$

## **MULTIPLE REGRESSION**

Three or more variables, such as  $X_1$ ,  $X_2$ , and  $X_3$ , are analysed in multiple regression analysis. Here,  $X_1$  is taken as a dependent variable and its relative movement is found out, according to the movement in both independent variables  $X_2$  and  $X_3$ . Thus, the effect of two or more independent variables on one dependent variable is studied in the 'multiple regression analysis'. The procedure for studying multiple regression is similar to simple regression, but there is a single difference that the independent variable is more than one. If there are three variables,  $X_1$ ,  $X_2$  and  $X_3$ , the multiple regression will take the following form:

$$X_1 = a_{1.23} + b_{12.3} X_2 + b_{13.2} X_3$$

In the above equation there are three constraints. The subscript after the dot indicates the variables, which are held constant.

If  $X_2$  and  $X_3$  are 0 then  $X_1 = a_{1.23}$

For multiple regression models with two independent variables the result is determined with the use of three simultaneous equations, with three unknown ( $b_0$ ,  $b_1$  and  $b_2$ ) values. Statistical software, such as SPSS, MINITAB, MS-EXCEL etc., are used in multiple regression models because this analysis involves lengthy calculations.

## **ASSUMPTIONS OF MULTIPLE REGRESSION ANALYSIS**

Following are the assumptions of multiple regression analysis:

- 1) The dependent variable should be a random variable whereas the independent variable need not be random variable,
- 2) The relationship between various independent variables and dependent variable is linear, and
- 3) The variances of the conditional distributions of the dependent variable and various combinations of values of the independent variables are all equal. The conditional distributions for the dependent variable follow the normal probability distribution.

## **STEPS IN MULTIPLE REGRESSION**

- 1) State the research hypothesis.
- 2) State the null hypothesis.
- 3) Collect the data.
- 4) Calculate each variable separately (calculate measures of central tendency and dispersion, frequency distributions, graphs). Check, whether the variables are normally distributed or not.
- 5) Calculate the relationship between the dependent variable and the independent variables (find the correlation coefficient, obtain a scatter plot). Check, whether the variables are linearly correlated or not.
- 6) Calculate the relationship between all the independent variables with each other (calculate the correlation coefficient matrix for all the independent variables).
- 7) Calculate the regression equation from the data.
- 8) Calculate and examine appropriate measures of association and test of statistical significance for each coefficient as well as for the equation as a whole.
- 9) Accept or reject the null hypothesis.
- 10) Reject or accept the research hypothesis.
- 11) Explain the practical implications of the findings.

## **MODELING TREND AND SEASONALITY**

When a researcher collects information and plots a pattern or trend (based on that information) then this process is known as "trend analysis". Trend analysis is used to estimate and forecast the future and past events. **For example**, a researcher can make an estimate that how many ancient kings may rule in a given time period (between two dates). This calculation is based on various data, such as average years in which other kings reigned.

To fit or plot a trend line based on a time series data, trend analysis uses the least square method. The resultant line is used for forecasting. This technique is a special case of regression analysis, where time is the independent variable and the dependent variable is to be forecasted. The benefit of trend analysis is that it is simple to use and also helpful in inferring the data. This analysis has one limitation that it is not always applicable for long-term time series.

## Purpose of Measuring Trends

There are three basic purposes of measuring trends:

- 1) The first purpose of measuring a trend is to study the past growth and decline of a series. The basic growth tendency is explained by the secular trend while ignoring the short-term fluctuations.
- 2) The projection of the curve into the future as a long-term forecast is the second purpose of measuring a trend. If the past growth has been in a steady state and if the conditions which determine this growth are expected to continue in the future then the trend curve may be projected over five to ten years into the future as a preliminary forecast.
- 3) Eliminating a trend is the third purpose of measuring a trend i.e., to clarify the cycle and other short-term fluctuations in data. Minor cycles represent a steep trend in data. If the data is divided by the trend value yield ratios then they show a cyclical fluctuation around the horizontal line.

## DETERMINATION OF TREND

The secular trend is determined by four methods which are as follows:

- |                          |                         |
|--------------------------|-------------------------|
| a) Graphic Method        | b) Semi-Average Method  |
| c) Moving Average Method | d) Least Squares Method |

- 1) **Free-Hand or Graphic Method**→ Free-Hand or Graphic Method is the simplest and the most flexible method of estimating secular trend. In this method, following is the procedure to obtain a straight line trend:

- a) Time series is plotted on a graph.
- b) The direction of the trend should be carefully examined on the basis of plotted information (dots).
- c) A straight line is drawn according to personal judgment which will best fit the data.

Some points should be considered for getting proper trend line by the free-hand method:

- a) The curve should be smooth.
- b) The number of points above and below the curve should be approximately equal.
- c) The total deviations of data above the trend line should be equal to the vertical deviations below the line.
- d) Trend is small as compared to the sum of the squares of the vertical deviations.

- 2) **Semi-Average Method**→ In the semi-average method the original data is divided into two equal parts and then an average is calculated for each part. The calculated averages are called semi-averages. **For example**, we can divide the 6 years, 2003 to 2008, into two equal parts; from 2003 to 2005 and 2006 to 2008. If the given period is an odd number of years then the value of the middle year is omitted. If one considers the years between 2001 to 2011 (11 years), then one omit the year 2006. A straight line can be drawn by joining the two points of average. An intermediate value or future value can be predicted by extending the line downward or upward. The following example will make it clear.

- 3) **Ratio to Moving-Average Forecasting Method**→ The device which reduces the fluctuations and obtains trend values with a fair degree of accuracy is known as ‘moving average method’. In this method the trend value for the middle point of the period of moving average is taken from the average value of the number of years. The curve can be smoothed and fluctuations are reduced by the process of averaging. The period of moving average is primarily decided in this method.

Let us consider that 5 years, months, weeks or days (as the case may be) are selected as the period of the moving average then the arithmetic average of the first five items would be plotted against item no. 3 and then the arithmetic average of item nos. 2, 3, 4, 5 and 6 would be plotted against item no. 4. When the arithmetic average of the last five items has been calculated then the process ends up.

- 4) **Least Squares Method**→ It is the most widely used method. This method is used to fit the trend line to the data. To fit a trend line this method should satisfy the following condition:

$$\sum(Y - Y_e) = 0$$

i.e., the summation of deviations of the actual values of Y and the calculated values of Y is zero.

$$\sum(Y - Y_e)^2 \text{ is least,}$$

The above equation shows that the sum of squares of the deviations of the actual and calculated value is least from this line. Due to this reason this method is known as ‘method of least squares’ and the line obtained from this method is called ‘best fit’.

This method is not only used to fit a straight line but also used to fit a parabolic trend. **Equation below** represents the straight line trend.

$$Y_e = a + bX$$

Where,

$Y_e$  = Denotes the trend (computed) values,

a = The Y intercept or the value of the Y variable,

b = It represents (when  $X = 0$ ) the slope of the line or the amount of change in Y variable that is associated with a change of one unit in X variable,

X = Variable in time series analysis represents time.

## SEASONAL VARIATIONS

By seasonal variations in a time series we mean such variations which occur regularly and periodically with period less than one year. **For example**, the sale of ice cream is affected by weather conditions so that in every summer the sale would be more than what it is in winters. This is the seasonal effect on the sale of ice cream and would be in every season.

Seasonal movements affect most of the economic and business phenomena and unless a business executive knows about the nature of such variations, he cannot take policy decisions. Decisions relating to inventory control, purchases and sales have to be taken after accounting for seasonal variations.

## OBJECTIVES OF SEASONAL VARIATION

- 1) **To Study Seasonal Variation** → Seasonal variations in themselves give a clear idea about the relative position of each season on the basis of which it is possible to plan for the season.
- 2) **To Eliminate them** → It is necessary to eliminate seasonal factor to get the cyclical or irregular factors. This is called deseasonalization of the data.

## COMPUTATION OF SEASONAL VARIATION

Before we proceed to discuss various methods of isolating seasonal variation it must be clearly understood that the effect of the seasons on a variable is present only when we have six-monthly, quarterly, monthly, weekly, daily data. Since seasonal fluctuations recur during the course of a year, we cannot see the effects of seasons if the data is lumped together by years or by longer time periods. This is so because if the values of a variable for any twelve consecutive months, or four consecutive quarters, or fifty-two consecutive weeks are totaled up the effects of the seasons automatically disappear.

First, we take an illustration of isolating short-term and seasonal fluctuations by the additive model.

**Example:** Calculate the seasonal fluctuations of the given outputs in various years.

| Quarter/Year | 2006 | 2007 | 2008 | 2009 | 2010 |
|--------------|------|------|------|------|------|
| 1            | 35   | 38   | 47   | 61   | 72   |
| 2            | 86   | 109  | 158  | 177  | 206  |
| 3            | 67   | 91   | 104  | 134  | 141  |
| 4            | 124  | 176  | 226  | 240  | 307  |

**Solution:**

| Year | Quarter Q | Output Y | Moving total (4) | Moving total (8) | Moving Average (T) | Short-term Fluctuation Y-T |
|------|-----------|----------|------------------|------------------|--------------------|----------------------------|
| 2006 | 1         | 35       |                  |                  |                    |                            |
|      | 2         | 86       |                  |                  |                    |                            |
|      | 3         | 67       | 312 →            | 627              | 78                 | -11                        |
|      | 4         | 124      | 315 →            | 653              | 82                 | +42                        |
| 2007 |           |          | 338              |                  |                    |                            |
|      | 1         | 38       | →                | 700              | 88                 | -50                        |
|      | 2         | 109      | →                | 776              | 97                 | +12                        |
|      | 3         | 91       | →                | 837              | 105                | -14                        |
| 2008 | 4         | 176      | →                | 895              | 112                | +64                        |
|      |           |          | 472              |                  |                    |                            |
| 2008 | 1         | 47       | →                | 957              | 120                | -73                        |

|      |   |     |       |      |     |     |
|------|---|-----|-------|------|-----|-----|
|      | 2 | 158 | 485 → | 1020 | 128 | +30 |
|      | 3 | 104 | 535 → | 1084 | 136 | -32 |
|      | 4 | 226 | 549 → | 1117 | 140 | +86 |
|      |   |     | 568   |      |     |     |
| 2009 | 1 | 61  | 598 → | 1166 | 146 | -85 |
|      | 2 | 177 | 612 → | 1210 | 151 | +26 |
|      | 3 | 134 | 623 → | 1235 | 154 | -20 |
|      | 4 | 240 | 652 → | 1275 | 159 | +81 |
|      |   |     |       |      |     |     |
| 2010 | 1 | 72  | 659 → | 1311 | 164 | -92 |
|      | 2 | 206 | 726 → | 1385 | 173 | +33 |
|      | 3 | 141 |       |      |     |     |
|      | 4 | 307 |       |      |     |     |

#### Calculations of Seasonal Fluctuations

| Year           | Q.1   | Q.2  | Q.3  | Q4   |
|----------------|-------|------|------|------|
| 2006           | -     | -    | - 11 | +42  |
| 2007           | - 50  | +12  | - 14 | +64  |
| 2008           | - 73  | +30  | - 32 | +86  |
| 2009           | - 85  | +26  | - 20 | +81  |
| 2010           | - 92  | +33  | -    | -    |
| <b>Total</b>   | - 300 | +101 | - 77 | +273 |
| <b>Average</b> | - 75  | +25  | - 19 | +68  |

#### MEASUREMENT OF SEASONAL VARIATIONS

The following are some of the methods more popularly used for measuring seasonal variations:

- |                                   |                          |
|-----------------------------------|--------------------------|
| a) Simple Average Method          | b) Ratio to Trend Method |
| c) Ratio to Moving Average Method | d) Link Relative Method  |

#### SIMPLE AVERAGE METHOD

This is the simplest method of obtaining a seasonal index. The following steps are necessary for calculating the index:

- 1) Arrange the unadjusted data by years and months (or, quarters if quarterly data are given).
- 2) Find the totals of January, February, etc.
- 3) Divide each total by the number of years for which data are given. **For example**, if we are given monthly data for five years then, we shall first obtain total for each month for five years and divide each total by 5 to obtain an average.
- 4) Obtain an average of monthly averages by dividing the total of monthly averages by 12. This method is the simplest of all methods of measuring seasonality. However, it is not a very good method. It assumes that there is no trend component in the series, i.e., the original series comprise,  $C \times S \times I$ . Since most economic series have trends, the index computed by this method is actually an index of seasonal variation plus trend.
- 5) Taking the average of monthly averages as 100, compute the percentages of various monthly averages as follows:

$$\text{Seasonal Index for January} = \frac{\text{Monthly average for January}}{\text{Averages of monthly average}} \times 100$$

If, instead of the average of each month, the totals of each month are obtained, we will get the same result.

**Example:** Compute seasonal indices by the method of monthly averages to determine the monthly indices for the following data of production of a commodity for the years 1989, 1990, 1991:

|                                   | Month | Jan | Feb | Mar | Apr | May | Jun | July | Aug | Sep | Oct | Nov | Dec |
|-----------------------------------|-------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|
| Production<br>in Lac of<br>Tonnes | 2007  | 12  | 11  | 10  | 14  | 15  | 15  | 16   | 13  | 11  | 10  | 12  | 15  |
|                                   | 2008  | 15  | 14  | 13  | 16  | 16  | 15  | 17   | 12  | 13  | 12  | 13  | 14  |
|                                   | 2009  | 16  | 15  | 14  | 16  | 15  | 17  | 16   | 13  | 10  | 10  | 11  | 15  |

**Solution:**

**Computation of Seasonal Indices**

| Month          | (Production in Lac of Tonnes) |      |      | Total      | Average Monthly | Seasonal Index  |
|----------------|-------------------------------|------|------|------------|-----------------|-----------------|
|                | 2007                          | 2008 | 2009 |            |                 |                 |
| (1)            | (2)                           | (3)  | (4)  | (5)        | (6)             | (7)             |
| January        | 12                            | 15   | 16   | 43         | 14.33           | 104.886         |
| February       | 11                            | 14   | 15   | 40         | 13.33           | 97.566          |
| March          | 10                            | 13   | 14   | 37         | 12.33           | 90.247          |
| April          | 14                            | 16   | 16   | 46         | 15.33           | 112.205         |
| May            | 15                            | 16   | 15   | 46         | 15.33           | 112.205         |
| June           | 15                            | 15   | 17   | 47         | 15.66           | 114.620         |
| July           | 16                            | 17   | 16   | 49         | 16.33           | 119.524         |
| August         | 13                            | 12   | 13   | 38         | 12.66           | 92.662          |
| September      | 11                            | 13   | 10   | 34         | 11.33           | 82.928          |
| October        | 10                            | 12   | 10   | 32         | 10.66           | 78.024          |
| November       | 12                            | 13   | 11   | 36         | 12.00           | 87.832          |
| December       | 15                            | 14   | 15   | 44         | 14.66           | 107.301         |
| <b>Total</b>   |                               |      |      | <b>492</b> | <b>163.9500</b> | <b>1200.000</b> |
| <b>Average</b> |                               |      |      | <b>41</b>  | <b>13.6625</b>  | <b>100.000</b>  |

$$\begin{aligned} \text{Average of Averages, } \bar{X} &= 1/12(14.33+14.33 + \dots 14.66) \\ &= \frac{163.95}{12} = 13.6625 \end{aligned}$$

$$\text{Seasonal Index for January} = \frac{14.33}{13.6625} \times 100 = 104.884$$

$$\text{Seasonal Index for February} = \frac{13.33}{13.6625} \times 100 = 97.566 \text{ and so on.}$$

**Example:** Calculate the seasonal index from the following data using the average method:

| Year | 1 <sup>st</sup> Quarter | 2 <sup>nd</sup> Quarter | 3 <sup>rd</sup> Quarter | 4 <sup>th</sup> Quarter |
|------|-------------------------|-------------------------|-------------------------|-------------------------|
| 1994 | 72                      | 68                      | 80                      | 70                      |
| 1995 | 76                      | 70                      | 82                      | 74                      |
| 1996 | 74                      | 66                      | 84                      | 80                      |
| 1997 | 76                      | 74                      | 84                      | 78                      |
| 1998 | 78                      | 74                      | 86                      | 82                      |

**Solution:**

| Year           | 1 <sup>st</sup> Quarter | 2 <sup>nd</sup> Quarter | 3 <sup>rd</sup> Quarter | 4 <sup>th</sup> Quarter |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 1994           | 72                      | 68                      | 80                      | 70                      |
| 1995           | 76                      | 70                      | 82                      | 74                      |
| 1996           | 74                      | 66                      | 84                      | 80                      |
| 1997           | 76                      | 74                      | 84                      | 78                      |
| 1998           | 78                      | 74                      | 86                      | 82                      |
| <b>Total</b>   | <b>376</b>              | <b>352</b>              | <b>416</b>              | <b>384</b>              |
| <b>Average</b> | <b>75.20</b>            | <b>70.40</b>            | <b>83.2</b>             | <b>76.80</b>            |

|                |       |       |       |        |
|----------------|-------|-------|-------|--------|
| Seasonal Index | 98.43 | 92.15 | 108.9 | 100.52 |
|----------------|-------|-------|-------|--------|

$$\text{Average of Averages} = \frac{1}{4}(75.2 + 70.4 + 83.2 + 76.8) = \frac{305.6}{4} = 76.4$$

$$\text{Seasonal Index} = (\text{Average Monthly} + \text{Grand Average}) \times 100$$

$$(75.2 / 76.4) \times 100 = 98.43; (70.4 / 76.4) \times 100 = 92.15$$

$$(83.2 / 76.4) \times 100 = 108.9; (76.8 / 76.4) \times 100 = 100.52$$

**Example:** Assuming that trend is absent, determine if there is any seasonality in the data given below:

| Year | 1 <sup>st</sup> Quarter | 2 <sup>nd</sup> Quarter | 3 <sup>rd</sup> Quarter | 4 <sup>th</sup> Quarter |
|------|-------------------------|-------------------------|-------------------------|-------------------------|
| 1982 | 37                      | 41                      | 33                      | 35                      |
| 1983 | 37                      | 39                      | 36                      | 36                      |
| 1984 | 40                      | 43                      | 33                      | 31                      |

What are the seasonal indices for various quarters?

**Solution:**

#### Computation of Seasonal Indices

| Years          | Q <sub>1</sub> | Q <sub>2</sub> | Q <sub>3</sub> | Q <sub>4</sub> |
|----------------|----------------|----------------|----------------|----------------|
| 1982           | 37             | 41             | 33             | 35             |
| 1983           | 37             | 39             | 36             | 36             |
| 1984           | 40             | 43             | 33             | 31             |
| <b>Total</b>   | 114            | 123            | 102            | 102            |
| <b>Average</b> | 38             | 41             | 34             | 34             |

$$\text{Average of Average (Grand Average)} = \frac{38+41+34+34}{4} = 36.75$$

$$\text{Seasonal Index} = \frac{\text{Quarterly Average}}{\text{General Average}} \times 100$$

$$\text{Seasonal Index for 1<sup>st</sup> Quarter} = \frac{38}{36.75} \times 100 = 103.40$$

$$\text{Seasonal Index for 2<sup>nd</sup> Quarter} = \frac{41}{36.75} \times 100 = 111.56$$

$$\text{Seasonal Index for 3<sup>rd</sup> Quarter} = \frac{34}{36.75} \times 100 = 92.52$$

$$\text{Seasonal Index for 4<sup>th</sup> Quarter} = \frac{34}{36.75} \times 100 = 92.52$$

#### Advantages of Simple Average Method

- 1) Simple average method is the simplest method of measuring seasonal variations.
- 2) This method is suitable for those time services where no definite trend exists.

#### Disadvantages of Simple Average Method

- 1) This method assume that there is no trend component in the series i.e., T = 0 whereas most of economic series have trends.
- 2) The effect of cycles on the original values may or may not be eliminated by the averaging process.

#### RATIO-TO-TREND METHOD

This is also called the **Percentage to Trend Method**. It is an improvement over the above said method. It is based on the assumption that the seasonal fluctuation for any season (month or quarter) is a constant factor of the trend. It is based on the multiplicative model. The steps are:

- 1) By applying the method of least squares, we can obtain the trend values.
- 2) We must divide the original data of time series for each season (month quarter) by the corresponding trend values and multiply these ratios by 100, i.e.,

$$\frac{T \times S \times C \times I}{T} \times 100 = S \times C \times I \times 100$$

T



Thus the trend eliminated values are obtained. This percentage will include seasonal, cyclical and irregular fluctuation.

- 3) In order to eliminate the irregular and cyclical movement, the seasonal figures are averaged with any one of the measures of central tendency, mean or median. Thus we obtain the indices for seasonal variation for different seasons.
- 4) These indices are adjusted to a total of 1,200 for monthly data or 400 for quarterly data by multiplying each index by a suitable factor.

$$\left( \frac{1200}{\text{the sum of the 12 monthly values}} \text{ or } \frac{400}{\text{the sum of the 4 quarterly values}} \right)$$

Thus we get Seasonal Index.

It gives a more representative value of seasonal variation than the simple average method. It is easy to understand and simple to calculate. However the **limitation of this method** is that it does not follow the actual data as a 12 month moving average method. So the seasonal index calculated by this method is more biased.

**Example:** Find seasonal variations by ratio-to-trend method from the data given below:

| Year | 1 <sup>st</sup> Quarter | 2 <sup>nd</sup> Quarter | 3 <sup>rd</sup> Quarter | 4 <sup>th</sup> Quarter |
|------|-------------------------|-------------------------|-------------------------|-------------------------|
| 2004 | 30                      | 40                      | 36                      | 34                      |
| 2005 | 34                      | 52                      | 50                      | 44                      |
| 2006 | 40                      | 58                      | 54                      | 48                      |
| 2007 | 54                      | 76                      | 68                      | 62                      |
| 2008 | 80                      | 92                      | 86                      | 82                      |

**Solution:** For determining seasonal variation by ratio-to-trend method, first we will determine the trend of yearly data and then convert it to quarterly data.

#### Calculating Trend by Method of Least Squares

| Year | Yearly Totals | Yearly Average   | Deviations from Mid-Year | XY                | X <sup>2</sup>    | Trend Values |
|------|---------------|------------------|--------------------------|-------------------|-------------------|--------------|
|      |               | Y                | X                        |                   |                   |              |
| 2004 | 140           | 35               | -2                       | -70               | 4                 | 32           |
| 2005 | 180           | 45               | -1                       | -45               | 1                 | 44           |
| 2006 | 200           | 50               | 0                        | 0                 | 0                 | 56           |
| 2007 | 260           | 65               | +1                       | +65               | 1                 | 68           |
| 2008 | 340           | 85               | +2                       | +170              | 4                 | 80           |
|      |               | $\Sigma Y = 280$ | $\Sigma X = 0$           | $\Sigma XY = 120$ | $\Sigma X^2 = 10$ |              |

The equation of the straight line trend is  $Y = a + bX$ .

The equation of the straight line trend is  $Y = a + bX$ .

Since,  $\Sigma X = 0$ ;  $a = \frac{\Sigma Y}{N} = \frac{280}{5} = 56$ ;  $\frac{\Sigma XY}{\Sigma X^2} = \frac{120}{10} = 12$

Quarterly Increment =  $\frac{12}{4} = 3$

#### RATIO TO MOVING AVERAGE METHOD

The Ratio to moving average method, also known as the percentage of moving average method, is the most commonly used method of measuring seasonal variations. This method of computing seasonal indices consists of the following steps:

- 1) Seasonality from the data is eliminated by computing twelve monthly or four-quarterly moving averages. The trend and cyclical elements tend to be present in the moving averages ( $T \times C$ )
- 2) The original data for each quarter is divided by the corresponding moving average figure, and this ratio is expressed in percentages

$$\left[ \frac{O}{T \times C} \times 100 = \frac{T \times S \times C \times I}{T \times C} = S \times I \times 100 \right]$$

These ratios to moving average figures contain only the seasonal and irregular movements since the trend and cyclical components were eliminated in the division by moving average.

