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# Role Of Artificial Intelligence And Information Communication Technology In Agriculture

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***Abstract***
*The purpose of this study is to analyze the utiligation of artificial intelligence to support climent smart agriculture in India. This paper involve in descriptive analysis which focused on the role of AI, how it transform the life of farmer, how it leads to change in the agriculture operation, awareness of the farmer and scope of the AI, in climent smart agriculture. The digital world that we stand today is due to the different advancement in automation and science, modernization and latest innovation. The automation in agriculture is the main concern and the emerging subject across the world. The population in increasing tremendously and with this increase the demands of food and employment is also increasing. AI in smart agriculture has bought and agricultural revolution. The main concern of this paper is to audit the various applications of AI in agricultures such as for irrigation, sparing, weeding with help of sensor and others embedded in robots and drone. This technology save to excess use of water, pesticide, herbicides maintain the fertility of the soil, also help in the efficient use of man power and elevate the productivity and improve the quality. This paper present insights on the various application of technology advancement in agriculture such as digital agriculture, smart farming or internet of agriculture technology (IoAT), crop management, crop protection with the importance of ICT in climent smart agriculture farming and focus on improving the life of the rural poor by introducing various new technology to them for developing more relevant and rapidly functioning technologies.*
***Key Words:*** *ICT, Artificial Intelligence, Digital Agriculture, IoAT, Smart Farming.*

## INTRODUCTION

The agriculture sector farms only about 18% of Indian GDP despite employing almost 65% of the total work force. The use of ICT and AI is very important as a pillar of agricultural expansion in the current state a world that is changing very rapidly has been recognized as the basis of the process for providing information and tools as input for modern smart climent agriculture. The potential contribution of ICT and AI to agriculture can be viewed through cost reduction, increase of efficiency and productivity improvement should be analysis and documented and then adequate information system should be developed (Samah, et 2009) in India, consliltation paper on the Indian digital ecosystem of agriculture (IDEA) from the ministry of agriculture and farmers welfare (MoA & FW) was released which talks about a digital revolution in the agriculture sector.

Bruinsma (2017) examined that the adoption of technology in agriculture has significantly increase agricultural productivity. This technology including digital tools and there innovation, such as aerial imagery, drones, satellite, sensors, that internet of things, mobile application among others have automated farming and transform it into a data driven industry as farmers can now mange there farms and cropping activities on real time and with much ease.

Research study revile that ICT & AI has reformed traditional agricultural system and made significant contribution in increasing and agricultural productivity and sustainability by empowering farmers with the correct information at the right time and place. Information and communication technology and artificial intelligence will a play a key role in knowledge exchange, targeted recommendation market integration and

access to finance to make agriculture a profitable enterprise and attractive for youth, digital agriculture can be defined as ICT & AI ecosystem to support the development and delivery of timely, targeted information and service to make family protectable and sustainable while delivering safe nutrition's and affordable food for all.

## OBJECTIVE OF STUDY

- To study various modern technology used in improving agriculture productivity.
- To analysis the importance and impact of modern technology in agriculture

## ROLE OF ICT & AI IN CLIMENT SMART AGRICULTURE

The potential of ICT in agricultural sector can be used on two ways directly where ICT used as tool that contributed directly to pre activity of agricultural production and indirectly, where ICT is used the tool that provides information to farmers for making quality decision in efficient management of their enterprises, combined with IoAT and big data, AI, particularly in the fact of machine learning and deep learning is regarded as one of the key drives behind the digitalization of agriculture. These technology have the potential to enhance crop production and improve real time monitoring, harvesting, processing and marketing. Technology in agriculture has the potential to truly lead India to be "ATMANIRBHAR BHARAT" in all respect and be less dependent on extraneous factors.

