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Applications of Artificial Intelligence and Food Security in Algeria between Modern Technologies and Sustainable Development.

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Abstract:

AI is a science that seeks to develop computer systems that operate with high efficiency similar to that of an expert human s ability to mimic and simulate human kinetic and intellectual processes. The way his mind works in thinking, concluding and responding, taking advantage of past experiences and smart reactions, It is matching man's mind and doing his part, so Algeria has benefited from this technology and applied it in its agricultural and industrial sphere to achieve food security.

The country's food security policy must invest its potential, investing all its minds, happiness and accuracy, and every inch of its soil. That is the mission that must be achieved to create a social and economic movement within the framework of sustainability, so that it can also benefit present generations.

Today, Algeria has exploited its land and used smart agriculture to develop its economy.

Keywords: Modern Technologies, Artificial Intelligence, Food Security, Sustainable Development.
JEL Classification Codes :

1. INTRODUCTION

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Man has distinguished himself from other creatures from intelligence. Over time, he has realized that his intelligence is his source of strength and excellence that he can use in the computer. Here, scientists have made several attempts to study the quality of intelligence in human beings and other beings, and how to transfer it to the machine.

Who realized their level of lack of this quality, with a view to conveying this quality to the machine, Although the instruments remained for a period of time, they are not characterized by any appearance of intelligence, their work has been connected to traditional work, characterized by the abstract routine of intelligence and innovation. With the beginning of the third millennium, there have been several fundamental changes with positive outputs in the pattern of the relationship between human intelligence and expertise and the modern technology-based machine, including the emergence of what is known as artificial intelligence.

The rapid pace of progress in all fields and in various sciences has led to the study, simulation and development of human intelligence systems s human experience to computer programming systems in order to benefit from them in various areas of life, This requires some of the necessary applied intelligence and expertise to keep pace with development in these areas, the most important of which are industrial, agricultural and commercial applications.

The world is witnessing an ever-increasing demand for food resources and complex challenges posed by geopolitical conflicts such as the Russian-Ukrainian crisis and health crises such as the coronavirus pandemic, as well as climate changes and population growth, It highlights the role of artificial intelligence as a critical tool in promoting food security in the Arab world. Food security is one of the most significant challenges facing Arab countries. s self-sufficiency and sustainability in food and industry.

AI is a key pillar in the development of the concepts of agriculture and smart industry in which it contributes to the analysis of big data and prediction of climatic factors, improved management of agricultural resources as well as improvement of the industrial field which increases the opportunity to work more and enhances monitoring and control capabilities for pests and diseases, and helps improve fertilizer and water use s economic and industrial production, using advanced machinery that contributes to accelerating work and increasing production.

Arab States, including Algeria, face significant challenges in the area of food security of water resources, desertification and climate change, and highlights the urgent need to adopt modern technologies that help overcome these challenges and achieve sustainability investing in innovation and scientific research is vital to the development of AI-based sustainable food security solutions. Funding is needed to support development or research projects that contribute to this goal.

Algeria stands on the threshold of a technological revolution that may alter the country's food security profile, and with embracing artificial intelligence and modern technologies, we look to a future that promises self-sufficiency and sustainability in food and industry, because of the adoption of new investment ideas, especially the idea of desert exploitation, which has strengthened its place in the world.

In the light of the foregoing, there is an urgent need to use artificial intelligence to achieve food security, especially in the agricultural and industrial spheres, in order to benefit and achieve better results. This prompts us to put forward the following forms:

✓ What are the artificial intelligence strategies used to achieve food security in Algeria?

✓ In order to better address the problem and gain a clear understanding, we raise the following sub-questions:

✓ What is the concept of artificial intelligence and what are its forms?

✓ What is the concept of food security and what are its obstacles?

✓ How has Algeria benefited from these smart applications in the agricultural field?

First: Artificial Intelligence:

1. Definition of Artificial Intelligence:

Artificial Intelligence is one of the branches of computer science and one of the cornerstones of today's technology industry, founded on the assumption that the word intelligence can be described so accurately that the machine can emulate it.

It is a term consisting of two words: intelligence, and artificial:

Intelligence means the ability to understand new and changing circumstances or situations, i.e. the ability to perception, understanding and learning of new situations or circumstances, the keys to intelligence are perception, understanding, and learning.

