

The Role of Artificial Intelligence in Improving Decision Quality in the Organization -A Case Study: Cosider company, Constantine

دور الذكاء الاصطناعي في تحسين جودة القرار في المؤسسة دراسة حالة بمؤسسة كوسيدار قسنطينة

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Received: 01/07/2024

Accepted: 30/09/2024

Published: 30/09/2024

Abstract:

This study aimed to identify and analyze the reality of artificial intelligence (AI) usage in Cosider company, focusing on three dimensions: output quality availability, system suitability for user needs, and ease of use. Furthermore, it sought to uncover the relationship between AI and the quality of decisions within the company.

The study was applied to a random sample of employees and executives from the Cosider company's Constantine branch, with a sample size of 60 individuals. The research relied on a questionnaire to measure the study variables. Descriptive statistical methods were utilized to process and analyze the data using the Statistical Package for Social Sciences (SPSS) program.

Among the most prominent results was a statistically significant correlation between the AI adopted in the institution and the quality of its decisions. Moreover, AI features significantly impacted the level of decision quality. Mainly, it was found that the quality of system outputs positively impacts the level and quality of decisions among the sample individuals involved in the study.

In light of these results, the researcher introduced a set of recommendations to improve the role of AI systems in promoting the quality of decision-making at the Cosider company.

Keywords: Information, Information Value, System Suitability, Decision Quality, Artificial Intelligence.

JEL Classification Codes: O32, O33.

ملخص:

هدفت هذه الدراسة إلى بيان وتحليل واقع استخدام الذكاء الاصطناعي في مؤسسة كوسيدار، من خلال التركيز على ثلاثة أبعاد: توفر جودة المخرجات، ملائمة النظام لاحتياجات المستخدم، سهولة الاستخدام، وكذا اكتشاف العلاقة بينه وبين جودة القرارات فيها. تم تطبيق الدراسة على عينة عشوائية، من موظفي وإدارات مؤسسة كوسيدار فرع ولاية قسنطينة، حيث بلغ حجم العينة (60) فردا. وقد اعتمدت الدراسة على الاستبانة لقياس متغيرات الدراسة، كما تم استخدام الأساليب الإحصائية الوصفية لمعالجة البيانات وتحليلها بواسطة برنامج الحزمة الإحصائية للعلوم الاجتماعية الإحصائية (SPSS). ومن أبرز النتائج المتوصل إليها هو وجود علاقة ارتباطية ذات دلالة إحصائية بين الذكاء الاصطناعي المعتمد في المؤسسة وجودة القرارات فيها، كذلك وجود تأثير معنوي لخصائص الذكاء الاصطناعي على مستوى جودة القرارات، حيث وجد أن جودة مخرجات النظام تؤثر بشكل إيجابي في مستوى وجودة القرارات لدى أفراد العينة التي شملتها الدراسة.

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وعلى ضوء هذه النتائج قدم الباحث مجموعة من التوصيات التي من شأنها تعزيز دور نظم الذكاء الاصطناعي في الرفع من مستوى جودة القرارات في مؤسسة كوسيدار.

كلمات مفتاحية: المعلومات، قيمة المعلومات، ملائمة النظام، جودة القرار، الذكاء الاصطناعي.

تصنيفات JEL : O32, O33.

INTRODUCTION:

Information is the driving force behind the execution of all organizational activities and tasks, regardless of their types and the nature of their activities. With considerable development in information technology and computers, there has been concurrent development in techniques and methods for information control to satisfy the needs of institutions at all administrative levels within effective information systems. The more these systems' effectiveness features are available within an organization, the more they lead to positive results, which the human resource translates into practical reality through the efficient performance of assigned tasks employing new and effective methods.

The increase in organizations' size, the complexity of their administrative activities, and the evolution of decision-making tools have increased managers' interest in obtaining accurate, relevant, and timely information to conduct planning, control, and decision-making tasks efficiently and effectively. Therefore, information and the systems responsible for production have become crucial organizational resources.

Given that the decision-making process has become highly sophisticated in a constantly changing environment with various variables that need to be studied, the traditional methods relied upon in the past have become inefficient. This has necessarily called for using and relying on quantitative analysis methods in decision-making. It is worth noting that quantitative methods are not a substitute for the manager in decision-making but are helpful and effective tools when their limitations and application areas are understood.

