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Digitalisation an Indian Government Initiative in Agriculture

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ABSTRACT

Digitalisation impacts developing technology and has the potential to revolutionise virtually every part of life, including agriculture and industry. The interlink of digitalization and agriculture enhances the output and also helped to achieve the target of double farmer income. The purpose of this paper is to analysis the government steps taken in India to digitally transform agriculture through a programme, Scheme, app, and website. It also examines the opportunitiesand Challenges. The study is based on secondary data sources from various articles, journals, and government websites. The study has found there are certainly many opportunities and challenges associated with the digital age. But it has created many opportunities for many agriculture experts and governments to come together and can contribute to developing an integrated solution. Digitalisation increases the production capacity of agriculture and also achieves the sustainable development goal. In a developing country like India, there is a huge opportunity for invention that is still needed in the field of agriculture.

Keywords: Digitalisation, Agriculture, Government initiative

INTRODUCTION

The Indian government introduced various programs to introduce the "digitalization process" with the initiative of Digital India which was launched on 1 July 2015 with a vision to transformIndia into a digitally empowered society and knowledge economy (Saikrishna et.al.,2020). Digitalization is the process of making society more digital. The process of transforming analog data and information into a digital signal using bits and bytes is known as digitising (EXPH, 2019). Routines are impacted by digitalization, which has the potential of being advantageous for the environment and the economy (Rolandi et.al., 2021).

Digitalisation impacts developing technology and has the potential to revolutionise virtually every part of life, including agriculture and industry. It helps farmers reduce cultivation expenditures while improving production. Digitalization in agriculture maximises its potential by adding value while increasing farmers' income and level of livelihood (Stoeva et.al., 2021).Agriculture provides a livelihood for around 58% of the Indian population. Consumer expenditure in India would increase by up to 6.6% in 2021, following a downturn caused by the pandemic. The Indian food sector is on track for rapid growth, with its contribution tothe global food trade increasing year after year due to its enormous potential for value addition,mainly in the food processing business (IBEF, 2022). There are about 140 million operational farms in India, based on "the Indian Agriculture Census" (2010-2011), with 85% of farmers owning marginal as well as small holdings (Madaswamy, 2020). Many of the claimed advantages of digitalization for agriculture focus on boosting productivity through precision mechanisation, automation,

and better decision-making (Fielke et.al., 2020).

This chapter's goal is to highlight the steps taken by the govt. of India to digitally transform agriculture through a programme, Scheme, app, and website. It also examines the opportunitiesand Challenges. To analyse how it promotes economic growth and benefits farmers.

DIGITALISATION IN AGRICULTURE

Improvements in "smart farming," often referred to as "digital farming" or "digital agriculture,"and "big data" applications can bring about a variety of positive outcomes, including better decision-making, enhanced efficiency, and economic gain, and even reduced environmental impact, which might assist agricultural industries to achieve their productivity and environmental problems (Jakku et al., 2019).

Agriculture has undergone numerous revolutions including the scientific use of intercropping andother innovations in agricultural practice like the "green revolution" with systematic hybridization and the wide use of man-made pesticides & fertilisers. Now the use of (ICT) in agriculture is rising dramatically and we can say that agriculture is going through a fourth revolution (Walter et.al, 2017).

GOVERNMENT INITIATIVE IN AGRICULTURE

The following are some of the governments of India's initiatives on the web, apps, andschemes which link agriculture to digitalisation: -

Digital Agriculture Mission: The Digital agricultural mission is launched by the union minister in September 2021. This programme aims to use various technologies, including dronetechnology, remote sensing, blockchain, AI, and GIS technology, to enhance the sector's overall performance (IBEF, 2021). Agriculture is expected to contribute 19.9% of GDP via digitalization in 2020–2021, up from the 17.8% recorded in 2019–20. (Economic Survey 2020- 2021). The Digital Agriculture Mission signed five Memorandums of Understanding (MoUs) with "CISCO, Ninja Cart, Jio Platforms Limited, ITC Limited, and NCDEX e-markets Limited(NeML)" to advance digital agriculture through a pilot initiative (IBEF, 2021).

