Qualitative and Quantitative Research - Concept

As the names suggest quantitative research produces numerical data whereas qualitative research generates non numerical data. However, this is only a superficial understanding of the terms. In the first chapter, while exploring the types of research, we had hinted that when there is uncertainty or when the problem is not clearly defined, we deploy exploratory research and use qualitative studies for it. When there is little or no ambiguity and the business problem is structured, we implement descriptive or casual research and use quantitative techniques for it. Let us take the discussion further from here.

### Qualitative Research

**Focus**

In a nutshell, qualitative research gives us vital insights in comprehending why do consumers feel or behave in a manner they do. It helps in identifying and perceiving the underlying opinions, behaviour patterns and motivations. Qualitative research aids the formulation of hypothesis to be used for deeper exploration or quantification. In a way, it adds richness to the information gathered by quantitative research by understanding instead of measuring. To sum up, the qualitative approach helps decipher the less rational and more emotional perspective of the consumer’s decision making nature, i.e. how would I feel if I were in the consumers’ shoes?

**Usage**

Qualitative studies assist in the following business situations:

* Market Study: Analyzing consumer interest in the company’s new idea in a particular demographic.
* New Product Development: Understanding the actual need of the end user.
* Creative Development Research: Pertaining to branding; what should be said and how should it be said.
* Diagnostic Studies: Understanding how is the company’s category or brand doing as compared to the competitor’s offerings and image respectively.

**Techniques**

Qualitative research can be carried out by:

1. **Focus Group Discussions:** This is the most effective and preferred technique for qualitative studies. Respondents, in a group of 5-8 people, are made comfortable and asked general questions first. Gradually, the conversation is shifted to the topic of research. It helps obtain initial reactions to marketing programs or understand the consumers’ impressions about a new product concept.
2. **In Depth Interviews:** Personal interviews are conducted instead of focus groups in the following cases:
   * Discussing sensitive, confidential or embarrassing topics (Example: Women’s hygiene issues)
   * Requirement of detailed probing (Example: Purchase psychology for an automobile is best done with the respondent one on one)
   * Situations where the respondent may get influenced by the group response (Example: Opinion on TV censorship where social norms prevail)
   * Interviews with highly professional people with busy schedules (Example: Understanding required from doctors on a new medical topic )

Another term associated with qualitative research and worth mentioning here are projective techniques. These are ways of extracting information from respondents that capture the emotions in consumer behaviour. Often direct questions do not bring out the hidden motivations as consumers are themselves not fully aware of their reasons and naturally are not able to express themselves fully. Direct questions may give sensible answers, but they may not necessarily be ‘real’ answers. For this reason, projective techniques such as the below ones are used:

* Brand Personalities: The strength of advertising can be tested by imagining brands as persons or objects. For example, asking that if Sunsilk was a person, what would he be like?
* Collages: Asking respondents to draw collages of a brand to help understand what consumers think about symbols used for advertising the brand.
* Word Association: First word that comes to mind upon mentioning a particular word. For example if the word Coke brings out the first mentioned word as happiness, Coke is maintaining its strong brand image.

### Quantitative Research

**Focus**

The aim of this method is to consume numerical data and present facts or uncover patterns in the study. The aftermath of quantitative research is results that are projectable because they are drawn statistically. Basically, while qualitative research is subjective, the quantitative method is more objective. Another characteristic of quantitative research is that it is drawn from a reasonably sized and carefully selected sample which is representative of the target population. The methods of choosing a proper sample are discussed in the previous chapter. Typically, a terminology of 95% confidence interval is considered good while deciding the sample sizes. This actually means that if the survey is reoccurred 100 times, 95 times the same response would be obtained.

**Usage**

Quantitative research is most widely used for determining cause effect relations. For example, if the marketing budget is increased by 15%, how much is the revenue expected to increase. If the strength between the dependent (revenue) and independent (marketing budget) variable is strong, the test hypothesis holds true and the company should invest more in its marketing. Thus a decisive stance can be taken from the facts presented in this research.

**Techniques**

Data collection for quantitative studies is done by various kinds of surveys using questionnaires. The survey can be done through various mediums such as face-to-face, email, telephonic, online, etc. Designing questionnaires for a survey is a detailed topic which will be covered in the next chapter. For now, we will explore the methods for conducting a survey.

* **Mail survey:** Mail surveys are convenient and maintain anonymity of the respondent. They are also relatively inexpensive. However the major drawback is that feedback cannot be obtained from the respondent.
* **Telephonic & Face-to-face survey:** There is little scope of error in these types of survey as the interviewer is available for assistance. However, while guiding, the interviewer may sometimes influence the respondent leading to biased answers.
* **Online:** Surveys carried out over the internet are gaining popularity these days as they can reach a wide audience. The downside is that without incentive, the respondent at the end may not be interested in taking up the survey or answering all questions seriously.
* **Hybrid:** A fusion of techniques can be used to record better responses. A commonly used hybrid method is Telephone-Mail-Telephone (TMT) wherein respondents are instructed over the phone and then sent the survey over mail to be filled at their convenience.

The choice of the above mediums depends on the budget, time and complexity. If budget is a constraint, mail surveys can be used. Online surveys are instant and hence should be deployed when there is a time crunch. When interaction is required, personal or telephonic surveys must be utilized.

### Concluding Remarks

We have seen in the sections above that in which situations the usage of quantitative research is preferable over qualitative research and vice versa. Ideally, if there are less budget constraints, we can use both types as they give variant perspectives and complement one another. Sometimes both have to be used in tandem as in case of Usage and Attitude Studies that we will see in the later chapters. Finally, a qualitative research will generate a more narrative report with a contingent account and direct quotations from the respondents. On the contrary, a quantitative research will produce a statistical report with correlations, significance, means, etc and hard facts.

# Types of Marketing Research and their Application

Research can be categorized either on the basis of technique (surveys, experiments, observation studies, etc) or on the basis of purpose. We will look at the techniques in the subsequent chapters. Now let us focus on the 3 methods of doing Marketing Research based on purpose:

1. **Exploratory**

As the name implies, exploratory research is the initial exploration done to get an idea and insights into the problem. Research is a relatively expensive process; exploratory research ensures that this process is not initiated without a thorough understanding of the problem. This study is qualitative (understanding the concept) rather than quantitative (providing precise measurement). Also, this type of research does not give conclusive evidence and subsequent research needs to be done.

Further, the following purposes justify the use of exploratory research:

* + **Diagnosing a Situation:** Sometimes, companies have a situation at hand, but do not know how to define it clearly. This prohibits action to be taken. One reason for using it is to identify the exact nature of the business problem, but exploratory research is limited only to this. Successive descriptive or experimental research needs to be carried out to craft the action plan.
  + **Screening Alternatives:** Consider a situation where there are several options, but budget restrictions do not allow implementation of all of them. Exploratory research helps choose the best alternatives in this case.
  + **Uncovering New Ideas:** Many a times, consumers do not know what they need which is especially true in case of technology. Prior to the invention of the first smart phone in the early nineties, an average person did not feel the need for it or understand how pervasive the device would become. Exploratory research is used in cases like this to induce new ideas.

A widely used method for executing exploratory research for this purpose is Concept Testing. Here, target consumers are introduced to an idea and asked how they feel about it, whether they are likely to use it, etc. It tests the likeability or acceptability of the new product before investing in its research and development.

1. **Descriptive**

This type of research is used when there is some comprehension of the problem, objectives are defined and the research questions are clearly formulated. Contrary to exploratory research, the proof descriptive research provides is used for formulating action plans. It helps answer the questions ‘when’, ‘who’, ‘what’, ‘how’ and ‘where’, but not ‘why’.

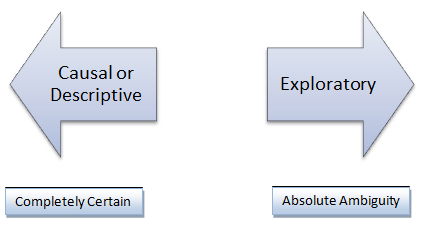
Descriptive research typically gives a detailed account of the characteristics or behaviour of a population. Hence the research work usually involves some element of consumer profiling and market segmentation.

1. **Experimental**

Experimental studies demonstrate cause and effect relationships. They try to decipher the outcome marketing actions might have. For example, it is used when the purpose is to determine the impact of increase in price on usage.

This research is used in succession to exploratory and descriptive research and hence sufficient knowledge is gained on the topic by then. Experimental research is also popularly known as causal research.

The extent of uncertainty also affects what type of method should be chosen. The more well defined the situation is, the more the research agency will move from exploratory to descriptive to experimental research.



**Degree of Problem Interpretation**

The following cases will further help understand the significance of each type of research:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Exploratory Research (Unaware of Problem)** | **Descriptive Research (Aware of Problem)** | **Causal Research (Clearly Defined Problem)** | | **Time of Study** | Initial Phase | Later phase of decision making | Later phase of decision making | | **Approach** | Unstructured | Structured | Highly Structured | | **Examples** | * Our sales are declining and we don’t know why * Would people be interested in our new product idea? | * What kinds of people are buying our product? Who is buying our competitor’s product? * What features do consumers prefer in our product? | * Will buyers purchase more of our products in a new package? * Which of two advertising campaigns is more effective? | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Exploratory Research (Unaware of Problem)** | **Descriptive Research (Aware of Problem)** | **Causal Research (Clearly Defined Problem)** | | **Time of Study** | Initial Phase | Later phase of decision making | Later phase of decision making | | **Approach** | Unstructured | Structured | Highly Structured | | **Examples** | * Our sales are declining and we don’t know why * Would people be interested in our new product idea? | * What kinds of people are buying our product? Who is buying our competitor’s product? * What features do consumers prefer in our product? | * Will buyers purchase more of our products in a new package? * Which of two advertising campaigns is more effective? | |

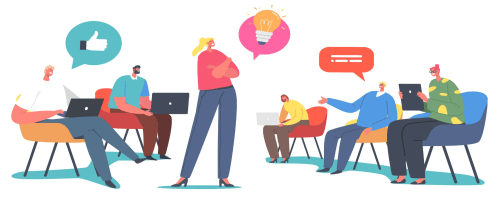
**Focus groups are also known as group interviews or group discussions**. They are used to understand the attitude or behaviour of the audience.