- 3) The ratio-to-moving average figures are arranged by quarters, that is, all the first quarters in one group, all the second quarters in another and so forth. Then average the ratio to moving average figures for each quarter in an attempt to eliminate the irregular movements and thus to isolate the stable seasonal components.

It is a **flexible, widely used and the most satisfactory method**. If the cyclical fluctuations are regular in periodicity, this will give true seasonal indices. However, we cannot obtain seasonal indices for each month. There is loss of trend values in the earlier 6 months and in the later six months. So we cannot calculate seasonal indices for that period.

**Example:** Obtain seasonal indices by the ‘ratio-to-moving average’ method from the following data:

| Year | Quarters |    |     |    |
|------|----------|----|-----|----|
|      | I        | II | III | IV |
| 2007 | 68       | 62 | 61  | 63 |
| 2008 | 65       | 58 | 66  | 61 |
| 2009 | 68       | 63 | 63  | 67 |

**Solution:** In the ‘ratio-to-moving average’ method, we first calculate 4 quarterly moving averages and ratios to moving averages as under:

#### Computation of Ratios to Moving Averages

| Year and Quarter | Original Data Y | 4-Quarterly Centred Moving Totals | 4-Quarterly Centred Moving Totals 4 | 4-Quarterly Centred Moving Averages (T) | Ratio-to-Moving Averages (Percentage) = Y/T x 100 |        |
|------------------|-----------------|-----------------------------------|-------------------------------------|-----------------------------------------|---------------------------------------------------|--------|
| 2007             | I               | 68                                |                                     |                                         |                                                   |        |
|                  | II              | 62                                | →                                   |                                         |                                                   |        |
|                  | III             | 61                                | →                                   | 254                                     | 505                                               | 63.125 |
|                  | IV              | 63                                | →                                   | 251                                     | 498                                               | 62.250 |
|                  |                 |                                   | →                                   | 247                                     |                                                   | 101.20 |
| 2008             | I               | 65                                | →                                   | 252                                     | 499                                               | 62.375 |
|                  | II              | 58                                | →                                   | 250                                     | 502                                               | 62.750 |
|                  | III             | 66                                | →                                   | 253                                     | 503                                               | 62.875 |
|                  | IV              | 61                                | →                                   | 258                                     | 511                                               | 63.875 |
|                  |                 |                                   | →                                   | 258                                     |                                                   | 95.50  |
| 2009             | I               | 68                                | →                                   | 255                                     | 513                                               | 64.125 |
|                  | II              | 63                                | →                                   | 261                                     | 516                                               | 64.500 |
|                  | III             | 63                                |                                     |                                         |                                                   |        |
|                  | IV              | 67                                |                                     |                                         |                                                   |        |

Again, the percentage of original data to moving averages are arranged according to years and quarters to obtain the seasonal indices as shown in the following table:

### Computation of Seasonal Indices

| Year                       | Percentages to Moving Averages                 |                                             |                                               |                                             |
|----------------------------|------------------------------------------------|---------------------------------------------|-----------------------------------------------|---------------------------------------------|
|                            | I                                              | II                                          | III                                           | IV                                          |
| 2007                       | –                                              | –                                           | 96.63                                         | 101.20                                      |
| 2008                       | 104.21                                         | 92.43                                       | 104.97                                        | 95.50                                       |
| 2009                       | 106.04                                         | 97.67                                       | –                                             | –                                           |
| Totals                     | 210.25                                         | 190.10                                      | 201.60                                        | 196.70                                      |
| Averages                   | 105.125                                        | 95.05                                       | 100.80                                        | 98.35                                       |
| Adjusted Quarterly Indices | $\frac{105.125}{99.83} \times 100$<br>= 105.30 | $\frac{95.05}{99.83} \times 100$<br>= 95.21 | $\frac{100.80}{99.83} \times 100$<br>= 100.97 | $\frac{98.35}{99.83} \times 100$<br>= 98.52 |

Overall Mean

$$\bar{X} = \frac{105.125 + 95.05 + 100.80 + 98.35}{4} = 99.83$$

### LINK RELATIVE METHOD

The procedure for computing seasonal variations by this method is somewhat complicated. We like to give the steps necessary in its computation.

- 1) Calculate the seasonal link relatives for each seasonal figures by the following method:

$$\text{Link Relative} = \frac{\text{Current Season Figure}}{\text{Previous Season Figure}} \times 100$$

- 2) Calculate average of the link relatives for each season. Arithmetic mean is generally used but even median could be used.
- 3) Convert these averages into chain relatives on the basis of the first season.
- 4) Calculate the Chain relative of the first season on the basis of the last season.
- 5) For correction, the chain relative of the first season calculated by the first method is deducted from the chain relative of the first season calculated by the second method. The difference is divided by the number of seasons. The resulting figure multiplied by 1, 2, 3, etc., are deducted respectively from the chain relatives of the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, etc. seasons.
- 6) The seasonal indices are available when we express the corrected chain relatives as percentages of their respective averages.

### USING S CURVE TO FORECAST SALES OF A NEW PRODUCT

New product revenue and sales forecasting approaches can be as simple as “guesstimating” the first year sales of a given product, escalating it for future year forecasts by an annual growth rate until a specific level of saturation is reached. This simple approach assumes that sales will continually grow throughout the product’s lifecycle. Is there justification for assuming that sales will grow in such a pattern other than it is the result of an inexpensive and easy-to-apply forecasting tool?

Although there are a myriad of both qualitative and quantitative methods for new product sales forecasting from simple growth escalation to forecasting with econometrically-estimated demand functions, a question arises as to whether there is a causal theory of new product sales in the market research academic literature that lends guidance to the type of forecasting method chosen. This matter is of practical importance when doing the “road show” for raising venture capital and for convincing oneself of the credibility of your forecasts.

#### New Product Sales Forecasting S Curve Models: Product Diffusion

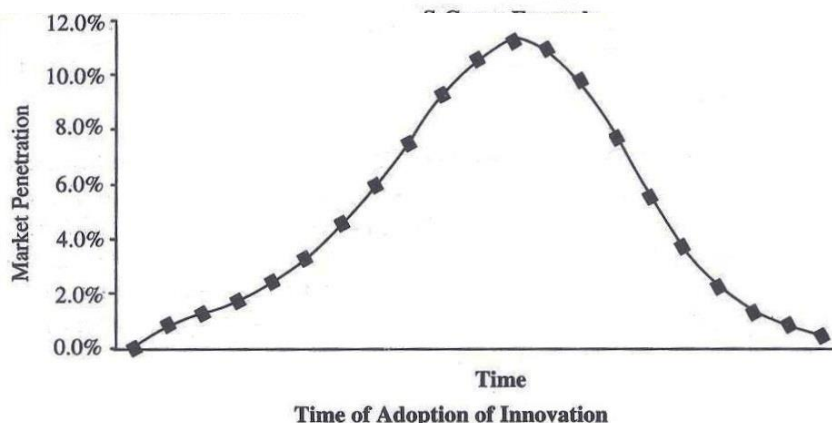
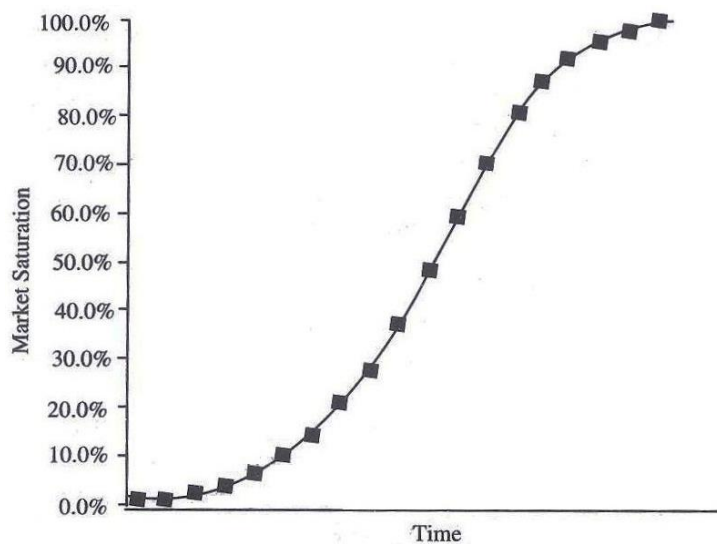
A large literature in marketing research strongly demonstrates that product sales life cycles follow an S-curve pattern. An S-curve pattern implies that new product sales initially grow at a rapid rate, then the rate of growth tapers off, and finally declines with time. Historical analysis of new product sales curves indicates this is one of the most common, if not the most common pattern of new product sales over time.

The new product sales model explains this S-curve shape based on diffusion theory. Diffusion theory is actually a theory of communication regarding how information is dispersed within a social system over time. Because people place different emphases on how much they rely on media and interpersonal communication for new ideas and information, they “adopt” new products either earlier or later in a product’s lifecycle.

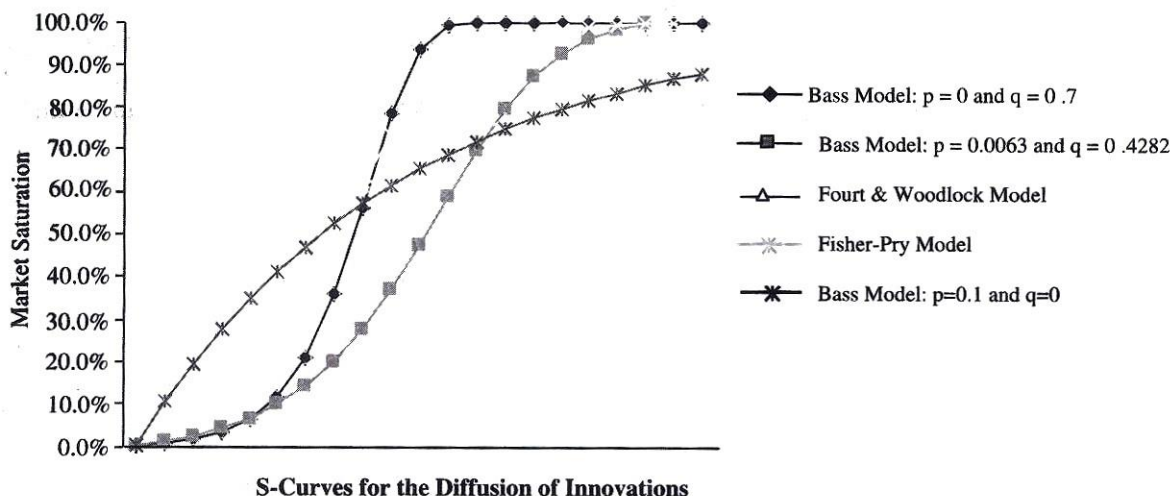
The consumer product adoption process based on relative adoption time categorizes individuals as innovators, early adopters, early majority, late majority, and laggards, beside figure shows the cumulative percentage of the potential market (i.e., total number of adopters) that has made an initial purchase of a new product.

As you move up and to the right of the S-curve in this figure i.e., as you look at the rate of adoption of a new product over time by first time purchasers, there are initially the innovators buying the product, then early adopters, and so on as we move up the S-curve, until the point of market saturation is reached, where the last set of first-time buyers are known as the laggards.

This figure shows the time of adoption of buyers for the product. If the buyer is to the left of the vertical line in their time of adoption they are innovators, early adopters or part of the early majority, if to the right they are the late majority or the laggards.



Below figure displays different types of S curves developed from alternative types of product sales forecasting models.



The “S-curve” model is what is known as a “single purchase” model in that it forecasts sales of products that are typically bought just once, or infrequently, such as consumer durables or industrial products such as mainframe computers. In addition, the model can be used to forecast trial or first time purchases for repeat purchase goods such as snack foods and detergents, but it does not provide a forecast of repeat purchase levels. In order to estimate repeat purchase sales and differentiate them from trial sales, businesses would typically need to carry out test markets or simulated test markets and apply different forecasting methods that would provide a steady-state market share estimate rather than a time-based adoption curve as is

provided by diffusion models. However, all products, regardless of how often they are purchased, have a first-purchase sales volume curve (**Mahajan and Wind 1986**).

### **Assumptions of Diffusion models**

Diffusion models are dependent on a number of assumptions, each of which should be considered prior to implementing such models. The assumptions include:

- 1) The product whose sales are being forecast by the model is a product that is destined to be a successful new product introduction. Estimates of new product failure rates vary from 33% to 60% or higher. The present model is appropriate only for successful new product entries. The present model cannot predict which new product launch will be successful; it is instead designed to project sales volume over time for those product launches that are successful.
- 2) The model requires that the user input an estimate for the total market size for the particular brand within the product category (i.e., total number of adopters of the branded product). To the extent that this estimate is inaccurate, the new sales forecasts will also be inaccurate. The user firm may choose to use historic sales data, however it needs to produce an estimate of potential market size, and then estimate the brand's share within the market.
- 3) When the user estimates their brand's market share within the product category, a number of underlying assumptions about competitive response underlie such an estimate. It is possible that competitive response, such as imitative competitive alternatives, or heavier promotional responses, will adversely affect the share of the new product's sales. Again, to the extent that the market share estimate is inaccurate, the new product sales estimates will also be inaccurate.

The model recommended here has been developed from theoretical work in the area of diffusion processes and the customer new product adoption process. Diffusion process models attempt to forecast the market penetration rates of innovative products (air conditioners, cell phones, the internet, hybrid gas/electric cars, a new brand of coffee, etc.) over time. The customer adoption process refers to differences among customers in the degree to which they are innovative, and thus willing to try a new product. Some customers are very innovative and are the first to try new products, whereas others are less so, and typically wait until many of their neighbours, etc., have already bought the new product before they do the same.

## UNIT-4: CUSTOMER ANALYTICS (8 HRS)

**Customer Lifetime Value:** Concept, Basic Customer Value, Measuring Customer Lifetime value, Estimating Chance that customer is still active, Using Customer Value to value a business

**Market Segmentation:** The segmentation-targeting-positioning (STP) framework, Segmentation, The concept of market segmentation, managing the segmentation process, Deriving market segments and describing the segments using Cluster analysis.

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### MEANING OF CUSTOMER ANALYTICS

Customer Analytics essentially refers to the techniques that are employed by business organisations to extract extensive information about their customer base while also keeping a close watch on customer behaviour. It allows companies to identify potential customers and devise strategies to attract new customers as well as retain the old ones.

Today, customers are more hooked up to the Internet than ever. They are always active on social media, online shopping portals, online platforms with informative content, and so on. As a result, consumers are now always updated about the latest trends in the market, be it regarding technology, products, and services, fashion, or education - they know it all. This has made it all the more important for business firms and organisations to gather an all-comprehensive knowledge about their customer base, their likes and dislikes, and their tastes and preferences.

In the cut-throat competitive business world, if marketers fail to 'learn' about customers' behaviour and preference, they might fall behind in the race. If customers see that marketers are failing to understand their 'pain points', they know they have other options to look up to. Thus, to retain a loyal customer base, marketers need to invest in Customer Analytics. Customer analytics comprises the backbone of a business' marketing strategies and integrates advanced techniques like data visualisation, predictive modelling, information management and segmentation.

### KEY CUSTOMER ANALYTICS IN USE TODAY

Some important customer analytics in use today are given below:

- 1) **Customer Satisfaction Analysis**→ Customers who are happy will come back again for more purchases. This type of analysis determines whether the customers' needs are being met - in short, it determines whether they are satisfied or dissatisfied with what the company offers.
- 2) **Customer Lifetime Value Analytic**→ This is the process of analysing the entire relationship with a customer in order to determine his or her value to the business. It determines how long a customer stays a customer, their likelihood of making purchases during that period and their entire value in that timeframe. The main goal is to focus marketing strategies to the best customers in order to increase the customer-business relationship.
- 3) **Sales Channel Analytics**→ Sales channel analytics analyses all the different ways a product can be distributed to the market and determines the most effective channel for better resource management. Customers may be exposed to a different sales channel so it is crucial to determine whether customers prefer to purchase physically or online.
- 4) **Customer Segmentation Analytics**→ All customers are not equal. This process identifies sub-groups within the customer base and splits them into segments depending on their purchasing power. This allows the company to customise its marketing and communication efforts.
- 5) **Web Analytics**→ Online sales in just about every industry are increasing. Web analytics is the process of analysing online behaviour so as to optimise website use and increase engagement and sales. There are two types of web analytics: off-site and on-site. Off-site web analytics is useful for assessing the market and opportunity whereas on-site is useful for measuring commercial results.
- 6) **Social Media Analytics**→ Social media analytics is the process of gathering and analysing data from social media to see what people are saying about the product, service, brand or company. In social media analytics, text data from social media posts and blogs is gathered and mined for commercially relevant insights using text analytics and sentiment analysis.
- 7) **Customer Engagement Analytics**→ Customer engagement analytics is a rapidly evolving field where businesses are trying to map the entire customer interactive journey on- and off-line. Essentially it is the process of assessing how well (or otherwise) companies engage the customers with products, services or

brand through these various interactions. Ways of measuring customer engagement include surveys and social media analytics.

- 8) **Customer Churn Analytics**→ Customer churn analytics is the process of assessing how many customers companies are losing over the course of a year. It also allows predicting customer churn in the future and taking evasive action before losing those customers. Customer churn can be assessed using KPIs such as customer retention rate and customer turnover rate.
- 9) **Customer Acquisition Analytics**→ Customer acquisition analytics seeks to establish how effective companies are at acquiring new customers, including how effective they are at pinching customers from their competitors. There are a number of metrics that can help to establish customer acquisition, such as the cost per lead and customer conversion rate KPIs.

### **IMPORTANCE OF CUSTOMER ANALYTICS**

There is an impeccable and straightforward logic behind investing in customer analytics - the better the marketers understand and know their customers (their buying habits, their preferred choices, and the offers that they respond to), the more accurately will they be able to draw predictions regarding their future buying behaviour patterns. According to a McKinsey & Company survey, businesses that heavily invest in customer analytics are more likely to outperform their competitors, be it on the grounds of sales, or revenue, or ROI.

Customer analytics can help to:

- 1) Reduce attrition rates significantly by accurately forecasting about the time periods when customers are most likely to leave, thereby allowing to chalk out proactive plans and campaigns to retain them.
- 2) Boost the response rates, customer loyalty, and ROI by allowing to target the right audience with attractive and befitting offers.
- 3) Reduce campaign costs by streamlining campaigns to target only the customer base that is most likely to respond.
- 4) Optimise the overall customer experience by creating personalised selling and marketing strategies for the different customer segments.
- 5) Identify the current trends in Big Data to boost sales.

### **BEST PRACTICES FOR EFFECTIVE CUSTOMER ANALYTICS**

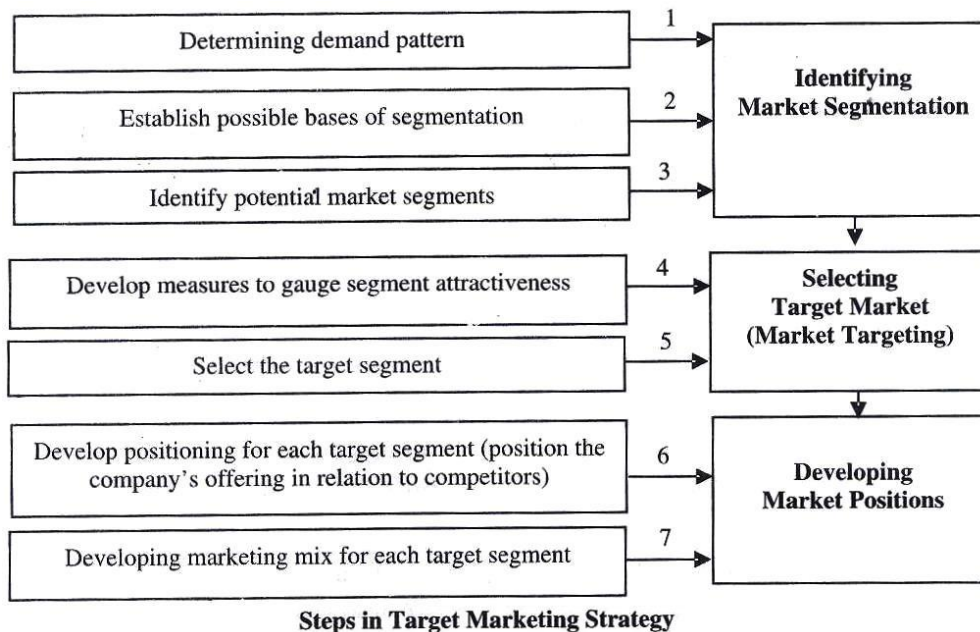
- 1) **Walk in Customers' Shoes**→ Every interaction with customers leaves a trail of data - information that becomes more valuable when it is combined to generate a richer picture of everything from their product choices and channel preferences to when, how, and why they want to interact with the organisation. Build on that picture by walking in their shoes. Marketers must interact with their own organisation's channels. Talk to customer-facing employees to hear their "voice of the customer" insights. These experiences can help identify the most pressing areas for improvement.
- 2) **Ask Smart Questions**→ What information will help the marketers better serve customers, gain competitive advantage, or fulfil the business strategy? Smart analytics is about knowing the right questions to ask. And answering those questions will likely require an innovative approach to data analysis - one that can deliver actionable insights to keep the marketers a step ahead of the competition.
- 3) **Know the Data**→ Do marketers have access to internal or external data that provide the insights that can help answer questions? The strength of current data should not be underestimated. It does not have to be complete to be valuable. Along the way, marketers should not settle for aggregate views, or someone else's summary of what they think marketers need. Marketers should have the technology muscle to zoom directly to the most granular level of data to develop a more intelligent understanding of the customers.
- 4) **Make it Count**→ Before starting; marketers should plan for how they can turn the insights into actions, and how to measure results. Marketers must make sure that they have the necessary organisation, systems, and processes in place that support business implementation and add value. At the same time, all this should not be used as an excuse for inaction. Marketers must know the constraints they will be working within, and stay focused on determining what they can do with customers now to deliver a return on their investments.
- 5) **Target a Quick Win**→ Pick a tight, focused project that can generate valuable insights and recommendations that will likely be easier to execute. Use this experience to learn how to tackle more complex, broader-scale projects across the enterprise and to gain internal cultural buy-in for future changes.

## SEGMENTATION-TARGETING-POSITIONING (STP) FRAMEWORK

The awareness about the product amongst the consumers is the basic requirement of marketing. It is the responsibility of the marketer to effectively communicate with customers in order to inform them about the products and services being offered by the company. Since, requirements and demands vary from individual to individual; marketing planning cannot afford to be a clean sweep. The marketing planning has to have such campaigns made so that USPs (Unique Selling Propositions) are logically and clearly communicated to the customers. A single product cannot satisfy all customers. Therefore, due to the varying needs and requirements, it is essential to make different segments of consumers and plan for each segment separately. This process in marketing is called 'Target Marketing' which is also termed as **STP (Segmentation, Targeting and Positioning)**.