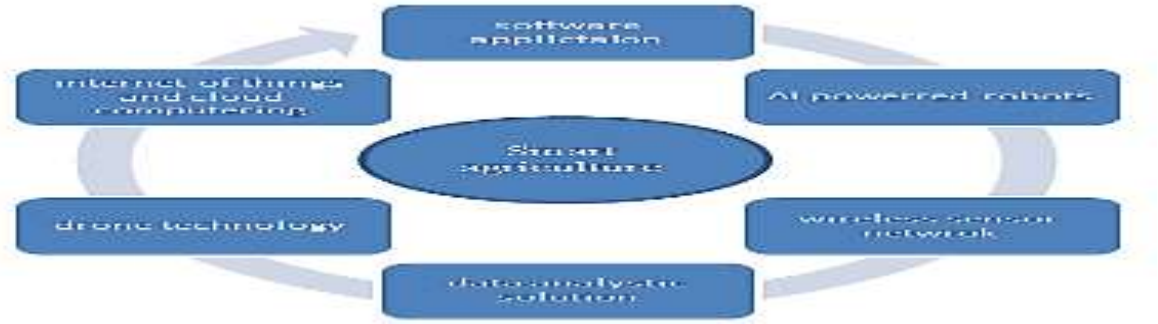
## TECHNOLOGY USED IN SMART AGRICULTURE

- **Digital agriculture**

  Digital agriculture is the use of new and advanced technologies integrated into one system to enable farmers and others stock holders within the agriculture vale chain to improve food production. Digital agriculture help farmer in maintaining their inherent agriculture practices and at the same time provide useful information to update their knowledge and skill. Agricultural automation system including field machinery, irrigation system, green house automation, animal automation system and automation of food production system help in achieving enhance crop yield.

- **Smart agriculture**

  Smart agriculture provide farmers with a diverse set of tools to address serval agricultural food production challenges associated with farms productivity, food security, environmental impact and sustainability. Likewise, a wide variety of production status, water management, weed control, crop production status, soil conditions, irrigation scheduling, herbicide and pesticide and controlled environment agriculture can be monitored and analyzed in smart agriculture to enhance product quality.




- **E-Agriculture**

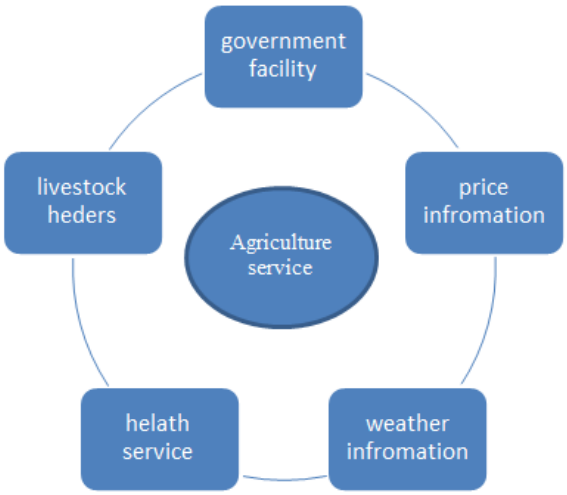
E-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technology in the rural domain, with a primary focus on agriculture.

- **Smart climent farming**

  Smart climent farming is a development that emphasizes the use of information and communication technology in the cyber physical farms management cycle, smart farming represent the application of modern information and communication technology into agriculture, leading to what can be called a third green revolution. Smart farming models are founded to be more generic ease to understand and ease to adapt by the farmer.

## ADVANCEMENT AND LIMITATION OF ICT AND AI IN SMART AGRICULTURE

There is no doubt that improved information flow has positive effect on the agricultural sector and individual producer, but gathering and distribution of information that is available to all stake holders in agriculture sector and for reduction of information distribution cost to all interested users




Lack of awareness about benefit of ICT and uncoordinated and chaotic development of system, easiness of system use and language barriers, high cost of maintenance, environment related harms etc.

## CONCULASION

An effective relationship between ICT & AI with smart agriculture will lead to sustainable agriculture through the preparation of timely and relevant agriculture information which can provide farmer with the right information in the decision making process to increase their productivity. ICT & AI can improve farmer accessibility quickly to market information, production inputs, consumer trends which positively impact the quality and quantity of farmer production. ICT & AI also able to help farmer's performance with a variety of innovation tools to assists farmers in carrying out there farming activities such as seed dispersing drones, so that effective and efficient agriculture can occur. Because the presence of ICT in the agricultural industry can make prediction more accurately, with various source and decision support system and expert system that can be developed to support farmers in the decision making process. Hence, smart and digital agriculture will also help achieve the objective of the national security act in the most efficient, effective and equitable manner to insure all have access to safe, nutrition's and affordable food.

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