UNIT 4: RESEARCH PROBLEM AND FORMULATION OF RESEARCH HYPOTHESIS

UNIT STRUCTURE

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4.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the meaning of Research Problem.
- outline the differences between Management Decision Problem and Management Research Problem.
- discuss the Problem Identification Process.
- define the different components of the Research Problem.

- formulate a Research Hypothesis.
- discuss how to write a Research Proposal.
- discuss the Contents of a Research Proposal.

4.2 INTRODUCTION

In the earlier units we discussed the basic concept in business reserach like the meaning and concept of reserach, reserach design and its various types.

In the previous unit (unit 3), we learned about one iof the main component of reserach i.e literature review. In this unit, let us discuss the various issues related to reserach problem and formulation of research hypotheses.

4.3 DEFINING THE RESEARCH PROBLEM

Although every step in a marketing research project is important, problem definition is the most important step. As mentioned in Unit 1, marketing or business researchers consider problems and opportunities confronting management to be interchangeable because the investigation of each follows the same research process. **Problem definition** involves stating the problem confronting the managers (the management decision problem) and the marketing research problem that the researcher will address. The latter should be broken down into a broad statement and the specific components of the marketing research problem, as illustrated by the opening feature about ***Harley-Davidson Case Study (Unit 2)***. This example provided the problem confronting ***Harley-Davidson Case Study (Unit 2)*** management and a broad statement of the research problem, and identified its four specific components. The researcher and the key decision makers on the client side should agree on the definition of the problem. The *client* is the individual or organization commissioning the research. The client might be an internal person, as in the case of a research director dealing with a decision maker in her or his own organization. Alternatively, the client might be an external entity if the research is being conducted by a marketing research firm. Only when both parties have clearly defined and agreed on the marketing research problem can research be designed and conducted properly. The basic message here is that it is critical to clearly identify and define the marketing research problem. The problem-definition process

provides guidelines on how to define the marketing research problem correctly.

Research problem is a question that researcherwants to answer or a problem that a researcherwants to solveIdentification & formulation of a research problem isthe first step of the research process.Selection of research problem depends on severalfactors such as researcher'sknowledge, skills, interest, expertise, motivation &creativity with respect to the subject of inquiry.It is believed that most of the good research studiesneed lots of time for selection of a researchproblem.

Some of the definition given by scholars are :

According to Kerlinger, 'A problem is an interrogative sentence or statement that asks whatrelation exists between two or more variable. The answer to question will provide what is having sought in the research.

R.S. Woodworth defines problem as 'a situation forwhich we have no ready & successful response byinstinct or by previous acquired habit. We must findout what to do', i.e. the solution can be found outonly after an investigation.

Thus, 'A research problem is an area ofconcern where there is a gap in the knowledgebase needed for professional practices.

Process of Defining The Problem and Developing An Approach: To define a research problem correctly, the researcher must perform a number of tasks. The researcher must discuss the problem with the decision makers in the client organization, interview industry experts and other knowledgeable individuals, analyze secondary data, and sometimes conduct qualitative research. This informal data collection helps the researcher understand the context or environment within which the problem has arisen. A clear understanding of the marketing environment also provides a framework for identifying the management decision problem: What should the management do? The management decision problem is then translated into a marketing research problem, the problem that the researcher must investigate. Based on the definition of the marketing research problem, the researcher develops an appropriate approach.

The general rule to be followed in defining the research problem is that the definition should (1) allow the researcher to obtain all the information needed to address the management decision problem, and (2) guide the researcher in proceeding with the project.

Researchers make two common errors in problem definition . The first arises when the research problem is defined too broadly. A broad definition does not provide clear guidelines for the subsequent steps involved in the project. Some examples of overly broad marketing research problem definitions are

(1) Developing a marketing strategy for the brand,

(2) Improving the competitive position of the firm, or

(3) Improving the company's image. These are not specific enough to suggest an approach to the problem or a research design.

