**International Journal of Commerce and Management Research**
**www.managejournal.com**
**ISSN: 2455-1627**
**Received: 16-12-2023, Accepted: 01-01-2024, Published: 18-01-2024**
**Volume 10, Issue 1, 2024, Page No. 26-29**

# Artificial intelligence adoption in agripreneurship: A comparative analysis

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**Abstract**
Agriculture dominates the Indian economy. More than 65% of India's population depends on agriculture for their livelihood, and agriculture accounts for 16-17% of our GDP. Since India is mostly agriculture-based, agri-entrepreneurs play an important role in the value of agriculture. They add value and contribute to agricultural GDP, but the growth of agriculture is not sufficient and is a hindrance to growth in India. Most rural people are dissatisfied with the results of the government's development efforts. This article aims to make a comparative analysis on the use of artificial intelligence in agricultural business, that is, the application of artificial intelligence in agricultural business, the definition of artificial intelligence and agricultural business, the role of artificial intelligence in agriculture, artificial intelligence. In agricultural business practices and practices.

**Keywords:** Agripreneurship, artificial intelligence, agriculture sector, applications of AI**,** intelligence adoption

## Introduction

As the population continues to grow, food demand is increasing rapidly but land supply is deteriorating. The weak relationship between land resources and food demand requires the use of technical skills in operations to reduce input costs and ensure a constant food supply. The global population is expected to reach 10 billion by 2050; This puts great pressure on agriculture to increase productivity and profitability. Two paths are possible to solve food shortages: Expanding land use and using large-scale agriculture, or using new practices and using technology to increase the value of existing land.

Many of the problems in achieving the ideal crop. Passing through obstacles; Limited land holdings, labor shortages, climate change, environmental concerns, and declining soil fertility are constantly evolving and advancing today's agricultural landscape in many ways. Farming has come a long way since the advent of the hand plow or horse-drawn machinery. Each season brings new technologies designed to maximize productivity and get the most out of your products. But a farmer and the global economy often forget the opportunities that agricultural skills provide to agriculture.

## Review of Literature

Beckman *et al.* (2012) [12] define technology entrepreneurship as a type of business that aims to improve prospects for advances in science and engineering. Both generalize and follow Bailetti's (2012) approach. Digital marketing allows goods to be sold quickly and cheaply around the world thanks to the power of the internet (Evans and Wurstcr, 2000). A very important tool available is the rise of electronic communities that facilitate the rapid exchange of new ideas; the relationship between customers and digital organizations (Kozinet, 2002). A detailed analysis of the different conditions under which technology companies are founded shows that the big technology industry is driven and made profitable by different conditions that affect other types of business innovation (van Roy and Nepelski, 2016). Technology companies (which may also include new businesses) are the main vehicles through which new knowledge and information are created in the fields of science, technology and engineering, ultimately creating some economic benefits (Acs, Audretsch and Strom, 2009; Acs *et al*. People, 2009). Nguyen *et al*. (2021) empirically examine the theory of consumer switching intentions towards traceable agricultural products. Platt *et al*. (2022) used a push-pull strategy to explore the motivations, opportunities, and challenges of agritourism in Samoa. Ramos-Rodriguez *et al*. (2012) argued that some people start new businesses to meet human needs such as financial and family security.

## Objectives

1. To know the Artificial Intelligence in Agripreneurship.
2. To know the Review information on Artificial Intelligence and Agripreneurship.
3. To know the Role of Artificial Intelligence in the agriculture sector.
4. To know the Applications of Artificial Intelligence in Agripreneurship or agriculture.
5. To know the statistics related to agriculture practice of AI in India.