Modern technology has emerged as a significant element in several domains, becoming a hallmark of our era. It has evolved into intelligent technology with new and extensive applications and almost limitless techniques. Among the most prominent modern applications is artificial intelligence (AI), a relatively new field and a branch of computer science focused on studying and understanding human intelligence and replicating it artificially. AI is currently adopted to make sound decisions with minimal time, effort, and cost, without human intervention. It includes the ability to learn and employ natural language accurately and effortlessly. AI's development has reached the point where it can create human-like machines that can perform specific tasks and services, making AI an effective component in many fields and industries, especially in business organizations. Information and knowledge are now collected practically and objectively to guarantee accurate and sound decision-making. The success of these decisions relies on their rationality, and among the most significant information systems that support these decisions is artificial intelligence. AI improves the value of information and helps organizations make rational decisions.

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Based on the above, the central research problem statement is as follows:

To what extent does artificial intelligence contribute to improving the quality of decisions at Cosider Company?

This main question can be divided into various sub-questions as follows:

1. Does Cosider Company use AI applications with effective features?
2. Are the decisions made at Cosider Company of high quality?
3. Is there a relationship between AI applications and the quality of decisions at Cosider Company in Constantine?

Research Hypotheses:

1. **First hypothesis:** Cosider Company utilizes AI applications with effective features.
2. **Second hypothesis:** The decisions made at Cosider Company are of high quality.
3. **Third hypothesis:** There is a relationship between AI applications and the quality of decisions at Cosider Company in Constantine at a significance level of 0.05.

Study Objectives:

- To identify the role of AI in improving the quality of decisions at Cosider Company.
- To offer a set of recommendations that could activate the role of AI in increasing the quality of decisions at Cosider Company.

Previous Studies:

- **Abdulaziz's Study (2019):** This study aimed to identify the reality of web-based information systems and their role in developing administrative work at the United Arab Emirates University. Furthermore, the study sought to determine the essential components that an information system must include and to what extent they are present in the administrative information system employed by the university. It also examined the efficiency of employees in utilizing these systems. The study concluded that the administrative information system employed by the United Arab Emirates University possesses more than 92% of the necessary components. The university continually strives for enhancement, as indicated by the application it created for smartphones, facilitating employees in performing necessary tasks. The study recommended that the university focus on training employees in tasks that necessitate considerable time and effort, satisfying their needs with further training. It also proposed raising awareness and informing employees about the tasks on the university's website to reduce the need for direct interaction with the Human Resources or IT departments.

- **Mazen Aishobaki's Study (2016):** Entitled "Impact of Electronic Human Resources Management on the Development of Electronic Educational Services in Universities," this

study aimed to identify the effect of electronic human resources management on the development of electronic educational services in Palestinian universities in the Gaza Strip. The study indicated that the university system offers electronic educational services, impacting the shift to electronic management of human resources by employing information technology in some HR functions. Ongoing studies on electronic educational services in universities demonstrate a general trend towards these services. The study emphasized clarity in the concept of e-learning and the limited availability of electronically published educational and training materials for employees. It concluded that the university system statistically significantly affects the provision of electronic educational services in electronic HR management. The study recommended numerous actions, encompassing the need to use electronic educational services in HR activities such as training and distance learning.

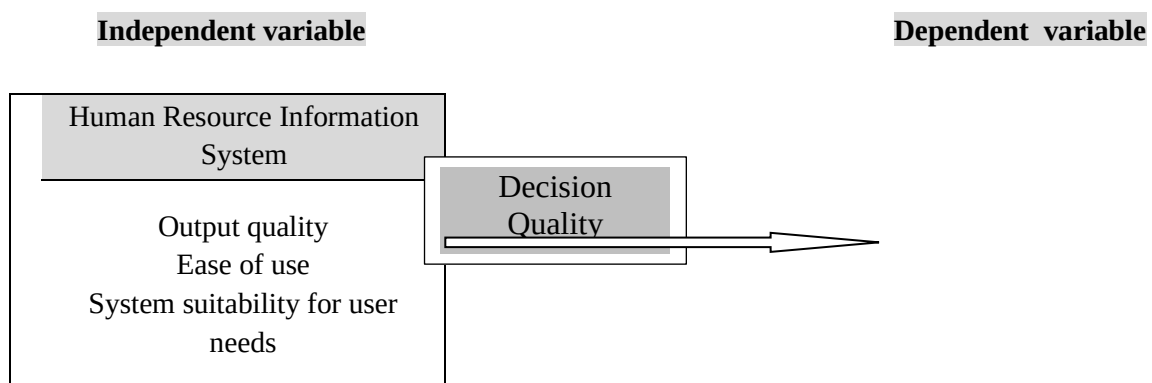
Study Methodology :

