

Impact Of Digital Revolution On Effectual Agriculture

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ABSTRACT

Agricultural production is under heavy pressure due to increasing world population and to meet out the demand for food. This study focuses on the image of digital agriculture practices in India with primary attention on the state of Tamil Nadu. The objectives of this study are to analyze the importance of digital technology and to understand how much mobile applications such as Uzhavan app are effective for the farmers. As of date, Digital agriculture practices in Tamil Nadu are of very limited use, and so the government of Tamil Nadu is coming up with several steps for the betterment of productive farming. The government along with support from Mobile apps are pushing hard for the development of a digital agriculture action plan and to spread the knowledge of government policies and implementations to every farmer, thus enabling the expansion of agricultural production in Tamil Nadu.

Keywords: Digital Agriculture, Productive farming, Mobile agricultural app, Uzhavan app.

Introduction

The significant goal of agriculture is to produce food with sufficient level in the economy. All of the agricultural practices are done by people. Today agricultural activity considerably expects the digital atmosphere for their productivity. Digital anthropology is the anthropological study of the relationship between humans and digital-age technology. "Digital" specifically refers to online and Internet technology. The study of human's Agricultural anthropology deals with crop and people but in this study approaches with digital and farmers who are engaged in agriculture. Agricultural revolutions imply to increase the agricultural productivity through the technological transformation. Transformation of agriculture has taken place from Green Revolution to digital Agricultural Revolution, for boosting agricultural productivity. Inequality and environmental damage are the major

unsolved problem in green revolution. Digital agriculture scientific knowledge has the potential to address adverse side effects of the Green Revolution. Digital environment to the agriculture helps farmers through the information about latest technology in agriculture, real-time information about their farms for making better decision, soil analyzing with the agriculture expert directly, weather forecasting, participatory and collaborative research involving farmer's to get up to date knowledge about the insurance policies and subsidies provided by the government.

Objectives of the Study

- To explore the importance of digital technology in agriculture.
- To analyze the various mobile applications in India which support the farmers in productive agriculture
- To study the detailed about the Uzhavan app in TamilNadu.

Research Design

This research study is descriptive as well as suggestive in nature. It describes the characteristics and behavior of the research work. Mainly secondary resources have been extensively used consisting of journal articles, books, newspapers, periodical articles etc. An attempt has also been made to include the latest information whenever available.

Digital agriculture

Digital technology connects all over the world. Mobile device plays the major role with their efficient features of smaller, popularly priced and speedy. Digital mechanism is not only helpful to business but also to the farmers involved in agriculture. Digital tools are helping farmers in diversified farming activities such as use more precise amounts of water, fertilizers and keep a better control of their operations, plan farming activities, budgeting, reporting and monitoring on multiple tasks and performances communication with others.

Importance of Digital Agriculture

Digital Agriculture helps farmers to improve their farming methods. They can use the minimum quantities of water, fertilizers and pesticides required for the production of crops

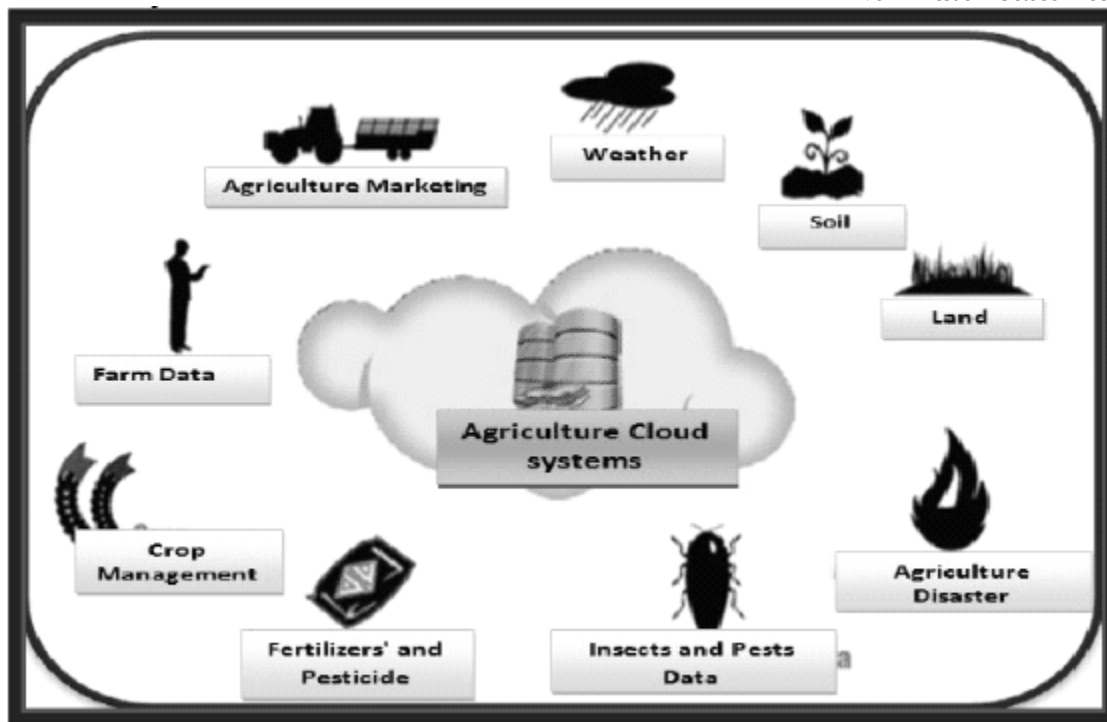
and target very specific areas, or even treat individual plants differently.