Six to twelve individuals are selected and either one or two moderators (those who lead the discussions) are selected. If there are two moderators, they will adopt opposite positions. It is the moderator who introduces the topic.

**Discussion is controlled through these moderators**. The group is watched from adjacent rooms. There are various devices which are used to record these discussions.

### Objectives of Focus Group

1. To gather primary information for research project;
2. To help developing questionnaires in terms of survey research;
3. To understand reason behind a particular phenomenon:
4. To see how people interpret certain phenomenon;
5. To test primarily ideas or plan



### Steps involved in conducting Focus group

1. Define the problem
2. Select a sample
3. Determine the number of groups necessary(minimum number should be two)
4. Prepare the study mechanics. Arrange the respondents place where the focus group is to be assembled.
5. Select moderators and brief them.
6. Prepare the focus group material.
7. Conduct the session.
8. Analyze the data and prepare summary report.

### Advantages of Focus Group

1. It is used to collect primary information and therefore it can conduct a pilot study also.
2. Relative cost is not much.
3. It can be conducted quickly.
4. It has flexibility.
5. Moderator can detect the opinion and certificates of those who cannot speak well by facial expression and other non verbal behaviour.
6. We can get the questionnaire filled up either before or after the discussion.

### Disadvantages of Focus Group

1. It is inappropriate for gathering quantitative data.
2. Self appointed group leader may impose his /her opinion on other members. Moderators can restrict people.
3. t depends heavily on skills of moderator.
4. Respondents in the focus group may or may not represent the population from which they are drawn.
5. Recording equipments are likely to restrict respondents. Location of recording equipment is very important.

# Depth Interview

They generally use small samples and also conduct direct one to one personal interviews. A detailed background is provided by the respondents and elaborate data concerning the respondents opinions, values, motivation, expression, feeling etc are obtained. Even their non-verbal expressions are observed. They take long time, therefore lengthy observations are involved.

These are conducted to customize individual responses. The questions will depend on what kind of answers are given. Even interview climate influences the respondents. The success of interviews depends on the rapport of the interviewers established with the respondents.

### Advantages of Depth Interview

1. Lot of detail is provided.
2. Information obtained is comparatively more accurate.
3. Personal or intimate topic can also be discussed since the personal rapport is established between the respondent and the interviewer

### Disadvantages of Depth Interview

1. It is difficult to generalize since the interviewers are non-standardized
2. Since the success depends on the interviewer, there are chances of bias.
3. Data analysis takes a lot of time.

# Case Study

Individual cases are taken and a detailed study of each case is done.

### Advantages of Case Study

1. Accurate data is provided
2. There is detailed analysis

### Disadvantages of Case Study

1. It is difficult to generalize.
2. It consumes lot of time.
3. Confidential and sensitive information may not be given.
4. Interviewer bias is there.

# Projective Techniques

**Projective Techniques** are indirect and unstructured methods of investigation which have been developed by the psychologists and use projection of respondents for inferring about underline motives, urges or intentions which cannot be secure through direct questioning as the respondent either resists to reveal them or is unable to figure out himself.

**These techniques are useful in giving respondents opportunities to express their attitudes without personal embarrassment**. These techniques helps the respondents to project his own attitude and feelings unconsciously on the subject under study. Thus Projective Techniques play a important role in motivational researches or in attitude surveys.

### Important Projective Techniques

1. Word Association Test.
2. Completion Test.
3. Construction Techniques.
4. Expression Techniques.
5. **Word Association Test:** An individual is given a clue or hint and asked to respond to the first thing that comes to mind. The association can take the shape of a picture or a word. There can be many interpretations of the same thing. A list of words is given and you don’t know in which word they are most interested. The interviewer records the responses which reveal the inner feeling of the respondents.

The frequency with which any word is given a response and the amount of time that elapses before the response is given are important for the researcher. For eg: Out of 50 respondents 20 people associate the word “ Fair” with “Complexion”.

1. **Completion Test:** In this the respondents are asked to complete an incomplete sentence or story. The completion will reflect their attitude and state of mind.
2. **Construction Test:** This is more or less like completion test. They can give you a picture and you are asked to write a story about it. The initial structure is limited and not detailed like the completion test. For eg: 2 cartoons are given and a dialogue is to written.
3. **Expression Techniques:** In this the people are asked to express the feeling or attitude of other people.

### Disadvantages of Projective Techniques

1. Highly trained interviewers and skilled interpreters are needed.
2. Interpreters bias can be there.
3. It is a costly method.
4. The respondent selected may not be representative of the entire population.

# Survey Method

The Survey method is the technique of gathering data by asking questions to people who are thought to have desired information. A formal list of questionnaire is prepared. Generally a non disguised approach is used. The respondents are asked questions on their demographic interest opinion.

### Advantages of Survey Method

1. As compared to other methods (direct observation, experimentation) survey yield a broader range of information. Surveys are effective to produce information on socio-economic characteristics, attitudes, opinions, motives etc and to gather information for planning product features, advertising media, sales promotion, channels of distribution and other marketing variables.
2. Questioning is usually faster and cheaper that Observation.
3. Questions are simple to administer.
4. Data is reliable
5. The variability of results is reduced.
6. It is relatively simple to analyze, quote and interrelate the data obtained by survey method

### Disadvantages of Survey Method

1. Unwillingness of respondents to provide information- This requires salesmanship on the part of the interviewer. The interviewer may assure that the information will be kept secret or apply the technique of offering some presents.
2. Inability of the respondents to provide information- This may be due to
   1. Lack of knowledge
   2. Lapse of memory
   3. Inability to identify their motives and provide “reasons why?” for their actions
3. Human Biases of the respondents are there, for eg: “Ego”
4. Symantec difficulties are there - it is difficult, if not impossible, to state a given question in such a way that it will mean exactly same thing to each respondent. Similarly two different wordings of the same question will frequently produce quite different results.

### How to overcome the limitations of Survey Method

1. Careful framing and phrasing of questions.
2. Careful control of data gathering by employing specially trained investigators who will observe carefully report on subtle reactions of persons interviewed
3. Cautious interpretations by a clear recognition of the limitations of the data and understating of what exactly the data represents. This is especially true of responses to questions like - “What price would you be willing to pay for this product?”
4. Looking at facts in relative rather than absolute terms. For eg - A survey by a dentist team showed that the number of families in the middle income group used toothpaste taken by itself in the absolute sense, the results of the survey are in some doubt. Even though the individual group readings shall differ say for eg: for upper income group families it could be 90 %. Hence we should look at the facts in relative rather than in absolute terms

# Techniques of Survey Method

There are mainly 4 methods by which we can collect data through the Survey Method

1. Telephonic Interview
2. Personal Interview
3. Mail Interview
4. Electronic Interview

## **Telephonic Interview**

Telephone Interviewing stands out as the best method for gathering quickly needed information. Responses are collected from the respondents by the researcher on telephone.

### Advantages of Telephonic Interview

* 1. It is very fast method of data collection.
  2. It has the advantage over “Mail Questionnaire” of permitting the interviewer to talk to one or more persons and to clarifying his questions if they are not understood.
  3. Response rate of telephone interviewing seems to be a little better than mail questionnaires
  4. The quality of information is better
  5. It is less costly method and there are less administration problems

### Disadvantages of Telephonic Interview

* 1. They cant handle interview which need props
  2. It cant handle unstructured interview
  3. It cant be used for those questions which requires long descriptive answers
  4. Respondents cannot be observed
  5. People are reluctant to disclose personal information on telephone
  6. People who don’t have telephone facility cannot be approached

## **Personal Interviewing**

It is the most versatile of the all methods. They are used when props are required along with the verbal response non-verbal responses can also be observed.

### Advantages of Personal Interview

* 1. The person interviewed can ask more questions and can supplement the interview with personal observation.
  2. They are more flexible. Order of questions can be changed
  3. Knowledge of past and future is possible.
  4. In-depth research is possible.
  5. Verification of data from other sources is possible.
  6. The information obtained is very reliable and dependable and helps in establishing cause and effect relationship very early.

### Disadvantages of Personal Interview

* 1. It requires much more technical and administrative planning and supervision
  2. It is more expensive
  3. It is time consuming
  4. The accuracy of data is influenced by the interviewer
  5. A number of call banks may be required
  6. Some people are not approachable

## **Mail Survey**

Questionnaires are send to the respondents, they fill it up and send it back.

### Advantages of Mail Survey

* 1. It can reach all types of people.
  2. Response rate can be improved by offering certain incentives.

### Disadvantages of Mail Survey

* 1. It can not be used for unstructured study.
  2. It is costly.
  3. It requires established mailing list.
  4. It is time consuming.
  5. There is problem in case of complex questions.

