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The role of artificial intelligence in enhancing decision-making quality within economic enterprises

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***Abstract*---**The study aimed to highlight the role of economic intelligence in enhancing the quality of decision-making within economic enterprises, using a descriptive approach in the theoretical section, and a case study and analytical approach in the applied section. The focus was on the Hassnaoui Group in the Wilaya of Sidi Bel Abbes, which is one of the institutions keen on applying modern technologies. A questionnaire was distributed to the employees of the organization and analyzed using the SPSS software. Study Results: The study concluded several findings, the most important of which is the existence of a statistically significant relationship between artificial intelligence and decision-making quality. Scientific Novelty: The study is innovative in that it connects two variables: the first, artificial intelligence, which is currently a trending topic, and the second, decision quality, which is crucial for the continuity and advancement of an enterprise. Scientific Value of the Research: The research's value lies in linking two variables by understanding the role of artificial intelligence tools in making high-quality decisions within economic enterprises and shedding light on one of the largest private economic institutions in Algeria.

***Keywords*---**Artificial Intelligence, Decision Making, Decision Quality.

Introduction

In recent years, there have been significant developments in the technical and technological fields, particularly in the economic sector. Companies are living in a rapidly changing environment due to these swift and continuous advancements in software, computer systems, and their programs. Over the past two decades, these developments have surpassed those in other scientific fields, with the

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emergence of new innovations. Among these inventions is the field of artificial intelligence, which appeared in the 1950s and is considered a major turning point in human history due to its provision of new and modern methods for management and administration processes. This transition involves moving from traditional methods to the use of advanced programs and technologies aimed at improving the performance of institutions and promoting their development. This is achieved by accessing knowledge and information from anywhere in the world in the shortest time and with minimal effort, ensuring that institutions can compete efficiently and maintain their position in the market. It also ensures the safety and quality of decisions, which depend on the availability of sufficient and relevant information with a certain level of confidence for decision-makers. This is accomplished through technologies that assist management and decision-makers in performing their tasks and executing strategies .

Study Problematic

What is the role of artificial intelligence in the quality of decision-making within economic enterprises ?

Study Hypotheses :

Main Hypothesi

There is a positive impact of using artificial intelligence technologies on the quality of decision-making within economic enterprises .

Sub-hypotheses :

1- There is a statistically significant positive relationship indicating that artificial intelligence applications create added value in the decision-making process .

2- There is a statistically significant positive relationship indicating that the use of artificial intelligence applications leads to high-quality decision-making within economic enterprises .

Importance of the Study :

The importance of the study lies in demonstrating the role of artificial intelligence and its applications in improving the quality of decision-making within economic enterprises and helping Algerian institutions keep pace with the rapid global technological advancements .

Objectives of the Study :

- determine the extent to which economic enterprises incorporate artificial intelligence elements .
- examine modern methods of decision-making within economic institutions .
- highlight the importance of keeping up with technological progress and the need to focus on artificial intelligence in economic institutions .
- emphasize the effective role that artificial intelligence systems play in improving the quality of decisions within economic enterprises .

Study Methodology :

The study relied on a descriptive method for the theoretical part and an analytical approach to analyze and interpret the results statistically, completing the applied section of the study. A questionnaire was used to collect data from a sample of employees to validate or refute the hypotheses using SPSS technology .

Study Structure :
- Artificial Intelligence and Decision Making
- The Relationship Between Artificial Intelligence and Decision Making within Economic Enterprises
- Case Study: Hassnaoui Group on the Use of Artificial Intelligence in Decision-Making Quality

1- **Theoretical Literature Review**

1-1- Definition of Artificial Intelligence :

"Dan W. Patterson" defines it as a branch of computer science that focuses on the creation and study of computer systems that exhibit certain forms of intelligence. These systems have the capability to draw highly useful conclusions about the given problem and can understand natural languages, live perception, and other capabilities that enable intelligent behavior. (Hijira, 2018)

Alex considers it a field based on statistics and probabilities, advancing rapidly through modern applications that seek to develop sophisticated programming methods to perform tasks and draw conclusions that resemble, even to a limited extent, human intelligence. It is a science that first seeks to define human intelligence, simulate its properties, and identify its dimensions, then attempt to replicate certain aspects of it. (Castrounis, 2019)

John McCarthy defines it as: the science of creating intelligent computer programs, or a branch of computer science that aims to achieve goals across all fields. (Al-Rawi & Saja, 202

In general, artificial intelligence can be defined as one of the modern technologies developed in the late 20th century, which includes a set of software that assists managers and employees in decision-making for all company operations. It is characterized by sophistication and advancement, equipping computers with a range of activities that help simulate intelligent behavior .