Major advantages are:

- It assists to higher crop production.
- It decreases the use of water, fertilizer, and pesticides for the soil, it turns increases the quality of soil.
- It improves the quality of natural ecosystems.
- It reduces the chemical waste that run into rivers and groundwater.
- Robotic technologies provide predictable monitoring and management of natural resources, such as air and water quality.

Cloud computing

Cloud computing is a type of computing that relies on shared computing resources rather than having local servers or personal devices to handle applications. India is the bulkiest producers of foods, grains and other products. But the agriculture production process are decentralized, unsophisticated and outdated methods being followed by the farmers. It develops the great gap between the supply and demand for the agricultural products. This will lead to adverse effect to the farmer's quality of living as well the national economy. This obstacle can be eliminated with the implementation of Cloud Computing facility in agricultural field. It can be composed of separate databases for soil-related, weather-related, research, Crop and Farmers-related data can all be stored at a single location, and data availability can be achieved. This data can be accessed by the end-users such as farmers, experts, consultants, researchers etc easily any time from any location through the devices that are connected to the cloud syst.



Agriculture cloud systems

Artificial Intelligence:

Artificial intelligence (AI) is the simulation of human intelligence processes by computer systems. These processes include learning, reasoning and self-correction.

Pradhan Mantri Fasal Bima Yojana scheme helps to increase the farm productivity by lowering the cost of production and ensuring the better price for farmers. AI can be used in multiple domains of agriculture such as weather, crop and price forecasting, and yield estimation. It may help Indian farmers to choose the right crop and minimize the risks. It lowers the cost of production through precise application of agricultural inputs like fertilizer, chemicals, irrigation, etc. Several Indian start-ups are also engaged in developing technologies that will be used by farmers to improve their productivity.

Remote monitoring & drones

Great challenging occurs to the farmer who has large acres of land such as checking water points, stock monitoring and time consuming. Farm management software allows businesses to access information and alerts from their computers or mobile devices. Data Scope provides one of the most efficient farm management software tools in the market, that automates the

recording and storage of data, eases the monitoring and analyzing of all activities and streamlines production and work schedules.

Drones have a unique advantage in being able to provide live information that can be advantageous in many ways. They are used to check and monitor crop health, stock feed and water points.

Digital technologies are used in agriculture for better productivity, raising the quality of the product, providing quality standard of living of the farmers and economic development of the country. Some other technologies that are important for modern agriculture are:

- Remote Sensing
- Big Data and Analytics
- Mobile Soil Testing Laboratories
- Soil Health Cards
- Digital Soil Maps
- Mobile Money/digital wallets
- National Identity Databases (Aadhaar)
- Mobile Phones
- E-Commerce
- Sensors Networks (plants, soils, irrigation, etc)
- Digital Technologies have the potential to create equitable opportunities for Small

Holder Farmers along the Agriculture Value Chain

- Digitization along the agricultural value chain maximizes benefits to the two ends of the value chain - Farmers and the Consumers