## Artificial Intelligence in Agripreneurship

Artificial intelligence corresponds to current social problems such as workforce reduction, limited agricultural land, and the gap between the total food supply and the world's people. There are three main problems with the use of artificial intelligence in agriculture: Inconsistency of daily output shows that the use of artificial intelligence may have limitations in certain areas. Despite the progress made over the past few years, moving AI-based systems and algorithms from experimental management to the real farm

environment will require further research and development along with the ability to process and interpret large amounts of data. Concerns regarding the security of equipment used to collect information and the confidentiality of information collected. Farmers using artificial intelligence will be able to complete more work in a shorter time, while also improving the quality of the products and ensuring that the products are delivered to the market quickly. Technological advances in areas such as artificial intelligence, big data and the Internet of Things have now become a key role behind the widespread use of IT solutions in many businesses. Artificial Intelligence for Agricultural Innovation According to a social media report published by the World Economic Forum, there are 3,116 startups in the food and agriculture sector in India, showing annual growth of 25-30%. The rapid growth over the last 12 months, with $500 million invested in the sector since 2014, demonstrates the impact technology will have in the post-Covid world.

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**Context**

a. Agriculture is still one of the most urgent problems in the world today. The increase in population causes the demand for food to increase. A 70 percent increase in food production is believed to be necessary to meet demand.
b. Therefore, there is an urgent need to find new ways to promote sustainable agriculture, strengthen the global food supply, reduce food waste, and providing food to all hungry or malnourished people should be a priority.
c. Therefore, it is important to develop technology, especially the use of this technology to manage and ensure food safety in countries around the world.

**Scope of artificial intelligence**

a. Agriculture is the most important sector for the Indian economy; as 58% of households in the country are directly or indirectly dependent on agriculture as some form of livelihood.
b. Agriculture is one of the richest industries in terms of artificial intelligence (AI) and machine learning (ML). Artificial intelligence, machine learning and Internet of Things (IoT) sensors provide real-time data for processes that can improve agriculture, increase yields and reduce food costs.

**Areas with Maximum Potential**

a. Computing has become the most relevant technology in agricultural services; because it can learn, understand and interact with different environments to create products.
b. Microsoft is working with 175 farmers in Andhra Pradesh to provide agriculture, land and fertilizer services. This measure increased the average yield per hectare by 30%.
c. Proximity analysis, remote sensing, IoT and image-based agriculture are used to integrate smart data on cloud history. Wind, soil data, new research, precipitation, insects and drone images are used in Yu --Intra-method depth analysis, crop monitoring and regional research.
d. Image recognition using artificial intelligence techniques for plant identification and pest and disease testing is also advancing.
e. Use AI and machine learning-based analytics to watch videos on any terrain in real time, detect animal or human crimes, and send instant notifications; This is effective in preventing damage to crops.
f. Yield maps Optimizing irrigation systems to find patterns in large data sets and frequently measure the effectiveness of water use is important for crop planning.

   g) Nowadays there is a shortage of farmers, it is possible to make smart tractors based on artificial intelligence and machine learning. Agricultural robots and robot technology are a good option for many rural farms where it is difficult to find workers. These robots can harvest faster, detect and remove weeds more accurately, reduce operating costs and increase operational reliability.
g. Meanwhile, farmers started turning to chatbots for help. Chatbots assist farmers by answering farmers' questions and providing advice and guidance on specific agriculture and crop-related issues.
h. The use of technology is also extending to activities such as agriculture. Artificial intelligence (AI) has become one of the most important techniques used to improve the genetics of farm animals. It is mostly used in cattle breeding. The use of antibiotics protects bulls from infectious diseases and reduces the risk of infection.

**Challenges**

a. Artificial Intelligence systems need a lot of data to train and correct machines. Although spatial data is easy to collect, temporal data for large agricultural areas is difficult to find.
b. Creating a strong learning model takes time depending on the necessary information that needs to be completed.

c. Another disadvantage is the high cost of the various solutions available on the farm. In order for the technology to be used even at the farm level, the solution needs to be cheaper and open source.

**Way Forward**

a) Technological interventions can transform agriculture and improve farmers' lives by stimulating public and private efforts and innovation.