This study employed the descriptive-analytical approach to describe and analyze the study variables. Furthermore, a field study methodology was utilized by designing a questionnaire divided into two sections. The first section focused on the outputs of artificial intelligence applications, comprising 15 items illustrating dimensions such as output quality, system suitability for user needs, and ease of use. The second section addressed decision quality with 10 items. Responses to these items were designed employing a five-point Likert scale.

Study Model:

The study model is grounded in two main variables: the effectiveness of the information system depending on artificial intelligence applications and the quality of decisions at Cosider Company. Based on previous research, a specific questionnaire was developed to identify the role of artificial intelligence applications in improving decision-making efficiency at Cosider Company. The independent variable in the outputs of artificial intelligence applications was introduced by dimensions encompassing output quality, system suitability for user needs, and ease of use. The dependent variable, on the other hand, was decision quality.

Study Model Figure (01):



Source: Prepared by the researcher.

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Study Population:

We conducted a field study at Cosider Company in Djebel El Ouahch, Constantine Province. The company was selected due to its large national size, including many employees, branches, and sectors. This reflects the volume and flow of data and information within its organizational structure, requiring intelligent systems and applications to enhance and streamline decision-making. We focused on all administrative levels empowered to make decisions.

Study Sample:

The sample was chosen utilizing simple random sampling, encompassing executives and employees from different departments under study. Sixty questionnaires were distributed to them, and all were retrieved and deemed suitable for analysis.

Questionnaire Reliability: The reliability of the study's questionnaire was verified by employing Cronbach's alpha coefficient. The results are demonstrated in Table 01:

Table 01: Cronbach's Alpha Test Results

Variable	Dimension	Items Number	Alpha value
Artificial intelligence outputs	Quality of information	10	0.725
	Adapting the system to the user's needs	3	0.842
	Ease of use	2	0.721
Quality decision		7	0.748
Questionnaire as a whole		35	0.856

Source: Prepared by the researcher, relying on SPSS

It is apparent from the results that the alpha coefficient values ranged between (0.721-0.842), with Cronbach's alpha value for all items reaching (0.856). This demonstrates a high-reliability coefficient, making it reliable for analyzing and testing the study's hypotheses.

Statistical Processing: After transcribing the sample individuals' responses into the SPSS program, statistical methods were employed to test the study hypotheses. A significance level of (0.05) was adopted to explain the results.

1. Artificial Intelligence:

1.1. Artificial Intelligence Definition: Artificial Intelligence (AI) is a collection of theories and techniques applied to create machines capable of simulating human Intelligence. (Anaïs Saint, 2019, p5).

Technically, AI is a computer-programmed machine that utilizes specific algorithms and procedures to perform a specific task or work, receiving inputs automatically and applying them according to the program (George, 2023, p. 404).

Artificial Intelligence includes all technologies that enable computer devices to simulate and reproduce human Intelligence. (Luc, 2019, P19).

There are many definitions of AI, but most can be classified into the following four categories (Egbert Joostn, 2020, p. 2).

- Systems that think like humans.
- Systems that act like humans.
- Systems that think rationally.
- Systems that act rationally.