### STEPS IN TARGET MARKETING

After segmenting the market, the marketers have to select the segments to create their target market. This is known as **targeting** a target market. This makes the consumer aware of the product. The products are placed into the minds of the customer, which is called **positioning** of the product. The entire process of segmenting, targeting and positioning is referred as market selection. These three activities in the target marketing of market selection are as follows:



- 1) **Identifying Market Segments (Market Segmentation)** → The first and foremost action in target marketing is to locate the target markets which have not been served yet. The unsatisfied needs of such markets become the basis of segmentation. Following three phases are involved in segmentation:
  - a) Analysing the pattern of demand,
  - b) Determining the segmentation bases, and
  - c) Identifying the available market segments.
- 2) **Selecting Target Market (Market Targeting)** → After dividing the market into homogenous segments, the marketers aim at identifying those segments for which they could develop their products. This involves:
  - a) Analysing the segments to determine their attractiveness, and
  - b) Selecting the potential segment(s).
- 3) **Developing Market Positions (Market Positioning)** → Each selected segment differs from the other one on the basis of different types of customers and their expectations about the product. Thus, positioning includes:
  - a) Identifying possible positioning concepts for each target segment, and
  - b) Developing marketing mix for each target segment.



## **CONCEPT OF MARKET SEGMENTATION**

The customers differ from each other in their habits, preferences, hobbies, income, culture, purchase decisions, etc. In order to streamline the marketing process, the consumers of similar characteristics are grouped together in segments. This is termed as 'market segmentation'. Market segmentation means division of market into smaller groups having similar needs and qualities.

This helps the company to modify the products or services to suit the different groups more effectively. Even, the advertisement messages and promotional methods are needed to be modified so that they are well-understood by the group. **For example**, a product being sold in the State of Tamil Nadu is required to be advertised in Tamil language. Here, getting the endorsement of local popular film star will be an added advantage.

According to **Philip Kotler**, "Market segmentation is sub-dividing a market into distinct and homogeneous subgroups of customers, where any group can conceivably be selected as a target market to be met with distinct marketing mix".

The actual objective of segmentation is to develop separate marketing plan for each segment so that consumers can be better served and their expectations are met effectively. In marketing planning, the market segmentation is perceived as the first step towards betterment. After identification of a particular consumer group and application of four Ps, i.e. product, price, place, and promotion, in proper manner, the marketers are able to design products and services according to the target market.

## **NEED FOR MARKET SEGMENTATION**

Market segmentation is essential for marketers because of the following reasons:

- 1) **Meeting the Needs and Demands of Customers**→ Different customers have different types of needs and demands. By segmenting a large market, customers of different segments can be offered products or services which provide them higher level of satisfaction.
- 2) **Increasing Profits for Organisations**→ The price sensitivity of customers varies in accordance with their disposable incomes. By segmenting the markets, organisations can increase their average price of the products and services, thereby improving their profits.
- 3) **Greater Chances for Growth**: Segmentation of a market can lead to high volume of sales. For example, a customer can be lured or motivated to purchase a product in future when a firm offers first sample of the product at an introductory price which is very low.
- 4) **Retain Customer Base**: Customers go through various types of transition phases such as they become adults, start working, get married, have children, get promotion, and hence keep on changing their purchasing pattern. Any business organisation can continue to retain its customer base by offering them the products and services which they may need at different phases of their life cycle; otherwise, these customers may get diverted to other brands or products.
- 5) **Target Marketing Communications**: All the business organisations should communicate with their target customers. Organisations may face the following challenges if the target audience is too large:
  - a) The important customers may be left unnoticed.
  - b) The cost of communicating with the customers may be very high, making the marketing communication unprofitable. Hence, through market segmentation, target customers can be approached frequently and offered products at lower prices.
- 6) **Gain Share of Market Segment**→ The profitability of any organisation cannot be increased until it has a substantial or major market share. Brands that are less popular in the market may face problems such as diseconomies of scale in manufacturing and marketing processes, lesser shelf space in outlets, continuous pressure from distributors, etc.

## **BASIS OF SEGMENTATION: DESCRIBING THE SEGMENTS**

The bases for segmentation are as follows:

- 1) **Geographic Segmentation**→ This includes the segmentation of market based on location, size, population density, climate, etc. This type of segmentation enables the planning for better marketing. Rural and urban markets can be easily segmented by such segmentation. The geographic location is very helpful for marketers to design the marketing plan.  
**For example**, there are different regions in India like Assam, Bengal, Punjab, Gujarat and Tamil Nadu which prefer clothes and food-items based on their regional culture and food habits. Marketers must be very much conversant with regional languages. Also, places known for extreme climate conditions affect

the need as well as the buying behaviour. **For example**, in cold climate, there is permanent need for woollen garments and heating systems whereas for hot climate, air-conditioners are needed.

- 2) **Demographic Segmentation**→ Another important basis commonly used for market segmentation is the demography, i.e. age, gender, income, education, religion, family size, social class, nationality, etc. This type of division of market is admired by most marketers. These are discussed below:
- Age and Life Cycle Stage**→ Under this segmentation, the requirements of consumers are related to age group and this can be divided into four categories, i.e. children, young, adult and old. **For example**, Dabur produces oils especially for children.
  - Gender and Sexual Orientation**→ Males and females have different requirements and it is inherent in their nature. **For example**, females generally prefer to spend on expensive clothes, cosmetics, jewellery whereas males prefer to purchase cars, hot drinks, going to clubs, etc.
  - Marital Status**→ Lifestyle of married and unmarried individuals is totally different. A bachelor normally spends his earning on entertainment, hotels, whereas, a married person will generally spend on home furnishing, children education or purchase of house, etc.
  - Income**→ Buying behaviour of consumers is derived from their income. In our country, it varies from few thousands rupees to even millions. Therefore, individuals have different buying behaviour.
  - Social Class**→ As per the social status of a person, the buying patterns change. A business tycoon will prefer Mercedes, Audi, BMW cars, expensive cell phones, spacious and luxurious apartments or bungalow. A commoner will go for economy cars, common cell phones and a suitable accommodation for family.
  - Family Size**→ The purchase requirements vary with family size. The consumption-level are different for joint family and nuclear family.
  - Occupation**→ Occupation of an individual affects the buying behaviour to a great extent. **For example**, people related to glamorous film world have totally different orientation in buying behaviour in comparison to researchers and academicians.
  - Educational Level**→ People with same educational background and income have different preferences for certain products but it cannot be taken as a thumb rule.
  - Religion**→ Certain rituals, festivals, eatables, clothes, colours, etc. are related to religion. The market can also be segmented on such considerations.
- 3) **Psychographic Segmentation**→ Psychographic segmentation of the market is not absolutely correct and it is generally found that persons of same age, financial status, educational background and occupation, adopt different procedures in purchasing the products, selecting a new product or choosing a shop. This is due to some psychographic factors which include personality, values, lifestyles, beliefs, etc. These are described below:
- Lifestyles**→ Lifestyle of a person greatly affects his/her buying behaviour. The lifestyle is associated with the standard of living and the way in which money and time is spent by a person. This is also a result of social background, culture, religion, psychology and demography. It is an important factor in dividing the market and should not be ignored. **For example**, corporate icons prefer to buy costly suits and luxurious cars, whereas an executive goes for normal clothes and shoes.
  - Personality**→ Another variable in psychographic segmentation is personality. Different individuals have different personality which determines their buying behaviour. Marketers utilise this phenomenon to design products having brand personality. Thus they segment the market according to the personality of individuals. **For example**, Levi's Jeans, Vimal Suiting's, Tanishq Jewellery, Sabyasachi and Gaurang Shah for Sarees, Paris perfumes, etc., have personality statement which automatically attracts a particular segment of the society.
  - Values**→ Values are the belief systems of individuals, which affect their buying behaviour. These are also utilised for segmenting consumer market. This is the most appealing strategy to attract the customers because it touches their inner-self due to which selection of the product becomes easy.
  - Beliefs**→ Marketers know the fact that belief plays an important role in buying and hence they accordingly divide the market. People adopt certain characteristics from childhood which gradually becomes their firm conviction or belief that govern their buying behaviour. **For example**, it is a common observation that people exhibit buying behaviour and lifestyle as per their religion, irrespective of festivals or normal days.

- 4) **Behavioural Segmentation**→ It involves segmenting the market on the basis of understanding how customers use a particular product, how they respond towards a particular product, what they know about product or what their attitude towards a product is. The market segmentation is based upon the analysis of behavioural variables like occasions, benefits, user status, usage rate, loyalty and attitude of the consumers. The analysis of these variables helps in developing the market segments. These derivatives are described below:
- a) **Occasions**→ The marketers do recognise the occasions that are helpful in developing needs. The household items are regularly purchased by the salaried people on every first working day of the month. Festivals, family functions or celebrations for specific events develop needs for purchase. The companies can plan to enhance the supply of products based on these occasions. Two types of occasions are common:
    - i. **Regular**: These include occasions like Republic Day, Holi, Diwali, Dushehra, Eid, Christmas, Independence Day, etc.
    - ii. **Special**: These include marriage, anniversary or any happy occasion like winning an award, promotion, etc.
  - b) **Benefits**→ The market is also segmented on the basis of benefits derived by the consumer. A consumer may purchase a watch as an essential need to know the exact time or to gift someone or use it as a status symbol, wear it to match with the dress or even wear it as a jewellery item. The marketers do recognize this fact and provide different brands of the product to take care of each segment separately.
  - c) **User Status**→ The market can also be segmented on the basis of user status. **For example**, the users for deodorant can be categorised as:
    - i. **Non-user**: This category is not interested in using the given product. **For example**, children and aged people generally do not use deodorants.
    - ii. **Potential User**: This category heavily relies on given product consumption. **For example**, deodorants are frequently used by fashionable teenagers and corporate executives.
    - iii. **First Time User**: There are consumers who use a new product for the change. **For example**, deodorants used by college going students.
    - iv. **Regular User**: There is a section in the society who leads a lifestyle which requires regular use of deodorants or other cosmetics like film stars, models, corporate big-wig and fashion conscious ladies.
    - v. **Ex-user**: Some people give up using a particular product (like deodorants) because of allergy or medical advice.
  - d) **Quantity Consumed/Usage Rate**→ The quantity consumed or the rate of consumption of a product is also an established basis for segmentation of market. This segmentation is commonly used in tea, coffee and soft drink markets. There are three categories:
    - i. **Light**: The frequency of consumption of the consumer is not constant but occasional. **For example**, use of cosmetics by a housewife who is not so fashionable.
    - ii. **Medium**: The frequency of consumption of product is frequent. It is observed that teenagers frequently use cosmetics.
    - iii. **Heavy**: The consumption of product is regularly made in large quantity. **For example**, the celebrities working in the film industry, models, etc., use cosmetics regularly since it is a part of their profession.
  - e) **Buyer Readiness Stage**→ There are different readiness stages of consumers regarding a product purchase. Some consumers may be unaware, others may not be interested, and some might be interested while some might be ready to buy the product definitely. The market is segmented as per the readiness of the consumers.
  - f) **Loyalty Status**→ There are different levels of loyalty of consumers for specific brands as described below:
    - i. **Hard Core Loyals**: Such consumers always buy the same brand of product, like newspaper, coffee, certain brand in clothes and sarees. They get hooked to these products due to their long experience and develop a sort of addiction and do not switch to other brands.
    - ii. **Soft Core Loyals**: Such consumers limit themselves to two or three type of brands of the product. **For example**, a consumer using Sony, LG, Voltas products is a soft core loyal

consumer. Such consumers need to be motivated by marketers to stick to one brand so that they could be turned into hard core loyalist.

- iii. **Split Loyals**: Such consumers shift their loyalty for a change. **For example**, majority of customers prefer Colgate tooth paste but some also use Pepsodent or Close Up.
- iv. **Switchers**: Such consumers never stick to a brand rather they enjoy switching to new brands for experience and thrill.
- g) **Attitude**→ Attitude is the principal driver behind a product purchase. Some people lose interest in life due to some sad events, while some lead a very simple life as directed in scriptures. Such people do not indulge in fun or luxuries of life and behave differently. However, normal persons want to enjoy their life to the fullest and have fun. Keeping these things in mind, the customers are categorised as enthusiastic, positive, indifferent, negative and hostile.

## **SEGMENTATION METHODS**

There are several methods for market segmentation. Some of these are described below:

- 1) Factor Analysis
- 2) Cluster Analysis
- 3) Regression Analysis
- 4) Choice Based Segmentation

## **CLUSTER ANALYSIS**

The clustering technique has several applications in marketing research. This technique is used extensively by academicians as well as marketing professionals to cluster individuals or occasions which can be of use to them in the future. Clustering techniques are widely used as a classification tool. The typical application of clustering is in segmentation of customers but it also has other applications like evaluation of consumer shopping behaviour and preparing company's brand architecture.

The two main types of application of clustering techniques are:

- 1) **Psychographic Market Segmentation**→ It is often seen that two persons having the same demographic traits may display completely different type of behaviour. People, who have similar types of education, skills, socio-economic status, income, etc., differ in terms of their attitudes towards issues like risk taking, purchasing new products, etc. This is because of psychographic variables like attitudes, motivations, perceptions and lifestyles. Many market research firms conduct researches based on psychographics to get a better perspective on various variables like consumer's values, motivations, lifestyles and attitudes.

Cluster analysis allows the analyst to cluster the data into groups that are formed in such a manner that differences between group and similarities within the group are maximum. In some sense, cluster analysis is similar to factor analysis as it does not classify variables as independent or dependent. It can therefore be used in psychographic segmentation.

- 2) **Lifestyle Market Segmentation**→ The consumer buying behaviour can also be defined using the lifestyle segmentation. Lifestyle indicates the manner in which people spend their time and monetary resources. The understanding of this helps the marketers in predicting the behaviour of consumers. Lifestyle segmentation involves interplay of disciplines like sociology, culture, psychology and demography. The lifestyle method of market segmentation is very useful and popular with researchers. **For example**, Fastrack targets youth consumers who are trendy and fashion conscious.

To develop such lifestyle segmentation, it is necessary to cluster customers into homogeneous groups on the basis of their attitudes, values and behaviour patterns in such a manner that people in the same cluster exhibit similar traits. This kind of segmentation is done on the basis of the responses that the researcher gets in response to lifestyle questions.

The psychographic and lifestyle segmentation techniques are based on the extensive usage of AIO (Activities, Interests and Opinions) surveys. This leads to a very nice and effective description of the lifestyle pattern of consumers.

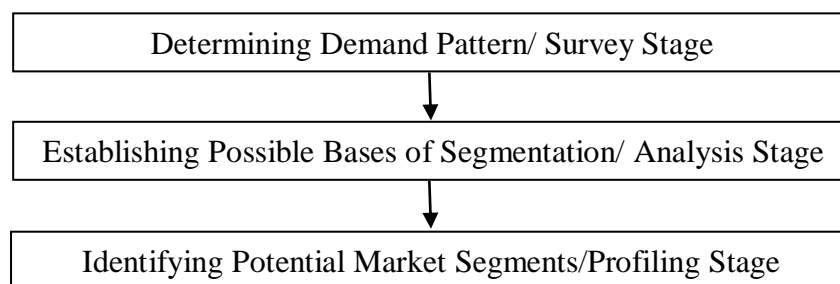
## **CRITERIA FOR EFFECTIVE SEGMENTATION**

Market segmentation is a complex decision and requires due care while selecting the criteria on which decisions are to be taken. It is very essential for products and services to be planned for a particular market. The product being launched should attract the market segment. It should have substantial size and growth potential alongwith the capacity to provide remarkable returns. The market segmentation criteria are discussed below:

- 1) **Measurable**→ While establishing a market segment, the consumers of the product are counted along with their financial status and characteristics. The number of such consumers should be enough to be measured with ease. These calculations are obtained only after the marketing analysis and research work is done.
- 2) **Substantial**→ The market segment must have customers of similar characteristics like age group, financial status, culture and should be aware about the different brands of the product. The size of the segment should be substantial so that suitable marketing strategy can be adapted which is convenient to all. The products should be supplied as per consumer preferences like quantity-wise, i.e., in small or big packs.
- 3) **Accessible**→ The product and market segment should be compatible in price and financial status of the population. The location of the segment should have easy transportation facility for smooth flow of the product. The marketing strategy adopted for one consumer group is always different from other consumer group due to differences in their needs. **For example**, the fashion needs may vary on the basis of age groups therefore each group requires different products respectively. The effectiveness of marketing lies in catering to real needs of the customers belonging to different segments.
- 4) **Differentiable**→ The marketing managers should clearly differentiate between the different segments since each segment requires different strategy for marketing. The consumers react differently to different products, and the advertisements are also designed in accordance with the consumers of different locations. Various marketing tools are used to take due care of nuances of local area to attract the customers.
- 5) **Actionable** A well defined market segmentation is always actionable on the part of the consumers, who are captivated by the products, services, advertisements and marketing strategies and as a result indulge in purchasing activity. The product placed at reasonable price coupled with marketing efforts is bound to bring favourable returns.

## **MANAGING THE SEGMENTATION PROCESS: DERIVING MARKET SEGMENTS**

As per the universally accepted view, market segmentation process primarily includes three stages, which are as follows:



### **Process of Market Segmentation**

- 1) **Determining Demand Pattern/Survey Stage**→ It is crucial to ascertain the demand patterns related to products and services as they signify the changing needs of customers as well as their consistent or non-varying tastes and preferences for a definite class of products and services. There are following three demand patterns which are usually encountered by a company:
  - a) **Homogeneous Preferences**→ Homogeneous preferences can be understood as a marketplace where majority of the customers have similar tastes and preferences.
  - b) **Diffused Preferences**→ It symbolises that consumers have a wide range of preferences which are altogether different from each other. The first firm to enter the market will hold the central position in the market and can have the potential to attract most of the consumers.
  - c) **Clustered Preferences**→ A particular market can be divided into different preference clusters. Such preference clusters can be termed as market segments. The first company or brand to enter the market has three alternatives, viz. to position itself in the centre position so as to engage most of the

customers, to come up with different brands and position them at different market segments or to position itself in the largest market, i.e., concentrated marketing.

In case the first company entering the market is engaged in developing a single brand in a particular segment, then the other entrants (competitors) would try to develop and launch their brands in the other market segments.

Furthermore, the survey stage is categorised into following segments:

- a) In-depth interviews and focus group discussions with an intention to know or understand consumer behaviour, attitude, preferences and motivation.
- b) On the basis of the information gathered from the above mentioned activities, a questionnaire is developed which is dispensed or issued to a sample group of customers. The main purpose of this questionnaire is to gather data related to:
  - i. Patterns in which customers make use of a product.
  - ii. Attitude of customers towards a general product or the entire class of product.
  - iii. The priority ratings of customers associated with different products and to know on what basis they prioritise a particular product.
  - iv. Prevailing habits of customers, namely, their psychographic, demographic and media habits.
  - v. Brand awareness among customers and ratings given by them to different brands.

- 2) **Establishing Possible Bases of Segmentation/ Analysis Stage**→ The most significant activity of segmentation is to locate the variable(s) that are responsible for dividing the market into prospective segments. Generally, there are two kinds of segmentation variables, which are as follows:

- a) Needs
- b) Profilers

Customer needs are the fundamental basis for any market segmentation. Market research is essentially required to discover the needs and wants of consumers in a market. Illustrative and computable consumer attributes like age, location, gender, income, nationality, etc., are known as profilers, which are useful in informing a segmentation exercise. For the purpose of identifying factors that can distinguish different customer groups, factor analysis is used. That is, once the data collection process is complete, it is reviewed with the help of factor analysis. However, for clustering customers into different groups, cluster analysis is used.

- 3) **Identifying Potential Market Segments/ Profiling Stage**→ This stage involves profiling each cluster of customers on the basis of their behaviour, attitude, consumption pattern, alongwith their psychographics, demographics and media habits. Every segment can be named by the marketer either on the basis of dominants or unique characteristics. Customer segmentation helps the marketer to understand the potential customers of the firm from a demographic viewpoint. In order to understand the penetration rates and the market potential for different products and services, a perfect and explicit profile of consumers is required.

It helps in analysing a particular market as well as gives an idea about the closely related markets. Such analysis enables the marketer to explore the market opportunities and implement the market penetration strategies. Highest market penetration can be achieved by identifying and understanding the customers in clusters which helps in target marketing. It also helps in planning business activities for the prospective buyers. Moreover, the ROI and response rates can be increased by specifically marketing to the potential customers with attractive offers. Profiling the customers becomes a necessity in the process of evaluating the entire market opportunities and the profits that can be generated from such markets. Further, it also helps in identifying the potential customers present in the selected market. It is possible only for few companies to make effective site selection decisions in the absence of appropriate information of customer profiles.

## **FACTORS INFLUENCING MARKET SEGMENTATION**

Segmentation gets influenced by the following factors:

- 1) **Size, Resources, and Objectives of the Company**→ Market segmentation of a company is greatly influenced by its size, the objectives according to which it works, and the resources available with it.. **For example**, a global automobile company considers many countries as its market and segments accordingly, whereas a local boutique caters to a city and does its segmentation on a local level.
- 2) **Type of Product and Market**→ Product portfolio of a company also influences its process of segmentation. For example, a company of bakery products, cleaning materials, etc., can do the

segmentation easily; however, the process of segmentation will be complicated for the companies of apparels, financial services, etc.

- 3) **Competitive Structure of the Industry**→ Process of segmentation for a company also depends on the competitive structure of the industry in which it is operating. Companies attempt to differentiate their products from that of competitors, if the competition in the industry is very high. This in turn creates the need for tight segmentation because in such competitive industries where numerous options are available, customers demand more and more features in a product.
- 4) **Nature of Market**→ Decisions related to market segmentation depend on the nature of the market also. For example, company operating in a high competitive environment will have a different segmentation approach than one operating in a less competitive environment.
- 5) **Life Cycle Stage**→ Product life cycle also influences the segmentation decision of a company. For example, the segmentation approach of a company would be different when its product is in growth stage.
- 6) **Competitive Strategy of Firm**→ Segmentation decision of a company also depends on its competitive strategy. And the companies which strategically target their markets and segment its consumers are more likely to achieve success in a highly competitive industry.

### **IMPORTANCE OF MARKET SEGMENTATION IN MARKETING**

The benefits of market segmentation are as follows:

- 1) **Adjustment of Product and Market Appeals**→ Marketing is a complex activity but segmentation has slightly simplified it. This gives an opportunity to analyse each segment separately and make adjustments to attract maximum number of customers by suitable advertisements or other attractions.
- 2) **Better Position to Spot Marketing Opportunities**→ Depending upon the sales volume of the product in different segments, the marketer can make alterations in distribution or advertisements. The inputs from market research can further help in modifying marketing strategies.
- 3) **Allocation of Marketing Budget**→ Different segments generate different sales volumes. This helps to analyse and regulate the budget allocated to these segments. In case of markets with limited sales budget, the allocation of budget can be curtailed or diverted to other progressing segments.
- 4) **Understanding and Meeting the Needs of Consumers**→ Since, every smaller market segment is concentrated, it gives marketer an opportunity to fully understand the needs, habits, tastes and expectations of the customers. This enables to make better decisions related to customers, which further improves the business opportunities.
- 5) **Stronger Positioning**→ Positioning is all about establishing an image of the product in the minds of the consumers for satisfying their needs and improving the situation in the best possible manner. The four tools, i.e. price, place, product and promotion, when used in analytical way make the position of the product stronger. In a market, varieties of similar products are available offering similar benefits. A good positioning makes a product stand out from the rest. Thus, market segmentation gives the product a stronger positioning.
- 6) **Enhanced Efficiency**→ The purpose of market segmentation is to make marketing more effective. The practice of locating customers in a segment and trying to attract them through advertisement (by sending messages), will have little or no effect and it will be a mere waste of money. Accurate segmenting enables the marketers to locate the most interested customers, and deliver them specific marketing messages to improve their buying behaviour. In this way, segmentation enhances the marketing efficiency.
- 7) **Competitive Advantages**→ In the present competitive scenario, the company which can retain its customers is a winner. After understanding the customer segments, a common opinion can be made on what attracts a customer to a particular brand. An extensive market research is needed to study the buying behaviour of the customers and suggest an appropriate brand which suits their requirements and needs. The inputs from the market can be successfully used by the marketers for their competitive advantages.
- 8) **Targeted Media**→ Segmentation divides the market into small groups comprising selected people. This enables the marketer to select suitable media for advertisement of a product. This can be done through hoardings, SMS on mobile phones or advertisements on local television channels, etc.
- 9) **Market Expansion**→ Segmentation also helps in market expansion. For example, if a business is setup in a particular region and it is a success, then it can be extended to a nearby region without much hassle. Similarly, a demographic basis of segmentation may also be utilised for expanding one's range of

products or adding new product lines. For example, Reebok provides t-shirts and other sportswear along with shoes.