The synthetic word is actually associated with "manufactured" or "manufactured", and the word calls all things that arise as a result of the activity or act done through the manufacture and formation of objects as distinct from things that already exist and are naturally generated without human interference, On this basis, AI generally means the intelligence manufactured or manufactured by man in a machine or computer, and therefore AI is modern machine science. (Saad, 2012, p. 114)

It is one of the sciences that resulted from today's technological revolution. officially started in 1956 at Dartmouth College in Hanover, United States of America, AI was initially intended to simulate each of the various II capabilities by machines by understanding the complex mental processes performed by the human mind in the course of its thinking and how it handles information, These mental processes are thus translated into parallel computing processes that increase the computer's ability to solve complex problems.

That is why AI was initially defined as: "One of the areas of the computer is its programming to perform tasks performed by man and requires some kind of intelligence. (Madkour, 2020, p. 144)

AI is also one of the most important modern sciences due to the convergence of the technical revolution.

Technology in systems science, computer and automated control on the one hand logic, mathematics, languages and psychology, on the other hand, It aims to understand the nature of human intelligence through the functioning of computer software with such software that enables it to solve a problem or make a decision in a situation. Therefore, automated intelligence is the creation of computer software that allows the resolution of the issue or the appropriate decision to return to many of the various evidentiary processes that fed the program and uses artificial intelligence because of its superior speed in giving evidence that exceeds human capacity. (Khalaf Hassan, 2020, p. 220)

AI calls a range of new methods and methods in programming computer systems, which can be used to develop systems that mimic certain elements of human intelligence; it allows him to make inferences about facts and laws that are represented in computer memory. And the modern concept of artificial intelligence means the construction of machines that perform tasks that require some human intelligence when performed by man, They also allow the computer to simulate certain mental functions and abilities in a specific way. (Al Yagzi, 2019, p. 266)

2. Characteristics of Artificial Intelligence:

Artificial Intelligence is based on "making intelligent machines that behave as humans", and uses a comparative approach to human problem-solving, in addition to dealing with hypotheses simultaneously, accurately and at high speed.

AI has many characteristics and features, including: (Al-Nadjar, 2010, p. 170)

- The use of intelligence in solving the problems presented with the absence of full information.
- Thinking, understanding, acquiring and applying knowledge.
- Learning and understanding from past experiences and experiences.
- Use old experiences and employ them in new situations.
- Rapid response to new situations and circumstances.
- Dealing with difficult and complex cases.
- Dealing with ambiguous situations with the absence of information.
- Distinguishing the relative significance of the elements of known cases.
- Visualization, creativity, understanding and understanding of visual matters.
- Provide information to support decisions.

One of the most important features of AI applications is that: they operate at a steady scientific and advisory level without fluctuating ", whose construction requires the representation of vast quantities of knowledge specific to a particular area, Non-

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digital symbolic data is processed through logical analysis and comparison processes aimed at human simulation and method and is interested in raising new ideas leading to innovation, immortalizing human experience And it works to provide more than one version of the system and compensates for the experts, absent a human feeling of fatigue and boredom.

In addition, AI creates a problem-solving mechanism within organizations that relies on objective judgment and accurate assessment of solutions, raising the level of knowledge of the organization's officials by offering solutions to many problems that are difficult to analyze by human element in a short period.

Artificial intelligence involves studying the logical thinking processes of the human element, and then trying to implement this through automated computers, and therefore the most important characteristic of its relative persistence, as it is not exposed to the factors that affect the human element's abilities such as forgetting. (Zarouki & Falta, 2020, p. 12)

3. Objectives of Artificial Intelligence:

AI science grew up as an applied computer science that is interested in studying and understanding what human intelligence is and simulating, to create a new generation of smart computers; which can be programmed to accomplish many tasks that need a high capacity of conclusion, deduction and perception.

Artificial intelligence as a new science has multiple scientific backgrounds and references.

Yi's main objective and strategy is to understand the queen of human intelligence; the computer can absorb human knowledge and information.

AI aims to understand the nature of human intelligence by making computer software capable of simulating intelligent human behavior s ability to resolve an issue or make a decision in a situation. The programme itself finds the way to resolve the issue or reach a decision by reference to the many diverse evidentiary processes by which the programme was fed. (Khawaled, 2019, p. 21)

AI also aims to develop computer systems that achieve a level of intelligence similar to human intelligence or better human knowledge ", which is translated into the placement of human knowledge within the computer, within the so-called rules of knowledge And then the computer through the software tools can search these rules, To compare and analyze, to draw the best answers and solutions to various problems, and AI science seeks to understand the nature of human intelligence by making computer software that is capable of simulating intelligent human behavior and means that computer software can solve an issue or make a decision in a situation, This is an important turning point beyond what is known as IT, at which the evidentiary process is conducted by means of.

