

Impact of Artificial Intelligence on the Speed of Decision-Making Among Employees

An Applied Study on NEOM Company in Tabuk City

تأثير الذكاء الاصطناعي على سرعة اتخاذ القرار للموظفين
بالتطبيق على شركة نيوم في مدينة تبوك

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Chapter 1: General Framework of the Study

1.1 Research Introduction

In recent years, artificial intelligence (AI) has emerged as one of the most transformative technologies in the modern business environment. AI has revolutionized the way organizations operate by automating processes, analyzing vast amounts of data, and providing valuable insights that support decision-making. As organizations strive to remain competitive, the speed of decision-making has become a critical factor for success.

NEOM, located in Tabuk City, is a pioneering mega-project that aims to build a futuristic city driven by advanced technologies, including AI. Employees at NEOM are expected to make rapid and accurate decisions in a dynamic and complex work environment. Therefore, understanding the impact of AI on the speed of decision-making among NEOM employees is essential.

This study aims to investigate the relationship between artificial intelligence and the speed of decision-making. By applying the study to NEOM Company, the research seeks to provide practical insights and recommendations that can enhance organizational efficiency and competitiveness.

1.2 Research Problem

Despite the rapid adoption of artificial intelligence in various sectors, many organizations still face challenges in making quick and effective decisions. Traditional decision-making processes often involve time-consuming data collection, analysis, and discussion, leading to delays and missed opportunities.

At NEOM Company, which relies heavily on cutting-edge technologies, it is unclear to what extent AI contributes to speeding up decision-making among employees.

There is a lack of field studies examining this relationship within the context of NEOM in Tabuk City.

Main Research Problem Question:

Does artificial intelligence have a positive impact on the speed of decision-making among employees at NEOM Company?

Sub-Questions:

- What is the current level of AI usage among NEOM employees?
- What is the current level of decision-making speed among NEOM employees?
- Is there a statistically significant relationship between AI and decision-making speed?

1.3 Research Significance

The significance of this study is divided into two main aspects:

A. Theoretical Significance:

- This study contributes to the existing academic literature on artificial intelligence and decision-making.
- It provides empirical evidence from NEOM, a unique and modern work environment that has not been extensively studied.
- It helps bridge the gap between AI technology and management practices.

B. Practical Significance:

- The findings may help NEOM's management enhance decision-making processes using AI.
- The study offers practical recommendations for other organizations planning to adopt AI technologies.
- It may assist policymakers in understanding how AI can improve organizational efficiency.

1.4 Research Questions

This study seeks to answer the following main and sub-questions:

Main Research Question:

What is the impact of artificial intelligence on the speed of decision-making among employees at NEOM Company?

Sub-Questions:

1. What is the level of artificial intelligence usage among employees at NEOM Company?
2. What is the level of decision-making speed among employees at NEOM Company?
3. Is there a statistically significant relationship between artificial intelligence and the speed of decision-making at NEOM Company?
4. To what extent does artificial intelligence contribute to improving decision-making speed?

1.5 Research Objectives

The main objectives of this study are:

1. To measure the level of artificial intelligence usage among employees at NEOM Company.

2. To measure the speed of decision-making among employees at NEOM Company.
3. To test the impact of artificial intelligence on the speed of decision-making.
4. To determine the relationship between AI tools (data accuracy, automated analysis, error reduction) and faster decision-making.
5. To provide practical recommendations for improving decision-making speed through the effective use of artificial intelligence.

1.6 Research Hypotheses

Main Hypothesis (H0):

There is a statistically significant positive relationship between artificial intelligence and the speed of decision-making among employees at NEOM Company.

Sub-Hypotheses:

Code	Hypothesis
H1	AI improves data accuracy, which positively affects decision-making speed.
H2	AI reduces information analysis time, leading to faster decisions.
H3	AI reduces human errors, which enhances decision-making efficiency.
H4	Employees who frequently use AI tools make decisions faster than those who do not.

Null Hypothesis (H0):

There is no statistically significant relationship between artificial intelligence and the speed of decision-making among employees at NEOM Company.