- 10) **Better Communication**→ The effective communication is possible only after understanding the target market. The customer is convinced up to the hilt about the product due to the identical products present in the market. Thus, segmentation results in better communication between customers and sellers.
- 11) **Increases Profitability**→ Various aspects of business like brand equity, customer retention, brand recall, communications, competitiveness, etc., are influenced by effective segmentation strategies. The overall impact of segmentation finally leads to profitability of the business. As a result, the product becomes a USP for different businesses.
- 12) **Identifies New Markets**→ Segmentation of market also brings in new market segments which have not been tapped due to some reasons. This can even be a small segment that needs a different product, which certainly opens a new business opportunity.
- 13) **Reduces Costs**→ Market segment is a smaller portion of the market which can be operated economically. This may lead to reduction in transportation costs, advertisement costs, manpower, paper work and time.
- 14) **Reduces Credit Risks**→ It is generally found that some individuals or companies do not make payments of the products purchased or even cause delay in making payments. Such customers should be avoided or offered products only when they make on-the-spot payment in cash. On the other hand, the customers with good payment records may be offered products on credit. These decisions are taken on the basis of market segmentation since it helps to manage the market, business and the consumers.

## **TARGETING**

It is very expensive and inefficient for the marketers to satisfy the needs and requirements of every single individual in the population; therefore, they focus on a particular type of individuals or groups with specific needs and requirements which can be easily fulfilled by their product offerings. These individuals or groups are called **target market** of the marketer.

Market segmentation helps the company to identify various opportunities. On the basis of these market segments the marketer can determine the specific markets to be targeted. Market targeting is a process of ascertaining groups of customers who are likely to purchase the products and services of the company. This is done in ways where some companies can cater to the entire market while others can focus on developing products and services for small niche markets which are profitable. Targeting is undertaken by companies of all sizes in order to retain and maintain their customers.

**Market targeting is not the same as target marketing.** In market targeting, the product positioning is done beforehand and only decisions related to choosing of suitable target market has to be made. In target marketing, it is the other way around. The company first chooses a target market and then decides on what products and services it has to offer.

Marketing is all about understanding the customers' needs and wants, and developing the products that satisfy them. Both market segmentation and targeting is practised by all organisations, ranging from the small corner book store to large MNCs. A successful marketing plan can be developed by the company only when there is complete synchronisation between what the customer wants and what can be provided by the company.

### **TYPES OF TARGETING: TARGETING STRATEGIES**

Once all the segments have been evaluated and analysed, the company has to decide the number of markets that it wants to serve. A target market consists of a group of customers who have homogeneous needs which the company chooses to fulfil. **Alternative segments targeting strategies** can be of two types:

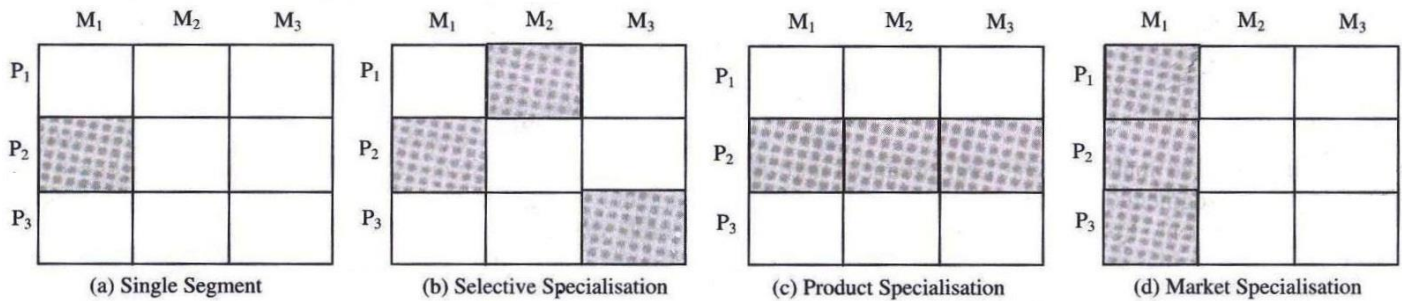
- 1) Limited coverage market targeting, and
- 2) Full market coverage targeting.

#### **Limited Market Coverage Targeting**

When the company chooses to operate in one or a few market segments then it is called limited market coverage targeting. This strategy involves limited or fewer resources. It is thus, appropriate for a small company or new entrants who are trying to compete alongside large players in the industry.

The different forms of limited market coverage targeting are:



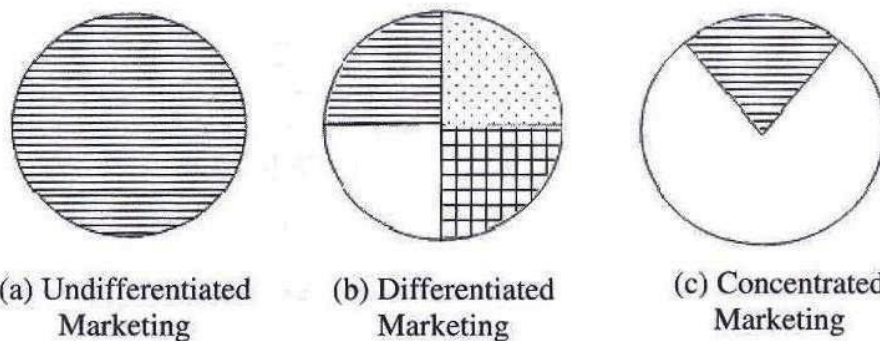


**Limited Coverage Market**

- 1) **Single-Segment Concentration**→ The Company may choose to operate in a single segment. By adopting concentrated marketing strategy, a company is able to identify the needs and wants of a particular segment, which may help to attain large market share. The company can achieve economies of scale by focusing on its production, distribution and promotion activities. A high return on investment can also be achieved by market leadership.
- 2) **Selective Specialisation**→ Under this type of targeting, firm operates in large number of segments, each of which is profitable and attractive. There may or may not be interaction between the various segments but they are all profit-making segments. Being operational in various segments helps the company to diversify their risk.
- 3) **Product Specialisation**→ Here, the strategy of the company is product-based. The company decides to specialise in a product and then sell it to various market segments. **For example**, a manufacturer of generators, who sells the generators to hospitals, organisation, educational institutions, etc., provides generators of different size and capacity, as per the needs of the customer. The company specialises in this product and does not sell any other product to the customers.
- 4) **Market Specialisation**→ In this strategy, the company focuses on a particular customer segment and tries to supply as many products as possible to this segment. **For example**, company supplying laboratory equipment like Bunsen burners, beakers, microscopes, etc., to universities and colleges labs may earn profit and reputation by specialising in this particular area. The only drawback related to this type of targeting is that sometimes the customer may cut-short its demand due to its limited budget.

**Full Market Coverage Targeting**

In this strategy, the firm chooses to satisfy all types of customers by providing different products. This is suitable for only large firms who can cover full market. **For example**, Mahindra and Mahindra in automobile market, Pepsi and Coke in beverages market and Hindustan Unilever in FMCG industry are practising full market coverage targeting. This can be done in three ways:



- 1) **Mass Marketing/Undifferentiated Marketing**→ In this, the firm does not consider different market segments and offers homogenous products to the entire market. The seller only focuses on the fundamental needs of the customers than the variations in customer choices. The firm develops a product which captures a large number of customers using standard marketing mix strategies for product, price, place and promotion. The best **example** of this is Coke and Pepsi who use same pricing, advertising and packaging means throughout various consumer segments and geographic areas.

The major benefit of undifferentiated marketing is that it earns economies of scale through mass production and marketing activities. Undifferentiated marketing can also be termed as **mass marketing**. Here, the company assumes the entire consumer market as a single market. It adopts a single marketing mix, i.e., a standardised product, uniform pricing, same promotional schemes and the same distribution channels to reach out to its consumers.

- 2) **Differentiated Marketing**→ In differentiated marketing, the firm produces and designs different product value propositions for different market segments. It therefore, caters to the individual needs and wants of customers belonging to a particular segment. **For example**, Maruti Suzuki serves various segments of customers by offering them variety of cars like level cars (800, Alto), Sedans (Esteem, SX4), Hatchbacks and Vans. Differentiated marketing is also called **selective marketing** or **multi-segment marketing**. Unlike undifferentiated marketing, here, the firm markets different products to address different needs of customers in different segments. With this, the firm is able to find out consumer groups who are loyal towards its products.

Then the firm mainly focuses on those customers and creates good relations with them. The parameters like age, income, gender, economic status, and occupation are considered which are commonly found in customer groups. **For example**, Indian railways have different product offerings for different customers like general coach, sleeper coach, AC coach, etc. In this, the socio-economic status of customers in each category is different. The price of each coach also varies accordingly.

- 3) **Concentrated Marketing**→ This is the third market coverage strategy. This strategy is adopted by the companies having limited resources. The firm targets a large share of one or more sub-markets instead of a small share in a large market. An **example** of this strategy is recycled paper products, which is used for making greeting cards. This strategy is a combination of standardisation and differentiation and is also known as **focus marketing**. Here, the core strategy used is alike for all segments but differences occur in relation with the diverse requirements of the customers. This strategy also helps to recognise the customer groups who generate revenue and enable the firm to earn profits. In other words, the focused marketing tries to find a profitable niche of customers and develops products and services which are not being offered by their competitors.

However, focussed marketing as a strategy is losing out to its significance to other forms of marketing since the companies want to cater as many customer segments as possible. A classic **example** is Mahindra's Scorpio which has five or six variants to cater to different categories of customer needs. The basic version of the model has certain basic features but customers can opt for upgraded models having features like power steering, airbags, GPS services, etc., by paying more. In this way, the company can achieve economies of scale and large market share. All this depends on the type of strategy adopted by the marketer so as to achieve high market penetration.

### **CRITERIA FOR SELECTION OF TARGET MARKET**

Five criteria for selecting a target market are explained below:

- 1) **Company's Image and Experience**→ The process of targeting a market segment should be in accordance with the overall corporate image of the organisation. Usually, a business organisation tries to have a consistent and integrated image for all of its business activities. Thus, a target market that does not have a consistent image is removed from any kind of consideration.
- 2) **Responsiveness**→ Responsiveness refers to the reactions of the target market towards the marketing mix of a company, i.e., what the target market likes or ignores about the company. If various kinds of marketing stimuli such as price discounts, product specifications, sales promotions, etc., are not able to affect the prospective business customers, then these activities are a complete waste. Such non-responsiveness occurs when a company's manager is totally against the use of new alternatives and is strongly devoted towards implying predefined methods. Similar situation can also take place when the prospective customer has a less scope to analyse the offerings of a marketer because there are numerous guidelines and rules to be followed or because of time and resource constraints.
- 3) **Substantial**→ The size of a market segment needs to be considered not only in terms of the number of business customers but also the amount of products and services purchased by them over a certain period of time. There are segments that have long-term viability whereas some get saturated or matured quickly, which leads to limited or no selling opportunity or a very slow rate of growth. The market segments get affected by the changing buying behaviour of organisations and they may not remain attractive as before. Therefore, substantiality is the most crucial factor in the industrial segmentation because technological advancements can prove to be meaningless for a certain approach.
- 4) **Competitive**→ Competitive advantage is one of the key elements of an effective segmentation. Though, a market segment is in accordance with the corporate image of the organisation and it looks quite viable and substantial, still a business organisation may not address the needs and wants of the customers of this segment. While selecting a segment, a business organisation must ensure the strengths needed to

maintain the competitive advantage over other players for a longer period of time in that particular market segment.

- 5) **Profitable**→ Most of the marketing decisions are taken after evaluating their profitability. While selecting the target market, profitability and maintenance of profitability over time is considered as the most important aspect. In some market segments, there can be numerous buyers and they may purchase a huge quantity of products and services of the organisation but in order to acquire such customers, the organisation has to compromise on its profit margins.

Apart from this, in order to maintain the competitive advantage in such segment, the company may have to incur huge cost on fulfilling the requirements of several activities such as, product development, distribution, promotion, etc., which may make the segment less profitable because of lower rate of return.

### **IMPORTANCE OF TARGETING**

Targeting is not only significant, it is essential. The main advantages of targeting are explained below:

- 1) With the help of targeting, the marketer can predict and analyse the features of products and services which are of utmost importance to the target customers. **For example**, a tailor can serve all those customers who want to get their clothes stitched. But different people may like different benefits and features which depend on their usages such as, clothes used for wedding dress, casuals, office wears, etc.
- 2) A marketer can provide the right product to the targeted customers. A product manager who is targeting a certain market segment has a clear idea about the customer's price affordability, age range, tastes and preferences, etc. On this basis, a manager can develop products that match the requirements of target customers in best possible way.

**For example**, the manufacturer of laptops can produce a laptop for the customers at a price of ₹15,000. Because with the help of market feedback, a marketer may know that the students need laptops at low prices for the purpose of their studies.

- 3) With the help of target market, a marketer can have a fair idea about the price which the targeted customers are willing to pay for a particular offering. Experienced marketers generally have a clear picture about the average income of their target customers as well as price sensitivity of their target market. **For example**, a high quality apparel company will focus on businessmen or customers with high incomes.
- 4) A marketer can induce more sales on the amount spent on advertising activities with the help of target marketing. In simple words, target marketing will enable a marketer for not spending the financial resources on those advertising activities which are not directed towards their target customers. As a result, their advertising becomes more efficient as they do not spend on those customers who are not interested in the products or services of the firm.

Target marketing helps the company to become more effective by approaching right customers with a right message which is appealing to them. The company can choose the best media for advertising to reach to the target customers. Most of the advertising firms provide vital demographic information about the audience which they reach to. **For example**, a business magazine is more popular among corporates and bureaucrats.

- 5) With the help of target marketing, the organisations can also have information about the target customers' location which in turn helps them in identifying more potential customers from those localities. The market segmentation maps can be used for viewing different income levels of customers residing in different areas.

Such information is very important for the marketers to position their outlets in relevant areas. Apart from this, the changing tastes and preferences of customers also depend upon the geographical locations. With the help of target marketing, the organisation can also address these varying preferences effectively.

## DIFFERENCE BETWEEN SEGMENTATION AND TARGETING

| Basis             | Segmentation                                                                                                                           | Targeting                                                                                                                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Definition</b> | Segmentation of market can be defined as a process of dividing the market on the basis of customers having homogenous needs and wants. | Market targeting is a process of identifying customer groups that are most probable to buy the products or services of a firm.                 |
| <b>Types</b>      | Geography, demographics, behaviour and psychographics of the customers are the major basis of market segmentation.                     | There are two bases of market targeting, namely, limited market coverage and full market coverage.                                             |
| <b>Function</b>   | Segmentation permits an organisation to customise the marketing communication for different segments of the market.                    | Targeting allows the firm to effectively develop strategies for marketing communication for the target market.                                 |
| <b>Benefit</b>    | It allows companies to concentrate on the needs and wants of the potential customers.                                                  | It helps the marketers in concentrating on particular segment of market for designing of a well-planned and cost effective marketing campaign. |

## CONCEPT OF PRODUCT POSITIONING

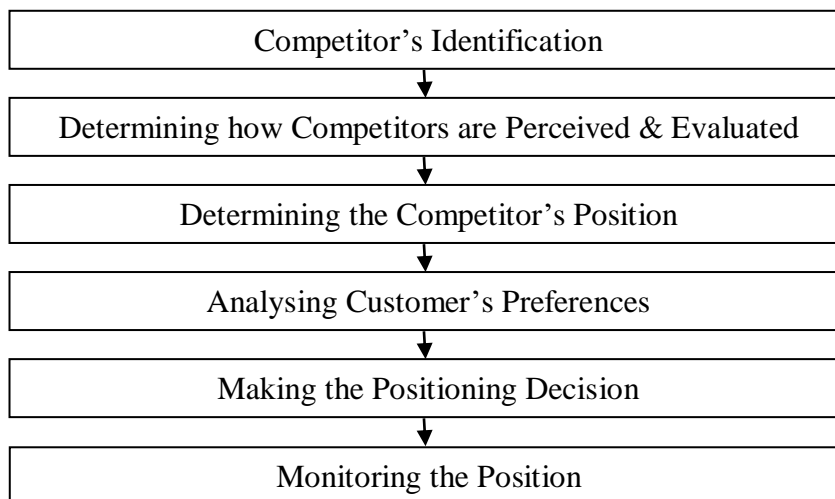
**Positioning** is a marketing approach which creates a distinct position for a brand or a product in the minds of the customers. It aims to provide a different and new product to the customers in comparison to the other competing brands or products. Here, the organisation decides the basis on which the product offers have to be placed in front of the consumers. David Ogilvy explains the importance of product positioning that, ‘the results of your campaign depends less on how we write your advertising than on how your product is positioned.’

**According to Kotler**, “Positioning is the act of designing the company’s offering and image to occupy a distinctive place in the target market’s mind”.

**According to Ries and Trout**, “Positioning starts with a product a piece of merchandise, a service, a company, an institution, or even a person. But positioning is not what you do to a product. Positioning is what you do to the mind of the prospect. That is, you position the product in the mind of the prospect”.

### Tasks Involved in Positioning: Conducting a Positioning Study

Positioning involves the fulfilment of many objectives. The marketer can generate a successful positioning strategy only if the various required tasks for positioning a product are done properly. These tasks are as follows:



- 1) **Competitor's Identification** → The company has to be very careful in the way in which it defines the competition. The definition of the competitor has to be broad. It need not only be limited to companies which are making the same type of products as the company. It should actually include all companies which are the likely competitors of the company. A company should analyse this keeping the customers in mind and the way they use the products.
- 2) **Determining How Competitors are Perceived and Evaluated** → After the definition of the competitor, the next task is to map the perception of the customers with regard to these competitors and products.

One needs to understand the various features/ attributes that are considered important by the customers. These have to be analysed through marketing research techniques. The customers indicate their preference via focus groups and other survey method and this helps the company to understand their perceptions.

- 3) **Determining the Competitor's Position**→ Once the various attributes and their importance to customers is understood, the next step is to rate each competitor on these attributes. This helps us to understand how each competitor is positioned with respect to the attribute. This also helps to understand the relative positioning of the competitors, i.e., which competitors are similar and which are not so similar in terms of an attribute.
- 4) **Analysing Customer's Preferences**→ By the process of segmentation it is possible to classify the customers into various segments based on age, income, psychographics, education, etc. These various segments have different motivation to purchase and also have different ratings for the attributes that have been identified.  
Marketers generate the ideal preference for each segment, which is nothing but the ideal product or brand that the customers seek among all available alternatives, including those that are not available. Once the ideal product is recognised, it is very easy for the marketers to recognise the ideals for different segments. It also helps to identify segments which are similar in terms of ideal points.
- 5) **Making the Positioning Decision**→ The next task involved in positioning is about making positioning decision. It is not easy for the marketers to take clear and accurate positioning decision. Even market research is not so helpful to determine the positioning. Therefore, some subjective decisions are taken by marketers by keeping in mind the following questions:
  - i) Whether the segmentation is suitable or not?
  - ii) Whether enough resources are available for communication or not?
  - iii) What is the level of competition?
  - iv) Whether the present positioning strategy is productive or not?
- 6) **Monitoring the Position**→ Once the positioning strategy is generated, the company needs to check how successful the strategy is in the marketplace. These are typically noted through tracking studies. These studies check the change in the image of the company over a period of time. The perceptions of consumers are noted without any lag time. The competitive impact of the positioning strategy is also noted.

## **POSITIONING STRATEGIES**

The creation of brand differentiation considering the value frame of the customers is the key role of positioning strategy. For this, positioning of a product can be done by using different strategies, such as:

- 1) **Attribute Positioning**→ This strategy involves multiple product attributes or uses that the brand can offer to its customers, other than the competitors. **For example**, a movie theatre publicising that it offers the best movie experience is an attribute positioning. A fairness cream can be positioned by stating the attribute that it is made from herbal ingredients.
- 2) **Price/Quality Positioning**→ This approach stresses the product's place on the price/quality continuum by positioning it in the minds of consumers. This can be executed at both ends of the continuum (e.g., at the high end with Mercedes cars and at the low end with Tata Nano cars).
- 3) **Use or Application Positioning**→ In this strategy, a product is positioned on the basis of its usage or applicability. **For example**, Kent RO purifier can be an example of application positioning. Here, the purifier is positioned by affirming that it has an inbuilt seven stages of water purification.
- 4) **Product User Positioning**→ This type of product is associated with the specific category of user. **For example**, Lady Bird brand has positioned its bicycles as fashionable and sporty for young females only.
- 5) **Usage and Use Time Positioning**→ This type of positioning is done on the basis of the product usage or its usage time. **For example**, Livon hair serum is positioned to be used after shampoo to detangle hair.
- 6) **Product Class Positioning**→ Product class positioning involves association with a particular group of products, which are different from the conventional products. **For example**, positioning an exclusive limited edition of Ferrari watches as race day watches. Olay a skin care brand has a new product line of vitamins that are positioned as beauty supplements.
- 7) **Category Positioning**→ In this type of strategy, the product is positioned other than its original category to which it belongs. This is advisable when the existing product category is overcrowded and brand

differentiation becomes difficult. **For example**, an herbal tea brand may position itself as a health brand instead of positioning itself in the beverage category.

- 8) **Benefit Positioning**→ Usually, consumers' purchase products for acquiring the benefits related to the product. With the help of this strategy, marketers may select an exclusive and not-yet-offered benefit to position the brand. **For example**, a tea brand (Red Label natural care) can help improve immunity of a person if consumed regularly.
- 9) **Price-Quality Positioning**→ A brand may also position itself on the basis of price-quality continuum. At the bottom end, it means an 'economy' position (like wheel detergent, with both low quality, low price positions) and at the top-end, it means premium position (Ariel Matic, with both high quality and high price).
- 10) **Competitive Positioning**→ Here, the positioning of a product is done in reference to the prevailing competition in the market. This product is set as a favourable substitute against the established brand. **For example**, the toothpaste brand Colgate Sensitive is launched as a competitor against the tooth paste brand Sensodyne in the market.
- 11) **Corporate Identity Positioning**→ A brand attempts to make a direct connection with the corporate identity and tries to play on its key credentials. A corporate brand is used by products to label their offerings in the market. The offerings by Nestle, Cadburys and Kellogg's, all disclose their corporate identity on their products.
- 12) **Brand Endorsement Positioning**→ Unlike the previous method, here a successful brand acts as an endorser of a new product. **For example**, Cadbury uses its successful brand, Dairy Milk, to promote its other confectionaries.