1-2- Applications of Artificial Intelligence

There are many areas where artificial intelligence can be applied, including: (Saoud, 2020)

- Libraries and Information Centers : Specialists have benefited from this technology by developing various systems for storage, retrieval, indexing, detection, academic expertise, conducting interviews, and building knowledge treasures to meet the needs of beneficiaries.
- Computer Games : In these games, a problem is presented to the individual, and they attempt to solve it. Some of these games are so difficult that an ordinary person cannot find solutions. However, with artificial intelligence, computers can solve these problems and sometimes be difficult to overcome.
- Expert Systems : These are complex accounting systems based on gathering specialized information from experts and presenting it in a way that allows the computer to apply that information to similar problems.

- Natural Language Processing : This area focuses on developing programs and systems that have the ability to understand or generate human language.
- Machine Learning : It enables computers to learn how to solve problems independently, either by learning from past experiences, analyzing correct solutions, or through trial and error with examples.
- Natural Language Processing : A subfield of artificial intelligence that intersects significantly with linguistics, this field enables the creation of software capable of analyzing, simulating, and understanding natural languages.

1-3-Objectives of Artificial Intelligence Technology in Organizations

Through the use of artificial intelligence, organizations aim to achieve the following goals: (Al-Aisawi & Omar Al-Jabri, 2018)
-Storing knowledge, analyzing it, and storing procedural rules to manage it and reach its facts.
-Making machines smarter and capable of learning from existing experiences.
-Providing and improving pricing based on customer behavior and preferences.
-Acquiring and updating accumulated human knowledge, maintaining it, and using it to solve problems.
-Optimally utilizing knowledge and scientific and practical expertise while overcoming issues such as loss, scarcity, and forgetfulness.
-Generating or developing new knowledge and activating computerized knowledge for decision-making.

1-4- Limitations of Artificial Intelligence

Work in artificial intelligence generally divides into several subfields that address common scientific problems, some of which are difficult or require different tools and skills. Among them are: (Mousa & Ahmed, 2018(

Robotics: A mechanical and electrical machine that requires minimal description. It involves creating devices capable of performing actual tasks, mimicking human thought, and simulating human form. However, this is not essential, and much of the work aims to develop lighter, more flexible, and stronger robots using natural-inspired designs .

What distinguishes robotics research in AI is:
- It is one of the most automated mechanical machines.
- It attempts to build devices capable of accomplishing multiple tasks.
- It works on tasks that humans cannot accomplish.
- It performs routine procedures for complex systems.

Computer Vision : Primarily focuses on equipping computers with the ability to "see," which means interpreting visual images. Research in computer vision parallels the transition from symbolic systems to machine learning.

Speech Recognition : (Mohamed & Mahmoud Mohamed, 2020)
This area aims to make computers more interactive with users. It explores ways to enable computers to recognize human speech, allowing humans to issue verbal commands and the computer to understand and execute them.

2- Definition of Decision-Making

Decision-making is a cognitive process where an individual chooses the best ideas, solutions, and actions for various problems faced by an organization or any of its interests after gathering the necessary information to determine the appropriate solution in the form of a decision that is expected to materialize in the present or future to achieve organizational goals. (Tahir, 2016)

It is also defined as: testing a certain behavior among multiple alternative behaviors or definitions. Thus, decision-making requires knowledge and sufficient understanding of alternative behaviors, as well as the ability to accurately define and evaluate these alternatives as a basis for the selection process. (Othman, 2020)
From this, we conclude that the decision-making process is central to the management process, whether in setting goals or in determining the means to achieve them.

3- Decision-Making Models

Every manager aspires for their decisions to be fully rational and logical, i.e., objective and entirely based on reason. However, reality often contradicts this, and thus decision-making methods are classified into two main models:

3-1- Rational Model

Also known as the ideal model, it focuses on what a manager should do and how they should make their decisions. This model is based on economic theory, which assumes the manager is fully rational, seeking to maximize profits. The manager is presumed to have the following characteristics:

- Full knowledge of available alternatives for solving the problem.
- Complete knowledge of the results of each alternative.
- The ability to objectively evaluate the results of each alternative.
- The capacity to make optimal decisions.