1.2. Major Players in the Field of Artificial Intelligence: Companies like Google, Apple, Facebook, and Amazon possess considerable amounts of data. Some practical examples are illustrated in the table as follows:

Table 04: Some Practical Examples of Utilizing Artificial Intelligence in Certain Companies

Google	Google relies heavily on artificial intelligence. One of the most pioneering projects in this field is the Waymo project to develop self-driving cars, in addition to reducing the possibility of accidents.
Amazon	Amazon employs artificial intelligence to train and develop its voice assistant, Alexa. It also utilizes it to monitor and manage supply and shipping chains in all of its warehouses. Furthermore, it uses it to analyze data and recommend products and goods to customers.
Apple	Uses artificial intelligence with facial recognition. «Face ID" in addition to voice recognition in the "Siri" feature present in all its devices, which can understand everything and answer any questions.
Meta	It uses artificial intelligence and deep learning to analyze data, suggest posts and ads that match their interests, and has also developed a “Deep Face, which can automatically recognize a photo of any person shared on Facebook.
IBM	Artificial intelligence was employed to develop a computer Deep Blue" became the first computer to defeat a world chess champion and developed tools that could perform human-like calculations that generate text and thoughts.
Microsoft	Amazon utilized artificial intelligence in its voice assistant. Cortana” in addition to the famous “Skype” program that can recognize and translate language in real time.

Source: (Bouri, 2021, p. 399)

1.3. Objectives of Artificial Intelligence:

According to (Nazim Hassan and May Ablahad, 2023, p434), Artificial Intelligence aims to make computers advanced enough to simulate human cognitive functions. Therefore, AI is a broad field encompassing computer vision, natural language processing, creativity, and summarization. Machine learning is a specialization within AI that deals with statistical aspects. It trains computers to solve problems by studying hundreds or thousands of cases, learning from them, and applying them to new situations. Deep learning is a subset of machine learning that enables computers to learn and make decisions independently. Compared to most machine learning methods, deep learning entails a higher level of automation.

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The capabilities of Artificial Intelligence are well-known. Machine intelligence undergoes significant transformation through continuous self-improvement learning. However, these AI models are often considered black boxes, making customers skeptical about their decisions. While research is advancing rapidly in enhancing algorithms, more is needed. Building trust in AI is a frequent concern for developers, sales teams, and marketers directly interacting with customers. Therefore, it is essential to consider this aspect.

Artificial Intelligence systems require large amounts of data to increase the accuracy of executing required tasks. After collection and storage, this data is processed employing intelligent system algorithms to enable the system to learn from data patterns and features, thereby improving its ability to accomplish its intended tasks.

2. Decision Quality

2.1. Decision Quality Definition: It is the sound and correct decision made in work, mainly relying on accurate and precise information systems that help provide necessary information for making good decisions.

Decision quality in economic institutions is associated with a set of factors related to the decision-maker himself, including his values, culture, capabilities, and skills. It is also associated with the institution's internal and external environments and various professional, social, and political pressures exercised by the institution's environment.

2.2. Features of the Decision-Making Process:

The decision-making process includes several characteristics, the most significant encompass (Khalfi, Hakim, et al., 2022, p. 30):

Strategic issues are characterized by a future-oriented approach, where decisions often depend on managers' future predictions rather than just their present knowledge. The focus is on future scenarios that allow the organization to choose the best alternatives.

The multiplicity of effects or outcomes of strategic issues: Strategic decisions have complex impacts on most areas of the organization's activities. Decisions concerning customer mix, competitive focus, or organizational structure, for instance, necessarily impact the activities and business outcomes of many strategic business units, interests, or departments. Integrating these areas will be impacted by the reallocation of resources and responsibilities resulting from these decisions.

Strategic issues necessitate taking external environmental variables into account. All business organizations operate within an open system and are impacted by external circumstances and events beyond their control. Therefore, fulfilling an appropriate market position requires looking beyond the organization's internal activities and operations to analyze

and explain the behaviors of competitors, customers, managers, financiers, government agencies ...etc.

From this perspective, decision-making features are the fundamental advantage distinguishing an organization for long-term prosperity and growth. Constructive strategic decisions oblige the organization to follow specific directions over extended periods, with their impacts extending over many years. This influences the organization's image, competitive position, and the scale of its activities, affecting its ability to expand and thrive.