### **IMPORTANCE OF POSITIONING**

The importance of positioning is explained below:

- 1) **Placing the Product in Customers' Mind**→ Positioning and differentiation are the marketing activities which help the marketers to place the product in the minds of the target customers. The product fails to survive in market if the positioning decision goes wrong. And if the product is positioned wrongly then enormous time and effort is needed to retrieve the product. Despite the fact, repositioning of a product at a later stage is much easier than correcting a wrongly positioned product.
- 2) **Connects Product Offerings with Target Market**→ The process of target market selection helps to determine the actual target audience for whom the offering is proposed, and the marketing mix assists in bringing the 4Ps in line with the intended target market. Therefore, market positioning acts as a linkage between the product and the target market.
- 3) **Product cannot be 'Everything to Everyone'**→ A product cannot be 'everything to everyone' but a little or more to some. This may define the need for differentiation and positioning of a product. For this, some distinctive features of the product or some unusual requirements of the market, or some visible gaps in the competitor's products are identified and on the basis of these specifications the product is positioned for a specific target market.
- 4) **Creates a Locus in Customers' Mind**→ The customer's mind may be viewed as geometric perceptual space which is occupied with diverse products and brands having specific positions. A new product can take hold of the space by replacing the existing brands from their position. A brand position in the customer's mind can be achieved through several ways. Placing a brand against another existing brand or against certain expectations raised by the consumers may seek a position in customer's mind.
- 5) **Providing Competitive Advantage**→ Positioning of a product is the finest method for providing a competitive advantage to a product or service. This helps the marketer to determine the competitor's potential moves and responses so that appropriate steps can be taken, such as:
  - i) Providing the target markets the motive to buy the services and then plan the entire strategy.
  - ii) Providing the guidelines to device the marketing mix, such that every element is aligned with the positioning.
- 6) **Better Serving and Covering the Market**→ Here, the marketer identifies that every consumer or group of customers has different requirements and belongs to different market categories. In this approach, the main aim of marketer is to recognise the potential market segments, monitor the market in those segments and offer the customers' with their desired needs and wants.

## CUSTOMER VALUE: BASIC CUSTOMER VALUE

The introduction of new philosophies is essential for the survival and success of companies. In the current scenario, companies have become customer-centric and give full attention to their potential customers. Hence, the company should be competent enough to build and retain its customers rather than just focussing on delivering of goods and services.

Customer value refers to the maximum level of satisfaction delivered by offering the acquisition, ownership, and use of a product to the customer at the lowest possible cost. This is the only way by which companies can implement their marketing concepts.

Therefore, it can be observed in the prevailing business environment that many companies are constantly increasing their customer value to attain customer satisfaction. Thus, it can be said that creating and providing high customer value is the core marketing principle.

From the customer's viewpoint, value can be defined as a trade-off between the prices paid **versus** the benefits received. In a specific value situation, when the product and the customer meet each other, the value is created. Hence, the value can be evaluated in terms of high satisfaction, low satisfaction or dissatisfaction. The services offered by the companies to the customers decide their long-term relationships.

Undoubtedly, it can be observed that value is a wider concept rather than just being a fair price. The concept of value is a multi-dimensional approach as it measures the low cost, high quality and superior services of a particular target market. Other than this, the value proposition of the company can be defined as the combination of varying considerations on service, price, or quality along with the company's image and intangible elements.

$$\text{Value} = \frac{\text{Perceived Benefits}}{\text{Price}}$$

From the above equation, it can be ascertained that when the perceived benefits exceed the price of the product, only then the customer notices the value of a product or service.

A smart marketer knows that there are two ways by which the value of the company can be increased, i.e., **firstly**, by increasing perceived benefits and **secondly**, by lowering the price. However, it is suggested that the company should adopt the method of increasing benefits rather than indulging in price competition.

## CHARACTERISTICS OF CUSTOMER VALUE

Following are the basic characteristics of customer value:

- 1) **Customer-Centric** → The values should be customer centric as the customers differ in terms of their type, their requirements and the benefits they are seeking out of a product.
- 2) **Intangibility** → Value is intangible in nature; therefore it can only be felt or experienced and cannot be seen.
- 3) **Contextual** → There are three main dimensions of context such as the final consumer, end-use conditions, and the environment.
- 4) **Multi-Dimensional** → Customer value is multi-dimensional, as it can possess numerous dimensions like price, promotion, quality, service, etc.
- 5) **Trade-Off** → Customer value is the equilibrium between the benefits received by the customers against the total costs paid by them.
- 6) **Relative** → It is the tendency of the customers to relate their value with the available value offerings in the market.
- 7) **Mindset** → All the actions and strategies of company must also focus towards its customers and not just towards its products.

## CLASSIFICATION OF CUSTOMER VALUE

The concept of value is based on the total expected benefits over the cost of the product. The basic proposition in the classification of customer value includes:

- 1) The choice of end-users partially depends upon the consumption values.
- 2) A particular consumption value contributes differently in different situations.
- 3) All the consumption values are independent in nature.

Customer values are classified into functional, social, emotional, epistemic and conditional values. These types of values frequently exist in acquisition of items like food, groceries, computer peripherals, games, etc. They are:

- 1) **Functional Value**→ The functional value depends on the utility received by the customer from the functional, utilitarian or physical performance of the product. From the economic viewpoint, functional value is related to the economic utility theory. The main attributes of such a value includes price, durability and reliability of a product or choice. **For example**, when a person is purchasing a scooter, he has the purpose of travelling.
- 2) **Social Value**: Here, the value of a product is determined by the benefits received by one or more consumer choices and social groups. The social value is attained when a consumer conveys a positive or negative feedback of a product to the reference groups, i.e., demographic, socio-economic and cultural-ethnic groups.
- 3) **Emotional Value**: An emotional value of a product is attained by a marketer only when he is able to stimulate the emotions and feelings of consumers. When a product relates with the feelings or triggers the emotions correctly then the emotional value is created because many times customers' responds emotionally.
- 4) **Epistemic Value**→ Epistemic value refers to the benefits that are perceived from the product's ability to provide uniqueness, develop interest and gratify the desire for knowledge, of the customers. This value can be mainly delivered by making new purchases and consumption experiences. **For example**, if a customer changes his ice-cream flavour from vanilla to chocolate, then this shift also delivers epistemic value. As new products provide some uniqueness therefore, all marketers should make an effort to design new products.
- 5) **Conditional Value**→ It is the perceived value of a product or service which is offered by the company to its customers based on a particular event or situation. Here, the utility derived by the customer differs according to the conditions. **For example**, some products have specific time or climate conditions like sunscreen lotions, raincoats, etc. Some products have once-in-a-lifetime events like buying of a first car. This type of customer value can be best offered when the product is related with the usage conditions, *e.g.*, various automobile companies offer heavy discounts in the festive seasons to its customer with 0% interest on credit purchases.

### **CUSTOMER PERCEIVED VALUE**

Customer perceived value is the value that the customer expects to get when he purchases a product or service. It can also be defined as the cumulative value of total perceived benefits that a customer gets minus the cost that he has to pay for it. If the net perceived value is higher than the cost then the customer becomes a loyal customer of the product or service and is likely to buy it again. The challenge for the marketers is to create a positive perceived value for the product.

#### **Perceived Value = Total Perceived Benefits - Total Perceived Costs**

Organisations can change the perceived value of customer in three ways - they can increase the perceived benefits, reduce the perceived cost or combine these two approaches. *For example*, by adding new value added features the perceived benefits can be increased. This can be done at the same price or a slight increase of price. The perceived cost can be reduced by bringing in various efficiencies or by reducing the product price.

**For example**, when a car company increases the fuel efficiency of its product. This improves the mileage of the product. This lowers the customer perceived value by lowering the cost incurred in operating the product. Even if the other benefits remain the same, the customer benefits as the net perceived value increases.

The loyalty of the customers can be increased by delivering superior perceived value to the customers. Although, it is a very difficult activity, this leads to repeat purchase by the customers. The organisation needs to have a complete understanding of how the customer behaves and what the organisation can do to fulfil his needs and wants. In the true sense, perceived value increases when the organisation consistently delivers value to the customer irrespective the medium of exchange or the channel.



## **MEASUREMENT OF CUSTOMER VALUE**

The idea to satisfy the customers is the entire concept of customer value. This can be measured by making an implied comparison between:

- 1) The expected performance of the offering before its purchase or use, and
- 2) The actual performance, i.e., perception regarding the offer after using it.

After the comparison, there can be three possibilities:

- 1) If the expectations of the customers exceed the perceived benefits and performance of products or services, then **dissatisfaction** is experienced. This means that the customer has not perceived good value..
- 2) If the perceived benefits or performance of products or services matches with the customer's expectations, then **satisfaction** is experienced. Here, the customer receives what he has paid for, and
- 3) When the perceived benefits or performance of products or services exceed the customer's expectations, then the customers feel **delighted**. In such cases, customer is a hard-core loyal buyer of the product.

$$\text{Customer Value} = \text{Perceived Benefits} - \text{Perceived Sacrifices}$$

Where, 'perceived benefits' means the final product, associated services of product (e.g., delivery, after sale service, etc.), and customer relationship while, 'perceived sacrifices' are the factors such as cost, risk and time involved in purchase.

## **CUSTOMER LIFETIME VALUE (CLV): USING CUSTOMER VALUE TO VALUE A BUSINESS**

Customer value is a very important factor which has a great impact on the buying process of the consumer. It is intangible in nature and comprises many psychometric factors like the brand recall and equity, the customer association in terms of loyalty, the customer referral, etc. The customer lifetime value is not built in a day; it takes time and efforts by the company to influence buyer decisions. CLV influences how consumers feel about a particular brand and the marketing efforts play an important part in augmenting the value.

Customer Lifetime Value (CLV) is a significant component of Customer Relationship Management (CRM). Very few researches support the predictive modelling of CLV even though this metric is very popular among marketing research scholars. In a nutshell, CLV is the net profit that an organisation earns from its customer when all interactions are aggregated over the lifecycle of the customer. Various investments that the company makes are first analysed like - rate of retention of customers, cost per sale, conversion costs, etc., and then the company uses Customer Lifetime Value as a performance yardstick.

CLV is thus the excess of revenues which are earned from an individual customer over the costs incurred in the form of promotions, advertising and also extending after sales service to the customer. It can also be considered the Net Present Value (NPV) of all future profits which are/will be generated by the individual customer purchases.

Customer Lifetime Value can also be considered an indicator of the projected profitability of the firm. It can be considered the sum total of contribution generated over the lifetime of the customer. Contribution can be considered as the difference of revenues and costs. When marketers' decisions are based on CLV, they give much importance to customer service and maximising the long-term satisfaction of the consumers instead of concentrating on short-term profits.

Initially organisations did not pay much of an attention to Customer Lifecycle Value. This was because there was no statistical proof that there was a link between CLV and the profitability of the organisation. Then the focus was mainly on customer acquisition. However, this was not the right strategy as many customers purchased only once. Organisations need to look at how much profits individual customers will bring to the company from their future purchases.

Customer Lifetime Value looks at measuring how valuable the customer is over the entire course of relationship with the firm. Hence the company can rank all of the customers in terms of contribution to the company's profits once it has calculated their CLVs. It can thus know which set of customers are most profitable to the organisation. It can also look at devising strategies which are aimed at increasing the length of relationship and customer's lifetime profits during the customer's time with the company. In other words, CLV helps the company to devise a customised strategy for its customers. It can look at individual customers and select the most profitable ones.

## MEASURING CUSTOMER LIFETIME VALUE

CLV can be computed for a single customer or for the collective set of customers that an organisation has on an average. A simple template for calculating CLV is as follows:

|                                                 |              |
|-------------------------------------------------|--------------|
| Estimated customer revenue per annum            | Rs. 10,000   |
| Estimated number of loyal years of the customer | 30           |
| Total estimated revenue from the customer       | Rs. 3,00,000 |
| Profit margin the firm makes on the customer    | 20%          |
| CLV of the customer                             | Rs. 60,000   |

The three main elements of customer lifetime value are - the aggregate value over a period of time, the duration of relationship that the customer has and the various services that are offered to the customer by the firm.

## ESTIMATING CHANCE THAT CUSTOMER IS STILL ACTIVE

The calculation of CLV includes determining the future contribution margin and future costs, both of which are adjusted for the time value of money. To calculate the future contribution from a customer in a non-contractual setting, firms should first determine the probability of the customer being active with the firm at future time periods. In other words, the firms should calculate the P (Active) of customers at period n.

According to **V. Kumar**, P (Active) is calculated as:

$$P (\text{Active}) = (T/N)^n$$

Where,

n is the number of purchases in the observation period,

T is the time elapsed between acquisition and the most recent purchase and,

N is the time elapsed between acquisition and the period for which P (Active) needs to be calculated.

Another simple formula for finding the probability that the customer is active in time t is

$$P (\text{Active}) = T^n$$

Where,

n is the number of purchases in a given period and

T is the time of the last purchase (expressed as a fraction of the observation period).

## IMPORTANCE OF CUSTOMER LIFETIME VALUE

CLV is important for organisations because of the following reasons:

- 1) Calculating the CLV allows the firm to estimate the sum that can be invested to retain the customer so as to have positive rate of returns. With limited resources, every firm aims at maximising profits from its investment and thus retain those customers who will bring it the maximum profits in future. This is possible only if the firm is aware of the future benefits that will accrue from each customer so that every customer can be segregated in terms of contribution.
- 2) The organisation can make the most effective use of the resources at its disposal once the CLV of the customers is known. The CLV approach is also very useful in selecting the organisation's customers, deciding on the features of the product that are to be offered to customers and also finalising the communication/advertising strategies. Organisations can use CLV as a metric that achieves the most optimum allocation of the resources of the firm. It also creates a customer centric organisation.

## **UNIT-5: RETAILING & ADVERTISING ANALYSIS (8 HRS)**

**Market Basket Analysis:** Computing two way and three way lift, RFM Analysis, **Allocating Retail Space and Sales Resources:** Identifying the sales to marketing effort relationship & its modeling, optimizing sales effort.

**Advertising Analysis:** Measuring the Effectiveness of Advertising, Optimizing advertising, Pay per Click (PPC) Online Advertising.

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### **MEANING OF RETAIL ANALYTICS**

Retail analytics is the process of providing analytical data on inventory levels, supply chain movement, consumer demand, sales, etc., that are crucial for making marketing, and procurement decisions. The analytics on demand and supply data can be used for maintaining procurement level and also for taking marketing decisions.

Retail analytics is used to help make better choices, run businesses more efficiently, and deliver improved customer service analytics.

Retail analytics software collects lot of data ranging from pricing information, stock levels, catalogue assortments, discounts, and much more. This information is stored and collected into large databases where it is processed using statistical algorithms to record and track trends and patterns. From this data, there is a huge breadth of intelligence that can be extracted, allowing marketers to make data-informed decisions on anything from creating on-the-fly pricing strategies, to accurately benchmarking seasonal discounts. This software helps to mitigate the risks of human assumptions that can trigger margin loss, overstock situations, and missing the boat on market trends.

### **FEATURES IN A RETAIL ANALYTICS TOOL**

Retail analytics software allows to develop a deep understanding of historical trends, helping to facilitate the building of an accurate, fact-based case to provide insights into future trends and pricing movements. The following are six must-have features in a retail analytics tool:

- 1) **Active and Customised Competitor Monitoring**→ It is essential to have control over the source of the data. As a fundamental base for intelligence, having the ability to control who and what the marketers are monitoring in the marketplace is of the utmost importance. Any data set must have a minimum of three sources to be measured, with five being the optimal number, and should comprise the competitors and other retailers that fit the product catalogue and style that the marketers are offering through online or offline store.
- 2) **Ability to Drill Down into the Data**→ The most effective strategies in profitable departments stem from taking a holistic view of the market landscape while still being able to drill down to granular detail. Having the ability to track data at all market stages - from supply chain metrics and merchandising and catalogue assortment, through to retail pricing and discounting - enables all stakeholders to make critical decisions at exactly the right point in time. This can be the difference between being the biggest winner in a category or the biggest loser. Knowledge on where products are located and which are selling through (or not) allows the retailer to make informed decisions and act quickly.
- 3) **Trend Prediction**→ The ability to identify trends in order to create a successful product catalogue offering while maintaining a well-balanced stock level and sizing range is challenging. With the right platform, reports can be produced that assess the rate at which certain “on-trend” catalogue items are selling through, allowing supply chain operators and merchandisers to select and identify an optimised and profitable product catalogue. The accumulation of historical data and analysis can help create a clear picture of what will be in demand in upcoming months.
- 4) **Action Triggers and Alerts**→ These functions automate the process of dynamically setting pricing and product assortments across categories in real-time, helping to save time and effort, while also optimising pricing updates. Making the right decision based on predictive intelligence and retail analytics is all about being the first one to interpret and leverage a situation as it unfolds. Manually making time-sensitive modifications to the assortment of products across multiple platforms can be next to impossible given the number of product items and outlets managed.
- 5) **Real-time Competitor Benchmarking**→ Pricing agility in a post-recession, price-sensitive consumer landscape can be very challenging. In this day and age it is becoming easier for consumers to effectively price check and shop around for the best deals, both in store and online. Therefore, benchmarking the

pricing against competitors' in real-time will enable marketers and their team to make swift and effective changes to pricing strategy. This removes the burden of lengthy, manual researching of competitors' pricing, a process which oftentimes delays actions and ultimately renders repricing effort ineffective.

- 6) **Onsite (website) Recommendations and Cross-sell Suggestions**→ As shoppers proceed through an online store, searching for and selecting items to purchase, the recommendation engine serves up items that might be of interest to them based on their browsing history and trends in the analytics platform. This may include products that the shoppers are viewing and/or placing in their shopping carts, slow-selling product lines, and trending items. The engine can deploy various strategies including product-bundling and discounting to maximise product up-selling and cross-selling effectiveness.

### **IMPORTANCE OF RETAIL ANALYTICS**

Retail analytics is the process of providing valuable data on inventory levels, supply chain movement, consumer demand, sales, and much more that can be used for a variety of applications like maintaining procurement levels and making crucial marketing decisions. Importance of retail analytics is given below:

- 1) **Customer Behaviour Insights**→ The first and foremost advantage of leveraging retail analytics is that they offer tangible and actionable insights into customer behaviour. Managing any aspect of a business becomes many times easier when one knows how to measure the return on investment. Retail analytics makes this possible. From studying the social responses to a product to gauging how a campaign improved the store's conversion rates, retail analytics give a highly accurate picture to retailers of what works and what does not.
- 2) **Improving Marketing ROI**→ As established, retail analytics help in measuring return on investment across various aspects of business management. Consequently, they can have a deep impact on enhancing the ROI from marketing endeavours. Since a store manager can measure the effect of in-store influences on purchase patterns, he can alter future campaigns accordingly. He can focus on effective campaigns and streamline marketing initiatives based on what clicks with its specific clientele. DSD Retail analytics also help in assessing the viability of customer loyalty programs, seasonal discounts, one-time offers etc.
- 3) **Optimising In-Store Operations**→ In-store analytics offer a profound understanding of the consumer behaviour inside the store. Tracing their shopping patterns and dwelling times can unlock innumerable opportunities for all kinds of retail operations, from individual stores to sprawling shopping malls. Managers can better fathom the kind of layouts that catch eyeballs, the product placements that draw maximum attention and the service delivery quality that customers feel more pleased with. With these metrics at hand, retailers can analyse the best staffing options, the most appealing design techniques and the most effective selling tactics.
- 4) **Managing the Basics**→ Retail analytics can play a vital role in elevating the efficiencies in everyday business management. Predictive analytics allow the seller to take swift actions for decision-making on stocking, tracking, and restocking SKUs regularly. By keeping a track of how often a particular product moves from the shelves to the shopping carts, sellers can chart the trends that are dominant in the current market. This information can also help them in identifying their most popular items and then focusing on these and similar products for increased sales.
- 5) **Enhancing Loyalty**→ By giving meaningful insights into customer behaviour, retail analytics helps in bolstering the relationship between a store and its visitors. It allows the retailer to get the right information across to the right recipient and ensure a rewarding shopping experience for the buyer. By personalising marketing content, remembering purchase history and preferences, retailers are able to showcase the relevant products and offers to the most responsive audience and thereby enhance the propensity in them to buy. This also augments the brand resonance with the customers who feel more valued. Naturally, this increases the loyalty that they feel towards the store.

### **MARKET BASKET ANALYSIS**

In simple words, the market basket is a list of some fixed items that are used to track the inflation and overall price movements of a specific market in an economy. In other words, it is a basket that contains a set of standard goods or services that people commonly buys. Market basket tracks the cost of living of various groups.

A market basket contains some sample goods and services to know the inflation. The Government put some goods or services as a sample into an imaginary market basket and calculates the average cost of living. The

prices or cost of different periods is compared to know the inflation of an economy. In this technique, the inflation rate is the change in the cost of living of two baskets.

A Market Basket Analysis:

- 1) Is performed with transactional data. For example product items included in each invoice.
- 2) Establishes the strength of association between pairs of products purchased together.
- 3) Enables the businesses to identify patterns of co-occurrence (how likely that two or more events take place together).
- 4) Produces rules in the form of if-then scenarios. These rules are probabilistic (How likely is an event to happen, not that it will always happen).

MBA is one of the fundamental techniques used by large retailers to uncover the association between items. In other words, it allows retailers to identify the relationship between items which are more frequently bought together. Market basket analysis creates actionable insights for:

- 1) Designing store layout
- 2) Online recommendation engines
- 3) Targeted marketing campaign/sales promotion/email campaign
- 4) Cross/up selling
- 5) Catalogue design

### **OBJECTIVES OF MARKET BASKET ANALYSIS**

Market basket analysis can be used effectively to increase the overall spending from the customer by placing complimentary items close together or bundling such items at a discounted price. Following are the objectives of market basket analysis:

- 1) **Helps in Setting Prices**→ Market basket analysis helps a retailer to identify which SKU's are more preferred amongst certain customers. For example, milk powder and coffee are frequently bought together, so analysts assign a high probability of association compared to cookies. Without market basket analysis retailers would usually mark down on coffee on certain days, assuming coffee will be sold at certain times. However, market basket analysis can point out that whenever a customer buys milk, they end up purchasing coffee as well. So whenever the sale of milk and coffee is expected to rise, retailers can mark down the price of cookies to increase the sales volume.
- 2) **Arranging SKU Display**→ A common display format adopted across the supermarket chains is the department system, where goods are categorized as per department and sorted. For example, groceries, dairy products, snacks, breakfast items, cosmetics, and body care products are properly classified and displayed in different sections. Market basket analysis helps identify items that have a close affinity to each other even if they fall into different categories. With the help of this knowledge, retailers can place the items with higher affinity close to each other to increase the sale. For instance, if chips are placed relatively close to a beer bottle, customers may almost always end up buying both. In contrast, if they were placed in two extremes, then the customer would just walk in the store buy beer and leave the store causing lost sales of chips.
- 3) **Customizing Promotions**→ Marketers can study the purchase behavior of individual customers to estimate with relative certainty what items they are more likely to purchase next. Today, many online retailers use market basket analysis to analyse purchase behavior of each individual. Such retailers can estimate with certainty what items the individual may purchase at a specific time. For example, a customer fond of barbecues would likely purchase meat and barbecue sauce on some weekends. So retailers can customize offers to create a combo of 2lbs of meat with one pack of barbecue sauce at a discounted price every weekend to increase his purchase frequency.
- 4) **Identifying Sales Influencers**→ All items in a retail store have some relationship with each other - be it strong or weak. In most cases, the sale of one item is driven by the increase or decrease in the sale of other items. Market basket analysis can be used to study the purchasing trend of a certain SKU. For example, two SKUs can exhibit a strong affinity for a period of time and suddenly decrease because of various factors ranging from an increase in the price of one SKU, new brand introduction, or unavailability of a certain brand in the SKU. For example, if Corona is the favourite beer among the consumers, and the brand is suddenly removed from the beer SKU, the sales of chips will go down as well, even though the sales of other beer brands are steady. These way marketers can understand the influence of such activities in the sales figure.