The most important reasons for using a computer are limited to its superior speed. (Bakhit, 2000, p. 46)

- Repeat human intelligence.
- Solve the problem of intensive tasks of knowledge.
- Intelligent communication work between perception and action.
- Improved interaction of human, computerized and human communication.

The main objectives of AI can be limited to:

- Enabling machines to process information more closely to the human way of resolving issues, in other words parallel processing; Several orders are executed at the same time.
- A better understanding of what human intelligence is by unwinding the brain so it can be emulated, as it is known that the nervous system and the human brain are the most interconnected and durable organs in knowing things. (Mahmoud, 2020, p. 266)

4. The Importance of Artificial Intelligence: (Koutou, 2018, p. 26)

We can identify AI in the following:

- Improved productivity or efficiency: Artificial intelligence can often complete routine tasks faster, better or more consistently than human can.
- Understanding huge amounts of data: We live in a data-rich world, and human brains are not equipped to analyze the vast amounts of structured and unregulated data today, make connections and challenge relationships and patterns across data sets
- Improved decision-making: AI can use data as inputs to make decisions based on facts that reduce bias, properly graze and weigh all facts.

Improving customer experiences: AI-driven chat interfaces can provide faster and more accurate customers in many languages. AI can also customize experiences and services, offering customized service for each VR for example personal learning.
Empowering human-like vision. Artificial intelligence enables computer systems to see, process and understand visual images such as photos and videos.

- Increased human intelligence: While the human brain is undeniable, there is not much that can be achieved within 24 hours.
- Artificial intelligence can radically enhance people's intelligence.

5. Methods of Using Artificial Intelligence:

AI is central to the transformation of the digital age, contributing to the reshaping of processes and services in various fields through its advanced methods:

- Machine Learning:

Machine learning is one of the most prominent methods of artificial intelligence, where algorithms are trained in large datasets to recognize patterns and make predictions.

- Deep Learning: Deep Learning:

Deep learning is a branch of machine learning that uses synthetic neural networks with many layers to learn highly complex data

- Natural Language Processing – NLP:

This technology enables machines to understand and generate human language, allowing applications such as automated chat software and language translation.

- Expert Systems:

They are computer programs that mimic the ability of human experts to make decisions through a database of knowledge and a set of rules.

- Big Data Analysis:

It is used to find optimal solutions to complex problems through technologies such as genetic algorithms and partial research.

These methods show how artificial intelligence can simulate human capabilities and improve processes in various fields. (Shetouh & Rahmani, 2024, p. 16)

Second: Food Security:

1. The Concept of Food Security:

The definitions of food security are multiple and varied, as a result of this term's perspectives, and are linked to several other similar concepts through which the necessary security can be provided to members of society.

- Linguistically Understandable:

Food security includes two interrelated terms, the former affecting the latter and vice versa.

- Concept of security: means reassurance, lack of fear, trust and non-betrayal.
- The concept of food: the body's development and strength of food and drink, and collects all the elements necessary for the structure of the human body. (Authors' Group, 2014, p. 646)

- Concepts of Jurisprudence:

Is the ability of society to provide basic nutrition needs to people and to ensure the minimum of those needs regularly. (Gharbi, 2010, p. 52)

It also defined it as: society's ability to provide the potential level of food to its members within their available incomes, while ensuring the subsistence level of food for individuals who cannot access it with their disposable income, whether it be through local production or import on the basis of their own resources. (Abd Al-Ghafor, 2016, p. 15)

- AOAD Concept:

It is intended for any country to produce sufficient food, relying on its resources and resources, and to have its food products competitive in foreign markets and generating income in hard currency that helps it trade food goods and products that do not have the advantage of producing them.