The second type of error is just the opposite: The research problem is defined too narrowly. A narrow focus may preclude consideration of some courses of action, particularly those that are innovative and not obvious. It may also prevent the researcher from addressing important components of the management decision problem. For example, in a project conducted for a major consumer products firm, the management problem was how to respond to a price cut initiated by a competitor. The alternative courses of action initially identified by the firm's research staff were:

(1) decrease the price of the firm's brand to match the competitor's price cut;

(2) maintain price but increase advertising heavily; and

(3) decrease the price somewhat, without matching the competitor's price, and moderately increase advertising.

None of these alternatives seemed promising. When outside marketing research experts were brought in, the problem was redefined as improving the market share and profitability of the product line. Qualitative research indicated that, in blind tests, consumers could not differentiate products offered under different brand names. Consumers also relied on price as an indicator of product quality reasoning that if costs more it must be of a higher quality. These findings led to a creative alternative: Increase the price of the existing brand and introduce two new brands—one priced to match the competitor and the other priced to undercut it. This strategy was implemented, leading to an increase in market share and profitability.

The likelihood of committing either error of problem definition can be reduced by stating the marketing research problem in broad, general terms and identifying its specific components. The broad statement provides

perspective on the problem and acts as a safeguard against committing the second type of error. The specific components focus on the key aspects of the problem and provide clear guidelines on how to proceed. They act as a safeguard against committing the first type of error.



CHECK YOUR PROGRESS

Q.1: How is a Research Problem defined?

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Q.2: Define the Problem Definition Process.

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4.4 MANAGEMENT DECISION PROBLEM AND MARKETING RESEARCH PROBLEM

The **management decision problem** asks what the decision maker needs to do, whereas the **marketing research problem** asks what information is needed and how it can best be obtained **(see Table 4.1).** Research is directed at providing the information necessary to make a sound decision. The management decision problem is action-oriented, framed from the perspective of what should be done. How should the loss of market share be arrested? Should the market be segmented differently? Should a new product be introduced? Should the promotional budget be increased?

In contrast, the marketing research problem is information-oriented. Research is directed at providing the information necessary to make a sound decision. The management decision problem focuses on the symptoms, whereas the marketing research problem is concerned with the underlying causes **(see Table 4.2).** Of course, the marketing research problem should be closely linked to the management decision problem. If the researcher addresses the marketing research problem, then the findings should help the decision maker(s) address the management decision problem; that is, effectively make the decision confronting management.

To further illustrate the distinction between the two orientations, consider an illustrative problem: the loss of market share for the Old Spice product line (aftershave, cologne, deodorant). The decision maker is faced with the problem of how to recover this loss (the management decision problem). Possible responses include modifying existing products, introducing new products, reducing prices, changing other elements in the marketing mix, and segmenting the market. Suppose the decision maker and the researcher believe that the problem can be traced to market segmentation; that is, Old Spice should be targeted at a specific segment. They decide to conduct research to explore that issue. The marketing research problem would then become the identification and evaluation of different ways to segment or group the market. As the research process progresses, problem definition can be modified to reflect emerging information. **Table 4.2** provides additional examples, including that of ***Harley-Davidson Case Study (Unit 2)*** feature in this chapter, that further clarify the distinction between the management decision problem and the marketing research problem.

Table 4.1 Management Decision Problem Versus Marketing Research Problem

Management Decision Problem	Marketing Research Problem
• Asks what the decision maker needs to do	• Asks what information is needed and how it should be obtained
• Action-oriented	• Information-oriented
• Focuses on symptoms	• Focuses on the underlying causes

Management Decision Problem	Marketing Research Problem
• Should a new product be introduced?	• To determine consumer preferences and purchase intentions for the proposed new product.
• Should the advertising campaign be changed?	• To determine the effectiveness of the current advertising campaign.
• Should the price of the brand be increased?	• To determine the price elasticity of demand and the impact on sales and profits of various levels of price changes.
• Should Harley-Davidson invest to produce more motor cycles?	• To determine if customers would be loyal buyers of Harley-Davidson in the long term.