## **Electronic Interview**

Electronic interviewing is a process of recognizing and noting people, objects, occurances rather than asking for information. For example-When you go to store, you notice which product people like to use. The Universal Product Code (UPC) is also a method of observing what people are buying.

### Advantages of Electronic Interview

* 1. There is no relying on willingness or ability of respondent.
  2. The data is more accurate and objective.

### Disadvantages of Electronic Interview

* 1. Attitudes can not be observed.
  2. Those events which are of long duration can not be observed.
  3. There is observer bias. It is not purely objective.
  4. If the respondents know that they are being observed, their response can be biased.
  5. It is a costly method.

# Observation Method

The observation method involves human or mechanical observation of what people actually do or what events take place during a buying or consumption situation. “Information is collected by observing process at work. ”The following are a few situations:-

1. Service Stations-Pose as a customer, go to a service station and observe.
2. To evaluate the effectiveness of display of Dunlop Pillow Cushions-In a departmental store, observer notes:- a) How many pass by; b) How many stopped to look at the display; c) How many decide to buy.
3. Super Market-Which is the best location in the shelf? Hidden cameras are used.
4. To determine typical sales arrangement and find out sales enthusiasm shown by various salesmen-Normally this is done by an investigator using a concealed tape-recorder.

### Advantages of Observation Method

1. If the researcher observes and record events, it is not necessary to rely on the willingness and ability of respondents to report accurately.
2. The biasing effect of interviewers is either eliminated or reduced. Data collected by observation are, thus, more objective and generally more accurate.

### Disadvantages of Observation Method

1. The most limiting factor in the use of observation method is the inability to observe such things such as attitudes, motivations, customers/consumers state of mind, their buying motives and their images.
2. It also takes time for the investigator to wait for a particular action to take place.
3. Personal and intimate activities, such as watching television late at night, are more easily discussed with questionnaires than they are observed.
4. Cost is the final disadvantage of observation method. Under most circumstances, observational data are more expensive to obtain than other survey data. The observer has to wait doing nothing, between events to be observed. The unproductive time is an increased cost.

# Secondary Data

Secondary data is the data that have been already collected by and readily available from other sources. Such data are cheaper and more quickly obtainable than the primary data and also may be available when primary data can not be obtained at all.

### Advantages of Secondary data

1. It is economical. It saves efforts and expenses.
2. It is time saving.
3. It helps to make primary data collection more specific since with the help of secondary data, we are able to make out what are the gaps and deficiencies and what additional information needs to be collected.
4. It helps to improve the understanding of the problem.
5. It provides a basis for comparison for the data that is collected by the researcher.

### Disadvantages of Secondary Data

1. Secondary data is something that seldom fits in the framework of the marketing research factors. Reasons for its non-fitting are:-
   1. Unit of secondary data collection-Suppose you want information on disposable income, but the data is available on gross income. The information may not be same as we require.
   2. Class Boundaries may be different when units are same.

|  |  |
| --- | --- |
| **Before 5 Years** | **After 5 Years** |
| 2500-5000 | 5000-6000 |
| 5001-7500 | 6001-7000 |
| 7500-10000 | 7001-10000 |

* 1. Thus the data collected earlier is of no use to you.

1. Accuracy of secondary data is not known.
2. Data may be outdated.

### Evaluation of Secondary Data

Because of the above mentioned disadvantages of secondary data, we will lead to evaluation of secondary data. Evaluation means the following four requirements must be satisfied:-

1. **Availability-** It has to be seen that the kind of data you want is available or not. If it is not available then you have to go for primary data.
2. **Relevance-** It should be meeting the requirements of the problem. For this we have two criterion:-
   1. Units of measurement should be the same.
   2. Concepts used must be same and currency of data should not be outdated.
3. **Accuracy-** In order to find how accurate the data is, the following points must be considered: -
   1. Specification and methodology used;
   2. Margin of error should be examined;
   3. The dependability of the source must be seen.
4. **Sufficiency-** Adequate data should be available.

Robert W Joselyn has classified the above discussion into eight steps. These eight steps are sub classified into three categories. He has given a detailed procedure for evaluating secondary data.

1. Applicability of research objective.
2. Cost of acquisition.
3. Accuracy of data.

# Sources of Data

## **Sources of Primary Data**

The sources of generating primary data are:

1. [Observation Method](https://www.managementstudyguide.com/observation_method.htm)
2. [Survey Method](https://www.managementstudyguide.com/survey_method.htm)
3. Experimental Method

## **Experimental Method**

There are number of experimental designs that are used in carrying out and experiment. However, Market researchers have used 4 experimental designs most frequently. These are -

1. **CRD -** Completely Randomized Design
2. **RBD - Randomized Block Design -** The term Randomized Block Design has originated from agricultural research. In this design several treatments of variables are applied to different blocks of land to ascertain their effect on the yield of the crop. Blocks are formed in such a manner that each block contains as many plots as a number of treatments so that one plot from each is selected at random for each treatment. The production of each plot is measured after the treatment is given. These data are then interpreted and inferences are drawn by using the analysis of Variance Technique so as to know the effect of various treatments like different dozes of fertilizers, different types of irrigation etc.
3. **LSD - Latin Square Design -** A Latin square is one of the experimental designs which has a balanced two way classification scheme say for example - 4 X 4 arrangement. In this scheme each letter from A to D occurs only once in each row and also only once in each column. The balance arrangement, it may be noted that, will not get disturbed if any row gets changed with the other.

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **C** | **D** |
| **B** | **C** | **D** | **A** |
| **C** | **D** | **A** | **B** |
| **D** | **A** | **B** | **C** |

1. The balance arrangement achieved in a Latin Square is its main strength. In this design, the comparisons among treatments, will be free from both differences between rows and columns. Thus the magnitude of error will be smaller than any other design.
2. **FD - Factorial Designs -** This design allows the experimenter to test two or more variables simultaneously. It also measures interaction effects of the variables and analyzes the impacts of each of the variables.

In a true experiment, randomization is essential so that the experimenter can infer cause and effect without any bias.

## **Sources of Secondary Data**

While primary data can be collected through questionnaires, depth interview, focus group interviews, case studies, experimentation and observation; The secondary data can be obtained through

1. Internal Sources - These are within the organization
2. External Sources - These are outside the organization

## **Internal Sources of Data**

If available, internal secondary data may be obtained with less time, effort and money than the external secondary data. In addition, they may also be more pertinent to the situation at hand since they are from within the organization. The internal sources include

1. **Accounting resources-** This gives so much information which can be used by the marketing researcher. They give information about internal factors.
2. **Sales Force Report-** It gives information about the sale of a product. The information provided is of outside the organization.
3. **Internal Experts-** These are people who are heading the various departments. They can give an idea of how a particular thing is working
4. **Miscellaneous Reports-** These are what information you are getting from operational reports.

If the data available within the organization are unsuitable or inadequate, the marketer should extend the search to external secondary data sources.

## **External Sources of Data**

External Sources are sources which are outside the company in a larger environment. Collection of external data is more difficult because the data have much greater variety and the sources are much more numerous.

External data can be divided into following classes.

1. **Government Publications-** Government sources provide an extremely rich pool of data for the researchers. In addition, many of these data are available free of cost on internet websites. There are number of government agencies generating data. These are:
   1. **Registrar General of India-** It is an office which generate demographic data. It includes details of gender, age, occupation etc.
   2. **Central Statistical Organization-** This organization publishes the national accounts statistics. It contains estimates of national income for several years, growth rate, and rate of major economic activities. Annual survey of Industries is also published by the CSO. It gives information about the total number of workers employed, production units, material used and value added by the manufacturer.
   3. **Director General of Commercial Intelligence-** This office operates from Kolkata. It gives information about foreign trade i.e. import and export. These figures are provided region-wise and country-wise.
   4. **Ministry of Commerce and Industries-** This ministry through the office of economic advisor provides information on wholesale price index. These indices may be related to a number of sectors like food, fuel, power, food grains etc. It also generates All India Consumer Price Index numbers for industrial workers, urban, non manual employees and cultural labourers.
   5. **Planning Commission-** It provides the basic statistics of Indian Economy.
   6. **Reserve Bank of India-** This provides information on Banking Savings and investment. RBI also prepares currency and finance reports.
   7. **Labour Bureau-** It provides information on skilled, unskilled, white collared jobs etc.
   8. **National Sample Survey-** This is done by the Ministry of Planning and it provides social, economic, demographic, industrial and agricultural statistics.
   9. **Department of Economic Affairs-** It conducts economic survey and it also generates information on income, consumption, expenditure, investment, savings and foreign trade.
   10. **State Statistical Abstract-** This gives information on various types of activities related to the state like - commercial activities, education, occupation etc.
2. **Non Government Publications-** These includes publications of various industrial and trade associations, such as
   1. The Indian Cotton Mill Association
   2. Various chambers of commerce
   3. The Bombay Stock Exchange (it publishes a directory containing financial accounts, key profitability and other relevant matter)
   4. Various Associations of Press Media.
   5. Export Promotion Council.
   6. Confederation of Indian Industries ( CII )
   7. Small Industries Development Board of India
   8. Different Mills like - Woolen mills, Textile mills etc

The only disadvantage of the above sources is that the data may be biased. They are likely to colour their negative points.

1. **Syndicate Services-** These services are provided by certain organizations which collect and tabulate the marketing information on a regular basis for a number of clients who are the subscribers to these services. So the services are designed in such a way that the information suits the subscriber. These services are useful in television viewing, movement of consumer goods etc. These syndicate services provide information data from both household as well as institution.