Kisan Suvidha App: In India, there are over 700 million rural residents who have access to information technology, and this number is rising rapidly. The Indian government launched theKisan Suvidha app. Under this app, Farmers can get weather alerts at least five days in advance.It also provides data on the market pricing status of the surrounding area and other Indian states,allowing farmers to make the best option feasible (Sharma et.al., 2020).

BigHaat App: It is a digital input platform for agriculture which is developed to provide farmers with enriched data for better decision-making and to meet their pre-harvest through post-harvest crop needs. The software offers high-quality and timely inputs to lessen crop damage, increase crop yields, and enhance crop quality. This programme also acts as a forum for farmers to communicate with one another (forbesindia.com)

E-Mandi: It is an online fruit and vegetable marketplace that has been created to serveindividuals by offering online shopping to them. It is an internet website that allows consumers to conveniently purchase produce while also maintaining transparency between the farmer andthe user. This programme assists users in locating the greatest prices for vegetables and fruits (Behera et.al., 2020).

Farmer Portal: Farmers can use the farmer portal as a platform to look up any information about agriculture. Detailed information is supplied on things like farm equipment, seeds, pesticides, agricultural

storage, and crop extension initiatives (India.gov.in).

Crop Insurance app: This app offers details on deadlines and corporate contacts for farmers'crops and locations, as well as assistance in calculating insurance premiums for crops that require notifications. It serves as a calculator and reminder for farmers on their insurance. It can also be used to obtain information on any notified crop in any notified area's regular sum insured, extended sum insured, premium details, and subsidy information (digitalindia.gov.in).

AgriMarket App: This app provides information on agricultural prices in markets 50 kilometers away from the device's location. This software uses mobile GPS to automatically locate users and retrieves the market price of crops at markets within a 50-kilometer radius (farmer.gov.in).

M- Kisan Portal: It allows all central and state government organisations in agriculture and associated sectors to provide information, services, and advisories to farmers via SMS in theirpreferred language, agricultural practice, and location. Under m Kisan, USSD (Unstructured Supplementary Service Data), IVRS (Interactive Voice Response System), and Pull SMS are value-added services that allow farmers and other stakeholders to receive not only broadcast messages but also web-based services on their mobile devices even if they do not have accessto the internet (India.gov.in).

eNAM: On April 15, 2016, the government launched the electronic national agriculture market(eNAM). The primary goal of this eNAM portal is to connect the domestic market across the state, thereby creating a pan-India market platform for farmers to sell their farm produce anywhere in the country by overcoming state restrictions. Its primary goal is to obtain a higherprice for its farm produce. The internet-based eNAM aims to integrate mandis to benefit both farmers and buyers, as well as to provide openness in the buying and selling of farmers' produceacross the country (Deshmukh et.al, 2018).

Atmanirbhar Krishi App: This app is an effort by Kisan Mitr, which will supply farmers withevidence-based information created by research organisations like IMD, ICAR, and CGWA. This software assists farmers in making planting decisions, mechanisation of small farmers holding or stubble burning, and early weather notifications, and will ensure that decisions are made while considering the importance of water and environmental sustainability, as well as judicious resource usage (Indiagovtscheme.com).

Agristack: The advantage of technology and online resources devoted to farmers and the agricultural industry. It would give farmers a uniform platform to offer end-to-end services across the whole agriculture and food value chain. Additionally, it will encourage innovation and financial investment in the agricultural sector and fund research into more adaptive crops (Krishijagarn.com).

UFSP: A platform called "Unified Farmer Services" combines basic infrastructure, data, applications, and tools to facilitate smooth interconnection across multiple governmental and private IT systems in the country's agriculture sector (kisan.gov).