Defining the Research Problem:

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to address the management decision problem, and (2) guide the researcher in proceeding with the project. Researchers make two common errors in problem definition**.** The first arises when the research problem is defined too broadly. A broad definition does not provide clear guidelines for the subsequent steps involved in the project. Some examples of overly broad marketing research problem definitions are (1) developing a marketing strategy for the brand, (2) improving the competitive position of the firm, or (3) improving the company's image. These are not specific enough to suggest an approach to the problem or a research design.

The second type of error is just the opposite: The marketing research problem is defined too narrowly. A narrow focus may preclude consideration of some courses of action, particularly those that are innovative and not obvious. It may also prevent the researcher from addressing important components of the management decision problem. For example, in a project conducted for a major consumer products firm, the management problem was how to respond to a price cut initiated by a competitor. The alternative courses of action initially identified by the firm's research staff were (1) decrease the price of the firm's brand to match the competitor's price cut; (2) maintain price but increase advertising heavily; and (3) decrease the price somewhat, without matching the competitor's price, and moderately increase advertising. None of these alternatives seemed promising. When outside marketing research experts were brought in, the problem was redefined as improving the market share and profitability of the product line. Qualitative research indicated that, in blind tests, consumers could not differentiate products offered under different brand names. Consumers also relied on price as an indicator of product quality reasoning that if costs more it must be of a higher quality. These findings led to a creative alternative: Increase the price of the existing brand and introduce two new brands—one priced to match the competitor and the other priced to undercut it. This strategy was implemented, leading to an increase in market share and profitability.

The likelihood of committing either error of problem definition can be reduced by stating the marketing research problem in broad, general terms and identifying its specific components. The **broad statement** provides perspective on the problem and acts as a safeguard against committing the second type of error. The **specific components** focus on

the key aspects of the problem and provide clear guidelines on how to proceed. They act as a safeguard against committing the first type of error.

4.5 COMPONENTS OF THE RESEARCH PROBLEM

The tasks performed earlier also help in developing an approach. An approach to a marketing research problem should include the following components: analytical framework and models, research questions and hypotheses, and a specification of the information needed. Each of these components are discussed in the following sub sections:

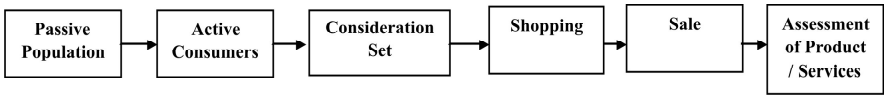
4.5.1 Analytical Framework and Models

In general, marketing research should be based on objective evidence and supported by theory. Objective evidence (evidence that is unbiased and supported by empirical findings) is gathered by compiling relevant findings from secondary sources. A theory is a conceptual framework based on foundational statements that are assumed to be true and that guide the collection of this data. Theory may come from academic literature contained in books, journals, and monographs. For example, according to attitude theory, attitude toward a brand, such as Nike sneakers, is determined by an evaluation of the brand on salient attributes (e.g., price, performance, durability, and style). Relevant theory provides insight regarding which variables should be investigated and which should be treated as dependent variables (those whose values depend on the values of other variables) and which should be treated as independent variables (those whose values affect the values of other variables). Thus, attitude toward Nike will be the dependent variable; price, performance, durability, and style will be independent variables. The ***Harley-Davidson Case Study (Unit 2)*** research was guided by the theory that brand loyalty is the result of positive beliefs, attitude, emotions, and experience with the brand. The approach should be based on some kind of working theory or **analytical framework**. An analytical framework is a statement of the theory as applied to the marketing research problem. This is also helpful in developing an appropriate model.

An **analytical model** consists of a set of variables related in a specified manner to represent all or a part of some real system or process. Models can take many forms, but here we will focus on

graphical models. **Graphical models** are visual and pictorially represent the theory. They are used to isolate variables and to suggest directions of relationships; however, they are not designed to provide numerical results. Graphical models are particularly helpful in conceptualizing an approach to the problem, as the following new car purchase model illustrates.