In other words, food security is the provision by the State of food to its citizens in terms of quantity and quality, taking into account the health of its citizens and the equitable access to lunch for all its citizens, especially those with limited incomes, while at the same time achieving our stockpile of food to cope with unexpected conditions,

whether natural or intentional, provided either through domestic production or import, depending on its related financial savings from its exports. (Al-Daghmi, 2008, pp. 17-18)

- Definition of "FAO":

FAO has defined food security as providing food to the entire population in quantity and quality to meet their needs continuously for a healthy and active life. (Shetouh & Rahmani, 2024, p. 18)

The definition of Algerian food security law is defined in article 03 of Act No. 08-16 of 03 August 2008 under the Agricultural Directive: "Food security is the easy and regular access of everyone to healthy and adequate food that allows him to enjoy an active life." (Act No. 16-08, 2008, p. 06)

2. The importance of Food Security:

The importance of food security for Third World States. The Third World Food Security Strategy has the objective of increasing crop cultivation efforts to increase production capacities to achieve sufficient food consumption. The importance of food security in Third World countries lies in several points:

- Encourage investment in order to obtain additional income for families, as this encourages an increase in the amount of food consumption.
- Migration from the countryside to the city increases food consumption, due to employment opportunities available to that group, which contributes to their access to food.
- The population of third world States is constantly increasing, and there is no doubt that this increase in the population means an increase in the demand for food. Therefore, States must provide more food and keep pace with the growing demand for goods, in order to protect themselves from food deficits.
- Increasing the productive effectiveness of agricultural production through the use of agricultural machinery and modern techniques for agriculture, in order to increase the competitiveness of agriculture in third world countries and to resolve domestic production in agriculture's imports.
- Achieving food security is a major step in achieving national sovereignty. (Shetouh & Rahmani, 2024, p. 19)

3. Dimensions of Food Security:

As a result of the lack of agreement on a common definition of food security by the Ombudsman and international instruments, as well as researchers and intellectuals, the dimensions of food security have not been agreed, given the diversity of perspectives on the one hand, and how each State considers and levels of achievement of its own food security on the other. Therefore, the dimensions of food security can be defined in four main dimensions:

3.1. Demographic Dimension:

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The human element intervenes in this issue of three poles, the first of which is food insurance. The number of methods and methods since its social existence and its evolution depending on the conditions in which it lives and is expected to occur, Secondly, human beings are the activators of the production and management imperatives of food security, as well as the third pole, which is the most important because the human being is a measure of the nutritional adequacy for which insurance is required, and this seems clear. "The dramatic increase in the population of the world as a whole, especially in the Arab world in the past decades, is one of the justifications for the food problem in the Arab region. The size of the population has accelerated significantly, at a rate of approximately 3% annually in 2000, on the one hand, and on the other hand," Quantitative population growth, accompanied by a fundamental change in the distribution of population between rural and urban areas, has led to rural migration to cities within one country or between Arab States. Unemployment ", to a significant increase in the urban population and the deprivation of the agricultural sector in these areas. (Trabelsi, 1998, pp. 380-381)

This means that the impact of the demographic dimension by qualitative or quantitative increase has an unlimited impact on food security.

3.2. Economic Dimension:

The economic dimension of food security is the kind that focuses on studying both the supply and demand aspects of food to see the scale of the food gap or different levels of food prices and the stability of the markets for these commodities s inability to provide for the food needs of its population, so that the growing gap is linked to the evolution of population numbers as well as the irrational exploitation of natural resources, which constitutes an economic burden to the State's food security. (Touati, 2019, p. 29)

People's availability of food in the right quantity and quality increases productivity and thus achieves economic development and vice versa.

Food security in its economic dimension has several elements:

- Maintain the balance of citizens' purchasing power, enabling them to access and eat food

Provide income generation and development, including investment and employment.

- The existence of a preventive dimension of food security embodied in preventive economic policies in order to address the problems arising from the liberalization of agricultural products' trade, as well as the promotion and opening of foreign and foreign investments. (Touati, 2019, p. 30)

Thus, the availability of food from both domestic and external sources to cover any food deficit is tantamount to the availability of the community's living requirements of good and healthy food, thus creating a state of internal stability that naturally reflects increased economic development rates, since the provision of basic food requirements

will enable individuals as agents or as a human resource to play their part in achieving such economic development.