In collecting data from household they use three approaches

* 1. **Survey-** They conduct surveys regarding - lifestyle, sociographic, general topics.
  2. **Mail Diary Panel-** It may be related to 2 fields - Purchase and Media.
  3. **Electronic Scanner Services-** These are used to generate data on volume.

They collect data for Institutions from

* 1. Whole sellers
  2. Retailers, and
  3. Industrial Firms

Various syndicate services are Operations Research Group (ORG) and The Indian Marketing Research Bureau (IMRB).

### Importance of Syndicate Services

Syndicate services are becoming popular since the constraints of decision making are changing and we need more of specific decision-making in the light of changing environment. Also Syndicate services are able to provide information to the industries at a low unit cost.

### Disadvantages of Syndicate Services

The information provided is not exclusive. A number of research agencies provide customized services which suits the requirement of each individual organization.

1. **International Organization-** These includes
   1. **The International Labour Organization (ILO)-** It publishes data on the total and active population, employment, unemployment, wages and consumer prices
   2. **The Organization for Economic Co-operation and development (OECD)-** It publishes data on foreign trade, industry, food, transport, and science and technology.
   3. **The International Monetary Fund (IMA)-** It publishes reports on national and international foreign exchange regulations.

# What is Big Data and its Importance to Businesses as a Game Changer

### What is Big Data?

If marketers had all the data about consumers that they can then use to predict consumer behavior, which would be the marketers dream come true. Until now, marketers had enough data about consumers that they then modeled to arrive at probable consumer behavior decisions. This data culled from marketing research was adequate until now when the extrapolation of the trends could translate into predictions of consumer behavior.

However, in recent years, marketers are going one-step ahead and instead of extrapolating data to predict consumer behavior, they are now turning to Big Data or data about virtually all aspects of consumers that would help them in predictive analytics or the art and science of accurately mapping consumer behavior.

In other words, **Big Data is all about how marketers collect everything possible about consumer behavior** and predict not only consumer behavior but predict what they are doing and how they would behave in future. For instance, **Big Data provides marketers with the ability to identify the state of the consumers as can be seen in the recent prediction by the retailer giant, Target, about a woman being pregnant based on her consumer buying data**.

### Big Data can be a Game Changer for Marketers

This is the promise of Big Data that goes beyond merely extrapolating trends, instead, identifies, and predicts the next move of the consumer based on his or her current state. This would be like getting inside the minds of the consumers and instead of merely knowing what they would probably purchase, marketers would know with accuracy about what consumers are likely to do in the future.

The term Big Data has been coined because it gives marketers the bigger picture and at the same time lets, they model consumer behavior at the micro level. The integration of the macro data and the micro trends gives marketers’ unparalleled access to data, which can then be used to accurately predict consumer behavior.

The collection of Big Data is done not only from the consumer buying behavior but also from mining all the available data in the public and private domains to arrive at a comprehensive picture of what the consumers think and how they act.

The promise of Big Data is boundless for marketers who can now think ahead of the consumers instead of the other way around as well as preempt possible consumer behavior by targeting products aimed at the future actions of the consumers.

### Big Data can be misused as well

Of course, the promise of Big Data also comes with its perils as the tendency to be the master of consumer behavior can lead to serious issues with privacy and security of the data available with the marketers.

The example of Target predicting whether the woman was pregnant or not based on her shopping habits was received with both enthusiasm as well as alarm. The enthusiasm was from the marketers whereas the alarm was from the activists and experts who deal with privacy and security of data.

The point here is that Big Data places enormous responsibilities on marketers and hence, they have to be very careful about the data that they hold and the prediction models and simulation that they run.

If they chose to predict whether someone is going to do something next based on the results from the model, this prediction can also be used for unwelcome purposes and as can be seen in the recent revelations about tracking and surveillance, the data can be compromised or used to target innocent consumers. This is the reason why many experts are guarded as far as Big Data is concerned and they are waiting for the marketers and the regulators to frame rules and policies on how Big Data can be used in practice.

### Concluding Remarks

Finally, it must be mentioned that whichever stance one might have about Big Data, the potential uses of it for predicting the outbreaks of diseases and controlling crime are indeed boons to the regulators and the law enforcement agencies and therefore, it would be better for all stakeholders to decide on the kind of purposes for which Big Data can be used.

# Big Data and the Power to Predict

### Is Big Data a Magic?

We often hear the term Big Data being used to describe how online retailers as well as mega corporations are targeting the consumer behavior by having the power to predict, sense, and intuit future consumer decisions. Indeed, Big Data is talked about in hushed tones with a sense of awe and reverence about its capabilities wherein companies have so much power over consumers that they can actually “predict” what the consumers do next.

So, is Big Data some kind of magic wand in the hands of companies as they ramp up their efforts to keep one step ahead of their consumers? Or, is it just technology being used to the fullest and the most efficient manner wherein computers driven by algorithms dictate what he consumers do next? The answer is something of a combination of these two aspects wherein **Big Data offers companies both predictive and intuitive capabilities** that are indeed magical in nature and use technology to the fullest.

### What is Big Data?

Simply put, Big Data uses large datasets of consumer data that cannot be ordinarily handled by traditional computing methods. Thus, **Big Data uses complex algorithms to analyze consumer data to make predictions about what consumers would do next**.

For instance, you might have shopped online and browsed through some products as well as left your age, gender, occupation, location, and other details on the site.

Next, you might have expressed interest in some products and must have generally perused the contents of the site while shopping. Using this information as the base and feeding it to advanced computers powered by algorithms, the retailer or the online portal can then deduce what your next visit might likely result in.

In other words, using the data that you have supplied as well as the “*online footprint*” that you have left behind, the portal is in a position to determine what your likely preferences are and what you might do next. This means that the retailer can actually know you better than you know yourselves.

### How Big Data Works

Further, Big Data also uses information that is correlated with your overall online behavior and specific trails that you leave behind in the portals.

In other words, Big Data gathers all relevant and pertinent information about you from multiple sources collates and compares the information from all these sources, using past data to predict your next moves, and in addition, by using large datasets that are comprehensive and complex, can intuit, and sense what you do next.

All these capabilities are possible only with large datasets and this is the reason why it is called Big Data since conventional datasets cannot handle such large amounts of data. Moreover, using artificial intelligence and complex algorithms, Big Data can indeed be a game changer for businesses which need to “suggest” and “offer” probable and possible products to buy for consumers.

### The Power to Predict and Know Consumers Better than they Know Themselves

This means that companies can actually “sense” what their consumers do next and thus have an advantage over their competitors. For instance, Amazon which is the world’s leading online retailer is supposed to be the market leader in using Big Data. If you have ever shopped on Amazon, you would know how it suggests products that you can buy based on your past preferences and shopping behavior.



Indeed, some experts believe that Amazon actually “leads” consumers to buy products rather than the consumers deciding on what to buy thus ensuring that it weaves “magic” on its consumers. This is the reason why we mentioned in the introduction that Big Data is like a magic wand in combination with an intelligent system of predicting consumer behavior.

Taken together, **the combination of Big Data and Artificial Intelligence have indeed revolutionized the way in which marketers target consumers** and ensure that they are at the leading edge of the wave when it comes to predicting consumer behavior.

### Some Concerns over Big Data

However, there are some consumer rights advocates who point to the “pervasive” and “all encompassing” influence of these technologies as retailers and online portals wield extraordinary power over their consumers. Indeed, already there have been many petitions against excessive data gathering and data manipulation as these activists feel that retailers are “delving” into the minds of consumers and hence, are actually invading their privacy and sanctity of their personal space.

Moreover, the contention that **shopping must be an experience that consumers should drive instead of the companies driving and deciding for them** has been another concern that has been expressed in recent times. This usually is countered by the assertion that even in the days without computers, the shopkeepers used to suggest products based on their personal relationships with the consumers and hence, Big Data is just an evolutionary step in the journey of the relationship between marketers and consumers.

### Conclusion

Whatever might be one’s point of view, it is undeniable that Big Data has indeed transformed the market landscape and placed extraordinary opportunities for retailers.

Indeed, **who would not like to know what consumers do next and then roll out products accordingly** as well as design and shape the consumer shopping experience in a manner that would increase profits for the companies? Moreover, who would like to pass up the chance to know consumers better than they know themselves and thus have the chance to “play god” with consumer behavior. As long as such use and manipulation of data does not cause harm to either party, our view on Big Data is that it can be used with adequate safeguards and protections for the consumers.

# Attitude Scales - Rating Scales to measure data

## **Scaling Techniques for Measuring Data Gathered from Respondents**

The term scaling is applied to the attempts to **measure the attitude** objectively. Attitude is a resultant of number of external and internal factors.

Depending upon the attitude to be measured, appropriate scales are designed.

Scaling is a technique used for **measuring qualitative responses** of respondents such as those related to their feelings, perception, likes, dislikes, interests and preferences.