## **BENEFITS OF MARKET BASKET ANALYSIS**

The market basket analysis will help the retailers to better plan their store layout and make the necessary changes. This analysis helps marketer discover association rules between products. Following are some benefits arising out of this analysis are:

- 1) **Store Layout**→ Based on the insights from market basket analysis one can organize your store to increase revenues. Items that go along with each other should be placed near each other to help consumers notice them. This will guide the way a store should be organized to shoot for best revenues. With the help of this data one can eliminate the guesswork while determining the optimal store layout.
- 2) **Marketing Messages**→ Whether it is email, phone, social media or an offer by a direct salesman, market basket analysis can improve the efficiency of all of them. By using data from MBA one can suggest the next best product which a customer is likely to buy. Hence marketer will help his customers with fruitful suggestions instead of annoying them with marketing blasts.
- 3) **Maintain Inventory**→ Based on the inputs from MBA one can also predict future purchases of customers over a period of time. Using initial sales data, one can predict which item would probably fall short and maintain stocks in optimal quality. This will help one improve the allocations of resources to different items of the inventory.
- 4) **Content Placement**→ In case of e-commerce businesses, website content placement is very important. If goods are displayed in right order than it can help to boost the conversions. MBA can also be used by online publishers and bloggers to display content which consumer is most likely to read next. This will reduce bounce rate, improve engagement and result in better performance in search results
- 5) **Recommendation Engines**→ Recommendation engines are already used by some popular companies like Netflix, Amazon, Facebook, etc. If marketer wants to create an effective recommendation system for his company then he will also need market basket analysis to efficiently maintain one. MBA can be considered as the basis for creating a recommendation engine
- 6) **Advertising and Promotion**→ Modern retailers are using market basket analysis for making advertising and promotions more predictable by understanding how consumers respond to various offers and communications. For example, this technique will help companies in the retail industry to know when and where a discount will have an impact on top-line sales and cut down on unnecessary reductions. It will give retailers a clearer picture of whether their promotional activities are merely shifting revenue around or if it is genuinely contributing to boosting the gross sales.
- 7) **Precise Targeting and Improved ROI**→ By understanding what exactly their customers need, retailers can easily engage in specific targeting. Companies in the retail industry are using market basket analysis to optimize campaigns and promotions for with margins and sales uplift with more precise campaigns. This method will also yield good ROI as only the right customers who might be interested in the campaigns are targeted.
- 8) **More In-Store Traffic**→ Retail companies can use market basket analysis to get a better understanding of what products and offers will drive more traffic to the stores. This can be done by correlating market basket analysis with foot traffic counts to understand what customers purchased when they were in the store. Once a retailer successfully identifies what initially bought the customers to the store, they can use market basket analysis to determine how to make their customers come back to the store next time.
- 9) **Optimised Store Layout**→ Players in the retail industry can use market basket assessment to enhance their space planning and visual merchandising, consequently ensuring better efforts to cross-sell and upsell. For example, it will help retailers identify if end caps in the retail store are helping to drive more sales. In case they are, it can be analysed if they are also driving sales of complementary products.

## **MARKET BASKET ANALYSIS AND LIFT**

Lift is the most commonly used tool in market basket analysis. The lift for a combination of purchase products and/or day of week is defined by this equation: (The actual number of times combination occurs) divided by (Predicted number of times combination occurs if items in combination were independent).

### **Computing Two-way Lift**

On a given visit to a store, a consumer's *market basket* is simply the list of products purchased by the customer. *Market basket analysis* is therefore concerned with extracting information from consumers'

market baskets that can be used to increase a retailer’s profit. Most of the time, market basket analysis draws actionable insights after looking at the association between products bought during a given transaction.

**For example**, for most supermarket customers there is a positive association between the purchases of cereal and bananas because a shopper who purchases cereal is more likely than a typical shopper to purchase bananas.

*Lift* is probably the most commonly used tool in market basket analysis. The concept of lift enables the analyst to easily identify combinations of items (like handbags and makeup or cereal and bananas) that tend to be purchased together. The lift for a combination of purchase items and/or day of week is defined by Equation 1:

$$\frac{\text{(Actual number of times combination occurs)}}{\text{(Predicted number of times combination occurs if items in combination were independent)}}$$

A *two-way product lift* therefore is simply a lift involving two products and can easily be computed in Excel. It can be generalized to situations involving the computation of lifts involving more than two items or other transaction attributes (such as day of week).

To practice computing lift, you will use the superstore transaction data in the file marketbasket.xls. Below figure shows a subset of the data. The day of the week is denoted by 1 = Monday, 2 = Tuesday ... 7 = Sunday. **For example**, the first transaction represents a person who bought vegetables, meat, and milk on a Friday.

|    | A             | B        | C          | D    | E     | F    | G    | H    |
|----|---------------|----------|------------|------|-------|------|------|------|
|    |               | day week | vegetables | baby | fruit | milk | dvds | meat |
| 8  | transaction # |          |            |      |       |      |      |      |
| 9  | 1             | 5        | 1          | 0    | 0     | 1    | 0    | 1    |
| 10 | 2             | 4        | 1          | 1    | 1     | 1    | 0    | 0    |
| 11 | 3             | 5        | 1          | 0    | 0     | 0    | 0    | 0    |
| 12 | 4             | 5        | 1          | 0    | 1     | 0    | 0    | 0    |
| 13 | 5             | 7        | 1          | 1    | 0     | 1    | 0    | 1    |
| 14 | 6             | 2        | 1          | 0    | 1     | 0    | 0    | 1    |
| 15 | 7             | 3        | 0          | 0    | 0     | 1    | 1    | 0    |
| 16 | 8             | 3        | 1          | 0    | 0     | 1    | 0    | 1    |
| 17 | 9             | 6        | 1          | 0    | 1     | 0    | 0    | 0    |
| 18 | 10            | 6        | 1          | 0    | 0     | 0    | 0    | 0    |
| 19 | 11            | 1        | 1          | 0    | 0     | 0    | 0    | 0    |
| 20 | 12            | 4        | 0          | 0    | 0     | 0    | 1    | 0    |
| 21 | 13            | 1        | 1          | 0    | 0     | 0    | 0    | 0    |

For the superstore data, the lift for meat and vegetables would equal:

$$\frac{\text{(Actual number of transactions where meat and vegetables were purchased)}}{\text{(Total number of transactions)} \times \text{(Fraction of times meat was purchased)} \times \text{(Fraction of time vegetables were purchased)}}$$

To be more specific, suppose that in 1,000 transactions, 300 involved a meat purchase, 400 involved a vegetable purchase, and 200 involved a purchase of meat and vegetables. Independence of meat and vegetable purchases implies that the likelihood of a transaction involving meat is 0.30 irrespective of a transaction involving a vegetable purchase. Thus independence implies that 1,000 (0.40) (0.30) = 120 transactions should involve purchase of meat and vegetables. Because 200 transactions involved a purchase of meat and vegetables, knowing that a transaction involves meat makes it 1.67 times (200/120) more likely that a transaction involves vegetables. This is consistent with Equation 1, which tells you that the lift for vegetables and meat is:

$$\frac{200}{1,000(0.40)(0.30)} = 1.67$$

Product combinations with lifts much greater than 1 indicate items tend to be purchased together. This is valuable information for the retailer because placing products with large lifts near each other in a store display can increase sales based on the assumption that the sales of one product will stimulate sales of the other product. Because handbags and makeup have a large lift, this explains why Bloomingdale’s placed handbags and makeup together.

Promoting cross-selling of products with high lifts can also stimulate profits. Therefore, in the Bloomingdale’s example, giving a customer who purchases at least \$50 of makeup a coupon for 20 per cent off a handbag would likely yield increased profits.

### Computing Three-Way Lift

The other way to look at lift is as a ratio of three probabilities. To illustrate how the concept of lift applies to three or more attributes associated with a transaction, consider calculating the lift for the purchase of baby goods and DVDs on Thursday. This lift would be computed as follows:

$$\frac{\text{(Actual number of Thursday transactions where baby goods and DVDs were purchased)}}{\text{(Total number of transactions)} \times \text{(Fraction of transactions with DVDs)} \times \text{(Fraction of transactions with baby goods)} \times \text{(Fraction of transactions with DVDs)}}$$

One can use the same concept to compute for the superstore data the lift of an arbitrary combination of two products and a day of the week. See below figure and the Initial worksheet in the marketbasketoptimize.xls file.

|    | J            | K                   | L            | M             | N                     | O            | P                   | Q                   | R                | S               |
|----|--------------|---------------------|--------------|---------------|-----------------------|--------------|---------------------|---------------------|------------------|-----------------|
| 5  |              |                     |              |               |                       |              |                     |                     |                  |                 |
| 6  |              |                     |              |               |                       |              |                     |                     |                  |                 |
| 7  |              | <b>total</b>        |              |               |                       |              |                     |                     |                  |                 |
|    |              |                     | <b>2928</b>  |               |                       |              |                     |                     |                  |                 |
| 8  | <b>Index</b> |                     |              |               | <b>two-way lift</b>   |              |                     |                     |                  |                 |
| 9  | <b>1</b>     | <b>vegetables</b>   | <b>60.7%</b> |               | <b>vegetables</b>     | <b>fruit</b> | <b>actual total</b> | <b>predicted</b>    | <b>lift</b>      |                 |
| 10 | <b>2</b>     | <b>baby</b>         | <b>27.1%</b> |               | <b>1</b>              | <b>1</b>     | <b>520</b>          | <b>527.098361</b>   | <b>0.986533</b>  |                 |
| 11 | <b>3</b>     | <b>fruit</b>        | <b>29.7%</b> |               | <b>three-way lift</b> |              |                     |                     |                  |                 |
| 12 | <b>4</b>     | <b>milk</b>         | <b>30.4%</b> |               | <b>1</b>              | <b>2</b>     |                     |                     |                  |                 |
| 13 | <b>5</b>     | <b>DVDs</b>         | <b>21.1%</b> |               | <b>vegetables</b>     | <b>baby</b>  | <b>day_week</b>     | <b>actual total</b> | <b>predicted</b> | <b>lift</b>     |
| 14 | <b>6</b>     | <b>meat</b>         | <b>24.9%</b> |               | <b>1</b>              | <b>1</b>     | <b>5</b>            | <b>59</b>           | <b>69.08291</b>  | <b>0.854046</b> |
| 15 |              |                     |              |               |                       |              |                     |                     |                  |                 |
| 16 |              | <b>days of week</b> |              | <b>number</b> |                       |              |                     |                     |                  |                 |
| 17 |              | <b>1</b>            | <b>13.9%</b> | <b>407</b>    |                       |              |                     |                     |                  |                 |
| 18 |              | <b>2</b>            | <b>14.0%</b> | <b>410</b>    |                       |              |                     |                     |                  |                 |
| 19 |              | <b>3</b>            | <b>13.4%</b> | <b>393</b>    |                       |              |                     |                     |                  |                 |
| 20 |              | <b>4</b>            | <b>14.6%</b> | <b>428</b>    |                       |              |                     |                     |                  |                 |
| 21 |              | <b>5</b>            | <b>14.3%</b> | <b>420</b>    |                       |              |                     |                     |                  |                 |
| 22 |              | <b>6</b>            | <b>15.3%</b> | <b>448</b>    |                       |              |                     |                     |                  |                 |
| 23 |              | <b>7</b>            | <b>14.4%</b> | <b>422</b>    |                       |              |                     |                     |                  |                 |

Complete the following steps:

- In cell Q14 use the array formula = Sum ( (INDIRECT (P13) = \$P\$14) × (INDIRECTCT (N13) = 1) × (INDIRECT (O13) = 1) ) to compute the actual number of transactions involving vegetables and baby goods on Friday. This formula computes three arrays:
  - An array containing a 1 if the day of the week matches the number in P14 (here a 5) and a 0 otherwise.
  - An array containing a 1 if the vegetables column contains a 1 and 0 otherwise.
  - An array containing a 1 if the baby column contains a 1 and 0 otherwise.
- For each row of data the array formula in Q14 creates a new array. Create the new array element in any row by multiplying the three listed arrays. A 1 is obtained in a row of the product array if and only if baby goods and vegetables were bought on Friday.
- Sum up the entries in the product array to yield the actual number of Friday transactions where baby goods and vegetables were purchased.
- In cell R14 compute the predicted number of transactions involving baby goods and vegetables purchased on Friday with the following formula:  
 IF(N13<>O13, VLOOKUP(N13, K9:L14, 2, FALSE)\*L7\*VLOOKUP(O13, K9:L14, 2, FALSE)\* VLOOKUP(P14, K17:L23, 2), 0)
- If you enter the same product class twice, this formula yields a 0. Otherwise, multiply (total number of transactions) \* (fraction of baby transactions) \* (fraction of vegetable Transactions) \* (fraction of Friday transactions). This gives a predicted number of Monday meat and vegetable transactions (assuming independence).
- Finally, in cell S14, compute the lift with the formula = IF(R14=0, 1, Q14/R14 ).  
 The lift for vegetables and baby goods on Friday is 0.85. This means that on Fridays vegetables and baby goods are bought together less frequently than expected.



## **ALLOCATING RETAIL SPACE AND SALES RESOURCES**

The placement of merchandise within the store in the most profitable manner is called space management. It is one of the most important activities because the location of merchandise at different location, have different values. Some parts of store are more valuable because customers visit those more frequently, which results in higher sales. It is easier to make sales along. Space closest to the entrances and exits is the most valuable, and values decrease further into the store.

Space management is the important part of designing and planning the layout of the store. Retailers assign more space for merchandise that registers a higher volume of sale. Under this principle of retail space allocation, it is always favourable for retailers to have large stocks of goods which experience high demand to avoid stock-out situation and inconvenience to the customers. Retailers have to decide about the sales data to be used for the allocation of space among merchandise. Three options available with retailers are historical sales data, market share, and projected sales.

Retailers tend to use historical sales data as it is easy to access and provides market inputs in terms of the preferences of the target segment. Data related to the share of the product sale as a proportion of its total turnover is important for space allocation. This share data is preferred by retailers due to its ease of access and the high value placed on fast-moving products by most retailers. Projected sales are advantageous to retailers as they take into consideration historical sales data, which exhibits preferences of its target segment and also incorporates sales estimates for new and promising product categories.

## **OBJECTIVES OF SPACE MANAGEMENT**

The management of retail space is concerned with a number of key objectives:

- 1) To optimise both short-term and long-term returns on the investment cost of retail space.
- 2) To provide a logical, convenient and inspiring interface between the product range and the customer. This can be particularly important in a large store, where customers can easily become overwhelmed and lost.
- 3) To make sure that the right selection of products is available; that products fit into the retail space and that stock-outs are avoided. Choice for the customer is maximised when the best selection for them is put into the available space.
- 4) To obtain a high return on investment by increasing the productivity of retail space, this requires effective utilisation of space for merchandise display and customer movement, and
- 5) To ensure a compatible, exciting, and rational interface between the customer, merchandise, and salespeople.

## **SPACE MIX**

For the retailer, space is money. The store has to be planned in such a way that it optimises the selling area and minimises the non-selling parts. The selling area is used to present the merchandise and the non-selling part is accounted for by circulation space, aisles, staircases, lifts, facilities, the back area, etc. The area mix in a typical department store is: selling area about 60%, circulation area 15% and back area 25%.

The typical elements of space mix in a retail store may be defined as:

- 1) **Check-in Space**→ Assigned for products which attract the customer attention as soon as the customer enters the store and makes the store attractive like beauty products and other cosmetics and jewellery sections.
- 2) **Red Carpet Space**→ This is the space allocated in store which is in the centre of store. As the consumer moves inside the store the area on both the sides of the consumer is known as red carpet space.
- 3) **POP Display and Selling Space**→ Assigned for interior displays, product demonstrations and sales transactions.
- 4) **Merchandising Space**→ Allocated to items that are kept in inventory for selling.
- 5) **Customer/Circulation Space**→ Assigned for the comfort and convenience of the customer, including a cafe or food court, dressing rooms, lounges and recreation areas for children.
- 6) **Personnel Space**→ Assigned to store employees for lockers, lunch breaks and restrooms.
- 7) **Back Office/Storing Space**→ Storing as the name suggests is the space where the inventory is being stores. It basically includes warehouses, godowns etc.
- 8) **Checkout Space**→ Checkout space is generally allotted to the products which generate impulse buying on the-part of consumer and also the space from where consumer is suppose take exit.

- 9) **Dead Space**→ Dead space is the space which cannot be utilised in the store due to some specific reasons.

### **RETAIL SPACE MANAGEMENT STRATEGIES**

Space Management in a different dimension is the job of a Retailer. Retailers can view vendors as those who would obtain the space for rent. In this view, the Retailer needs to take space-related decisions very carefully. Some of the decisions that have an impact on marketing are:

- 1) **Space Configuration**→ While the retail chain would be interested in a standardised and replicable space configuration of the stores to preserve its identity, the vendors would be interested in a special space provision for its products in order to enhance visibility. This means a compromise required on both sides. The introduction of concepts like “Shop-in-shop” is a step in that direction. Food World accommodating the growing importance of MTR as a major ready-to-eat products vendor in Bangalore and providing a corner for MTR in their Outlets is a good example of this kind.
- 2) **Shelf Position**→ The way in which the outlet positions shelves in a store determines the effect of visual merchandising on consumers. Design interaction with the product category and shelf position has an impact on sales. Therefore, a clear understanding of the store shelf positions with the prospective vendors makes sense.
- 3) **Shelf Allocation**→ There are varying pressures towards allocation of shelves. One of the key dimensions could be the margin from the product category or brand. Other important determinants are remuneration paid for a favourable shelf allocation in the case of a large retail outlet. In addition, introduction of a new category requires special shelf allocation. The vendor-retailer relationship helps in sorting out the multiple pressures on shelf allocation effectively.
- 4) **Special Store Needs**→ This point is especially true in the case of a Heterogeneous Market like India as well as the absence of a standardised store concept. Special store needs in terms of highlighting product categories, makes the job of Space Management very difficult. Moreover, space itself may be a constraint in the case of locations like the central business district of metros. Here an appreciation of the space constraint by the vendor makes the job of Space Management much more effective.

### **RETAIL SPACE PLANNING PROCESS**

A retailer goes through a number of stages when allocating space to products. These four stages will be as follows:

- 1) **Measuring Retail Space**→ Although space in a store outlet is three dimensional, retail space is often measured in square, rather than cubic units. Square units are appropriate where, for example, in fashion retailing, a variety of single tier fixtures stand on the shop floor. Many fixtures, however, are multilevel and so more appropriate ways of measuring space to allocate might be on the basis of linear or cubic footage.  
Measurements of space that are more specific to individual retailers might be useful, such as the number of pages to be published in a catalogue or the total number of fixtures available in an outlet.  
Space productivity depends on two principal measures of retail success which are sales and profits. Sales volume and profitability can also be measured in relation to the amount of space used to generate those levels of sales and profits. This can then be compared with the level of financial investment in that space. The resulting measures express the productivity of retail space. Sales (or profits) per square meter is a commonly used measure of retail space productivity, which is an important concept in the evaluation of retail product management performance.
- 2) **Dividing the Space into Selling Areas**→ At this stage, space management is concerned with allocating space to different product areas, defined according to individual retail businesses but usually on the basis of product department or category. The amount of space will be determined to a greater extent on previous performance indicators, typically sales values. However, some products, because of their physical characteristics may need disproportionate amounts of space in relation to sales. In a department store, home furnishings may need a relatively large amount of space to generate a good level of sales because the products are bulky, a large variety of merchandise is needed for customers to choose from and a lot of display space is needed to do the product justice.  
On the other hand, jewellery is a high value product category that needs relatively small amounts of space for display and selling purposes. The stage a product category is at in its lifecycle is likely to influence the space allocation at this level. If a category is growing, then more space should be allocated, whereas a declining category needs to have its space rationalised.

- 3) **Determining the Layout**→ At this stage product adjacencies will be decided, and the location of the selling areas will be determined. Individual outlet characteristics will influence this stage of the planning process; for example, location of entrances, set walkways around the store, lift and escalators, pillars and divisions all need to be taken into consideration in a store plan. In a catalogue the product categories that are going to go at the front of the book need to be decided. The relationships between one product category and another also have to be considered when determining the layout.
- 4) **Determining the Space Allocation of Product Lines**→ This involves the allocation of space on individual fixtures to each product line or stock keeping unit. The availability and characteristics of fixtures, individual product performances, product features and characteristics and the compatibility of products will all have a bearing on these decisions. Many retailers use sophisticated computerised space allocation systems at this stage.

## **IDENTIFYING THE SALES TO MARKETING EFFORT RELATIONSHIP**

Sales and marketing are both working towards the same goal: securing business and helping their company grow. Sales is a direct process in which the salesperson talks to the customer and steers them towards making a purchase. This might be in person, over the phone, or using a digital communication medium like email or even social media. The process might be very long, taking place over multiple conversations in which the salesperson learns about the customer and their pain points, and helps them understand how the product on offer can help solve them. It could also be a very short process consisting of a single conversation in which the salesperson lays out the terms of the deal and processes the sale.

Marketing is a much more holistic process that is designed to increase awareness of a brand or product to the target consumer as a whole. Rarely will a marketer deal one-on-one with a customer.