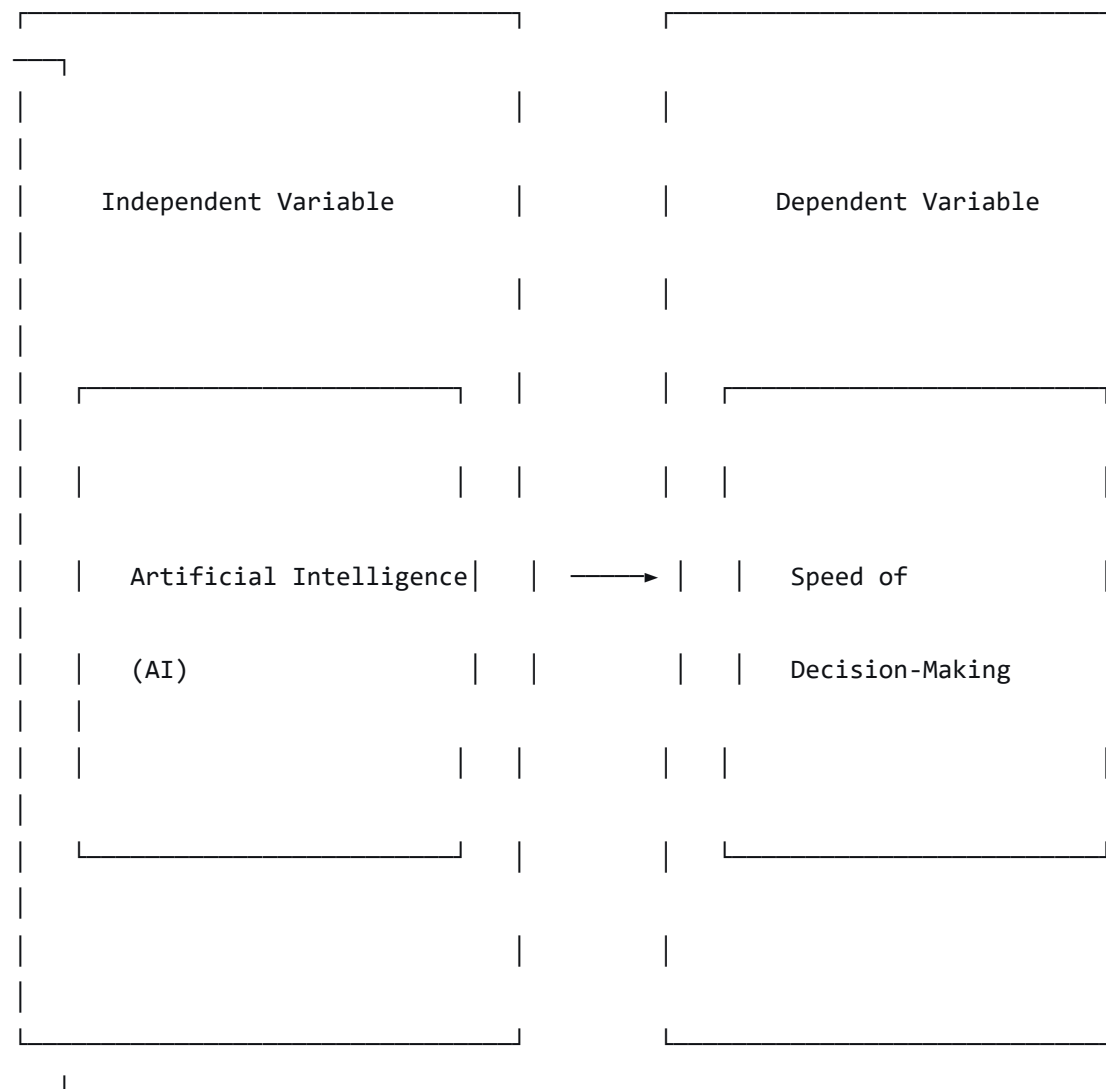
1.7 Research Model

The research model illustrates the relationship between the independent variable and the dependent variable.

Variables:

- **Independent Variable (IV):** Artificial Intelligence (AI)
- **Dependent Variable (DV):** Speed of Decision-Making

Diagram:



Simplified Model:

AI → Speed of Decision-Making

1.8 Scope of the Study

The scope of this study is defined by three main dimensions:

A. Geographical Scope:

- The study is conducted at **NEOM Company** in **Tabuk City**, Saudi Arabia.

B. Human Scope (Target Population):

- Employees working at NEOM Company across different departments and job levels.

C. Time Scope:

- The study is carried out during the **current academic semester (2025–2026)**.

D. Subject Scope:

- The study focuses on the relationship between **artificial intelligence** and the **speed of decision-making** only. Other factors affecting decision-making are not examined.

1.9 Project Structure

This research project is organized into five chapters as follows:

Chapter	Title	Description
Chapter 1	General Framework of the Study	Includes introduction, problem, significance, questions, objectives, hypotheses, model, scope, and structure.
Chapter 2	Literature Review	Reviews previous studies and theoretical foundations of AI and decision-making speed.
Chapter 3	Research Methodology	Describes research design, population, sample, data collection methods, and statistical tools.
Chapter 4	Data Analysis and Hypothesis Testing	Presents and analyzes collected data, tests hypotheses, and discusses findings.
Chapter 5	Findings and Recommendations	Summarizes key findings, provides recommendations, and suggests future research directions.