2-3. Types of Decisions in the Company

Credit for developing modern decision theory goes to the American economist and social scientist H. Simon, who integrated different sciences encompassing economics, sociology, psychology, and information science to establish modern thinking in the decision-making process, for which he was awarded the Nobel Prize in Economics in 1978. According to H. Simon, decisions are classified into two main types (Arqoub & Ali, 2012, p. 190):

2-3-1. Programmed Decisions: These are repetitive decisions performed continuously, primarily concerning business and routine matters, enabling decision-makers to schedule and program them according to a specific routine. They can be easily resolved based on previous experiences, and the decision-making process is automatic and immediate without needing analysis, study, or mental effort. Examples include decisions like granting leave to an employee or allowing him to leave before official working hours, among other similar decisions.

2-3-2. Non-Programmed Decisions: These decisions are associated with complex and somewhat new problems that are varied. This compels managers and decision-makers in organizations to give them significance, particularly if they require a long period, complex procedures, and continuous monitoring or if they threaten the organization's future direction. Such decisions necessitate multidimensional analysis and in-depth study of various financial, economic, and social factors. Examples entail decisions related to selecting the location and scope of the organization's activities or decisions regarding its expansion.

H. Simon highlights the significance of equipping institutions with strong and effective information systems that offer the correct information at the right time for decision-makers, especially for making relatively important decisions under complex conditions, such as non-programmed situations. Decisions are significantly affected by the availability of information; thus, a decision can be made under conditions of certainty (with complete information), uncertainty (with a total lack of information), or risk. In the latter case, the importance of information systems based on artificial intelligence becomes apparent, as they offer mathematical, statistical, and probabilistic databases that decision-makers in an institution rely on to make sound decisions and predict outcomes.

On the other hand, economic and management researcher Ansoff indicates that the decision-making process occurs at all organizational levels within an institution. Strategic decisions are made by top management, and administrative and tactical decisions are made by middle and

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operational management. Each organizational level necessitates a specific type of information to assist in the decision-making process. This underscores that decision engineering in any institution involves activating both sub-information systems and functional information systems at all levels without exception.

2-4. Effectiveness of Decision-Making in the Organization

If the effectiveness and efficiency of a decision in an organization refer to the ability to fulfill maximum production or maximum possible profit employing limited economic resources, then decision efficiency is the ability to choose between different available alternatives while considering the various environmental factors surrounding the organization and their degree of effect on the decision-making process by resorting to the use of linear programming. (Timizrar Ahmed, 2016, p. 39).

Decision-Making Efficiency = Decision Quality $\times$ Decision Acceptance

The efficiency of a decision can be measured by the ratio of outputs to inputs and should ideally exceed one. This demonstrates that the outputs are greater than the inputs utilized.

The principles underlying good administrative decision-making encompass (Decision-Maker and Crisis Management, 2019, p. 05):

- **Legitimacy:** Compliance with laws, regulations, and rules.
- **Accuracy:** Dependence on accurate information, representing decision quality.
- **Participation:** Obtaining opinions from relevant and specialized individuals, representing decision acceptance.
- **Clarity:** Clear formulation of the decision without ambiguity or room for misinterpretation.
- **Communication:** Selection of appropriate communication methods to convey the decision to relevant individuals.
- **Timing:** Timeliness without haste.
- **Sufficiency:** Fulfilling the best results with minimal costs.
- **Effectiveness:** Addressing the problem and achieving the goal.
- **Realism:** Feasibility of implementation, alignment with the capabilities of employees and available resources.
- **Objectivity:** Avoidance of biases, pressures, and personal interests.

2-5. Factors Affecting Decision

Decisions made within an organization are affected by various factors depending on the type and level of the decision, the size of the organization, and the sector in which it operates. Some of these factors are internal, stemming from within the organization, such as the effectiveness of decision-makers, their skills, the abundance and quality of resources, the organizational

culture, and leadership styles. Others are external, originating from the organization's environment, according to the five market forces identified by Michael Porter in his model (Karish, Tawari, 2015, p. 157).

2-5-1. External Factors

The external environment, with its multidimensional aspects, mainly affects strategic decisions and impacts other organizational decisions. Michael Porter summarizes the most significant of these factors in the five forces of competitive intelligence: the bargaining power of customers and suppliers, competitive alternative products in the sector in which the organization operates, and the threat of new entrants.

