



Research Methodology

3.1 Introduction

This chapter explains the methodology adopted to investigate the impact of Artificial Intelligence on managerial decision-making in Saudi companies. It describes the research approach, operational definitions of the study variables, research design, population and sampling techniques, data collection method, types of data, and statistical analysis procedures. The methodology was selected to ensure that the research objectives are achieved and that the collected data are analyzed accurately and objectively.

3.2 Operational Definitions of the Research Variables

Artificial Intelligence (AI):

Artificial Intelligence refers to computer systems and technologies that simulate human intelligence to perform tasks such as data analysis, learning, problem-solving, and decision-making. In this study, AI is measured based on its use in supporting managerial decision-making in Saudi companies.

Managerial Decision-Making:

Managerial decision-making refers to the process of selecting the most appropriate course of action to achieve organizational goals. In this study, it refers to the quality and effectiveness of decisions made by managers with the support of Artificial Intelligence.

3.3 Research Design

This study adopts a **quantitative research design** to examine the impact of Artificial Intelligence on managerial decision-making in Saudi companies. A quantitative approach is appropriate because it allows the researcher to collect numerical data through a structured questionnaire and analyze the relationship between the research variables using statistical methods. This design helps produce reliable and objective results that support the research objectives.



3.4 Research Population and Sampling Techniques

The research population consists of employees and managers working in Saudi companies across different sectors. Since it is difficult to collect data from the entire population, a sample of participants will be selected using the **convenience sampling technique**. This method is appropriate because it allows the researcher to collect data efficiently from participants who are readily available and willing to complete the questionnaire.

3.5 Data Collection Method

Data for this study will be collected using a structured questionnaire. The questionnaire will be distributed electronically to employees and managers working in Saudi companies. This method is suitable because it allows the researcher to collect data efficiently from a large number of participants within a short period. The collected responses will be used for statistical analysis to achieve the research objectives.

3.6 Types of Data

This study uses two types of data:

Primary Data: Primary data will be collected through a structured questionnaire distributed to employees and managers working in Saudi companies.

Secondary Data: Secondary data will be obtained from books, academic journals, research articles, and other reliable sources related to Artificial Intelligence and managerial decision-making.



3.7 Statistical Analysis Procedures

The collected data will be analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, will be used to summarize the data. In addition, inferential statistical analysis, such as correlation and regression analysis, will be conducted to examine the relationship between Artificial Intelligence and managerial decision-making and to test the research hypothesis.

3.8 Chapter Summary

This chapter presented the research methodology adopted in this study. It explained the research design, operational definitions of the research variables, research population and sampling techniques, data collection method, types of data, and statistical analysis procedures. These methods provide a structured approach for collecting and analyzing data to examine the impact of Artificial Intelligence on managerial decision-making in Saudi companies. The next chapter will present the data analysis, results, and discussion of the findings.