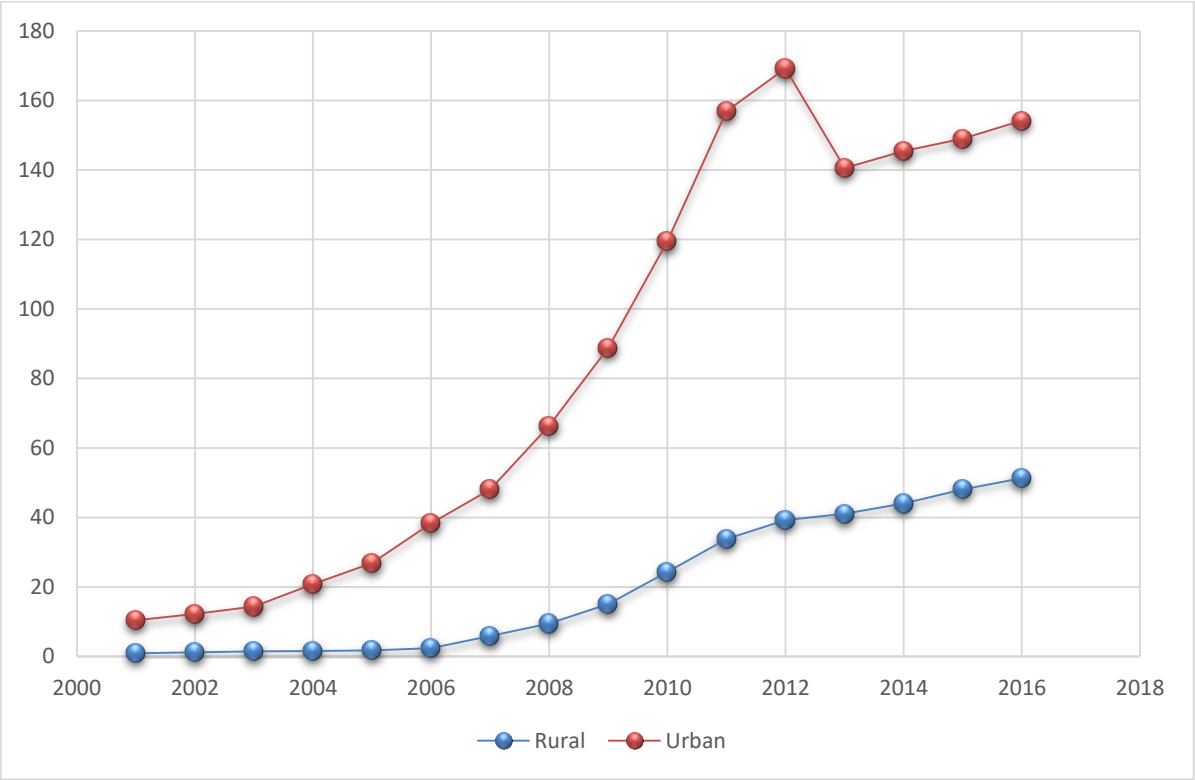
NeGP-A: The National e-Governance Plan in Agriculture (NeGPA) scheme was introduced in7 states in 2010–2011. It intends to accelerate growth in India by giving farmers immediate access to information about agriculture (agricoop. nic).

AGMARKNET: The purpose of the "Agriculture marketing information network" portal is toconnect the state agriculture marketing boards and directorates with the significant farm produce markets spread out across the nation. Additionally, it has been created to improve communication with farmers and other customers and give information on global pricing patterns for different agricultural commodities (indiafilling.com).

OPPORTUNITY & CHALLENGES

The role of government support in encouraging technology adoption has been a matter of constant scholarly investigation (Harleen et al., 2020. More than 600 million people use the Internet in India, one of the biggest and fastest-growing marketplaces for digital consumers in2019. (Tiwari, 2022). As a result of the funding of $1.66 billion in 558 deals from 2013 to 2017for agrifood start-ups, digitalization has altered their appearance. The government supported these industries in every way possible, educated farmers about new technologies, and worked to boost productivity (Badam et al., 2020).