3-2- Behavioral Model

Most authors agree that the assumptions underlying the rational model rarely, if ever, hold true. Decision-makers are constrained by limited cognitive abilities, values, emotions, and external environmental factors. This has led to the concept of "bounded rationality," as organizations operate in a highly complex and volatile environment, with numerous alternatives and unknown outcomes, making any rational behavior inherently limited. (Hareem, 2006)

3-3- Inductive Model

Added by Luthans, this model is also known as the intuitive model. Here, the decision-maker relies on personal judgment, intuition, and experience, rather than scientific knowledge, trial, and error. This model can facilitate decision-making but may lead to errors and biased outcomes under certain conditions. (Hareem, 2006)

4- AI Applications Supporting Decision-Making

The main AI systems used to support management decisions can be explored through: (Jabari, 2018)

4-1- Expert Systems

An expert system is a branch of AI that aims to model human expertise in a specific knowledge area to solve problems automatically, utilizing the latest advancements in information technology. Expert systems play a crucial role in decision-making, and this is evident through the following stages: (Aboubakr, 2019)

- Inquiry Phase : Decision-making begins when the decision-maker realizes the need to make a decision. This phase involves classifying the problem, determining its severity, and utilizing the knowledge base, one of the key components of the expert system.
- Design Phase : In this phase, the decision-maker develops potential solutions that will be further analyzed to help identify alternatives for complex problems.
- Selection Phase : The decision-maker is faced with multiple alternatives and must choose the one that results in the most appropriate actions. The expert system assists by generating, evaluating, and suggesting the best solutions.
- Execution Phase : In this phase, the chosen solution is implemented.

4-2- Neural Networks

Neural networks are information-processing systems inspired by the central nervous system, especially the brain. They have been developed as generalizations of mathematical models that describe human perception and neurobiology, essentially teaching computers to think .

Neural networks play a key role in decision-making by:

- Predicting stock market trends due to their ability to process vast amounts of data rapidly.
- Storing a large number of past experiences and using them to assist in decision-making for similar cases.
- Organizing production, quality control, product design, and forecasting economic behavior.
- Forecasting economic trends in multiple variables, such as assessing loan risks in banks by analyzing multiple files in seconds.

4-3- Genetic Algorithms

Genetic algorithms are computer programs that simulate biological processes to solve problems related to evolutionary systems. These algorithms are particularly useful for problems involving multiple candidate solutions and numerous influencing factors, such as selecting candidates for a bank loan or solving logistical problems.

4-4- Intelligent Agents

An intelligent agent is an entity that can perceive its environment and interact with it through sensors and execution mechanisms. The main features of intelligent agents include: (Qasim, 2016(

- Autonomy : Outputs depend on the inputs of the technology or software.
- Proactiveness : The agent's interaction with its environment affects not only its responses but also its actions.
- Social Interaction : The agent can communicate with people online while they search for products or services.

5- Historical Overview of Hassnaoui Group

The first company in the Hassnaoui Group was established by Mr. Ibrahim Hassnaoui in 1974. Initially active in construction, public works, and irrigation, the company specialized in the construction sector, which was dominated by major public institutions. Over time, and considering significant changes in the national economy, the company sought to diversify and enhance its activities, despite facing significant challenges in the field. The company has a long history of adapting to the evolving economic landscape.

6- AI Applications Used in Hassnaoui Group Companies

6-1- Helpdesk System

The helpdesk is a crucial component for any organization seeking effective support for its internal or external users. It centralizes support requests, tracks them, and resolves issues efficiently, providing a single point of contact for users facing technical problems or support needs.

6-2- Features :

- Centralized Request Management : Consolidates all support requests across multiple channels (phone, email, chat) for a comprehensive view.
- Ticketing System : Creates individual tickets for each request, allowing tracking of status, actions, and resolution times.
- Knowledge Base : Often includes a knowledge repository for users to find answers to common issues without needing direct support.
- Process Automation : Automates repetitive tasks to enhance operational efficiency.
- Reporting and Analytics : Provides tools for tracking helpdesk performance, response times, problem trends, and useful metrics.
- Collaborative Support : Facilitates teamwork among support staff to ensure fair task distribution and information sharing.