2-5-2. Internal Factors

Internal factors affecting decisions are typically more challenging to alter. Their influence can sometimes be direct and observable, easily quantifiable, while at other times, their impact may be subtle and indirect, affecting decisions through other related variables. Generally, these factors can be classified into four significant elements: shareholder influence, factors affecting the decision-makers ability to decide, factors identifying the ability to execute decisions, and the abundance and quality of resources necessary for implementation.

3. Testing and Analysis of Survey Results

After inputting the sample responses into the SPSS program, the results were as follows:

Table (05): Mean, Standard Deviation of Artificial Intelligence Output Dimensions

Artificial intelligence outputs	Items	Mean	SD
Quality of information	1. AI applications provide the accurate and valid information you need.	3.62	0.784
	2. Artificial intelligence applications offer honest information that adequately reflects reality.	3.88	0.781
	3. AI applications provide reports that exactly match what you need.	3.02	0.844
	4. AI applications deliver the information you need at the right time.	2.35	0.809
	5. The information offered by artificial intelligence applications is clear and concise, as it can be easily understood.	4.09	0.531
	6. The flow of information between departments is easy.	3.83	0.540
	7. Information contributes to solving problems and making decisions.	3.70	0.654
	8. AI applications are protected against hacking.	3.02	0.5
	9. AI applications can detect errors before they occur.	1.80	0.767
	10. Information provided by AI applications is protected against unauthorized access.	3.11	0.432
Suitability to user needs	11. Current artificial intelligence applications can maintain their level of performance when employed under certain circumstances, such as peak work periods or emergency situations.	2.34	1.215
	12. AI outputs are flexible to accommodate changes in your needs and surrounding circumstances.	2.33	1.189

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	13. Artificial intelligence applications have the potential to be developed and improved.	3.25	0.519
Ease of use	14. The artificial intelligence applications you deal with are easy to learn and understand.	4.12	0.432
	15. Artificial intelligence applications are characterized by the ease of entering data, processing it, and obtaining information.	4.09	0.294
	Total	3.25	0.32

Source: Prepared by the researcher relying on SPSS results.

It is noticed that the mean values for the items associated with the outputs of artificial intelligence range between 1.80 and 4.12, with the overall mean for all items being 3.25. Item (14) states: "The artificial intelligence applications you deal with are easy to learn and understand," has a mean value of 4.12. This demonstrates that the AI outputs in the Cosider company are characterized by simplicity and ease of learning and understanding by its users. Thus, Cosider company prioritizes the ease of use of its AI applications so that users can interact with them easily. Hence, inputs, processes, outputs, and feedback are not complicated for the user and are distinguished by ease and understanding.

Item (15): "The artificial intelligence applications are characterized by ease of data entry, processing, and information retrieval," with a mean value of 4.10. This shows that Cosider company pays attention to the ease of data entry and output in its AI applications, focusing on how easily users can enter this data to obtain outputs distinguished by simplicity.

Item (05): "The information offered by the artificial intelligence applications is clear and concise, making it easy to understand," with a mean value of 4.09. This enables users in the company to deal with information briefly and clearly, meaning it is not complex.

Item (06): "Information flows easily between departments," with a mean value of 3.83. This can be explained by the nature and type of network relied upon by the outputs of artificial intelligence, which offers information between interests and departments within the organization in a timely manner, contributing to the creation of added value in that department or section.

Item (07): "The information contributes to problem-solving and decision-making," with a mean of 3.70. This shows that the decision support systems of the AI outputs applied in the Cosider company play their role through the flow of information, which serves as inputs for the decision-making process in the company. This reflects on the effectiveness and rationality of the decisions made.

Item (01): "The AI applications offer accurate and correct information that you need," with a mean of 3.62. This demonstrates that the error rate in the data entry process is minimal, reflecting the quality and accuracy of the outputs.

We explain this as the feedback mechanism within the elements of the company's AI applications, which plays a role in detecting and helping to correct any deviations that may occur.

We also note that the total number of respondents who disagree with the content of the AI output items can be interpreted as follows: For item (04), "The AI applications offer the information you need in a timely manner," with a mean of 2.35, this demonstrates that the user does not obtain the necessary information in a timely manner.