The following graphical model illustrates the new car purchase decision process. A person starts as a passive consumer ("I am not now interested in considering the purchase of a new vehicle"). When the consumer is actively interested in purchasing a new car, the consumer creates a consideration set (limits the brands to be considered). This is followed by shopping, buying (sale), and assessing the value of products and services. Automobile firms such as BMW have used the new car purchase model to formulate marketing strategies that are consonant with consumers' underlying decision-making process. In this model, BMW is part of the consideration set for a certain group of consumers who are interested in luxury and innovation. The 2013 marketing theme of BMW, "BMW Efficient Dynamics. Less emissions. More Driving Pleasure," was based on this model.



4.5.2 Formulation of Research Questions and Hypotheses

Research questions (RQs) are refined statements of the specific components of the problem. A problem component might break into several research questions. Research questions are designed to ask the specific information required to address each problem component. Research questions that address the problem components successfully provide valuable information for the decision maker. The formulation of the research questions should be guided, not only by the problem definition, but also by the analytical framework and the model adopted. In the new car purchase model, the factors that influenced consumers' selection of an automobile brand may be

postulated based on theoretical framework as brand name, price, performance, styling, options (features), and quality. Several research questions can be posed related to these factors: What is the relative importance of these factors in influencing consumers' selection of automobiles? Which factor is the most important? Which factor is the least important? Does the relative importance of these factors vary across consumers?

A hypothesis (H) is an unproven statement or proposition about a factor or phenomenon that is of interest to the researcher. It may be a tentative statement about the relationships discussed in the theory or analytical framework or represented in the analytic model. The hypothesis can also be stated as a possible answer to the research question. Hypotheses are statements about proposed relationships rather than merely questions to be answered. They reflect the researchers' expectation and can be tested empirically. Hypotheses also play the important role of suggesting variables to be included in the research design. In commercial marketing research, the hypotheses are not formulated as rigorously as they are in academic research.

4.5.3 Specification of Information Needed

By focusing on each component of the problem, the research questions and hypotheses, the researcher can determine what information should be obtained. It is helpful to carry out this exercise for each component of the problem and to make a list specifying all the information that should be collected. We illustrate this process with respect to the ***Harley-Davidson Case Study (Unit 2).***

Information Needed for Component 1

- Ownership of motorcycles (Harley-Davidson and its competitors). Interest in potentially owning a motorcycle if they do not currently have one.

- Standard demographic characteristics (e.g., gender, marital status, household size, age, education, occupation, income, and type and number of automobiles owned) and psychographic characteristics. Psychographic characteristics include outdoor and recreational activities, family orientation, and attitude toward adventure.

Information Needed for Component 2

- No new information to be collected. The segments can be identified based on information obtained for the first component.
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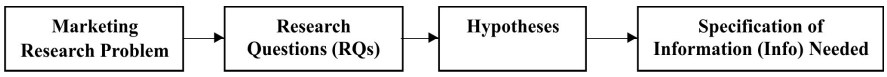
Information Needed for Component 3

- Ratings of Harley-Davidson motorcycles on image, features, brand name, and subjective perceptions.

Information Needed for Component 4

- Attitudes toward, preferences for, and repurchase of Harley-Davidson motorcycles.

This process is further illustrated by the United Airlines Case.



United Airline, the world's leading airline as of 2014, had to deal with passenger loyalty, as did other major airlines. Its management decision problem: how to attract more and more loyal passengers? The broad marketing research problem was to identify the factors that influence the loyalty of airline travelers. The basic answer is to improve service. Exploratory research, theoretical framework, and empirical evidence reveal that the consumers' choice of an airline is influenced by safety, the price of the ticket, the frequent-flyer program, convenience of scheduling, and brand name.

A graphical model stipulated that consumers evaluate competing airlines based on factors of the choice criteria for selecting a preferred airline. The problem was that major airlines were quite similar on these factors. Indeed, "airlines offer the same schedules, the same service, and the same fares." Consequently, United Airlines had to find a way to differentiate itself. Food turned out to be the solution.