6-3- Benefits

- Improved Customer Satisfaction : Effective issue resolution leads to higher customer satisfaction.
- Operational Efficiency : Automation and centralization streamline resource management.
- Trend Analysis : Data collected helps identify recurring problems, preventing future issues.
- Cost Reduction : Automation helps reduce operational costs related to support.

6-4- Odoo ERP

Odoo, previously known as Open ERP, is a comprehensive open-source business application suite. It covers areas like sales, procurement, accounting, HR, manufacturing, e-commerce, and marketing. Odoo is designed for businesses of all sizes, offering a modular and customizable solution.

6-5- Features :

- Modularity and Flexibility : Users can choose and customize modules to meet specific business needs.

- Intuitive User Interface : The modern, easy-to-use interface is accessible via web browsers.
- Full Integration : All Odoo modules are integrated, ensuring seamless data synchronization across business functions.
- Complete Business Management : Odoo manages everything from sales to accounting, inventory, project management, and HR.
- Customization : Offers powerful customization tools to adapt the system to specific operational requirements.
- Active Community : A vibrant global community ensures ongoing support, updates, and resources.

6-6- Benefits :

- Affordable : As open-source software, Odoo offers an economical alternative to proprietary ERP solutions.
- Scalability : Odoo can scale as the business grows, with new modules added as needed.
- Global Support : A large user base provides extensive resources and technical support.
- Regular Updates : Frequent updates keep the system aligned with the latest features and security improvements.

7. case study

7-1- Study Sample

The study focuses on the employees of the Hassnaoui Group in Sidi Bel Abbes. A total of 40 questionnaires were distributed across different levels of employees, and 35 valid responses were retrieved for analysis, with 5 questionnaires excluded.

These AI-powered tools enhance both operational efficiency and decision-making within the Hassnaoui Group, fostering better management of internal processes and customer interactions.

Table No. (01): shows the sample size

Institution	**Number of distributed forms**	**Number of returned forms**	**Number of forms Cancelled**
BTPH	20	17	03
Top management	10	08	02
Groupe PUMA	10	10	0
Total	40	35	05
%	100%	%**87,5**	**12,5**%

Source: Source: Prepared by the researcher

7-2-Tool validity:

Table No. (02) represents the validity of internal consistency between the artificial intelligence axis

Item No	Link to the axis as a whole
01	,3070
02	,4290
03	,5040
04	,5980
05	,5940
06	,5370
07	,4110
08	,5050
09	,4460

(0,01=)\(= 0,05)

Source: Source: Prepared by the researcher

We note from the table that the correlation coefficients in the artificial intelligence axis between the total score items ranged between (0.44, 0.59) and were statistically significant at the significance level of 0.01. The correlation coefficients ranged between (0.30, 0.42) and were statistically significant at the significance level of 0.05. Thus, it has good internal consistency validity.

Table No. (03) represents the validity of internal consistency between the decision-making quality axis

Item No	Link to the axis as a whole
01	,5310
02	,5030
03	,4320
04	,5540
05	,4980
06	,4300
07	,5660
08	,5930
09	,4930

0,01=

Source: Source: Prepared by the researcher

The table indicates that the correlation coefficients for the items on the decision-making quality axis in relation to the total score range from 0.43 to 0.59. All of these coefficients are statistically significant at the 0.01 level, suggesting a robust internal consistency validity.

7-3-Second: Cronbach's alpha stability

Table No. (04) represents the stability of Cronbach's alpha

Variables	**alpha Cronbach's**
Total score for the AI axis	,8170
Total score for the quality of decision-making axis	,7750

Source: Source: Prepared by the researcher

The Cronbach's alpha reliability coefficient for the total score of the artificial intelligence axis was 0.81, and for the decision-making quality axis, it was 0.77, both at a significance level of 0.01, indicating good reliability.