Graph 1. Digital Adaption in Rural and Urban



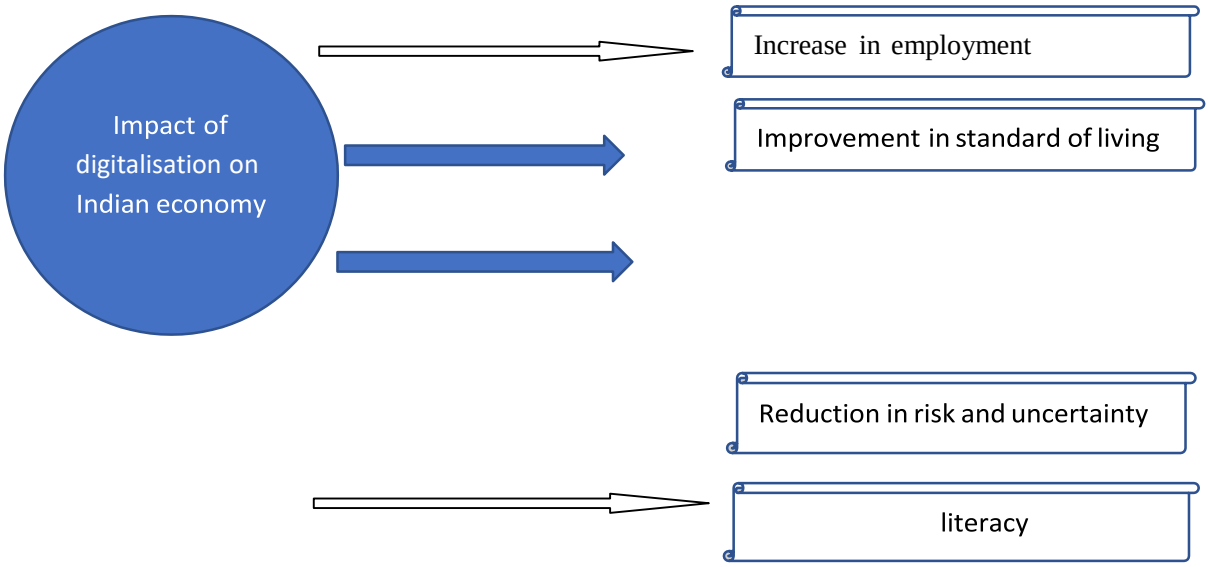
Source: Tiwari. K. M (2020).

The above graph 1 shows that the adoption of digitalisation in both rural and urban is increasing very fast and it shows more in urban. However, the adoption of digitalisation is slowly increasing and it creates a gap.

IMPACT OF DIGITALISATION

The below figure 1 shows the impact of digitalisation on the Indian economy in increasing employment, improving the living standard of people, reducing risk and uncertainty, and increasing the literacy rate of the people. However, there are various things that the economybenefits from digitalisation like reducing costs, saving time, increasing production and productivity, increasing skill and employability, and so on in every area of the economy, including agriculture.

Fig 1. Impact of digitalisation on Indian Economy



Source: Panchani,2020

CONCLUSION

A lot of opportunity for agricultural development has been opened up by digitalization. It provides farmers with quick access to insightful information that helps them manage their farms more effectively, adopt best practices, and minimise losses while maximising profits. Predictive analytics software has benefited as a result of developments in satellite images, machine learning, and data storage in clouds since they are very scalable and simple to use. There are certainly many opportunities and challenges associated with the digital age. But it has created many opportunities for many agriculture experts and governments to come togetherand can contribute to developing an integrated solution. Digitalisation increases the production capacity of agriculture and also achieves the sustainable development goal. Farmers can also sell their products in the market at a good price. Digitalisation helps human capital to thinkin smart ways, but it also creates challenges for a society like the digital divide. The analysis of the study is, that in a developing country like India, there is a huge opportunity for invention that is still needed in the field of agriculture.

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