The methods, tactics, and channels used by the marketing department look very little like they did even 15 years ago. It is primarily digital, including (but not limited to):

- 1) Content marketing
- 2) Social media marketing (SMM)
- 3) Email marketing
- 4) Organic traffic and search engine optimization (SEO)
- 5) PPC ads
- 6) Influencer marketing

- 1) **Collaborate on Sales Content Creation**→ A recent CSO Insights study showed that 32% of a sales rep's time was spent looking for or creating sales content. Creating content that sales teams can use in their proposals and throughout the selling process is a major factor in an outstanding sales enablement strategy. Both sales and marketing need to work together to understand their audience and create targeted content that speaks directly to customers.
- 2) **Inform Outbound Emails**: In an ideal world, all sales would be inbound with customers lining up to get their hands on your product or service. But the reality is that, at some point, sales needs to be in charge of sourcing and contacting their own leads. To effectively do this, sales should work with marketing to be knowledgeable on what marketing materials are already readily available. Marketing and sales can also work together to create new, dynamic material that focuses on the winning strategies of each department. This creates a unified brand image and voice.
- 3) **Systemise Lead Scoring**: Marketing and sales teams need to have an ongoing conversation about lead conversion — what is working, what is not, who it is working for, etc. Creating and converting MQLs to SQLs and, ultimately, to win deals is an always moving target — that is why it is important to ask these questions, to figure out why it is working or not working. Those changing results and targets of a company's "why" increase the urgency for clear communication and getting on the same page. Both sales and marketing teams need to create one system for scoring and evaluating. The system is entirely conditional and depends entirely on the product, the audience, and the buying cycle. Turning an MQL into an SQL too soon can hurt conversion, so you need to find the sweet spot in the life cycle. This can only be found by trial and error, communication, and evolution.
- 4) **Develop Buyer Personas**: Sales is the front line of any successful company. They know who is buying and why those customers are motivated to buy in the first place. Marketing understands the industry at large and who they should be targeting. The best buyer personas are born from a mixture of marketing research and insights from your actual customer base. The sales team can provide important insights and

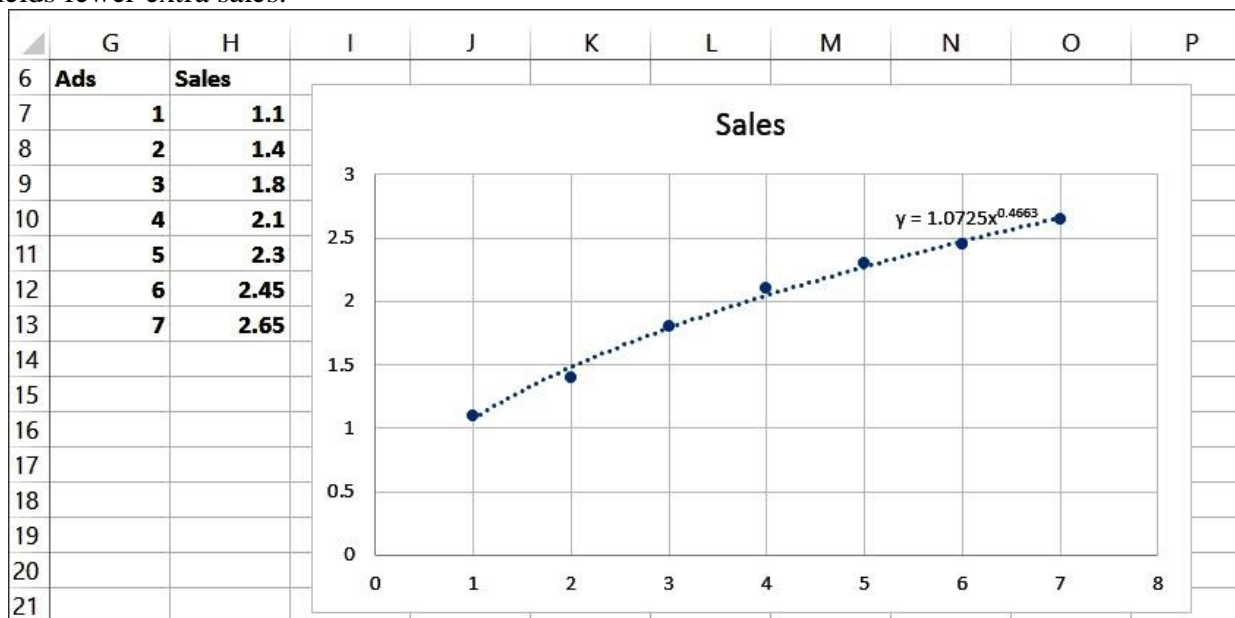
generalizations on the leads they're interacting with the most, while marketing research can inform broader insights like patterns and commonalities. Sales and marketing must direct their efforts at the same prospects and be completely aligned on decisions and pricing. Together, sales and marketing need to create comprehensive buyer personas to better target their ideal customer, increase acquisition, and create targeted ads and pitches that are symbiotic.

- 5) **Leverage Marketing to Showcase Sales Team's Expertise:** Ideally, sales teams are brilliant at lead generation and closing sales but are not always their own best advocates when it comes to selling themselves. That is why they need marketing team's power to create materials that showcase their expertise.
- 6) **Hold Regular Meetings:** Even the most amicable and aligned departments need actual face time to develop their internal relationships and sense of how the other works. Hold regular meetings to discuss new strategies, go over the results of current campaigns, and learn more about each team's processes. An added benefit is getting marketing's feedback and insight on the sales team's agenda, and vice versa.
- 7) **Break Down Barriers:** Aligning sales and marketing teams may require more than weekly meetings, and it might take a refresh in terminology and perspective. Break down departmental barriers and replace the concept of a sales funnel with a revenue cycle. Work through the foundation of what that revenue cycle should look like. This is the time when both sales and marketing get to flex their muscles and bring their expertise to the table. Remember, some areas will overlap, but they may be called different things. The marketing department may be focused on digital assets and ROI, while the sales team may be looking at the same assets regarding what types of sales leads they generate. Work together to determine the best lead generation techniques and ROI as a team instead of by department.
- 8) **Use Collaborative Analysis:** When marketers are trying to align two departments, it is not enough to just focus on KPIs and collaborative practices. When they are breaking down departmental barriers, the lines will likely blur between what the marketing and sales teams are working on. It is important to analyze and measure the results as a team, which will help everyone get on the same page about ROI and understand how collaborative efforts are impacting your bottom line. The team ROI may require both departments to analyze email campaigns or lead generation data to determine what is working and what is not. Looking at these numbers individually just pushes your teams back into a silo situation where the work becomes fragmented.

### **MODELLING THE MARKETING RESPONSE TO SALES FORCE EFFORT**

It is the job of marketing managers to determine the profit maximizing allocation for products, shelf space and at times the sales force as well. The key here is to understand how the changes in the allocation affect the product sales. To better understand this, the relationship between the resources allocated and the response achieved must be charted out on a graph.

- 1) **The Power Curve:  $y = ax^b$**  → Values of a and b that best fit the power curve can be found with Excel Trend Curve. Assuming  $0 < b < 1$ , the power curve exhibits diminishing returns, i.e., each additional ad yields fewer extra sales.

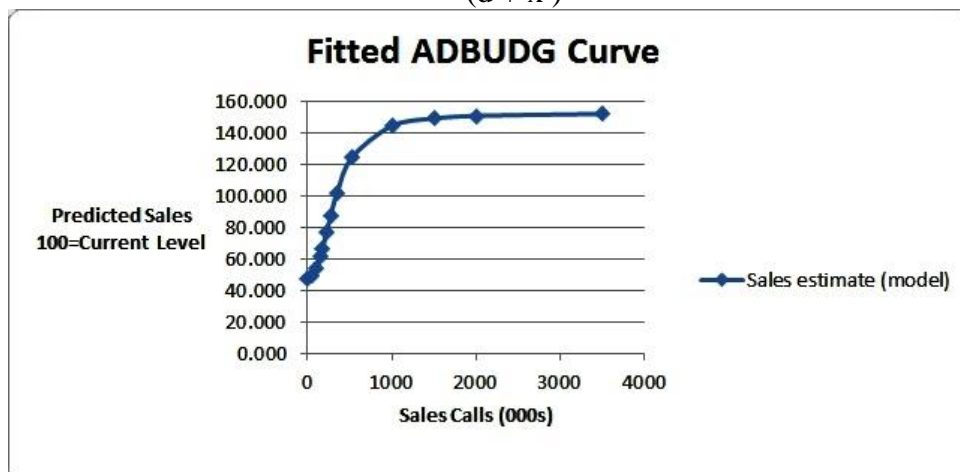


- 2) **ADBUDG Curve**→ The ADBUDG Curve was developed by MIT Professor John Little. This curve is used to chart the graph of response to sales or advertising. The ADBUDG Curve can sometimes be S-shaped, which means that for a small amount of marketing effort little sales response is observed, and for an intermediate amount of marketing effort, increasing returns are observed and finally beyond a certain point, decreasing returns to marketing response are generated.

Suppose the marketers want to determine a curve that predicts the sales of a product as a function of the sales effort allocated to the product. Researchers have found that the response to a sales force effort can often be well described by the ADBUDG function of the following form.

$$(b - a)x^c$$

Sales of drug  $i$  when  $x$  calls are made for drug  $i = a + \frac{(b - a)x^c}{(d + x^c)}$



An S curve starts out flat, gets steep, and then again becomes flat. This would be the correct form of the sales as a function of effort relationship if effort needs to exceed some critical value to generate a favorable response. To illustrate how an ADBUDG response curve can be fit to a product, try and determine an ADBUDG curve that shows how unit sales of a drug depend on the number of sales calls made on behalf of the drug.

- 3) **The Gompertz Curve:  $y = a * \exp(-c \exp(-bx))$** → Any change in profit resulting from allocation of additional shelf space is modelled by the Gompertz Curve. The Gompertz curve is also an S-shaped curve.

### **OPTIMISING SALES EFFORT**

Optimising the sales team requires continuous monitoring to evaluate the systems, processes, people, and technology at disposal. However, the fundamental difference between high and low performing sales teams, according to an HBR survey of 786 sales professionals, is the sales process “50% of participants from high-performing sales organisations said they had sales processes that were closely monitored, strictly enforced or automated.” Sales optimization is the discipline of maximising your sales team’s performance by analysing past interactions, guiding sales reps how to sell effectively, and managing future sales incentives. There are several ways by which sales effort can be optimised:

- 1) **Establish Long-Term Goals**→ Every company wants to grow revenue year on year. But the only sustainable way to achieve this growth is by ignoring quick-wins and establishing long-term goals focused on quality. The best way to achieve long-term growth is by creating the right sales culture. So, rather than emphasizing short-term goals like hitting monthly quotas, celebrate long-term milestones like client anniversaries or upsells.

**For example**, one of the core values at LinkedIn is to “act like an owner” which empowers employees to behave and make decisions as though it were their company. This change in mindset empowers individuals to look for sustainable revenue streams instead of immediate revenue and commission:

- a) Low-quality revenue creates short-term value
- b) High-quality revenue drives long-term value

It is better to have predictable and profitable revenue streams to build long-term growth.

- 2) **Build an Ideal Customer Profile**→ Building an ideal customer profile or buyer persona helps you focus on the right type of prospect. It’s better to create long-term strategic relationships with ideal

customers rather than chasing short-term quick wins elsewhere. Building your buyer persona takes you past demographics and deeper into buying behaviours and emotional characteristics such as:

- a) Likes/Dislikes
- b) Buying patterns
- c) Motivation to purchase services and products
- d) Feelings and emotions that will trigger them to buy
- e) Common objections (and how to handle them)

- 3) **Track and Analyse Sales Data**→ If you are going to optimize your sales team, then you need an effective way to track and analyse sales data. Tracking sales leads gives your team access to metrics on what needs doing and what has already been done as part of the sales process. Team members can also compare how they are performing against peers, which promotes healthy competition.
- 4) **Spot Holes in the Pipeline**→ Have you got issues in prospecting, nurturing, closing or upselling? It is important to check your sales pipeline regularly to ensure you do not have any holes. **For example**, if it takes 200 days to convert a prospect to a new customer and your conversion rate is 10%, then you should have at least 200 prospects in your pipeline. Without enough prospects, you would not hit your sales target. If you spot a hole - i.e., you do not have enough prospects - then you can take action to fix the problem. Depending on the size of your sales team, there are several tools you could use to monitor your pipeline. For smaller teams, you could use a spreadsheet to spot any holes as you record your sales data.
- 5) **Align Sales and Marketing Teams**→ Although sales and marketing teams have similar goals to increase revenue and growth, they often struggle to work together effectively. According to a report from **Marketo**, sales reps ignore 50% of marketing leads.
  - a) Sales reps puzzle why they have to generate their own leads.
  - b) Marketing execs do not understand why sales ignore their leads.Who is right and who is wrong does not matter. But finding a way to work together is essential. Three ways to align sales and marketing teams are:
  - a) **Share Funnels**: Create one funnel, so each team knows what the other is doing.
  - b) **Share Accountability**: Create joint goals and objectives, so both teams are accountable for results and have to perform to a high level.
  - c) **Share Planning**: Create strategic and operational plans together, and hold regular review meetings. By working together, marketing teams can provide the right type of content and qualified leads that enables sales teams to retain and win more customers.
- 6) **Strategically Assign Territories**→ Many sales teams neglect to assign territories strategically and therefore miss a sales optimization opportunity. Sales territory management aligns salespeople with the most appropriate customer base - whether that is by geography, vertical, expertise, or past relationship. Each territory is unique. And in order to optimise sales, it is important to assign your top performing reps to the most valuable accounts in each territory.
- 7) **Nurture and Manage Leads Effectively**→ Nurturing and managing leads is an essential step in the sales optimization process. Timing is crucial. Contact leads too soon, and you may lose them and their business forever. That is why building relationships is important. Investing time with the right prospects can lead to long-term customer relationships. And remember, long-term relationships not only generate more revenue but also enhance your credibility in the market. According to SBI, sales reps tend to give up on reaching a prospect after 3-4 unsuccessful attempts. But their research shows that on average prospects respond or decide to answer after 9x nurture impressions.
- 8) **Monitor and Provide Continuous Feedback**→ If you want your sales process to be effective you need to identify, track, and measure the right data. Salespeople need to know what KPIs they're working to, and you need to provide continuous feedback on their progress.
  - a) **Identify KPIs**: Use metrics that improve sales performance rather than vanity metrics. HBR lists 12 sales metrics that matter most.
  - b) **Collect Data**: Use tools that make it easy for salespeople to input and update data. Or consider automating the process where possible. According to HubSpot: "Over 20% of sales professionals cited manual data entry as their top CRM challenge. Other issues included lack of integration with other tools and invalid or incorrect data."

## **MEASURING EFFECTIVENESS OF ADVERTISEMENT**

Organisations allocate a major portion of the total budget on advertising now-a-days. In order to assess the worthiness of allocating a huge sum of funds towards advertising, advertisers wish to determine the usefulness of advertising. It is necessary to compare the functioning of advertising activities with the established objectives of the organisation to evaluate its effectiveness. This performance determination process is called 'measuring advertising effectiveness'.

Objectives related with advertising may include sales objectives and/or communication objectives. The evaluation process calculates how far the sales and communication objectives have been accomplished with the help of advertising. If it is unsuccessful in achieving the planned objectives, it will result in wastage of advertising funds.

Rise in sales figures after advertising, indicates whether the advertising campaign has been successful or not. It can be concluded that advertising campaign has been effective if there is a sharp rise in the sales figures. The other way of evaluating advertising effectiveness can be by identifying as to what extent the advertisement has been successful in accomplishing communication goals. This method includes conducting an interview session with few customers to find out if they can remember the advertisement, slogan and the brand name stated in the ad, or if the message stated in the ad is interpreted correctly by them, etc. If the response is positive and they are able to remember the details, then ad is said to be quite successful. Thus, at this very step, the firm can locate the deficiencies and take remedial measures during the next advertising campaign.

## **METHODS OF MEASURING ADVERTISING EFFECTIVENESS**

Several techniques can be used to evaluate the different constituents of an advertising campaign. The two most comprehensively used evaluation mechanisms are as follows:

- 1) **Message Evaluations**→ Under this method, the advertisement copy (or the message) as well as the whole advertisement infrastructure (or the physical setup of the advertising) is examined to know the efficiency of the advertisement. It includes examining commercials, newspaper ads, billboards, coupons, etc. It also includes analysing the people involved in commercials (whether on TV or radio). Both the cognitive elements concerning an ad (like recall and recognition along with attitudinal and emotional responses) are considered while evaluating an advertisement message.
- 2) **Evaluating Respondent Behaviours**→ This mechanism deals with evaluating the apparent customer responses to different advertising efforts. Customers' responsive behaviour may include inquiries, store visits or actual buying of the product. The techniques used for evaluating respondent behaviours are based on numbers, like, determining total number of redeemed coupons, total number of calls made in a telemarketing plan and sales fluctuations in terms of numbers or values. Majority of advertising agencies, now-a-days, are asked to represent convincing evidence of the success of their ads and this evidence can be developed by analysing the respondent behaviour. Total number of coupons redeemed, number of customers visiting the stores, alteration in sales figures, etc., act as evidence for measuring advertising effectiveness.

Thus, the above mentioned techniques are helpful for marketing managers to generate short-term results and achieve long-term favourable outcomes.

## **TESTS FOR MEASURING ADVERTISING EFFECTIVENESS**

The advertising has wide range of testing techniques or the methods to choose for evaluation purpose. What methods or techniques he is going to use is dependent on when he is going to measure the ad effectiveness. Accordingly, there can be three sets of methods to meet his needs namely, pre-testing, concurrent testing and post-testing methods.

- 1) **PRE-TESTING OF AD**→ It is preferred because it enables the advertiser to know how effective an ad is likely to be, before spending the budget and adopting ad actions. The advertiser should use only those messages and media which prove to be the strongest in producing the desired results. It includes following tests:
  - a) **Check-List Test**→ A check-list is a list of good qualities to be possessed by an effective advertisement. A typical check- list provides rating scale or basis for ranking the ads in terms of the characteristics. These characteristics may be—honesty—attention getting—readability—reliability—convincing ability—selling ability and the like. The ad that gets highest score is considered as the best.

- b) **Opinion Test/Consumer Jury**→ This involves a group of potential buyers of the product who compare and rank several advertisements according to their preference, interest or the influence to buy the product. Their reactions may be required either to the entire advertisement or about specific features of ads such as illustrations, headlines, themes, slogans, etc. Accordingly, the top ranking ad gets selected.
  - c) **Dummy Magazine and Port-Folio Test**→ A group of ads, usually a mixture of ads to be tested and control ads are placed in a portfolio. The ads can also be placed in dummy copies of newspapers or magazines. Dummy magazines are used to pre-test the ads under conditions of approximation resembling normal exposure. The respondents are asked to go through the portfolio, reading whatever interests them and taking as much time as they want. After they finish looking at the whole portfolio, the respondents are asked to recall the ads that they can remember. Such recalls may be unaided or aided, depending on the objective of testing. The ad with highest recall score is taken as the best.
  - d) **Inquiry Tests**→ Another method of pre-testing an advertisement is the inquiry test. An advertisement may carry a coupon or invitation to consumers to respond or reply or request for a sample. By making an offer to consumers, some advertisements get an immediate response from the consumers in the form of enquiries or sales which help in measuring the advertisement's worth.
  - e) **Theatre Tests**→ In theatre tests, attitudes towards a set of brands are measured. In the context of a TV show, respondents are presented a number of advertisements, including those to be tested. Respondents use electronic equipment to indicate what they like or dislike as they view TV commercials shown in a theatre setting.
  - f) **Laboratory Testing**→ In this type of testing, pre-test measures can be taken using special laboratory equipments such as eye cameras, pupil metrics, brain waves, etc., which can be used to measure respondent's physiological responses to advertising including galvanic skin response, eye movement, pupil dilation, brain pattern analysis, etc.
  - g) **Trailer Test**→ Respondents are shown products and they see or listen to commercials in trailers at shopping centers and receive coupons for advertised products. Redemption rates indicate commercials' influence on buying behaviour.
- 2) **CONCURRENT TESTING OF AD**→ Concurrent or coincidental testing is that which takes place while the ads are running. The feedback is received from such testing and corrective actions can be taken while the ad campaign is on. It includes following ads.
- a) **Co-Incidental Surveys**→ This is called as coincidental telephone method also whereby a sample of households is selected, calls are made during the time programme broadcast, the respondents are asked whether their radio or television is on, and if so, to what station or programme it is tuned? The results of the survey are used to determine the share of response for the advertisement.
  - b) **Consumer Diaries**→ This method involves giving the families a diary or individual diaries to the members of the family. The selected families and individual respondents are asked to record the details about the programme they listen or view. The diaries are collected periodically to determine the scores.
  - c) **Mechanical Devices**→ The mechanical devices used to measure the ad effectiveness concurrently are more common to broadcast media. These are—Audio meters— Psychogalvanometer— Tachistoscope and Truck Electronic Unit.
  - d) **Traffic Counts**→ Traffic counts are of special applicability to outdoor advertising. One can get good deal of information through traffic counts. This counting is done by independent organizations— may be private or public. This work is also undertaken by advertising agencies. For instance, how many automobiles and other vehicles were exposed to a bulletin board or a poster or a wall painting and how many times? These all can be determined.
- 3) **POST-TESTING OF AD**→ It is applied after the ad has ended to find out how far advertising has been successful. It includes following tests:
- a) **Inquiry Test**→ It is controlled experiment conducted in the field. In inquiry test, the number of consumer inquiries produced by an advertising copy is considered **as** to the measure of its communication effectiveness. Therefore, the number of inquiries is the **test** of effectiveness which can be produced only when the ad copy succeeds in attracting and retaining reader or viewer attention.



- b) **Split-Run Test**→ A split-run test is a technique that makes possible testing of two or more ads in the same position, publication, issued with a guarantee of each ad reaching a comparable groups of readers. Different copies of ads are created and placed into one magazine or newspaper. It is an improvement over the inquiry test in that the ad copy is split into elements like appeal—layout—headline and so on. Here also, the readers are encouraged to reply the inquiries to the given address.
- c) **Recognition Test**→ Recognition is a matter of identifying something as having seen or heard before. It is based on the memory of the respondent. In such tests, readers are shown magazines or newspapers page-by-page with which they are familiar and they are asked to point out the advertisements they saw and read. It attempts to measure the ad effectiveness by determining the number of respondents who have read or seen the ads before. The recognition method helps to measure the interest shown by the respondents though one has to make sure that the respondent does not confuse specific advertisement with similar or identical ones seen elsewhere.
- d) **Day-After Recall Test**→ Recalling is more demanding than recognizing as a test of memory. Day-after recall test is the most widely used method to test television commercials. It involves respondents to answer as to what they have read, seen or heard without allowing them to look at or listen to the ad while they are answering. After an on-air exposure of a finished commercial in a city, viewers are interviewed to determine if they can recall the message. Recall may be unaided or aided.
- e) **Sales Test**→ The effect of TV commercials can be measured through the use of consumer panels located in a number of cities. These consumer panels are being used to understand their purchase behaviour as well as usage behaviour. Marketers can also use different media in different locations to see which one is more effective in generating sales. Alternatively, sales changes in different markets can be monitored to compare the effects of different messages.

In practice, no single technique may be found suitable to test all ads. Depending on the specific objectives of the advertisement campaign, often a combination of different techniques may have to be used to get effective results.

### **IMPORTANCE OF MEASURING ADVERTISING EFFECTIVENESS**

Measuring advertising effectiveness is important for the given below reasons:

- 1) **Justifying the Cost of Advertising**→ Advertising involves a lot of cost. The amount spent on advertising can be justified by measuring advertising effectiveness. In this regard, the cost-benefit analysis is adopted whereby comparison is made between the advertising benefits and the cost incurred on advertising. The expenses incurred can be justified to the higher organisational executives and authorities, if advertising benefits exceed the cost. By doing so, it is made sure that the expenses incurred on advertising do not go to waste. Furthermore, the justification also helps in increasing the advertising expenditure (if required) in the future.
- 2) **Exercising Control on Advertising Campaign**→ Control over the ad campaign can be exercised through advertising effectiveness evaluation. It helps in knowing whether or not the outcomes of the ad campaign are in compliance with the predetermined objectives of the ad. Corrective actions and remedial measures can be taken in time if the outcomes of the ad campaign are not in compliance with the predetermined objectives of the ad.
- 3) **Evaluating Ad-Copy**→ The advertising copy as well as the message in the ad copy can be assessed by measuring the effectiveness of advertising. The desired outcomes cannot be expected from the advertisement if the appeal made in the advertisement and the brand name is not understood by the target audience. Therefore the drawbacks in advertising copy, viz., drawbacks in the appeal made, content of the message, etc., can be identified by measuring the effectiveness of the ad. This will also help in designing more effective ads in the future.
- 4) **Comparing Different Market Areas**→ Comparison can be made among different geographical market areas to know which market area is comparatively fruitful for the firm. A firm operates in various market areas and its ads also are also carried in those areas. Evaluations of the results of all the market areas are performed after some time period. This is done from the perspective of the level of change in the display of the dealer, level of change in the customers' attitude regarding the firm's product, level of change in sales, etc. By doing so, the strong and the weak market areas can be determined which would help the firm in designing appropriate and proper marketing strategies for its weak and strong market areas.
- 5) **For Effective Media Planning and Media Scheduling in Future**→ The impact of various media can be known by proper evaluation of the effectiveness of advertising. This will help in making improved decisions related to media scheduling and media selection, such as choosing appropriate media vehicle,

purchasing appropriate time and space in the media, timing of the ad, its frequency, suitable TV programs and channels to broadcast the ad, and so on.