Secondary data, like the J. D. Power & Associates survey on "current and future trends in the airline food industry," and analysis of social media indicated that "food service is a major contributor to customer loyalty."

This survey also emphasized the importance of food brands. The airline's Marketrak survey told United Airlines that "customers

wanted more varied and up-to-date food." The following research questions and hypotheses may be posed.

RQ1: How important is food for airline customers?

H1: Food is an important factor for airline travellers.

H2: Travellers value branded food.

H3: Travellers prefer larger food portions but with consistent quality.

H4: Travellers prefer exotic food.

Specification of information needed included the identification of competing airlines (Delta, American, etc.), factors of the choice criteria (already identified), measurement of airline travel, and loyalty. This kind of research helped United Airlines to define their marketing research problem and develop the approach. Focus groups and surveys were conducted to check customers' perceptions of food in United Airlines' aircraft. The results provided support for all the hypotheses (H1 to H4). United Airlines then made a few changes: new "culinary menus," larger portions of food, new coffee, and branded products (e.g., Godiva chocolates). As of 2014, snack offerings were available for purchase on most flights longer than two hours. This resulted in better service, increasing customer satisfaction and fostering loyalty.



CHECK YOUR PROGRESS

Q.3: What is a Research Question?

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Q.4: What is a Research Hypothesis?

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4.6 CONTENTS OF A RESEARCH PROPOSAL

Once the research design has been formulated and budgeting and scheduling of the project accomplished, a written research proposal should be prepared. The **Research Proposal** contains the essence of the project and serves as a contract between the researcher and management. The research proposal contains all phases of the marketing research process. It describes the research problem, the approach, the research design and how the data will be collected, analyzed and reported. It gives a cost estimate and time schedule for completing the project. Although the format of research proposal may vary considerably, most proposals addresses all steps of the research process and contain the following elements.

(i) ***Executive Summary –*** The proposal should be begin with a summary of the major points from each of the other sections, presenting an overview of the entire proposal.

(ii) ***Background –*** The background to the problem, including the environmental context, should be discussed.

(iii) ***Problem Definition/Objectives of the Research –*** Normally, a statement of the problem, including the specific components, should be presented. If this statement has not been developed (as in the case of problem identification research), the objectives of the marketing research project should be clearly specified.

(iv) ***Approach to the Problem –*** At a minimum, a review of the relevant academic and trade literature should be presented, along with some kind of an analytical model. If research questions and hypothesis have been identified, then these should be included in the proposal.

(v) ***Research Design –*** The research design adopted, whether exploratory, descriptive, or causal, should be specified. Information should be provided on the following components. Information should be provided on the following components: (a) Kind of information to be obtained , (b) method of administering the questionnaire (mail, telephone, personal or electronic interviews), (c) scaling techniques, (d) nature of the questionnaire (type of questions asked, length, interviewing time), (e) sampling plan and sample size.

(vi) ***Fieldwork/Data Collection –*** The proposal should discuss how the data will be collected and who will collect it. If the fieldwork is to be subcontracted to another supplier, this should be stated. Control mechanisms to ensure the quality of data collected should be described.

(vii) ***Data Analysis -***– The kind of data analysis that will be conducted (simple cross tabulations, univariate analysis, multivariate analysis) and how the results will be interpreted should be described.

(viii) ***Reporting –*** The proposal should specify whether intermediate reports will be presented and at what stages, what will be the form of the final report, and whether a formal presentation of the results will be made.

(ix) ***Cost and Time*** – The cost of the project and a time schedule, broken down by phases, should be presented. A CPM or PERT chart might be included. In large projects, a payment schedule is also worked out in advance.

(x) ***Appendices -***– Any statistical or other information that is of interest only to a few people should be contained in the appendices.

Preparing a research proposal has several advantages. It ensures that the researcher and management agree about the nature of the project and helps sell the project to management. Because preparation of the project entails planning, it helps the researcher conceptualize and execute the marketing research project.



CHECK YOUR PROGRESS

Q.5: What is a Research Proposal?

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Q.6: What are the contents of a Research Proposal?