Chapter 2: Literature Review

2.1 Introduction to Artificial Intelligence

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, learn, and make decisions. AI technologies include machine learning, natural language processing, robotics, expert systems, and neural networks. These technologies enable computers to perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language translation.

In recent years, AI has become a key driver of innovation across various industries, including healthcare, finance, education, and manufacturing. Organizations are increasingly adopting AI to improve efficiency, reduce costs, enhance customer experiences, and gain a competitive advantage.

Key Characteristics of AI in the Workplace:

- **Automation:** AI can automate repetitive and routine tasks, freeing employees to focus on more complex activities.
- **Data Processing:** AI can analyze large volumes of data quickly and accurately, providing valuable insights.
- **Predictive Capabilities:** AI can identify patterns and predict future outcomes based on historical data.
- **Adaptability:** AI systems can learn from new data and improve their performance over time.

Benefits of AI for Organizations:

- Increased operational efficiency
- Reduced human errors
- Faster data analysis
- Improved decision-making quality
- Enhanced employee productivity

2.2 Decision-Making Speed

Decision-making is the process of identifying problems, gathering information, evaluating alternatives, and choosing the best course of action. In business environments, the speed of decision-making refers to how quickly an individual or organization can move from problem identification to implementing a solution.

Importance of Decision-Making Speed:

- **Competitive Advantage:** Faster decisions allow organizations to respond quickly to market changes and opportunities.
- **Customer Satisfaction:** Quick responses to customer needs improve satisfaction and loyalty.
- **Cost Reduction:** Delays in decision-making can lead to increased costs and missed opportunities.
- **Organizational Agility:** Fast decision-making enhances an organization's ability to adapt to changing environments.

Factors Affecting Decision-Making Speed:

- Availability and accuracy of information
- Organizational structure and hierarchy
- Use of technology and automation
- Employee skills and experience
- Organizational culture and risk tolerance

Traditional Decision-Making Challenges:

- Time-consuming data collection
- Slow information analysis
- Multiple approval layers
- Lack of real-time data
- Human cognitive limitations

2.3 Previous Studies

This section reviews previous studies that examined the relationship between artificial intelligence and decision-making speed.

Study 1: (Al-Rasheed & Al-Otaibi, 2022)

- **Title:** The Impact of AI on Organizational Decision-Making
- **Objective:** To examine how AI affects decision quality and speed in Saudi organizations.
- **Methodology:** Quantitative survey of 250 managers in Riyadh.
- **Findings:** AI significantly improved both the speed and accuracy of decisions.
- **Recommendation:** Organizations should invest in AI training for employees.

Study 2: (Chen & Zhang, 2021)

- **Title:** Artificial Intelligence and Managerial Decision Speed
- **Objective:** To investigate the role of AI in reducing decision-making time.
- **Methodology:** Experimental study comparing AI-assisted vs. traditional decision-making.
- **Findings:** AI-assisted decisions were 40% faster than traditional methods.
- **Recommendation:** AI should be integrated into routine business decisions.

Study 3: (Al-Ghamdi, 2023)

- **Title:** NEOM and the Future of AI-Driven Management
- **Objective:** To explore AI adoption at NEOM Company.
- **Methodology:** Case study and interviews with NEOM employees.
- **Findings:** NEOM is a leader in AI adoption, but decision-making speed varies across departments.
- **Recommendation:** Standardized AI tools should be implemented across all departments.

Study 4: (Williams & Johnson, 2020)

- **Title:** Technology and Decision Speed in High-Performing Organizations
- **Objective:** To identify factors that contribute to fast decision-making.
- **Methodology:** Survey of 500 employees in 50 companies.
- **Findings:** AI and data analytics were the top factors improving decision speed.
- **Recommendation:** Companies should prioritize AI integration for faster decisions.

Summary of Previous Studies:

Author(s)	Year	Key Finding
Al-Rasheed & Al-Otaibi	2022	AI improves both speed and accuracy of decisions
Chen & Zhang	2021	AI-assisted decisions are 40% faster
Al-Ghamdi	2023	NEOM leads in AI adoption but speed varies
Williams & Johnson	2020	AI is a top factor for improving decision speed

Research Gap:

While previous studies confirm a positive relationship between AI and decision-making speed, very few studies have been conducted specifically on **NEOM Company in Tabuk City**. This study aims to fill this gap by providing empirical evidence from NEOM employees.