- 6) **Knowing the Saturation Point of Advertising**→ The saturation point of advertising is the point past which negligible or zero sales response is generated through advertising. Before this point, the advertising should be stopped. The saturation point of advertising can be known by evaluating the effectiveness of the ad. This is achieved by making a comparison between the advertising's marginal cost and its generated revenue. When the marginal revenue becomes at par or less than the marginal cost of advertising, then further expenditure on advertising should be stopped.
- 7) **Reducing Wastage in Advertising Expenses**→ Ads which are ineffective in getting the message across and in increasing the sales of the organisation can be identified through a proper evaluation of advertising effectiveness. Spending on wasteful advertising is reduced by discontinuing such advertisements.
- 8) **Keeping in Touch with New Trends in Advertising**→ The firm can keep in touch with the current and the emerging trends in the field of advertising through the evaluation of advertising effectiveness. The field of advertising is dynamic. It is not necessary that an advertisement will be effective tomorrow if it is effective today. The tastes, preferences and attitudes of people change. Therefore, the latest trends in the field of advertising and people's preferences towards advertisements can be known by evaluation of advertising effectiveness.

### **DIFFICULTIES IN MEASURING ADVERTISING EFFECTIVENESS**

Following are the major difficulties which are faced while measuring advertising effectiveness:

- 1) **Advertising is not the only Factor Affecting Sales**→ It is assumed under most of the ad effectiveness evaluation methods that sales are affected only through advertisements. However, an increase in sales can be the result of several other factors like, price change, schemes for sales promotion, improvement in the features of the product, etc. Therefore, it would be wrong to assume that advertising is the only factor affecting sales.
- 2) **Effect of Past Advertisement**→ It is also assumed under most of the ad effectiveness evaluation methods that advertisement conducted in the test period is the reason behind the customers' response in the test area. However, past or previous advertisement can also be the reason for the response of the customers. For example, there is a possibility that an individual had seen an ad a long time back but did not purchase the product at that time due to lack of financial resources or due to absence of need. However, there is also a possibility that the individual is still carrying a very positive impression of the past ad. The individual can buy the product at present time if he/she has the need and the adequate financial resources. Therefore, here it can be said that the past ad is responsible for the sale of product in the present.
- 3) **Difficult to Evaluate the Effectiveness of Goodwill Advertisement**→ Improving the organisation's image in the long run, by fulfilling certain social responsibilities like generating awareness regarding environment and pollution control, etc., is the purpose behind goodwill advertisements. The advertiser cannot measure the impact of such ads on the goodwill, image or sales of the organisation.
- 4) **Ad-effectiveness using a Communication Objective is not sufficient in itself**→ Certain product advertisements might not increase sales but may attain the communication objectives. Similarly, certain ads of products might be entertaining and attractive but not effective enough to increase sales. It is possible that such ads grab the attention and are easy to recall because of catchy jingles, punch-lines and visuals, but the products are still not purchased. This might be because those products are not liked by the viewers. For example, many viewers might be remembering the very attractive ad of Royal Stag with Ranveer Singh. But the Royal Stag products are still not purchased by those viewers. Therefore, it is not sufficient to evaluate advertising effectiveness on the basis of objectives of communication only.
- 5) **Subjective Method for Measuring Advertising Effectiveness**→ Several ad effectiveness measurement methods have been proposed by experts. However, these methods do not provide standard criteria for the evaluation of advertising effectiveness. Therefore, they are highly subjective. Several criteria are available such as sales increase, ability to grab attention, entertaining, convincing, humorous, memorable, etc. There is a possibility that an ad is effective as per one criterion and ineffective as per another.
- 6) **Not Suggestive in Nature**→ The advertisements are classified as either effective or ineffective by most of the ad effectiveness measurement methods. However, they are not suggestive, i.e., they do not recommend or suggest ways to increase the effectiveness of the ads.

- 7) **Difficult to Evaluate Percentage Response**→ Certain degree of customer response is required for measuring the effectiveness of the ads. However, the advertiser cannot measure the response generated due to the advertisements because the overall number of media readers or viewers is unknown. This number is known if direct mail advertising is adopted but not exactly known if the message is spread through mass media vehicles like, newspapers, magazines, television, radio, etc.

## **OPTIMISING ADVERTISING**

In a world shaped by digital, customer interactions define a brand's success. For marketers, this can be a significant challenge. While digital advertising is growing rapidly, it is struggling with wasted spends, leaked revenues, and ineffective targeting and tracking of the operators (advertisers and publishers) in the ecosystem. Studies indicate that the total wastes in the advertising ecosystem ranges from 2% to 4% of the overall campaign spend.

Advertisers and publishers can ensure better ROI for their campaigns by analysing spend allocations at each step of the advertising campaign cycle to curb revenue leakage. Marketers can drive deeper customer engagement through relevant customer insights. To supercharge that cycle, they need a campaign strategy built on a strong enterprise marketing technology platform - one that accelerates innovation with analytics. This will help track marketing campaigns and regulate how they perform at each step with respect to dips and raises in sales.

## **ONLINE/INTERNET ADVERTISING**

Online advertising is any type of marketing message that shows up with the help of the Internet. That means it could appear in a web browser, search engine, on social media, on mobile devices, and even in email. Savvy advertisers are increasingly making use of this forum for reaching consumers, for a number of reasons:

- 1) It is relatively inexpensive,
- 2) It reaches a wide audience,
- 3) It can be tracked to measure success (or failure), and
- 4) It can be personalised for a target audience.

There are different types of online advertising: banner advertising, video advertising (either placed before or embedded within a video), search engine advertising and social network advertising. These different manifestations are a consequence of the fast-paced development of the Internet and Internet technologies.

The age of the Internet has taken the world by storm in the last decade and has changed the way consumers behave and buy products. With this change has come a new type of consumer that is more educated and able to do vast amounts of research before making a purchasing decision. It has also brought about a consumer that spends a lot of time online, whether it is for personal or professional reasons. This gives marketers new opportunities to interact with their customer base and reach out to different audiences.

This is where online or digital advertising is able to aid businesses in reaching more of their target audience in less time. The world of digital advertising, although relatively new, is still rooted deep in the fabric of traditional advertising. This means that companies are able to add a digital form of advertising to existing or upcoming campaigns that have always relied on traditional mediums. Tying the offline and online strategies together sets the company up for success in its next advertising campaign and will do well in reaching the specific audience. Digital advertising refers to marketing media that is digitally displayed. Digital advertising technology exists on the Internet, on smart -phone and hand-held media devices, and even on automobiles and billboards. Businesses and product manufacturers use digital advertising to build or maintain a brand image and market products and services to consumers.

## **COMPONENTS OF ONLINE ADVERTISING**

There are a variety of different components that combine to create internet marketing campaigns. Some of the key components are:

- 1) **Websites**→ The first step in an internet marketing campaign is to create and set-up a website. A website will include a lot of text, some images, and perhaps even audio and video elements. This gives visitors a clear picture of the message that one may send about the company. It will show potential customers, the features and the benefits of the products or services that the company is offering. Some websites include lead capture for customers or even sell their product or service directly through the website. These

websites are essentially the same as brochures or mail order catalogues. They are a wonderful way to start establishing the business and getting noticed.

- 2) **Search Engine Marketing**→ Search engine marketing is another component of internet marketing. This means that a website is marketed through search engines by improving the ranking of the site through search engine optimisation, pay per click advertising, or pay for inclusion listings in directories. This is similar to offline advertising that is done through listings in the yellow pages.
- 3) **E-Mail Marketing**→ The next component is e-mail marketing. This distributes information about the products or services or is used to get feedback from customers about products or services through e-mail. Customers and prospective customers can supply their e-mail addresses or one can choose to purchase email addresses through lists. There are various e-mail methods that are used including newsletter distribution or mass mailings or even offering the customers special things related to the company's products or services that are being offered. This is basically the same as direct mail advertising that is done offline.
- 4) **Banner Advertising**→ Banner advertising allows for placement of advertisements on a website for a price. There are many providers that are offering banner advertisements on their sites. It can be a very effective part of internet marketing campaign and can increase the traffic. Newspaper and magazine ads would be the offline comparison to banner advertisements.
- 5) **Press Releases on Internet**→ Press releases on the internet require a story being written about a company, products, services, or website. These stories or articles must be newsworthy and very attention getting. There are many sites on the internet that are centered on press releases.
- 6) **Blog Marketing**→ The next component is blog marketing. This is where comments are posted, opinions are shared, or announcements are made. This can be done through hosting a blog or by adding comments and URLs in blogs that are related to the business and the offers available online.
- 7) **Article Marketing**→ The last component of internet marketing is article marketing. This means that one can write articles that are centred on the business and then publish them on different internet sites that relate to articles. Articles are normally passed around the internet and shared with others. Article marketing can give one a huge boost to the business and to website traffic. This helps to target much more audience, because the articles are specific to what company is offering.

## **PURPOSE OF ONLINE ADVERTISING**

The purpose of internet advertising is as follows:

- 1) **Solicitation**→ A common perception of advertising is related to solicitation, or encouraging consumers to purchase the goods and services of a company or organization. Advertising can be found in the form of print advertisements in newspapers and magazines, billboards, telephone directories, fliers, and mailers, or in electronic media such as the Internet, radio, and television. This type of advertising typically promotes a particular product or service, introduces a new offering, or promotes a sale or upcoming event.
- 2) **Marketing and Promoting**→ Marketing and promotional efforts use advertising as a vehicle to move forward the agenda or image of a person, group, organization or event. For example, a music concert promoter may use advertising as a method for elevating the image of his client and his upcoming music tour. A promotion in this sense is a form of advertising that does not always urge consumers to make an immediate purchase, but compels them to become more interested in and invested in the subject of the ads.
- 3) **Raising Awareness**→ Advertising campaigns designed to raise awareness employ many of the same principals of solicitation advertising. These advertising messages are not trying to sell the consumer something, but are working to make them aware of an issue. Examples include approaches used by non-profit and community organizations to inform the public about issues such as shortages in blood banks, pollution in cities, or the importance of particular medical screenings.
- 4) **Education and Information**→ Advertising is frequently used as a vehicle for educating and informing the public about various issues. For example, the advertising campaign of a road safety coalition might focus on the potential consequences of driving without a seatbelt by providing statistical information and disturbing images. Political campaigns also use education and information in advertising by promoting voting records, stands on issues, and credentials for office.
- 5) **Negative Advertising**→ Advertising can be used to criticize or put down competition. Consider billboards that denounce the actions of a county commissioner up for re-election, or fliers that provide voters with detailed accounting of wasteful government spending. In this instance, the individual or

organization purchasing advertising is not trying to sell a product or raise awareness of an issue, but is looking for an effective way to create negative publicity for another entity in order to gain an advantage.

- 6) **Cost Acquisition per Customer**→ Online advertisement ensures that the cost incurred to get customers is pretty less as compared to other mediums. It is a simple equation, if the cost of acquisition is low for the business, one will end up making more profit. It makes sense to spend online especially when the overhead cost of a company is extremely high.

## **TYPES OF ONLINE ADVERTISING**

The different types of internet or online advertising are explained as follows:

- 1) **Pop-ups**→ Pop-up ads are a form of online marketing where the intent is to advertise a product as well as attract web traffic and/or capture email addresses. They are typically generated by JavaScript and appear as secondary browser windows.

Contents vary, ranging from company promotional videos and opt-in forms meant to generate leads to messages with the latest news. Although many Internet users consider pop-up ads obtrusive, they are good at grabbing users' attention and can be effective as a marketing strategy once marketers leverage their advantages.

- 2) **Interstitials**→ Interstitials are advertisements that appear between the content of two web pages. This type of advertisement is not as annoying as pop-ups because the ads tend to run in between the loading of the two pages.

A good aspect of interstitials, for the advertiser, is that the ads cannot be stopped as easily as pop-ups can be. With pop-ups, one can just hit the exit button, but if someone wants to see the content after an interstitial, he/she has to wait for the entire ad to play.

- 3) **Banner Ads**→ Display or banner ad is the most popular form of advertising. These internet-based banner ads are very similar to the still print ads published in newspapers and magazines. These ads are small in size and static in nature which are usually placed on the websites which are most visited on the internet.

The websites which place these ads generate their revenue through CTRs (Click-Through Rates). These rates are as low as 0.3 per cent. However, the rates of banner ads for B2B companies are higher than that of B2C companies.

- 4) **Sponsorships**: Another common form of advertising is sponsorships. There are two types of sponsorships. Regular sponsorships occur when a company pays to sponsor a section of a site, **for example**, Clairol's sponsorship of a page on GirlsOn.com and Intuit's Turbo Tax sponsorship of a page on Netscape's financial section. A more involved agreement is the content sponsorship, in which the sponsor not only provides dollars in return for name association but participates in providing the content itself. In some cases, the site is responsible for providing content and having it approved by the sponsor; in other instances, the sponsor may contribute all or part of the content. Due in part to the lack of effectiveness of banner ads, sponsorships have been increasing in popularity.

- 5) **Push Technologies**: Push technologies, or webcasting technologies, allow companies to "push" a message to consumers rather than waiting for them to find it. Push technologies dispatch web pages and news updates and may have sound and video geared to specific audiences and even individuals.

**For example**, a manager whose job responsibilities involve corporate finance might log on to his or her computer and find new stories are automatically there on the economy, stock updates, or a summary of a speech by Alan Greenspan. Companies provide screen savers that automatically "hook" the viewer to their sites for sports, news, weather reports, and/or other information that the viewer has specified. Users can use personalisation—that is, they can personalise their sites to request the kinds of specific information they are most interested in viewing.

- 6) **Links**→ While considered by some as not a type of advertising, links serve many of the same purposes as are served by the types discussed above.

**For example**, a visitor to one site may click on a link that provides additional information and/or related materials at another site. At the bottom of the homepage at women.com are a number of links to magazines, including Cosmopolitan and Good Housekeeping among others. Clicking on one of these takes the visitor to the magazine's site and usually a pop-up for a subscription to the magazine appears. Other forms of advertising, such as ads placed in chat rooms, are also available.

## **PPC OR PAY-PER-CLICK: PAID SEARCH**

Paid search marketing is the process of gaining traffic by purchasing ads on search engines. It is sometimes referred to as CPC (Cost-Per-Click) marketing or PPC (Pay-Per-Click) marketing. Unlike some digital advertising where you pay for impressions, an impression is considered a page view; with PPC search, you only pay if your ad is clicked on.

Pay-per-click is the placement of a small “ad” on the search results page for a specific keyword or keywords in return for a specified payment when a visitor actually clicks on that ad. Keep in mind that the advertiser pays nothing to appear on the results page per se; they only pay the amount they have agreed to (or bid for) when someone actually clicks on their ad and is taken to the “landing” page on their website. Therefore, the term “pay per click” means just what it says: the advertiser pays each time a visitor clicks on their ad.

In a search engine, the paid search ads are usually found at the top, bottom, and right-hand side of the search engine results page, often denoted by “sponsored listings” or “ads”. Paid search results are advertisements. A business pays to have their ads displayed when users do a search containing specific keywords. The ads are typically displayed above and to the right of organic search results. The exact placement of the ads is determined by both a bidding process and quality score.

### **BENEFITS OF PPCS**

The benefits of pay-per-clicks are given below:

- 1) **Speed**→ Advertisers can quickly drive a significant amount of traffic to their website through PPC marketing. If managed effectively, PPC marketing is one of the fastest digital marketing strategies to drive traffic and conversion growth.
- 2) **Precision**→ Creating a highly-targeted audience to show ads to is straightforward - especially on search and shopping networks.
- 3) **Agility**→ Performance data is available almost immediately, which makes it easier to quickly make adjustments to improve chances for a successful campaign.
- 4) **Measurement**→ With effective conversion tracking, advertisers can see the ROI of their ads.

### **LIMITATIONS OF PPCS**

Following are the limitations of PPCs:

- 1) **Cost**→ Depending on the competition and the industry a marketer work in, PPC marketing can be very expensive. Some ad placements can cost over \$100 per click.
- 2) **Waste**→ Due to the technical nature of most PPC platforms, wasted ad spend is common without knowledge of the platform.
- 3) **Volume**→ PPC marketing, especially on the search network, often depends on search volume. If users are not searching for the product or service a marketer offer, search and shopping ads will not generate much traffic.

### **DIFFERENCE BETWEEN PAID AND NATURAL SEARCH**

Difference between paid and natural search are as follows:

- 1) **Highly Qualified Visitors will Come to Your Site**→ Just as with organic search, paid search attracts visitors who are already interested in what your site does. If they were not, they would not have been searching in the first place.  
So it makes sense that searchers who click paid search listings are more likely to buy than visitors arriving at your site from clicking a banner ad, e.g. But paid search listings get lower click through rates.
- 2) **You See Immediate Results**→ The biggest difference between paid search advertising and organic search is that paid search offers near instantaneous traffic to your site. You can launch a campaign immediately by paying your money, writing your ads, and bidding your way to the top of the paid results - all without changing a line of code on your website. Organic search, in contrast, takes much longer to kick in.
- 3) **Unlimited Keyword Targeting**→ Organic search has a natural limit in the number of keywords that can be targeted. Although it is best to use existing pages on your site as search new landing pages as your keywords become more obscure. Because organic search landing pages must be deeply linked into the navigation of your site, there is a natural limit of how many landing pages (and therefore how many keywords) you can target. Because paid search landing pages need not be part of the site’s navigation, you can target as many paid search keywords as you can justify the investment for.

- 4) **Unequalled Adjustability**→ It is difficult to make changes to your website to support organic search, especially if you have a medium to large site. If your inventory runs low on your best-selling product, your organic search results will keep pouring visitors into your site. If you reduce your product's price, it could take days for the organic search results to reflect it. Paid search, however, can adapt to these changes as they occur. You can stop buying the keyword for an out-of-stock item in paid search, and you can remove the item from product search. You can reflect price changes as they happen. You can ratchet up your investment during your busy season and taper it off at other times. What is more, you can constantly monitor the return on your investments and make changes each day to increase profitability. Paid search is probably the most flexible form of advertising available today.
- 5) **Less Click through Rate**→ Except for high purchase intent keyword searches, users click on paid search listings at a lower rate than organic search listings. Users seem more reliable and trustful to click at organic search results.
- 6) **Better Click Through Rates**→ Click through rates are better for organic search results except for searches using keywords that denote high purchase intent.
- 7) **Cost**→ The more competitive the keyword, the more the bid price is for each click on the displayed ad. Paid search requires a level of expertise to manage these campaigns. Otherwise, a lot of money will be spent to attract unqualified traffic. While organic search are free of cost.
- 8) **Specific Targeting**→ Pay-per-click campaigns can be tailored to reach specific audiences. Examples of partitioning include geo-targeting, industry, device targeting, location-based targeting, educational level, age, etc., in organic search no specific targeting.
- 9) **Trust and Credibility**→ With high search engine rankings comes a perception of credibility on the part of searchers. High search rankings imply industry authority and leadership. This perception translates into more trust and a greater likelihood to click through to the site.
- 10) **Distrust**→ Consumers do not always trust paid ads and often avoid them in paid search. They place more trust in organic rankings.
- 11) **Momentary**→ The ads disappear as soon as companies stop paying for them in paid search but not in organic search. It is long lasting and no issue of payment.

### **ADVANTAGES OF ONLINE ADVERTISING**

Advantages of internet or online advertising are as follows:

- 1) **Wider Ad Coverage**→ The online advertising gives ads a much wider global coverage and this helps in making online advertisements reach more audiences, which may ultimately help in getting better results through online advertising campaign. With internet advertising, companies can also specify the range of advertisement coverage which helps the advertiser to enjoy a better advertisement campaign.
- 2) **Targeted Audiences for Better Response**→ When compared with offline advertising, online advertising always helps the advertiser to reach the targeted audience and this helps in making the campaign more profitable and getting more relevant leads.
- 3) **Affordable**→ Another main advantage of online advertising or marketing is the much affordable price when compared with the traditional advertising costs. With a much lesser cost one can advertise on the net for a wider range of audience and geographical locations.
- 4) **Easy to Track and Measure Conversion**→ Measurability and easiness to track the conversion makes online advertising miles ahead on the traditional advertising methods. A lot of effective analytics tools are available to measure online advertising campaigns which help in more improvisation of the ads. A company will get a clear picture regarding who viewed the ads, who clicked, the number of leads generated and the amount of money that has been spent so far for internet advertising activities.
- 5) **Speed**→ Online advertising is faster than any of the offline advertising activities and the company can start sending out their online ads to a wider audience, the moment company starts its advertising campaign. So if one has a large targeted audience online at the time of triggering online advertisements, then the ad will be served to majority of the audience in no time. The execution speed of the internet advertising methods gives it a clear advantage over other traditional advertising methods.
- 6) **Informative**→ In online advertising, the advertiser is able to convey more details about the advertisement to the audience and that too at relatively low cost. Most of the online advertising campaigns are composed of a click-able link to a specific landing page, where users get more

information about the product mentioned in the ad. Once the visitor reaches the landing page, he will get a clear picture about the product or services and decide whether to buy or not.

- 7) **Flexible Payment**→ Payment flexibility is another added advantage of online advertising and marketing. In offline advertising the company needs to pay the full amount to the advertising agency irrespective of the results. But in online advertising there is the flexibility of paying for only qualified leads, clicks or impressions. This is something that will help the company to manage its ad budget in a better way.

### **LIMITATIONS OF ONLINE ADVERTISING**

Limitations of online advertising are as follows:

- 1) **Banner Blindness**→ One of the major disadvantages of online advertising is that it has been used to such extents that the users have developed a blind eye to most online ads. The top online advertising agencies across the world rely on innovative approaches to tackle this blindness.
- 2) **Intrusive**→ Web banners, if not placed systematically, can be intrusive and distracting elements for the internet users. There have been some horrible instances of agencies flooding sites with so many banners that it became virtually impossible for the user to work on them. Online advertising agencies need to understand that optimisation rather than maximisation is the name of the game here.
- 3) **Click Fraud**→ Depending on how the company pays for the online advertising, it may encounter a common form of ad-result fraud based on inflated click through results. If the ad placement costs rely on the number of clicks the messages receive, the competition can pay people to inflate the click rate and drive up the costs.
- 4) **Receptiveness**→ Although some consumers do not object to viewing ads on the websites they visit, others either ignore or refuse to click on them. Because these ads appear in a setting within which the viewer may not expect to see commercial messages - on a news or informational site, e.g.,- the message runs the risk of failing to connect with an audience that dislikes and even distrusts online ads. Because online ads run above or alongside the content viewers really want to see or read, they can be seen as nuisances rather than added value.