## **Types of Scales**

### Most frequently used Scales

1. [Nominal Scale](https://www.managementstudyguide.com/attitude-scales.htm#nominalscale)
2. [Ordinal Scale](https://www.managementstudyguide.com/attitude-scales.htm#ordinalscale)
3. [Interval Scale](https://www.managementstudyguide.com/attitude-scales.htm#intervalscale)
4. [Ratio Scale](https://www.managementstudyguide.com/attitude-scales.htm#ratioscale)

### Self Rating Scales

1. [Graphic Rating Scale](https://www.managementstudyguide.com/attitude-scales.htm#graphicratingscale)
2. [Itemized Rating Scales](https://www.managementstudyguide.com/attitude-scales.htm#itemizedratingscales)
   1. [Likert Scale](https://www.managementstudyguide.com/attitude-scales.htm#likertscale)
   2. [Semantic Differential Scale](https://www.managementstudyguide.com/attitude-scales.htm#semanticdifferentialscale)
   3. [Stapel’s Scale](https://www.managementstudyguide.com/attitude-scales.htm#stapelsscale)
   4. [Multi Dimensional Scaling](https://www.managementstudyguide.com/attitude-scales.htm#multidimensionalscaling)
   5. [Thurston Scales](https://www.managementstudyguide.com/attitude-scales.htm#thurstonscales)
   6. [Guttman Scales/Scalogram Analysis](https://www.managementstudyguide.com/attitude-scales.htm#guttmanscalesscalogramanalysis)
   7. [The Q Sort technique](https://www.managementstudyguide.com/attitude-scales.htm#theqsorttechnique)

Four types of scales are generally used for [Marketing Research](https://www.managementstudyguide.com/marketing_research.htm).

### Nominal Scale

This is a very simple scale. It consists of assignment of facts/choices to various alternative categories which are usually exhaustive as well mutually exclusive.

These scales are just numerical and are the least restrictive of all the scales. Instances of Nominal Scale are - *credit card numbers, bank account numbers, employee id numbers* etc. It is simple and widely used when relationship between two variables is to be studied.

In a Nominal Scale numbers are no more than labels and are used specifically to identify different categories of responses. Following example illustrates -

What is your gender?  
**[  ]** Male  
**[  ]** Female

Another example is - a survey of retail stores done on two dimensions - way of maintaining stocks and daily turnover.

How do you stock items at present?  
**[  ]** By product category  
**[  ]** At a centralized store  
**[  ]** Department wise  
**[  ]** Single warehouse

Daily turnover of consumer is?  
**[  ]** Between 100 – 200  
**[  ]** Between 200 – 300  
**[  ]** Above 300

A two way classification can be made as follows

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Daily/Stock Turnover Method** | **Product Category** | **Department wise** | **Centralized Store** | **Single Warehouse** |
| 100 – 200 |  |  |  |  |
| 200 – 300 |  |  |  |  |
| Above 300 |  |  |  |  |

*Mode* is frequently used for response category.

### Ordinal Scale

Ordinal scales are the simplest attitude measuring scale used in [Marketing Research](https://www.managementstudyguide.com/marketing_research.htm). It is more powerful than a nominal scale in that the numbers possess the property of rank order. The ranking of certain product attributes/benefits as deemed important by the respondents is obtained through the scale.

**Example 1:** Rank the following attributes (1 - 5), on their importance in a microwave oven.

* 1. Company Name
  2. Functions
  3. Price
  4. Comfort
  5. Design

The most important attribute is ranked 1 by the respondents and the least important is ranked 5. Instead of numbers, letters or symbols too can be used to rate in a ordinal scale. Such scale makes no attempt to measure the degree of favourability of different rankings.

**Example 2** - If there are 4 different types of fertilizers and if they are ordered on the basis of quality as Grade A, Grade B, Grade C, Grade D is again an Ordinal Scale.

**Example 3** - If there are 5 different brands of Talcom Powder and if a respondent ranks them based on say, “Freshness” into Rank 1 having maximum Freshness Rank 2 the second maximum Freshness, and so on, an Ordinal Scale results.

*Median* and *mode* are meaningful for ordinal scale.

### Interval Scale

Herein the distance between the various categories unlike in Nominal, or numbers unlike in Ordinal, are equal in case of Interval Scales. The Interval Scales are also termed as Rating Scales. An Interval Scale has an arbitrary Zero point with further numbers placed at equal intervals. A very good example of Interval Scale is a Thermometer.

**Illustration 1** - How do you rate your present refrigerator for the following qualities.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company Name** | Less Known | 1 | 2 | 3 | 4 | 5 | Well Known |
| **Functions** | Few | 1 | 2 | 3 | 4 | 5 | Many |
| **Price** | Low | 1 | 2 | 3 | 4 | 5 | High |
| **Design** | Poor | 1 | 2 | 3 | 4 | 5 | Good |
| **Overall Satisfaction** | Very Dis-Satisfied | 1 | 2 | 3 | 4 | 5 | Very Satisfied |

Such a scale permits the researcher to say that position 5 on the scale is above position 4 and also the distance from 5 to 4 is same as distance from 4 to 3. Such a scale however does not permit conclusion that position 4 is twice as strong as position 2 because no zero position has been established. The data obtained from the Interval Scale can be used to calculate the Mean scores of each attributes over all respondents. The Standard Deviation (a measure of dispersion) can also be calculated.

### Ratio Scale

Ratio Scales are not widely used in [Marketing Research](https://www.managementstudyguide.com/marketing_research.htm) unless a base item is made available for comparison. In the above example of Interval scale, a score of 4 in one quality does not necessarily mean that the respondent is twice more satisfied than the respondent who marks 2 on the scale.

A Ratio scale has a natural zero point and further numbers are placed at equally appearing intervals. For example scales for measuring physical quantities like - length, weight, etc.

The ratio scales are very common in physical scenarios. Quantified responses forming a ratio scale analytically are the most versatile. Ratio scale possess all he characteristics of an internal scale, and the ratios of the numbers on these scales have meaningful interpretations.

Data on certain demographic or descriptive attributes, if they are obtained through open-ended questions, will have ratio-scale properties. Consider the following questions :

Q 1) What is your annual income before taxes? \_\_\_\_\_\_ $  
Q 2) How far is the Theater from your home ? \_\_\_\_\_\_ miles

Answers to these questions have a natural, unambiguous starting point, namely zero. Since starting point is not chosen arbitrarily, computing and interpreting ratio makes sense. For example we can say that a respondent with an annual income of $ 40,000 earns twice as much as one with an annual income of $ 20,000.

## **Self Rating Scales**

### Graphic Rating Scale

The respondents rate the objects by placing a mark at the appropriate position on a line that runs from one extreme of the criterion variable to another. Example

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 0 (poor quality) | 1 (bad quality) | 5 (neither good nor bad) | 7 (good quality) |

**BRAND 1**

This is also known as continuous rating scale. The customer can occupy any position. Here one attribute is taken ex-quality of any brand of icecream.

|  |  |
| --- | --- |
|  | |
| poor | good |

**BRAND 2**

This line can be vertical or horizontal and scale points may be provided. No other indication is there on the continuous scale. A range is provided.

To quantify the responses to question that “indicate your overall opinion about ice-ream Brand 2 by placing a tick mark at appropriate position on the line”, we measure the physical distance between the left extreme position and the response position on the line.; the greater the distance, the more favourable is the response or attitude towards the brand.

Its limitation is that coding and analysis will require substantial amount of time, since we first have to measure the physical distances on the scale for each respondent.

### Itemized Rating Scales

These scales are different from continuous rating scales. They have a number of brief descriptions associated with each category. They are widely used in [Marketing Research](https://www.managementstudyguide.com/marketing_research.htm). They essentially take the form of the multiple category questions. The most common are - Likert, Sementic, Staple and Multiple Dimension. Others are - Thurston and Guttman.

### Likert Scale

It was developed Rensis Likert. Here the respondents are asked to indicate a degree of agreement and disagreement with each of a series of statement. Each scale item has 5 response categories ranging from strongly agree and strongly disagree.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5 Strongly agree | 4 Agree | 3 Indifferent | 2 Disagree | 1 Strongly disagree |

Each statement is assigned a numerical score ranging from 1 to 5. It can also be scaled as -2 to +2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| -2 | -1 | 0 | 1 | 2 |

For example quality of Mother Diary ice-cream is poor then Not Good is a negative statement and Strongly Agree with this means the quality is not good.

Each degree of agreement is given a numerical score and the respondents total score is computed by summing these scores. This total score of respondent reveals the particular opinion of a person.

Likert Scale are of ordinal type, they enable one to rank attitudes, but not to measure the difference between attitudes. They take about the same amount of efforts to create as Thurston scale and are considered more discriminating and reliable because of the larger range of responses typically given in Likert scale.

A typical Likert scale has 20 - 30 statements. While designing a good Likert Scale, first a large pool of statements relevant to the measurement of attitude has to be generated and then from the pool statements, the statements which are vague and non-discriminating have to be eliminated.

Thus, likert scale is a five point scale ranging from ’strongly agreement’to ’strongly disagreement’. No judging gap is involved in this method.

### Semantic Differential Scale

This is a seven point scale and the end points of the scale are associated with bipolar labels.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 Unpleasant Submissive | 2 | 3 | 4 | 5 | 6 | 7 Pleasant Dominant |

Suppose we want to know personality of a particular person. We have options-

* + 1. Unpleasant/Submissive
    2. Pleasant/Dominant

Bi-polar means two opposite streams. Individual can score between 1 to 7 or -3 to 3. On the basis of these responses profiles are made. We can analyse for two or three products and by joining these profiles we get profile analysis. It could take any shape depending on the number of variables.

Profile Analysis  
  
---------------/---------------  
----------/--------------------  
--------/----------------------

*Mean* and *median* are used for comparison. This scale helps to determine overall similarities and differences among objects.

When Semantic Differential Scale is used to develop an image profile, it provides a good basis for comparing images of two or more items. The big advantage of this scale is its simplicity, while producing results compared with those of the more complex scaling methods. The method is easy and fast to administer, but it is also sensitive to small differences in attitude, highly versatile, reliable and generally valid.