7-4- Analysis of sample answers
Data collection tool:

The study relied on a questionnaire as a tool for collecting data, and these are the results of the sample's answers based on the five-point Likert scale, as shown in the following table:

Table No. (05) Five-point Likert scale

Answer	**Degree of approval**	**Areas of approval**
Strongly disagree	1	1.80 -1.00
Disagree	2	2.60-1.81
Neutral	3	3.40-2.61
Agree	4	4.20-3.41
Strongly agree	5	5.00-4.21

Source: Source: Prepared by the researcher

Table No. (06) shows the study sample's answers to the artificial intelligence axis

Paragraphs		Likert					Standard deviation	Mean	General direction
		Strongly disagree	Disagree	**neutral**	**Agree**	Strongly agree			
		5	4	**3**	**2**	1			
01	f	1	32	1	1	0	,4160	3,94	**Agree**
	%	2,9	91,4	2,9	2,9	0,0			
02	f	4	23	3	5	0	,8520	3,74	**Agree**
	%	11,4	65,7	8,6	14,3	0,0			
03	f	0	10	19	6	0	,7700	3,37	neutral
	%	0,0	28,6	54,3	17,1	0,0			
04	f	0	18	10	7	0	,7960	3,43	**Agree**
	%	0,0	51,4	28,6	20,0	0,0			
05	f	1	22	7	5	0	,7800	3,54	**Agree**
	%	2,9	62,9	20,0	14,3	0,0			
06	f	0	18	8	9	0	,8520	3,56	**Agree**
	%	0,0	51,4	22,9	25,7	0,0			
07	f	3	19	7	6	0	,8860	3,54	**Agree**
	%	8,6	54,3	20,0	17,1	0,0			
08	f	1	19	8	7	0	,8470	3,40	**Agree**

	%	2,9	54,3	22,9	20,0	0,0			
09	f	3	25	6	1	0	,6010	3,86	**Agree**
	%	8,6	71,4	17,1	2,9	0,0			
		Total axis score					**0.756**	**3.552**	**Agree**
Percentage %		3,95	57,14	23,06	13,19	0,22			

Source: Source: Prepared by the researcher

It is evident from the table that the majority of the study sample's responses were inclined towards agreeing, as the mean score was 3.55. The percentage of agreement responses was 57.14%, and the percentage of strongly agree responses was 3.95%. This indicates that the study sample generally agreed with the use of artificial intelligence. The percentage of disagreement responses was 13.19%, while strongly disagree responses accounted for 0.22%, and the neutral responses made up 23.06%. Therefore, the overall trend towards artificial intelligence is positive.

Table No. (07) represents the study sample's answers on the decision-making quality axis

Paragraphs		Likert					Standard deviation	Mean	General direction
		Strongly disagree	Disagree	**neutral**	**Agree**	Strongly agree			
		5	4	**3**	**2**	1			
Decision making									
01	f	1	16	8	9	1	,9640	3,20	**Agree**
	%	2,9	45,7	22,9	25,7	2,9			
02	f	3	13	10	7	2	1,060	3,23	**Agree**
	%	8,6	37,1	28,6	20,0	5,7			
03	f	1	16	8	9	1	,9640	3,20	**Agree**
	%	2,9	45,7	22,9	25,7	2,9			
04	f	2	13	11	9	0	,9100	3,23	**Agree**
	%	5,7	37,1	31,4	25,7	0,0			
05	f	0	14	14	7	0	,7590	3,20	**Agree**
	%	0,0	40,0	40,0	20,0	0,0			
Decision quality									
06	f	3	15	8	9	0	,9680	3,34	**Agree**
	%	8,6	42,9	22,9	25,7	0,0			
07	f	1	14	10	10	0	,8910	3.41	**Agree**
	%	2,9	40,0	28,6	28,6	0,0			
08	f	0	16	7	12	0	,9000	3.76	**Agree**
	%	0,0	45,7	20,0	34,3	0,0			
09	f	0	16	5	13	1	,9850	3,03	**Agree**
	%	0,0	45,7	14,3	37,1	2,9			
		Total axis score					**0.937**	**3.162**	**Agree**
Percentage %		3,39	41,19	25,24	28,75	1,43			

Source: Source: Prepared by the researcher

It is evident from the table that the majority of the study sample's responses were inclined towards agreeing, as the mean score was 3.16. The percentage of agreement responses was 41.19%, and the percentage of strongly agree responses

was 3.39%. This indicates that the study sample generally agreed with the quality of decision-making. The percentage of disagreement responses was 28.75%, while strongly disagree responses accounted for 1.43%, and the neutral responses made up 25.24%. Therefore, the overall trend towards decision-making processes is positive.

7-5- Hypothesis Testing:

Presenting the results of the general hypothesis: which states that there is a positive effect between artificial intelligence and the quality of decision-making in the Hasnawi complex.

Table No. (08) shows the correlation coefficient between artificial intelligence and the quality of decision-making.

