METHODOLOGY

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Meaning: The word research is derived from the Middle French "recherche", which means "to go about seeking", the term itself being derived from the Old French term "recerchier" a compound word from "re-" + "cerchier", or "sercher", meaning 'search'.The earliest recorded use of the term was in 1577. Research is defined as careful consideration of study regarding a particular concern or problem using scientific methods. According to the W.S. Monroes "Research may be defined as a method of studying problems whose solutions are to be derived partly or wholly from facts."

Definition: D. Steiner and M. Stephenson in the Encyclopedia of Social Sciences define research as "the manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art."

"Research comprises defining and redefining problems ,formulating hypothesis or suggested solutions, collecting ,organizing and evaluating data, making deductions and reaching conclusions and at last careful testing the conclusions to determine whether they fit the formulated hypothesis." Clifford Woody

''careful study that is done to find and report new knowledge about something'' merriam-webster

"Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue". John W. Creswell

Inductive research methods analyze an observed event, while deductive methods verify the observed event. Inductive approaches are associated with qualitative research, and deductive methods are more commonly associated with quantitative analysis.

Research is conducted with a purpose to:

- Identify potential and new customers

- Understand existing customers

- Set pragmatic goals

- Develop productive market strategies

- Address business challenges

- Put together a business expansion plan

- Identify new business opportunities

What are the characteristics of research?

1. Good research follows a systematic approach to capture accurate data. Researchers need to practice ethics and a code of conduct while making observations or drawing conclusions.

2. The analysis is based on logical reasoning and involves both inductive and deductive methods.

3. Real-time data and knowledge is derived from actual observations in natural settings.

4. There is an in-depth analysis of all data collected so that there are no anomalies associated with it.

5. It creates a path for generating new questions. Existing data helps create more research opportunities.

6. It is analytical and uses all the available data so that there is no ambiguity in inference.

7. Accuracy is one of the most critical aspects of research. The information must be accurate and correct. For example, laboratories provide a controlled

environment to collect data. Accuracy is measured in the instruments used, the calibrations of instruments or tools, and the experiment's final result.

What is the purpose of research?

There are three main purposes:

1. Exploratory: As the name suggests, researchers conduct exploratory studies to explore a group of questions. The answers and analytics may not offer a conclusion to the perceived problem. It is undertaken to handle new problem areas that haven't been explored before. This exploratory process lays the foundation for more conclusive data collection and analysis.

2. Descriptive: It focuses on expanding knowledge on current issues through a process of data collection. Descriptive research describes the behavior of a sample population. Only one variable is required to conduct the study. The three primary purposes of descriptive studies are describing, explaining, and validating the findings. For example, a study conducted to know if top-level management leaders in the 21st century possess the moral right to receive a considerable sum of money from the company profit.

3. Explanatory: Causal or explanatory research is conducted to understand the impact of specific changes in existing standard procedures. Running experiments is the most popular form. For example, a study that is conducted to understand the effect of rebranding on customer loyalty.

Steps in conducting research

Research process consists of series of actions or steps necessary to effectively carry out research. These actions or steps are;

1. Selection of Research Problem

2. Extensive Literature Survey

3. Making Hypothesis

4. Preparing the Research Design

5. Sampling

6. Data collection

7. Data Analysis

8. Hypothesis Testing

9. Generalization and Interpretation

10. Preparation of Report

SELECTION OF RESEARCH PROBLEM

The selection of topic for research is a difficult job. When we select a title or research statement, then other activities would be easy to perform. So, for the understanding thoroughly the problem it must have to discuss with colleagues, friend, experts and teachers. The research topic or problem should be practical, relatively important, feasible, ethically and politically acceptable.

Extensive Literature Survey: The literature review identifies flaws or holes in previous research which provides justification for the study. Often, a literature review is conducted in a given subject area before a research question is identified.

The development of hypothesis is a technical work depends on the researcher experience. The hypothesis is to draw the positive & negative cause and effect aspects of a problem. Hypothesis narrows down the area of a research and keep a researcher on the right path.