### Stapel’s Scale

It was developed by Jan Stapel. This scale has some distinctive features:-

* + 1. Each item has only one word/phrase indicating the dimension it represents.
    2. Each item has ten response categories.
    3. Each item has an even number of categories.
    4. The response categories have numerical labels but no verbal labels.

For example, in the following items, suppose for quality of ice cream, we ask respondents to rank from +5 to -5. Select a plus number for words which best describe the ice cream accurately. Select a minus number for words you think do not describe the ice cream quality accurately. Thus, we can select any number from +5,for words we think are very accurate, to -5,for words we think are very inaccurate. This scale is usually presented vertically.

+5  
+4  
+3  
+2  
+1  
High Quality  
-1  
-2  
-3  
-4  
-5

This is a unipolar rating scale.

### Multi Dimensional Scaling

It consists of a group of analytical techniques which are used to study consumer attitudes related to perceptions and preferences. It is used to study-

* + 1. The major attributes of a given class of products perceivedby the consumers in considering the product and by which they compare the different ranks.
    2. To study which brand competes most directly with each other.
    3. To find out whether the consumers would like a new brand with a combination of characteristics not found in the market.
    4. What would be the consumers ideal combination of product attributes.
    5. What sales and advertising messages are compatible with consumers brand perceptions.

**It is a computer based technique**. The respondents are asked to place the various brands into different groups like similar, very similar, not similar, and so on. A goodness of fit is traded off on a large number of attributes. Then a lack of fit index is calculated by computer program. The purpose is to find a reasonably small number of dimensions which will eliminate most of the stress.

After the configuration for the consumer’s preference has been developed, the next step is to determine the preference with regards to the product under study. These techniques attempt to identify the product attributes that are important to consumers and to measure their relative importance.

This scaling involves a unrealistic assumption that a consumer who compares different brands would perceive the differences on the basis of only one attribute. For example, what are the attributes for joining M.Com course. The responses may be - To Do PG, To Go into teaching line, To Get Knowledge, Appearing in the NET.

There are a number of attributes, you can not base decision on one attribute only. Therefore, when the consumers are choosing between brands, they base their decision on various attributes. In practice, the perceptions of the consumers involve different attributes and any one consumer perceives each brand as a composite of a number of different attributes. This is a shortcoming of this scale.

Whenever we choose from a number of alternatives, go for multi-dimensional scaling. There are many possible uses of such scaling like in market segmentation, product life cycle, vendor evaluations and advertising media selection.

The limitation of this scale is that it is difficult to clearly define the concept of similarities and preferences. Further the distances between the items are seen as different

### Thurston Scales

**These are also known as equal appearing interval scales**. They are used to measure the attitude towards a given concept or construct. For this purpose a large number of statements are collected that relate to the concept or construct being measured.

*The judges rate these statements along an 11 category scale in which each category expresses a different degree of favourableness towards the concept*. The items are then ranked according to the mean or median ratings assigned by the judges and are used to construct questionnaire of twenty to thirty items that are chosen more or less evenly across the range of ratings.

The statements are worded in such a way so that a person can agree or disagree with them. The scale is then administered to assemble of respondents whose scores are determined by computing the mean or median value of the items agreed with. A person who disagrees with all the items has a score of zero. So, the advantage of this scale is that it is an interval measurement scale. But it is the time consuming method and labour intensive. They are commonly used in psychology and education research.

### Guttman Scales/Scalogram Analysis

It is based on the idea that items can be arranged along a continuem in such a way that a person who agrees with an item or finds an item acceptable will also agree with or find acceptable all other items expressing a less extreme position. For example - Children should not be allowed to watch indecent programmes or government should ban these programmes or they are not allowed to air on the television. They all are related to one aspect.

In this scale each score represents a unique set of responses and therefore the total score of every individual is obtained. This scale takes a lot of time and effort in development.

They are very commonly used in political science, anthropology, public opinion, research and psychology.

### The Q Sort technique

It is used to discriminate among large number of objects quickly. It uses a rank order procedure and the objects are sorted into piles based on similarity with respect to some criteria. The number of objects to be sorted should be between 60-140 approximately. For example, here we are taking nine brands. On the basis of taste we classify the brands into tasty, moderate and non tasty.

We can classify on the basis of price also-Low, medium, high. Then we can attain the perception of people that whether they prefer low priced brand, high or moderate. We can classify sixty brands or pile it into three piles. So the number of objects is to be placed in three piles-low, medium or high.

Thus, the **Q-sort technique is an attempt to classify subjects in terms of their similarity** to attribute under study.

# Questionnaire Design - Guidelines on how to design a good questionnaire

A good questionnaire should not be too lengthy. Simple English should be used and the question shouldn’t be difficult to answer. A good questionnaire requires sensible language, editing, assessment, and redrafting.

### Questionnaire Design Process

1. **State the information required-** This will depend upon the nature of the problem, the purpose of the study and hypothesis framed. The target audience must be concentrated on.
2. **State the kind of interviewing technique-** interviewing method can be telephone, mails, personal interview or electronic interview. Telephonic interview can be computer assisted. Personal interview can be conducted at respondent’s place or at mall or shopping place. Mail interview can take the form of mail panel. Electronic interview takes place either through electronic mails or through the internet.
3. **Decide the matter/content of individual questions-** There are two deciding factors for this-
   1. Is the question significant? - Observe contribution of each question. Does the question contribute for the objective of the study?
   2. Is there a need for several questions or a single question? - Several questions are asked in the following cases:
      * When there is a need for cross-checking
      * When the answers are ambiguous
      * When people are hesitant to give correct information.



1. **Overcome the respondents’ inability and unwillingness to answer-** The respondents may be unable to answer the questions because of following reasons-
   1. The respondent may not be fully informed
   2. The respondent may not remember
   3. He may be unable to express or articulate

The respondent may be unwilling to answer due to-

* 1. There may be sensitive information which may cause embarrassment or harm the respondent’s image.
  2. The respondent may not be familiar with the genuine purpose
  3. The question may appear to be irrelevant to the respondent
  4. The respondent will not be willing to reveal traits like aggressiveness (For instance - if he is asked “Do you hit your wife, sister”, etc.)

To overcome the respondent’s unwillingness to answer:

* 1. Place the sensitive topics at the end of the questionnaire
  2. Preface the question with a statement
  3. Use the third person technique (For example - Mark needed a job badly and he used wrong means to get it - Is it right?? Different people will have different opinions depending upon the situation)
  4. Categorize the responses rather than asking a specific response figure (For example - Group for income levels 0-25000, 25000-50000, 50000 and above)

1. **Decide on the structure of the question-** Questions can be of two types:
   1. **Structured questions-** These specify the set of response alternatives and the response format. These can be classified into multiple choice questions (having various response categories), dichotomous questions (having only 2 response categories such as “Yes” or “No”) and scales (discussed already).
   2. **Unstructured questions-** These are also known as open-ended question. No alternatives are suggested and the respondents are free to answer these questions in any way they like.
2. **Determine the question language/phrasing-** If the questions are poorly worded, then either the respondents will refuse to answer the question or they may give incorrect answers. Thus, the words of the question should be carefully chosen. Ordinary and unambiguous words should be used. Avoid implicit assumptions, generalizations and implicit alternatives. Avoid biased questions. Define the issue in terms of who the questionnaire is being addressed to, what information is required, when is the information required, why the question is being asked, etc.
3. **Properly arrange the questions-** To determine the order of the question, take decisions on aspects like opening questions (simple, interesting questions should be used as opening questions to gain co-operation and confidence of respondents), type of information (Basic information relates to the research issue, classification information relates to social and demographic characteristics, and identification information relates to personal information such as name, address, contact number of respondents), difficult questions (complex, embarrassing, dull and sensitive questions could be difficult), effect on subsequent questions, logical sequence, etc.
4. **Recognize the form and layout of the questionnaire-** This is very essential for self-administered questionnaire. The questions should be numbered and pre-coded. The layout should be such that it appears to be neat and orderly, and not clattered.
5. **Reproduce the questionnaire-** Paper quality should be good. Questionnaire should appear to be professional. The required space for the answers to the question should be sufficient. The font type and size should be appropriate. Vertical response questions should be used, for example:

Do you use brand X of shampoo ?

* 1. Yes
  2. No

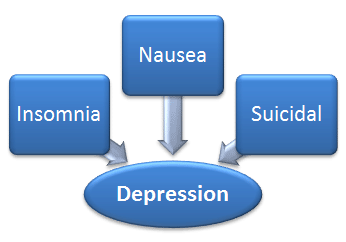
1. **Pre-test the questionnaire-** The questionnaire should be pre-tested on a small number of respondents to identify the likely problems and to eliminate them. Each and every dimension of the questionnaire should be pre-tested. The sample respondents should be similar to the target respondents of the survey.
2. **Finalize the questionnaire-** Check the final draft questionnaire. Ask yourself how much will the information obtained from each question contribute to the study. Make sure that irrelevant questions are not asked. Obtain feedback of the respondents on the questionnaire.

# Statistical Tools and their Usage - Factor Analysis

Factor Analysis is a data reduction technique. **Given a large number of attributes, factor analysis identifies a few underlying dimensions by grouping the attributes based on the correlation between the attributes**. For example, price of a product, the cost after sales service, and maintenance expense can be identified as a part of single dimension: Total Cost

### Diagrammatic Representation

Attributes such as Insomnia, Nausea and Suicidal Tendency can be collectively described by a single term: Depression. Here three variables/attributes have been represented by a single factor.