AI		
0,707	Pearson's coefficient	**Quality of decision making**
,000	Confidence level	
0,01	Significance level	

Source: Source: Prepared by the researcher

It is evident from the table that there is a statistically significant correlation between artificial intelligence and the quality of decision-making, as the correlation coefficient reached (0.70), which is statistically significant at the 0.01 significance level. Therefore, artificial intelligence has a positive impact on the quality of decision-making. Thus, the hypothesis stating that there is a positive impact between artificial intelligence and the quality of decision-making in the Hasnawi complex has been confirmed.

-7-6- Testing the first sub-hypothesis:

Artificial intelligence affects decision-making in the Hasnawi complex.

Table No. (09): Results of the analysis of the impact of artificial intelligence on decision-making

AI							
Significance level	Sig	T value T test	F value ANOVA	regression coefficient B	coefficient of determination R-deux	Correlation coefficient R	**on decision-making**
0,01	0,00	3,553	15,075	1,044	0,314	0,560	

Source: Prepared by the researcher

It is evident from the table that there is an impact relationship between artificial intelligence and decision-making at the significance level of (0.01), where the

correlation coefficient is (0.56). The coefficient of determination is (0.31), and the regression coefficient is (1.04). The ANOVA value is (15.07), indicating that the calculated "F" value is greater than the tabulated "F" value, implying that there are differences between the groups. Additionally, the "t" value is (3.55), which is statistically significant. Since the significance level (Sig) is (0.00), which is statistically significant at the 0.01 level, we conclude that the model is valid for testing this hypothesis. Furthermore, the table shows that artificial intelligence explains (56%) of the variance in the dependent variable (decision-making), indicating a medium explanatory power. Therefore, artificial intelligence has a moderate impact on decision-making within the study sample, and thus, the hypothesis is confirmed.

7-8-Testing the second sub-hypothesis:
Artificial intelligence affects decision quality in the Hasnawi complex.

Table No. (10): Results of the analysis of the impact of artificial intelligence on decision quality

AI							
Significance level	Sig	T value T test	F value ANOVA	regression coefficient B	coefficient of determination R-deux	Correlation coefficient R	**decision quality**
0,01	0,00	5,255	27,615	0,950	0,456	0,675	

Source: Prepared by the researcher

It is evident from the table that there is an impact relationship between artificial intelligence and the quality of decision-making at the significance level of (0.01), where the correlation coefficient is (0.67). The coefficient of determination is (0.45), and the regression coefficient is (0.95). The ANOVA value is (27.61), indicating that the calculated "F" value is greater than the tabulated "F" value, which implies that there are differences between the groups. Additionally, the "t" value is (5.25), which is statistically significant. Since the significance level (Sig) is (0.00), which is statistically significant at the 0.01 level, we conclude that the model is valid for testing this hypothesis. Furthermore, the table shows that artificial intelligence explains (67%) of the variance in the dependent variable (quality of decision-making), indicating a good explanatory power. Therefore, artificial intelligence has a good impact on the quality of decision-making within the study sample, and thus, the hypothesis is confirmed.

Conclusion

Artificial intelligence (AI) has permeated all fields and has become an essential tool within organizations and economic institutions. The intelligent systems used have demonstrated a significant role in performing difficult and precise tasks with efficiency and effectiveness, especially in their ability to solve problems and select the best solutions and alternatives for the organization.

Based on this, the study aimed to address the issue of the role of AI applications in the quality of decision-making within economic institutions. The results were as follows:

Theoretical Results :

In light of the theoretical literature presented on the study's variables, the following conclusions were reached:

- Artificial intelligence is a new branch of computer science, aiming to enable computers and machines to think, reason, and provide solutions in difficult situations, thus assisting in decision-making.
- The contribution of intelligent systems to decision-making areas is evident in their accuracy, objectivity, and ability to avoid errors and biases.

Practical Results :

Through the applied section of the study, several key findings were reached, the most important of which are:

- There is a positive correlation between the application of artificial intelligence and the quality of decision-making within Hasnawi Group. This is evident from the Pearson correlation coefficient, R-square, F-value, and regression analysis, which show that:
- There is a statistically significant positive relationship between the type of intelligent system used and the quality of decision-making. The relationship shows that the intelligent system generates higher-quality decisions compared to traditional systems.

This confirms that the implementation of AI technologies enhances decision-making processes, leading to better outcomes and more informed choices in economic institutions.

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