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4.7 LET US SUM UP

Defining the research problem is the most important step in a research project. It is a difficult step because management frequently has not determined the actual problem or has only a vague notion about it. The researcher's role is to help management identify and isolate the problem. The tasks involved in formulating the marketing research problem include discussions with management, including the key decision makers, interviews with industry experts, analysis of secondary data, and qualitative research. These tasks should lead to an understanding of the environmental context of the problem. The environmental context of the problem should be analyzed and certain essential factors evaluated. These factors include past information and forecasts about the industry and the firm, objectives of the DM, buyer behavior, resources and constraints of the firm, the legal and economic environment, and marketing and technological skills of the firm.

Analysis of the environmental context should assist in the identification of the management decision problem, which should then be translated into a marketing research problem. The management decision problem asks what the DM needs to do, whereas the marketing research problem asks what information is needed and how it can be obtained effectively and efficiently. The researcher should avoid defining the marketing research problem either too broadly or too narrowly. An appropriate way of defining the marketing research problem is to make a broad statement of the problem and then identify its specific components.

Developing an approach to the problem is the second step in the marketing research process. The components of an approach consist of an analytical framework and models, research questions and hypotheses, and specification of the information needed. It is necessary that the approach developed be based on theory or an analytical framework. The relevant variables and their interrelationships may be neatly summarized by a graphical model. The research questions are refined statements of the specific components of the problem that ask what specific information is required with respect to the problem components. Research questions may lead to specific hypotheses. Finally, given the problem definition, research questions, and hypotheses, the information needed can be specified. When defining the problem or developing an approach in international marketing

research, the researcher must consider the differences in the environment prevailing in the domestic market and the foreign markets. Analysis of social media content can facilitate problem definition and the development of an approach. Several ethical issues that have an impact on the client and the researcher can arise at this stage, but they can be resolved by adhering to the codes of ethics of marketing research associations.



4.8 FURTHER READING

Malhotra, N.K. and Dash, S. (2011). *Marketing research: An Applied Orientation* (6th edition), New Delhi: Pearson Education.



4.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q1: A research problem is an area ofconcern where there is a gap in the knowledgebase needed for professional practices

Ans to Q2: Problem definition involves stating the problem confronting the managers (the management decision problem) and the marketing research problem that the researcher will address.

Ans to Q3: Research questions (RQs) are refined statements of the specific components of the problem. A problem component might break into several research questions. Research questions are designed to ask the specific information required to address each problem component.

Ans to Q4: A hypothesis (H) is an unproven statement or proposition about a factor or phenomenon that is of interest to the researcher. It may be a tentative statement about the relationships discussed in the theory or analytical framework or represented in the analytic model.

Ans to Q5: The Research Proposal contains the essence of the project and serves as a contract between the researcher and

management. The research proposal contains all phases of the research process.

Ans to Q6: *The contents of research proposal are:*

- ***(i)*** *Executive Summary*
- ***(ii)*** *Background*
- ***(iii)*** *Problem Definition/Objectives of the Research*
- ***(iv)*** *Approach to the Problem*
- ***(v)*** *Research Design*
- ***(vi)*** *Fieldwork/Data Collection*
- ***(vii)*** *Data Analysis*
- ***(viii)*** *Reporting*
- ***(ix)*** *Cost and Time*
- ***(x)*** *Appendices*



4.10 MODEL QUESTIONS

1. What is the first step in conducting a marketing research project?
2. Why is it important to define the marketing research problem appropriately?
3. What are some reasons why management is often not clear about the real problem?
4. What is the role of the researcher in the problem-definition process?
5. What is the environmental context of a marketing research problem?
6. What are some differences between a management decision problem and a marketing research problem?
7. What are the common types of errors encountered in defining a marketing research problem? What can be done to reduce the incidence of such errors?
8. What guides the formulation of a research question?
9. Is it necessary for every research project to have a set of hypotheses? Why or why not?
10. What is the most common form of analytical models?
11. What a contents required in writing a Research Proposal ?

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