### Implementations of Factor Analysis

Factor analysis is usually more meaningful when it is followed by subsequent procedures such as clustering. Following are some of the applications of this method:

* **Recognition of underlying factors:** Bundles homogenous variables into new sets (i.e. factors)
* **Screening variables:** Factor analysis associates one variable as a representation of several other similar variables which is further useful for regression analysis.
* **Cluster analysis:** Helps couple objects into categories contingent on their factor scores.

### Factoring in Marketing Research

While factor analysis is used in several fields such as psychometrics, psychology, physical sciences, etc, we will focus on the topic relevant in this module: marketing research. The procedure for utilizing factor analysis in a typical marketing research study is as follows:

* Enlist all the attributes consumers might consider while buying a product or category.
* Collect responses from consumers through quantitative data collection techniques such as surveys on the basis of these attributes.
* Feed in the collected data in a statistical program to come up with fewer factors that are a representation of all the important attributes enlisted above. SPSS is the most commonly deployed software for factor analysis.
* Further utilize these factors for building perceptual maps, product positioning, regression, clustering, etc as per the purpose of the study.

**Industry examples requiring usage of this tool**

* Consumers rate a product on 20 different attributes. What are basic dimensions underlying these 20 attributes?
* Customers rate the importance of different attributes for a service. Can we identify the underlying dimensions of service?

### Factor Analysis Assumptions

For this method to be valid, certain assumptions must hold true:

* **No outliers in the data set:** This means that no extreme data should be present in the data set. For example, consider the following values: 1, 5, 8,-4, 23, and 1246783. The latter is an outlier that overwhelms the remaining data.
* **Adequate sample size:** This simply implies that there must be more variables that factors. This is intuitive because 3 variables cannot produce 4 factors. Also, each variable must have more data values than the number of factors.
* The data sets must possess no perfect multicollinearity

|  |  |  |
| --- | --- | --- |
| **Var1** | **Var2** | **Var3** |
| 1 | 2 | 3 |
| 2 | 4 | 6 |
| 3 | 6 | 9 |
| 4 | 8 | 12 |

* Each variable must be unique. Var2 and Var3 can be reduced to Var1 by dividing them by numbers 2 and 3 respectively. Since they are basically the same data sets, they cannot be used for forming factors.

# Conjoint Analysis - Meaning, Usage and its Limitations

### Introduction

During the sixties, when researchers tried to understand consumers’ decision making process, they used a simple questionnaire or a form.

Respondents would generally answer what was on the top of their minds or what they assumed the researcher wanted to hear. However, this did not always correspond to their actual purchase decisions.

For example, consider a questionnaire designed to understand consumers’ perceptions of the most desirable smart phone features.

On a scale of 1 – 10 where 1 is least important and 10 is most important, rate:

* The hardware configuration of the device
* Operation System and its version
* Price of the phone
* Brand

The survey data would usually reveal that all features are extremely important and the user would want all the features at the lowest cost. Such a discovery is not actionable and hence not usable. Users cannot have more of all features that are attractive and less of all features that are not desirable. Instead, they must compromise of few characteristics to get more of the others. This method wherein **various characteristics are considered jointly to make a purchase is known as conjoint analysis**. It enables market researches to anticipate purchases with more certainty.

### Breakdown of the product or service

Conjoint analysis is also popularly called trade off analysis as buyers have to let go of certain product features that they consider lucrative to make a more practical purchase. For example a large number of people planning to buy a new smart phone might think that however much they want an iPhone 6, they will have to be content with a less expensive phone.

Thus we see that consumers are put in a situation where they are forced to evaluate the merit of the phone attributes such as configuration, OS, price, brand, etc. Thus, broadly conjoint analysis checks the compromises users make while selecting products or services.

### Operational Development

The process of conjoint analysis is described in a simplified manner in the following steps:

1. Recognizing the product attributes: configuration, brand, price, etc in the above case.
2. Selecting the importance degree of these attributes.
3. Creating virtual products by fusing several degrees of these attributes.
4. Collecting responses through a survey.
5. Analyzing the data statistically.
6. Market simulation of the product.

### Conjoint Analysis Usage

* Conjoint studies aid in **advertising**. By research the company can selected the most desirable attributes to be marketed. For example, after conjoint analysis, the company determines that brand and hardware configuration of the phone is most important to its users. It would then design advertisements that well promote these attributes and that do not focus on price which is a secondary concern in this case.
* The most common usage is **new product development**. Conjoint analysis identifies opportunities by fusing attributes to generate new products and services that are not yet in the market.
* The method is also good for **test marketing** as it provides information of the degrees of importance of each attribute. Prior to releasing the product full-fledged, it is feasible to foresee the success or failure of a product.
* Conjoint analysis is also applicable in situations where **segmentation** needs to be done. Certain clusters of users give preference to one set of attributes, whereas a different set would be more important to few others. Conjoint uncovers this pattern so that the company can target users accordingly.

### Limitation and Conclusion

For certain kind of products, consumers do their evaluation built on intangible attributes or image. These products mostly comprise of luxury items where the emotional factor rather than the rational side dominates. In cases like these, the logic of conjoint analysis does not apply.

With an exception to this situation, conjoint is quite inexpensive as compared to other similar methods such as concept testing and hence is hugely popular. In a nutshell, it is a versatile and powerful tool to predict consumer choices, foresee their purchase decisions and hence design and launch products accordingly.

# Statistical Tools and their Usage - Regression Analysis

Regression analysis can be used to find out the relation between a set of variables statistically. This is done by identifying a curve or line that best fits the variables provided. Regression analysis is widely used in marketing research for trend analysis and for making predictions. In this article, we will be explaining simple linear regression only.

### Case Based Explanation

Since it is inevitable to use numbers and perform some calculations to bring out the concept of regression, we will be demonstrating a case throughout the article to explain the statistical part in an easy way.

Suppose that after a few years of working in the industry, a person decides to go back to the university to get additional skills. Since education these days is expensive, the person would want to know whether education really increases the salary.

To start, we need to see how much wage is expected to increase with every additional year spent at the university. The intuitive way to go about it is to survey a sample of individuals and ask each of them how much they earn and how many years they have spent at school and then determine whether we can observe a pattern in their responses.

For the sake of simplicity and explanation, let’s say that we survey 10 individuals (In reality a much larger sample size is required to get reliable results). A random sample of 10 people will generate 10 data points. A scatter graph in excel is the best way to represent this. Education is the independent variable depicted on the X axis and Wage is the dependent variable, to be plotted on the Y axis. The general pattern in the data set can be determined, i.e. relationship between wages and education can be obtained by the points on the scatter graph. For example, suppose that one person, referred to as P1, has 13 years of education and is earning $20 per hour. The next person, P2, has 20 years of education and paid $30 per hour.

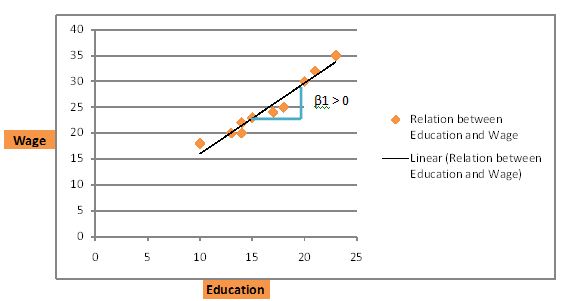
Equation of a line is Υ = mX + b, where m is the slope and b is the intercept, i.e. where the line cuts the y axis. We have to find this line of best fit that will represent the general pattern in the sample. In regression analysis, the line will be represented as Υ = β0+ β1X. We have simply changed the notation: β0 is the intercept and β1 is the slope of the gradient of the line. Software packages such as excel and MATLAB, can estimate the regression line.

So the equation now becomes:

**Wages = β0 + β1Education**

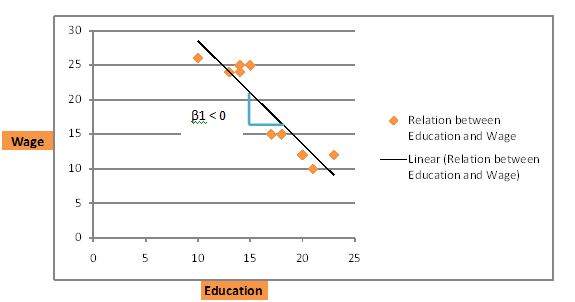
Situation 1

To determine whether there is a relation between wages and education, observe β1, the slope of the regression line. If β1 is positive, then there is a positive relation between wages and education. The more education a person attains, the higher the wage. This is clarified by the graph below:



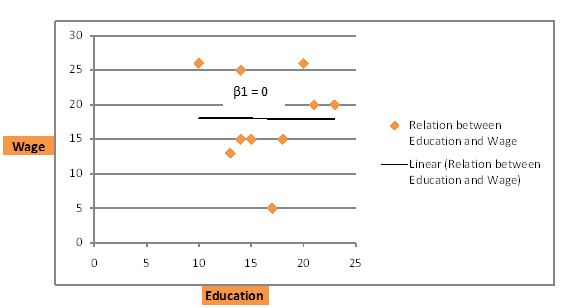
Situation 2

If the data from the survey looks like the graph below, a negative relation exists. The regression line is downward sloping from left to right. The trend here is that the more educated an individual, the less they earn in wages.



Situation 3

A third scenario is when there is no relation between wages and education. In that case, the line would cut through the data as follows; the line of best fit is a horizontal line.