3.3. Political Dimension:

Food is a strategic weapon used by countries with food resources. in which the latter uses the need of developing or poor countries that do not have the means to produce food goods to pressure them and influence the direction of their decisions so that they remain affiliated to them, So how do countries that do not have to achieve their food commodities have their own national sovereignty and this is evident through developed countries' control of key food crops such as wheat, maize, which is the main determinant of their global quantities as well as prices. (Hushin, 2017, p. 267)

In this context, aspects of the political dimension of food security are reflected in:

- The issue of food is of a political nature that threatens the State's security.
- Naturally, countries that need food aid are more vulnerable to political pressure, jeopardizing their independence. Food has been used as a means of putting pressure on nations and peoples to wither. Food as an important strategic means has long been threatened by the United States of America and by the world's countries that have criticized its policy.

We conclude that political stability significantly affects the achievement and sustainability of agricultural development by providing appropriate conditions for Governments and their institutions and forms of agriculture, In order to carry out development activity in a positive manner, conflicts and internal and external wars in some States have depleted huge energies and funds, Many development projects have been halted and have contributed to increasing and deepening the problems of poverty, hunger and housing, as well as disease outbreaks and epidemics. (Touati, 2019, p. 33)

3.4. Environmental Dimension:

According to article 07 of Act No. 03-10, the environment is defined as "ineffective and vital natural resources such as air, air, water, land and animal.

The agricultural environment of any State or territory is severely deteriorating owing to the absence of an environmental dimension from national or national agricultural policies and the failure to give it due weight to the environmental aspects of agricultural policy's disruption.

In an effort to address all these environmental impacts in order to achieve food security, we must:

- Introduction of the environmental dimension in studies of the economic and technical feasibility of agricultural projects.
- Activating the role of cooperative organizations in the dissemination of environmental awareness.

4. Food Security Constraints:

The causes of food insecurity are:

- Imbalance between population and production.
- Desertification, nature's drought, human abundance and lack of matter.
- Strengthening prices rather than supporting production.

Developed countries' control over food and monopoly 1⁄2 prices and control over the quantity of food where they monopolize the world's surplus food, for example, the United States of America, Canada, Australia and Argentina France monopolize 70% wheat.

- Attention to agriculture in words and not in fact, as illustrated by the failure of plans and regulation.
- Prioritize non-productive sectors, including trade, services and management.
- Dependence on petroleum funds used for import and non-production of Kassala.
- A culture of price consolidation rather than production support.
- Relying on traditional farming culture rather than using the culture of scientific research.
- Broadening the culture of consumption over foreign production rather than encouraging national production.
- The problem of the absence of a strategic and technological production of seeds.
- The absence of a seed bank in Algeria.
- The reluctance of agricultural engineers from the agricultural field.

All projects of the National Agency (ANSEJ) are geared to services while a small proportion are directed to the agricultural field.

- The absence of a relationship between the research laboratories and the Farming Directorate. (Al-Mahdi Khassan)

Third: The Algerian State's Strategies for Achieving Food Security:

1. The Use of Technology and Applications of Intelligence in Agriculture:

Algeria has adopted smart agriculture based on modern technologies supported by AI systems. Algeria is betting on encouraging smart farming to achieve food security by giving great importance to specialized scientific research in agriculture and motivating young people to engage in peasant programs.

Algeria has adopted all policies that would guarantee the country's food security. "Smart agriculture" is a new strategic option for a solution to the problem of food provision. Despite the positive figures achieved by various other agricultural methods, the Government's ability to respond to the requirements of this type of agriculture is strongly questioned.

As demand for food grows in the world and as consumer prices continue to rise Algeria has adopted smart agriculture based on modern technologies supported by AI systems, It requires giving great importance to specialized scientific research and motivating young people to join peasant programmes s investment, which ensures an expansion of the volume of peasant investments and thus increases and improves the productive efficiency of crops.

According to the Expert on Food Security, a long-term strategy to improve productivity and revenues needs to be developed by providing the necessary means for the agriculture sector. (Kandouzi)

Kanduzi explained that the importance of the grain and dairy sectors as focuses on them for structural transformation, as the food bill for these producers represents 50% of the total food bill.

The agricultural strategy is based on several key elements, including the expansion of irrigated areas, increased production and productivity, the promotion of scientific research and digitization, the development of the agricultural and rural sector in pastoral areas and the reclamation of millions of hectares in the desert, where natural conditions (soil and water) are favourable.