Item (11): "The current AI applications can maintain their performance level when utilized under certain conditions such as peak work periods or emergencies," with a mean of 2.34,

Item (12): "The AI applications are flexible enough to accommodate changes in your needs and surrounding conditions," with a mean of 2.33. This shows that the AI applications applied in the company are not flexible with the events and changes occurring in the internal environment.

We also observe that the sample strongly disagrees with item (09): "AI applications can detect errors before they occur and address them," with a mean of 1.80.

This is interpreted by the fact that the AI applications in the company do not focus on the predictive aspect. In other words, their outputs need a gap analysis model, meaning that while they can display numbers and charts that help the user determine errors before they occur, they are limited and unreliable enough to make necessary decisions to address the causes of those gaps. They assist the decision-maker in determining gaps but do not help in predicting by discovering the causes and suggesting solutions, even relatively.

There are also five items where the sample was unsure, which are:

Item (02): "AI applications provide accurate information that sufficiently reflects reality," with a mean of 3.84. This can be explained as the users of AI applications relying on the information offered but remaining uncertain whether this information accurately reflects reality. This uncertainty originates from a lack of a comprehensive view that could clarify whether this information reflects Cosider's internal and external environment. This may be due to the centralized nature characterized by the general directorate in Algiers. Information at the level of Cosider's units and branches tends to be detailed and limited. In contrast, at the central level, i.e., the headquarters general directorate, the information is comprehensive and offers an overall view of the institution's reality .

Item (13): "AI applications have the potential for development and improvements," with a mean of 3.25. This demonstrates that Cosider did not create and design its own AI applications but purchased and employed them. The company benefits from system updates through a limited-duration subscription, which comes at a financial cost, paid to the company selling this application and software .

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Item (10): "AI applications are secure against unauthorized access," with a mean of 3.11, and Item (08): "AI applications are protected against hacking," with a mean of 3.02. This demonstrates that AI outputs are considered to have a substantial degree of security, ensuring no breaches or hacking happen within the institution.

Item (3): "AI applications offer reports that exactly match what is needed," with a mean of 3.02. This shows that users are unsure whether the reports they receive completely match what they need to accomplish their tasks.

The sample's overall mean rating for AI application outputs was 3.19, suggesting that AI applications' effectiveness is considered moderate.

Interpretation: This means that the sample agrees that the AI outputs employed in Cosider, Constantine Unit, satisfy the users' information needs but not sufficiently. Furthermore, the efficiency of administrative processes through the speed and quality of reports and models relied upon by users in the institution for administrative decision-making is present but needs to reach the level of business intelligence. Therefore, the first hypothesis is confirmed: Cosider utilizes AI applications with effective features.

Table (06): Means and standard deviations for the variable of decision quality.

Questions	Mean	SD
1. I have the ability to identify problems surrounding management.	4.58	0.558
2. I identify the causes of the problem and analyze them all without separating them.	4.05	0.785
3. I list potential alternatives to solve the problem related to the decision.	2.42	1.219
4. I analyze all the alternatives presented and identify their pros and cons.	3.27	0.597
5. I pay attention to ensuring that the alternative does not conflict with the regulations and systems in place in the management.	2.30	1.122
6. I link alternatives to the goals and aspirations of the administration.	4.14	0.35
7. I base the choice of the alternative on logical justifications.	3.92	0.697
8. I use appropriate means of communication to announce the decision.	2.75	0.976
9. I correct decisions if they have negative results.	4.02	0.519
10. I ensure that the implementation of the decision is carried out according to the prescribed steps.	3.59	0.583
Decision quality	3.68	0.30

Source: Prepared by the researcher relying on the outputs of SPSS software.

The table results indicate that the overall mean for decision quality across all items is 3.68, with a standard deviation of 0.30. This low standard deviation demonstrates a low dispersion in the responses of the sample members, suggesting a high level of consistency in their assessments of the decision quality at Cosider.

Therefore, the second hypothesis is confirmed: The decisions made at Cosider are characterized by quality.

Table (07): The relationship between AI applications and the quality of decision-making.