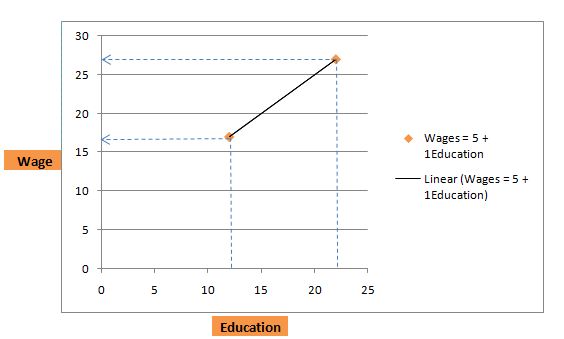
**Wages = 5 + 1Education**

Suppose an individual has just finished high school and has 12 years of education. Substituting the value in the above equation, we get the hourly wage as:

Wages = 5 + 1×12 = 17

The next individual with 22 years of education, his expected wage would be:

Wages = 5 + 1×22 = 27, i.e. $27per hour.



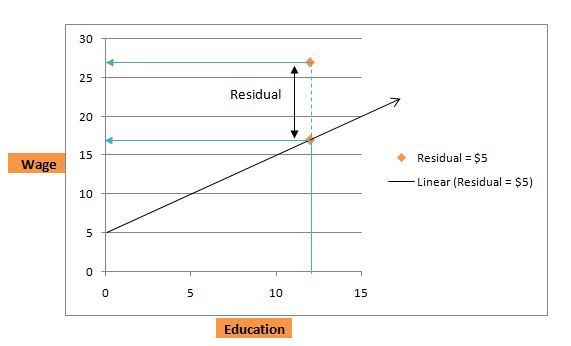
Thus we see that, for every additional 1 year of education, wages is expected to increase by $1 per hour. In case of a person with no education, β0 = 0, the equation reduces down to: wages = 5. This is the minimum wage since if a person has no education, he or she is expected to get at least $5 per hour.

### Residuals

Referring to the equation of person P1 above with 12 years of education, the individual earns $17 per hour. However suppose in reality we find that the person actually earns $22 per hour! This does not imply that the regression equation is incorrect, but in fact can be attributed to a factor termed as residual. Thus residual is the difference between the actual wage and predicted wage. So for P1, the residual is 22-17 = 5($). The regression model is the best guess at the hourly wage given the level of education. However, in real life many other factors in addition to education such as number of years of experience, IQ, networking ability, height, etc.

They were not accounted for and are contained in the residual term depicted by µ. So the revised equation would now be:

**Υ = β0+ β1X + μ**



### Summary

The main highlights of the article above are as follows:

* The regression line is the line of best fit. It is the line that best represents the trend or relation in the given data
* β1 is the slope of the line. The relation between the dependent and independent variable is:
  + Positive If: β1 > 0
  + Negative If: β1 < 0
  + No Relationship If: β1 = 0
* The estimated regression can be used to make predictions for Υ given X.
* Residual = Actual - Predicted
* The residual term accounts for the error in the prediction. It contains all other factors (except X) that impact Y.

# Concept Testing

Concept testing is the process of testing new or hypothetical products or services before they are launched. The testing is intended to screen a number of concepts to identify the strongest ones for progression, to improve/refine the base product or service proposition, and/or to forecast their likely success.

### Purpose of the study

Concept testing is mainly used for **go/no-go decision** for a new product. This decision itself may have several aspects. Below are some examples of situations in which this study finds its usage:

* Reaching out to a new market segment
* Ranking and selecting the best potential product concepts, brand name, packaging, logo, etc
* Determining the optimal pricing point for new products
* Testing customers’ trial experiences to see if product or communications adjustments should be made.
* Benchmarking
* Forecasting demand

### Concept Testing Process

The process of concept testing involves stages such as defining the goal of the study, choosing the sample population, deciding upon a survey format, communicating the concept, measuring consumer response and interpreting the results. Hence the steps are synonymous of most marketing research methods that we had seen in the previous modules.

The expected outcome of the study is to capture the consumer **purchase intent**. Broadly the questionnaire designed for the survey has 3 main sections though they can vary depending on the product and the research company.

1. **Qualification**

Screener questions are asked to ensure that only valid responses are processed. Let us consider that a company wants to launch a new battery operated scooter/electric bike for college going students (new market).

An important question in the demographics section should be:

* + How far do you live from campus?

If the student stays within 5 miles of the campus, he might not need the scooter at all. Similarly, if he stays too far away, a scooter might not be the optimum mode for commuting. So again, the student must be eliminating while consolidating the results.

1. **Product Description**

Also known as **communicating the concept**, the new product idea is described to the respondents using several techniques such as:

* + Verbal description
  + Photo
  + Video
  + Multimedia
  + 3-D model
  + Working prototype
  + Storyboard
  + Simulation

1. **Purchase Intent**

After describing the product by using one of the applicable methods mentioned above, the purchase intention of a potential consumer can be checked by using a simple likert scale:

* + If the scooter is priced as per expectations, how likely are you to purchase it in the next one year?

❏ Definitely won’t purchase

❏ Probably won’t purchase

❏ Not sure

❏ Probably would purchase

❏ Definitely would purchase

**Sources of Error in tested results**

Though concept testing predicts the acceptability of a new product fairly accurately, the results may be skewed either positively or negatively in the following situations:

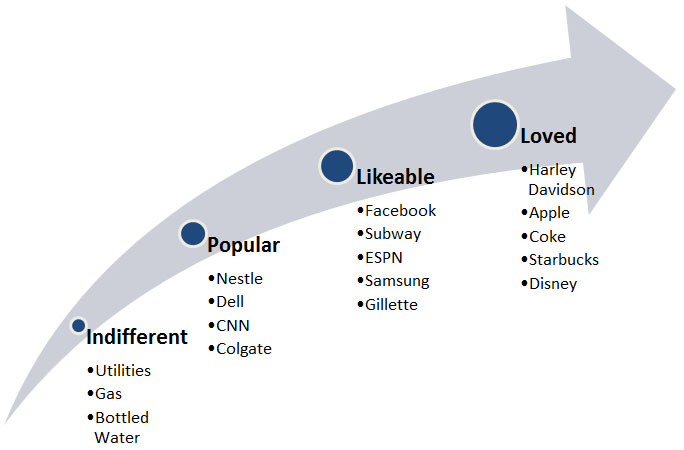
* Word of Mouth impact
* Pricing Mismatch
* Level of Promotion
* Competition

### Conclusion

In a nutshell, the goal of concept testing is to develop, refine and nurture new product and service initiatives around solid consumer insights with a view to reducing the probability of failure and increasing the probability of a successful launch and in-market performance.

# Brand Health Survey

A brand is a perception in its consumers’ minds. A strong brand can command a premium price. This power of a brand is measured using a technique of marketing research – Brand Health Survey.



***Figure:****Current health status of some popular brands*

While checking a brand’s health certain vital aspects are captured such as how aware are people of the brand, how do they perceive the brand, what do they expect from it and from other competitors and whether they intend on buying. Tracking brand equity is an important function of any brand manager or of someone in marketing. Not only does it help in staying a step ahead of competition, but it also quantifies the effectiveness of marketing and advertising campaigns.

**Objectives of Brand Health Survey**

Broadly, this technique is used to measure a 360 degree view of a brand. It includes the following aspects:

* Awareness and usage
* Stakeholders’ perception of the brand.
* Performance of the brand on its value proposition
* Customer loyalty
* Strategy to allocate resources aptly for maximizing the brand potential
* Ability to charge premium

**Areas to be covered in Brand Health survey**

Following features are covered for a comprehensive brand tracking study:

1. **Brand Awareness**

Consumer awareness is the connection between marketing and sales. Awareness depicts how familiar customers are with the brand. In a brand health survey both recall and recognition are captured. Recall is a better indicator of the brand’s health as a name that first comes to the customers’ minds is more desirable as compared to a name that is prompted and then recognized. In the former case, customers are also more likely to recommend the brand.

1. **Brand Usage**

Understanding a brand’s usage helps a company realize its standing in the market. Apart from getting an idea about the consumers’ purchase behaviour and preferences, the study also indicates the brand’s market share. While measuring brand usage, frequency of usage, recency of purchase and total spending on the brand are quantified.

1. **Brand Attributes**

This part of the study simply checks whether the brand is coherent with the customers’ expectations and how well their needs are fulfilled. Every brand strives to maintain a positive impression about itself in the minds of the customers. Measuring brand attributes checks time and again whether this is true and if not, what is the pitfalls customers associate with the brand. In a nutshell, customer satisfaction is the primary attribute to be checked which is comprised of several sub attributes as described under:



1. Satisfaction is the supreme indicator of a brand’s health and it is a culmination of all its sub factors. Considering the example of Walmart in the US, it does not enjoy impeccable brand health because though it is a market leader, it has significant liabilities.
2. **Purchase Intent**

Measuring the likelihood of purchase is an important part of the brand health survey. Respondents should be probed on their reason for purchase, channel and time so that a near accurate prediction of the actual purchase decision can be made.

**When to conduct a Brand health Survey**

Depending on the industry and the organization, this study can be conducted at an interval of 3-6 months or on an annual basis. Generally it is required most frequently in the FMCG sector due to the fast faced atmosphere of that industry. For the services industry, a much lesser frequency is sufficient. PwC implements this study once every two years to understand its position amongst the Big Four consulting companies.

It is beneficial to conduct brand health survey in the following changing circumstances:

* Business/Organizational change
* Strategic alignment (Vision, Mission & Values)
* Promotional synchronization with marketing plan.
* Market Dynamics
* Change in customer base or clients
* Rebranding in terms of names and logos