Accordingly, Algeria is moving towards a robust and comprehensive strategy to ensure food security in the country, drawing on national capacities and resources and making the best use of the climate and the local environment, Ben Saman told the website. "Sky News Arabia" Algeria views ecological agriculture as a primary supporter of organic agriculture and local products and takes into account the rapid development of technology, through the mainstreaming of renewable energies in irrigation and the use of solar energy in pumping instead of oil engines, in order to provide what between 15 and 40% of energy use. (Ben Samman)

The Algerian Government recognizes the importance of smart agriculture for food security, improved agricultural productivity and enhanced sustainability. The Algerian Government has therefore developed a number of initiatives to support the transition to smart agriculture:

2. Desert Land Industrial Development Bureau:

Established by Executive Decree No. 265/20 of 22 September 2020 s Agriculture Programme as a tool for implementing the National Policy for the Development of Strategic Agriculture, In the first phase, he distributed 85 thousand hectares for entrepreneurs and start-ups in the form of a franchise and then in phase II to prepare for the distribution of 134 a thousand hectares, This process concerns the mandates of Adrar, Timemon, Inviolability and Wargel, Ilizi. (Molay & Tigzi, 2024, p. 86)

This mechanism aims to reach the ceiling of 200 thousand hectares of water area and 500 thousand hectares by watering distillation in order to reach 30 quintal of solid wheat/hectare within a 2024 's time.

3. Higher Education and Scientific Research Institutions:

Within Algeria's new orientation to adopt a knowledge-based and intelligent economy, the University has regained its natural role in creating the added values of society and the market Transformed into an expanded workshop to reflect the ideas of young students to build real development based on realistic needs through the formation of more than 100 business incubators, Nearly 10 thousand innovative ideas can be

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converted into an emerging institution or patent in accordance with the 1244 decision of 25 September 2022 to establish a national commission

Coordination for the follow-up of innovation and incubators of university business and resolution 1275 of 27 September 2022 regulating the same committee and determining how to prepare the draft graduation memorandum for the certificate of an emerging institution. (Amrar & Fouka, 2023, p. 795)

One of the projects developed for the Ministry is the establishment of two national farming schools in the south in response to the new plan for peasant development Horizons 2030 to link the Ministry's projects with scientific research. During the 2022/2023 academic season, the Higher National School of Farming included a new specialization in partnership with the European Union under the program "Basinzo Cuba Jess" for the formation of engineers in the field of smart agriculture. (Molay & Tigzi, 2024, p. 87)

In the same semester, a collaborative project was launched by the Dutch University of Farming "Loagen" with the aim of designing smart plastic houses to support semi-urban agriculture. This practical step is to ensure food in cities.

4. Political Will:

All these steps reflect political will and a new orientation in new Algeria towards the use of advanced technology in agricultural activity, which in general remains dependent on traditional means of demonstrating its limited effectiveness.

Compared to what is happening in many developed countries in this field Between this and this, most of the conditions and parameters for achieving food security combined today remain in Algeria, foremost among which is the political will and determination to win the bet, In addition to the availability of a human component capable of raising the challenge, Algeria must keep pace with the latest achievements of the world's countries in agricultural technology and move towards intelligent agriculture based primarily on modern technologies supported by artificial intelligence systems that will increase and improve the productive efficiency of crops.

5. Model on Smart Agriculture in Algeria:

Algeria's experience in the field of smart agriculture is modern and yet there are encouraging signs of success in this direction, which has been translated through various projects in the South Desert.

The Ennahda project in Tamemun State has witnessed a significant development in recent times, with the support of smart technology in central pivotal irrigation, spanning an area of approximately 30 thousand hectares in the Amkeden region, where wheat cultivation has received half the area, and its management has been assigned to the American company "Zematak" of Lindsey Group, one of the world's leading

companies dealing with water rationalization alongside Russian companies, It has provided a remote control system via sensors that monitors climate variability. Attention to this project is in the context of the State's efforts to conserve water wealth, as water security is one of the key pillars of sustainable food security. and the same mandate benefited from another agricultural project, run by the Turkish company " Dinser, affiliated with the Dakensan Group, has an area of 4000 hectares for the cultivation of wheat, barley and cow husbandry, and for the first time in Algeria has used high-precision technological harvesting methods in the harvest season. (Anadolu Agency)

Conclusion:

Artificial intelligence carries unlimited possibilities for improving food security in Algeria. Investment in this area is not only an investment in advanced technology, it is an investment in the future of future generations and there are enormous opportunities for growth and development in this area.

The States adopting these technologies find themselves in a better position to ensure their food security.

Through joint action and strong will, we can turn visions into concrete realities that contribute to the well-being and prosperity of our peoples.

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