**Applications of Artificial Intelligence in Agripreneurship or agriculture**

a. Climate change, soil erosion, drought and ecosystem collapse now make food production more difficult or more expensive.
b. The value of integrated and unstructured data continues to increase.
c. Such evidence is found in weather data, soil data, new research, rainfall, insects, drones, cameras, etc. can be found.
d. IoT awareness can analyze all data and increase access.
e. Use high resolution data when testing soil.
f. Unlike proximity sensing, which uses nearby sensors h) Soil can be classified based on the depth at which it occurs.
g. To be effective, complex solutions are combined with soft and robotic technologies to provide nutrients to each plant.

**Role of Artificial Intelligence in the agriculture sector**

**Soil Management**

a. With the help of artificial intelligence, farmers will have advance information about the type of soil, when to plant crops, when to use pesticides and when diseases will occur.
b. Artificial intelligence will help farmers know the practices that damage the soil profile and harm it in the long run. This information will help farmers implement permaculture.

**Farm Management**

a. Technologies such as artificial intelligence, machine learning etc. Integrating with will help in understanding crop quality and clinical evaluation of data.
b. It can also provide farmers with Guides for best practices. Should be followed in agriculture.

**Artificial Intelligence can also help manage the agricultural quality of crop production through planning and understanding of operational services**

a. With the help of Artificial Intelligence, yields can increase and farmers' inputs can decrease.
b. Another advantage of intelligence is the reduction of waste.
c. Weather forecast: It can analyze the long-term weather in more detail and inform farmers about the changes they need to make in agriculture. It is sustainable and environmentally friendly.

**Market access**

a. It will help improve resource utilization and overcome market asymmetries that hinder farmers' access to the market.
b. Agricultural loans and the use of skills such as "smart" farming will help reduce the cost of services for smallholders.
c. It can play a role in precision agriculture. With precision agriculture, all aspects of agriculture can be analyzed in more detail and effective measures can be taken to improve the system.
d. Irrigation Management: With the help of artificial intelligence, the quality of the soil and the type of product to be produced are evaluated in detail. Therefore, the water required for crops is collected by artificial intelligence. Therefore, it will help reduce waste in agriculture.

**Statistics related to agriculture practice of AI in India**

a. By 2050, the world population may exceed the 10 billion mark. This will increase the demand for food. This requires the introduction of skills, biotechnology and other technologies in this field.
b. It is estimated that food production must increase by 70% from current levels to meet future needs.
c. In India, agriculture contributes 18-20% to the total GDP, while export earnings contribute 11% to the total income.
d. Approximately 60% of India's population depends on agriculture for their livelihood.

The main concern at the moment is the slow adoption of technology in agriculture, leading to higher input prices and lower productivity. The use of technology allows the country to produce good food products and achieve higher yields, reducing the need for medicines.

**Smart Moo Platform AI in Agripreneurship**

a. Created by the Stellapps initiative.
b. Since its inception in 2011, it has actively promoted the use of technology in milk production, especially in countries where profits per animal are low and traceability is not good.
c. They created the SmartMoo platform, a complete IoT solution to digitize and optimize milk, milk supply and cold chain management.
d. The SmartMoo platform and suite of applications are currently responsible for processing more than 2 billion liters of milk per year.
e. SmartMoo Platform IoT platform receives data from sensors installed in milk machines, animal clothing, cold dairy products and dairy products.

**Conclusion**

Technology is essential to meet the demand for food products. The world population continues to grow and only scientific tools can help us achieve the task of food security. The use of technology in agriculture is also very important to benefit farmers and protect the environment from the negative effects of pollution. AI-enabled technologies such as remote sensors for soil moisture detection and automatic irrigation with GPS. The problem faced by farmers is that the use of technology overcomes the problem of obtaining large yields while weeding. These autonomous robots not only increase efficiency but also reduce the need for unnecessary pesticides and herbicides. In addition, farmers can use pesticides and herbicides in agricultural fields with the help of drones, and plant maintenance is no longer a

burden. First of all, the lack of resources and work in business problems can be understood with the help of artificial intelligence.

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