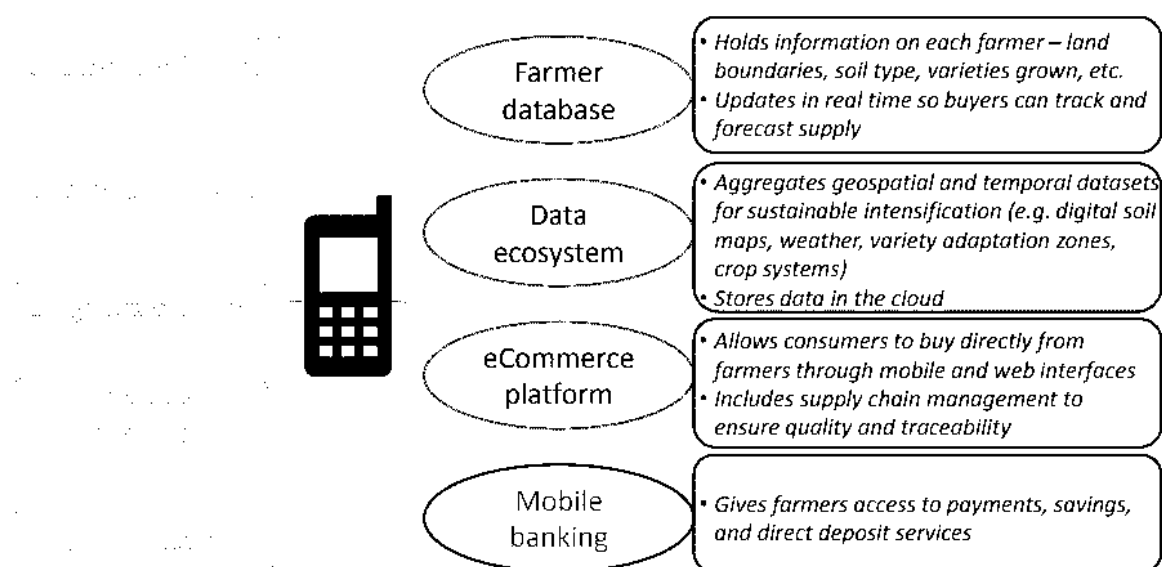
Agricultural mobile applications in India

Agriculture applications are fruitful for Indian farmers and agriculture society. It provides latest information about agriculture to them. These applications are very supportive to farmers and fulfill the information gap between the farmers and Government with rural development. These are Android applications for agriculture which provides the latest market rates, weather forecasting, Government policies and schemes for farmers, latest technology videos, news related to agriculture etc. Farmers can get solution for their problems and queries through these apps by directly ask question to the Agriculture experts.

Digital India, launched in 2015 by Indian Prime Minister Narendra Modi, plan towards the

betterment of digital literacy and development of digital infrastructure for empowering rural societies. The benefit of Information and Communication Technology (ICT) to support the conveyance of localized information and services working towards making farming socially, economically and environmentally sustainable, while providing to the delivery of nutritious and economical food for all. These consist of Digital Agriculture. The great evolutions of mobile applications assist government schemes, and other agriculture-based information to reach farmers in rural India. The digital advancement plays as a game-changer for Indian agricultural requirements.

Digital device to support end-to-end services for farmers



Mobile applications for agriculture in India

AgriApp: Agri App is the popular marketing application. It is online platform for bringing government service to farmers. It also provides chat option for farmers with an expert of agriculture. This mobile application provides diversified videos of agriculture work. Approximately 0.1 million users

Iffco Kisan App: This android application supports information about the latest agriculture advice, latest mandi prices, and various farming tips and weather forecast information. It also provides agriculture alerts to farmers in 10 Indian languages. The farmers can easily take help of agriculture experts using this app. Approximately 50 thousand users downloaded this app.

Agri Media Video App: It is the most popular video app, which brings market place to

farmers, retail services on an online platform. It assists chat service for farmers to solve their doubt related to agriculture with the alternative images of infected crops. Farmers get expert opinion for their problems which related to agriculture. This Smartphone application also provides various videos related to agriculture practice, new technologies, successful farmers, rural development, agriculture news, new govt. schemes related to agriculture etc. Approximately 10 thousand users downloaded this app.

FarmBee - RML Farmer: It supports fertile agriculture content and advice at every level of the crop life cycle. It provides various options to farmers from 450 crop varieties, 1300 markets, 3500 weather locations. It also provides mandi price and weather forecast based on a user location. Approximately 0.5 million users downloaded this app. . It is available in 10 different Indian languages.