PREPARING THE RESEARCH DESIGN

Research design is the conceptual structure within which research would be conducted. The function of research design is to provide for the collection of relevant information with minimal expenditure of effort, time and money. The preparation of research

design, appropriate for a particular research problem, involves the consideration of the following: 1. Objectives of the research study.

2. Method of Data Collection to be adopted

3. Source of information—Sample Design

4. Tool for Data collection

5. Data Analysis; qualitative and quantitative

SAMPLING

Sampling or sampling technique is the process of studying the population by gathering information and analyzing that data. It is the basis of the data where the sample space is enormous.

There are several different sampling techniques available, and they can be subdivided into two groups. All these methods of sampling may involve specifically targeting hard or approach to reach groups.

- Random Sampling

- Sampling Error Formula

- Population and Sample

- Sampling error

Types of Sampling Method

In Statistics, there are different sampling techniques available to get relevant results from the population. The two different types of sampling methods are::

- Probability Sampling

- Non-probability Sampling

DATA COLLECTION

The main sources of the data collections methods are "Data". Data can be classified into two types, namely primary data and secondary data. The primary importance of data collection in any research or business process is that it helps to determine many important things about the company, particularly the performance. So, the data collection process plays an important role in all the streams. Depending on the type of data, the data collection method is divided into two categories namely,

- Primary Data Collection methods

- Secondary Data Collection methods

  Primary Data Collection: Primary data may be from the following.

1. Experiment

2. Questionnaire

3. Observation

4. Interview

   Secondary data collection: it has the following categories:

1. Review of literature

2. Official and non-official reports

3. Library approach

DATA ANALYSIS

Data analysis is described "as the process of bringing order, structure, and meaning" to the collected data. The data analysis aims to unearth patterns or regularities by observing, exploring, organizing, transforming, and modeling the collected data.

It is a methodical approach to apply statistical techniques for describing, exhibiting, and evaluating the data. It helps in driving meaningful insights, form conclusions, and

support the decisions making process. This process of ordering, summarizing data is also to get answers to questions to test if the hypothesis holds. Exploratory data analysis is a huge part of data analysis. It is to understand and discover the relationships between the variables present within the data.

There are five types of data analysis:

1. Descriptive Analysis

2. Diagnostic Analysis

3. Predictive Analysis

4. Prescriptive Analysis

5. Cognitive Analysis

HYPOTHESIS TESTING

Hypothesis testing in statistics refers to analysing an assumption about a population parameter. It is used to make an educated guess about an assumption using statistics. With the use of sample data, hypothesis testing makes an assumption about how true the assumption is for the entire population from where the sample is being taken.

Any hypothetical statement we make may or may not be valid, and it is then our responsibility to provide evidence for its possibility. To approach any hypothesis, we follow these four simple steps that test its validity.

1. First, we formulate two hypothetical statements such that only one of them is true. By doing so, we can check the validity of our own hypothesis.

2. The next step is to formulate the statistical analysis to be followed based upon the data points.

3. Then we analyse the given data using our methodology.

4. The final step is to analyse the result and judge whether the null hypothesis will be rejected or is true

GENERALIZATION AND INTERPRETATION

The acceptable hypothesis is possible for researcher to arrival at the process of generalization or to make & theory. Some types of research has no hypothesis for which researcher depends upon on theory which is known as interpretation.

PREPARATION OF REPORT

A researcher should prepare a report for which he has done is his work. He must keep in his mind the following points:

Report Design in Primary Stages

The report should carry a title, brief introduction of the problem and background followed by acknowledgement. There should be a table of contents, grapes and charts.

Main Text of the Report

It should contain objectives, hypothesis, explanations and methodology of the research. It must be divided into chapters and every chapter explains separate title in which summary of the findings should be enlisted. The last section would be clearly of conclusions to show the main theme of the R-study.

Closing the Report

After the preparation of report, the last step in business research process contains of bibliography, references, appendices, index and maps or charts for illustration. For this purpose the information should more clearer.

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