Independent variable / Dependent variable	Quality of outputs	Suitability of the system	Ease of use	Artificial intelligence applications
Decision Quality	0.596**	0.481**	0.026 -	0.601**

**** Correlation at significance level 0.01**

Source: Prepared by the researcher based on SPSS results.

We notice a statistically significant relationship between decision quality output quality and system suitability for user needs, with Pearson correlation coefficients of 0.596 and 0.481, respectively. It is indicated that there is no statistically significant relationship between decision quality and the system's ease of use. The overall correlation between decision quality and AI applications is 0.601, a moderate positive relationship at the significance level 0.01. This demonstrates that AI applications explain 60% of the decision quality at Cosider, Constantine.

Thus, we can confirm the third hypothesis: There is a statistically significant relationship between AI applications and decision quality at Cosider, Constantine.

The table results indicate that the overall mean for decision quality across all items is 3.68, with a standard deviation of 0.30. This low standard deviation demonstrates a low dispersion in the responses of the sample members, suggesting a high level of consistency in their assessments of the decision quality at Cosider.

Thus, the second hypothesis can be confirmed: The decisions made at Cosider are characterized by quality.

Conclusion: The study we conducted reached the following results:

- There is a positive correlation between the application of artificial intelligence in Cosidar and the quality of decisions made within the company, as demonstrated by the Pearson correlation coefficient results, which indicated a strong relationship between the two variables.
- The decisions made in Cosidar are characterized by high quality.
- Cosidar utilizes artificial intelligence applications that possess effective features.

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Recommendations:

- Update the artificial intelligence applications to enable various administrative levels to make appropriate decisions.
- Intensify training courses for employees in the company to improve their understanding of the significance of using artificial intelligence in the decision-making process.

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Appendices

Questionnaire:

Dear esteemed colleagues, May peace, mercy, and the blessings of Allah be upon you.

We are conducting a study entitled: "The Role of Artificial Intelligence in Decision-Making Efficiency in the Organization: A Field Study at Cosider Company, Constantine." This study aims to identify the application and use of artificial intelligence methods in decision-making. We kindly request your valuable time to answer this questionnaire by clearly marking (×) in the appropriate place that reflects your answer. Please note that your answers will remain strictly confidential and will only be used for research purposes.

-Accept our utmost respect and appreciation-

1- Artificial Intelligence:

Artificial intelligence outputs	Expressions	Strongly Agree	Agree	Strongly disagree	Disagree	Neutral
Quality of information	1. AI applications provide the accurate and valid information you need.					
	2. Artificial intelligence applications offer honest information that adequately reflects reality.					
	3. AI applications provide reports that exactly match what you need.					
	4. AI applications deliver the information you need at the right time.					
	5. The information offered by artificial intelligence applications is clear and concise, as it can be easily understood.					
	6. The flow of information between departments is easy.					
	7. Information contributes to solving problems and making decisions.					
	8. AI applications are protected against hacking.					
	9. AI applications can detect errors before they occur.					
	10. Information provided by AI applications is protected against unauthorized access.					
Suitability to user needs	11. Current artificial intelligence applications can maintain their level of performance when employed under					

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	certain circumstances, such as peak work periods or emergency situations.					
	12. AI outputs are flexible to accommodate changes in your needs and surrounding circumstances.					
	13. Artificial intelligence applications have the potential to be developed and improved.					
Ease of use	14. The artificial intelligence applications you deal with are easy to learn and understand.					
	15. Artificial intelligence applications are characterized by the ease of entering data, processing it, and obtaining information.					

2- Quality decision

Questions	Strongly Agree	Agree	Strongly disagree	Disagree	Neutral
I have the ability to identify problems surrounding management.					
I have the ability to identify problems surrounding management.					
I identify the causes of the problem and analyze them all without separating them.					
I list potential alternatives to solve the problem related to the decision.					
I analyze all the alternatives presented and identify their pros and cons.					
I pay attention to ensuring that the alternative does not conflict with the regulations and systems in place in the management.					
I link alternatives to the goals and aspirations of the administration.					
I base the choice of the alternative on logical justifications.					
I use appropriate means of communication to announce the decision.					
I correct decisions if they have negative results.					
I ensure that the implementation of the decision is carried out according to the prescribed steps.					