Kisan Yojana: It gives information about the Government schemes to farmers. It fill up the gap between the rural people and the government. It saves the time and travel expenses of farmers in their Kisan Yojana are other popular Android agriculture apps available for free. It provides knowledge about all Government schemes to agricultural society. It also provides the schemes of the different relative states Government. This mobile application also saves the time and travel expense of farmers to reach the state Government office is saved. Approximately 50 thousand users downloaded this app.

Uzhavan App for farmers in Tamil Nadu; Tamil Nadu Government introduced mobile application called as Uzhavan App in a bid to use latest technology for prosperity of farmers. It was launched by The Chief Minister of Tamil Nadu Mr. K.Palaniswamy, it is available in Tamil and English language. The app can be downloaded from Google Play store. The information about farm subsidies, booking farm equipment and related infrastructure details are getting at proper time. The details about crop insurance and even weather forecast for next four days are also available in the application. The availability of stocks of seeds and fertilizers in local government and private store are maintained in the applications.

Amma Bio-Fertilizer scheme: The Government of Tamil Nadu launched 'Amma Bio-Fertilizer' scheme for guidance of nature farming and boost up and maintain the soil fertility.

Renting implements

Recently Tafe's J Farm Services App tied up with the Uzhavan app and the feature was launched by Chief Minister Edappadi K. Palaniswami. It provides the information on tractor

and farm machinery rental services to the farmers. It is like a bridge between tractor owners and custom hiring centers directly with farmers searching farm mechanization for their agricultural activities. It facilitates a generous and open rental process which concentrating on quality, dependability and timely delivery. A total of 4,157 renting farmers and 7,461 customers, who are farmers without equipment, have enrolled within a couple of weeks of the launch.

Subsidies information service

Agriculture is a subsidized sector in India. Government provides certain minimum support price (MSP) for agricultural products as a subsidy of the applied administered price. An agricultural subsidy is a governmental subsidy paid to farmers and agribusinesses to support farmer's income. Subsidy on land revenue in case of natural calamities and loans to concessional terms has been a traditional feature of the Indian revenue system. Considering that, subsidies have enclosed a wide range of Indian economy.

In Tamil Nadu Government's Uzhavan app gives the information about the subsidies available for various schemes like seeds purchases, machinery, solar pump set, shade net, poly house, pack house, hi-tech nursery, small nursery, new tissue culture lab, anti-bird net, plastic mulching, bee hives, pre-cooling chamber, reefer van, mobile vendor cart, low-cost onion storage and mushroom cultivation.

Insurance information services: The Uzhavan app provides the information about the insurance coverage and monetary support to farmers in natural calamities and in failure of any of the crop production due to pests and diseases. It encourages the farmers to adopt innovative and modern agricultural practices in their farming activities. "The app being the first of its kind in the entire country will enable the farmers, who have registered under Crop Insurance Scheme, to know their application status till they receive the compensation amount under crop insurance," official sources said. The app directs the farmers how to receive their crops insured and where they have to approach and what are the documents required for crop insurance.

Weather forecast: Success of monsoon based agriculture depends on the climate that controlled during the particular cropping season. Provision of proper time weather information to the farmers for making crop management opinion can minimize the risk and

losses due to acute climate. Weather network has been established and is expected to help in monitoring the global warming and climate change impacts on Tamil Nadu Agriculture.

Dashboard for Agricultural Monitoring page is beneficial to farmers. It is a visual service where the farmers can easily identify the weather data. They can get new satellite imagery every 2-4 days. Farmers can easily identify hourly and daily weather forecasts, Current and historical weather data and Accumulated temperature and precipitation through the chat method. The feature of Uzhavan weather updates are great success to the government.

Conclusion

Digital Agricultural has a vital role in managing productive agriculture, improving the product quality, conserving natural resources and protecting the environment and also it helps in production, distribution, consumption of agricultural products. It can be undoubtedly said that agriculture methods are to reach its zenith with the developing world's trend towards digital tech. Agricultural related information to farmers of all standards is communicated with more ease with the help of digital agriculture through cloud computing, integrated IT systems, online education and the proliferation of mobile phones.

Farmer's ability to make better land management decisions have been considerably improved with the widespread advancement in technology which gives an unlimited flow of information to its users. Monitoring soil condition and weather helps farmers to make a better decision during the planting and harvesting seasons. The digital information on pests and crop diseases enable farmers to make optimal use of fertilizer, seeds and water, thus increasing the revenue to a large extent. In whole, digital agriculture saves money and time of the farmers and thus increasing the country's economy.

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