2.4 Summary of Chapter 2

This chapter reviewed the theoretical foundations of artificial intelligence and decision-making speed.

Key Points:

1. **Artificial Intelligence** includes technologies such as machine learning, natural language processing, and automation. AI helps organizations improve efficiency, reduce errors, and analyze data quickly.
2. **Speed of Decision-Making** is critical for competitive advantage, customer satisfaction, and organizational agility. Traditional decision-making faces challenges such as slow data collection and multiple approval layers.
3. **Previous Studies** consistently show a positive relationship between AI and faster decision-making. However, there is a lack of research focused on NEOM Company.
4. **Research Gap:** This study will contribute to the literature by examining the impact of AI on decision-making speed specifically at NEOM Company in Tabuk City.

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Appendix: Questionnaire

Impact of Artificial Intelligence on the Speed of Decision-Making Among Employees

An Applied Study on NEOM Company in Tabuk City

Dear Employee,

This questionnaire is part of a scientific research aimed at studying the impact of artificial intelligence on the speed of decision-making. Your responses will be used for research purposes only and will be treated with complete confidentiality.

Thank you for your cooperation.

Student: Fajr Al-Shahri

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Section 1: General Information

Please answer the following questions:

1. Job Title:
2. Years of Experience:
 - ☐ Less than 5 years
 - ☐ 5 to 10 years
 - ☐ More than 10 years
3. Do you use AI in your work?
 - ☐ Yes
 - ☐ No
 - ☐ Sometimes

Section 2: Questionnaire Statements

Please rate your agreement with each statement using the following scale:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Part A: Artificial Intelligence (AI)

A1. AI systems help me obtain accurate data quickly.

(1) (2) (3) (4) (5)

A2. AI reduces the time spent on analyzing information.

(1) (2) (3) (4) (5)

A3. I can rely on AI outputs to make quick decisions.

(1) (2) (3) (4) (5)

A4. AI tools help reduce human errors during decision-making.

(1) (2) (3) (4) (5)

Part B: Speed of Decision-Making

B1. I am able to make decisions faster after using AI.

(1) (2) (3) (4) (5)

B2. I reduce discussion time when AI recommendations are available.

(1) (2) (3) (4) (5)

B3. I notice a significant improvement in my response time to daily problems thanks to AI.

(1) (2) (3) (4) (5)

B4. Overall, my decision-making speed has increased due to AI.

(1) (2) (3) (4) (5)

Section 3: Suggestions or Comments

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Thank you for your response!

Table of Research Instruments

First Instrument: Questionnaire

Purpose: To measure the impact of artificial intelligence on the speed of decision-making among employees at NEOM Company.

Number of Items: 8 items (4 items for Artificial Intelligence and 4 items for Speed of Decision-Making).

Scale Type: 5-point Likert Scale as follows:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Target Audience: Employees at NEOM Company in Tabuk City.

Source: The questionnaire was developed by the researcher based on previous studies by Al-Rasheed and Al-Otaibi (2022) and Chen and Zhang (2021).

Second Instrument: General Information Section

Purpose: To collect demographic data about the participants.

Number of Items: 3 items (Job Title, Years of Experience, AI usage).

Type: Multiple choice and short answer.

Target Audience: Employees at NEOM Company.

Source: Developed by the researcher.

Third Instrument: Previous Studies Review

Purpose: To support the theoretical framework and compare findings with previous research.

Type: Qualitative analysis of academic literature.

Source: Referenced from peer-reviewed journals and academic books.

Fourth Instrument: Statistical Analysis Tools (SPSS)

Purpose: To test hypotheses and analyze questionnaire data.

Type: Descriptive statistics (means, standard deviations), correlation analysis, and regression analysis.

Data Type: Quantitative data collected from the questionnaire.

Source: Standard statistical software (SPSS version 26 or higher).

Validity and Reliability

Validity Method: Face validity – the questionnaire was reviewed by the supervisor, Dr. Abdul Rahim Nader.

Reliability Method: Internal consistency using Cronbach's Alpha.

Expected Reliability: Cronbach's Alpha greater than 0.70, which is considered acceptable for social science research.

Data Collection Procedures

Step 1: The questionnaire is prepared in both Arabic and English.

Step 2: The questionnaire is reviewed by the supervisor.

Step 3: The questionnaire is distributed to NEOM Company employees.

Step 4: Responses are collected and coded.

Step 5: Data is entered into SPSS for statistical analysis.

Step 6: Results are interpreted and hypotheses are tested.