Vol. 12. No. 4. 2023

DOI: 10.13140/RG.2.2.13465.60001

Contents available at:

http://www.crdeepjournal.org

International Journal of Basic and Applied Sciences (ISSN: 2277-1921) (CIF:3.658 ; SJIF: 6.823)
(A Peer Reviewed Quarterly Journal)

Review Paper

Digital Marketing and Growth of Modern Indian Agriculture Industry: A Preliminary Review

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ARTICLE INFORMATION

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Article history:
Received: 30-05-2023
Revised: 15-06-2023
Accepted: 28-06-2023
Published: 29-06-2023

Key words:
Agri-business, Digital Marketing, Farmers, Social media, Information communication technology (ICT), e-marketing platforms, online market place

ABSTRACT

India is an agricultural country where about one-third of the people live in some form of agricultural dependency. Over 30.02 percent of India's GDP comes from agriculture, accounting for a sizeable portion of the sector. Since the beginning of the Green Revolution in the mid-1960s, India's agricultural policy has assisted farmers by providing them with access to markets and financial incentives to use biochemical technologies that improve productivity, such as seeds, fertilizers, and pesticides. The government has also taken certain actions to support farmers' welfare and the development of rural regions. One of the government's most notable initiatives to sell agricultural goods online without the need of middlemen is digital marketing. In this sense, digital marketing is a breakthrough move that greatly aids farmers in selling their goods around the world. The 2015 start of the Digital India movement set out to turn rural India into an economy enabled by technology. Currently, in India the agriculture marketing system has undergone significant changes in the last sixty years due to a number of factors (i.e. increased marketed surplus, increased urbanisation and income levels, changes in the demand structure for marketing services, and stronger ties to distant and international markets). Rising literacy rate has shown a direct impact on young farmers to use digital marketing platforms due to the consistent growth of agricultural infrastructure to lower the marketing expenses. Emphasis should be given to the application of information and communication technology (ICT) in the agricultural sector (i.e. e-Agribusiness or e-Agriculture). Digitalization not only alters the agri-food chain, but it also influences significant changes to farming, rural economics, and agricultural marketing. Indian farmers benefited from the use of ICT in agriculture as it makes it easier for them to promote their goods and obtain market information. ICT also enables small farmers to locate several consumers who are prepared to pay a premium for their goods. Market distortions can be lessened by using a mobile application that gives farmers access to pricing information. Conclusively, digital marketing is helping all the small ranch holding and large ranch holding growers (borderline, small, medium and large growers) to find the multiple buyers for their produces and get advanced prices. In this review attempts have been made to explore the impact of digital marketing on next generation Indian agriculture sector.

Introduction

India is an agricultural nation as more than 60% of population resides in villages that is up to some extent, dependent upon the agricultural sector for their economic development and placed a strong emphasis on agricultural production; ranking second in the world for crops and vegetables followed by China. It is believed that the agricultural sector is a stimulant of economic development (FAO, 2004). To attain a successful industrialized status it is mandatory for a nation to first achieve success in agricultural performance since the green revolution (investment in food production) is crucial to the industrial revolution (Inegbedion et al., 2018; Inegbedion et al., 2020;). Agriculture sector play a crucial role to mitigate the poverty in developing nations through improved productivity and this consistent with the economic goals of the United Nation's Sustainable Development Goals: "No Hunger" and "No Poverty" (Nebo & Ejionueme, 2017).

India's agricultural policy has supported farmers by giving them access to markets and financial incentives to embrace biochemical technologies that increase output, such as seeds, fertilizers, and pesticides, from the start of the Green Revolution in

the mid-1960s. Furthermore, the Agricultural Produce Market Committee (AMPC) Act, which announces commodities and geographical boundaries for carrying out trade by licensed-traders, regulates markets for dishonest trading practises to make it more lucrative for farmers. The government sets MSPs for up to 23 commodities in order to shield farmers and consumers from price volatility. In addition, the government generally guarantees the acquisition of certain commodities in the event that open market prices drop below MSP. When it comes to crops, the pricing strategy works best for paddy and wheat, which are purchased in bulk for buffer stocking and public distribution.

Over time, the agricultural sector has suffered from lack of advancement in India that needs to be emphasized with respect to the current scenario of economic developments. It is for this reason that a different type of agricultural marketing deserves to be given due attention to ensure that the earnings potential of agriculture is not undermined. Marketing of Agricultural goods are very crucial in the field of agricultural business to consumers, selling output, obtaining a fair price, building relationships, and delighting customers. Recent Pandemic of COVID-19, had a serious impacts on nation's economy, with agriculture sector, construction, and farmers' incomes all being significantly adversely affected. The overall sales of agricultural products and the income of farmers along with the employment stability of migrant workers show a declining trend. In order to overcome these challenges in the future, farmers have to adopt advanced techniques maintain a steady management in agriculture business, i.e. digitalization of marketing. The prime objective of digital marketing is to reduce the cost of marketing along with the conversion, consideration, awareness and retention. E-Agriculture or e-Agribusiness refers to the use of information and communication technology (ICT) in the agricultural sector. Every aspect of the agricultural food chain will be affected by digitalization, but it will necessitate big changes in farming, rural economics, and produce marketing.

In the process of rural construction, the rapid development of the digital economy brings new growth points for the digital development of agriculture, which may play an important guiding role in increasing farmers' income. Recently, the Indian Committee on Doubling Farmers' Income (DFI, 2022), in its report has appreciated the support of Digital Technology, in modernizing and organizing how rural India can performs its agricultural activities. Digital technologies are finding increasing use in the agricultural value system, and farmers are increasingly becoming more informed, as various measures are taken to provide them ready access to technology and information. The Indian Council of Agriculture Research (ICAR) launched more than 100 mobile applications developed by ICAR, State Agricultural Universities and Krishi Vigyan Kendras and uploaded on its website. These applications developed in the areas of crops, horticulture, veterinary, dairy, poultry, fisheries, natural resources management and integrated subjects, offer valuable information to the farmers, including package of practices, market prices of various commodities, weather related information, advisory services, etc. (MoAFW, 2022). For development of rural areas and farmers welfare government has also taken many steps. Digital marketing is one of the prominent implementation by the government to sell the farming products digitally without the intervention of intermediary. Digital Marketing is a revolutionary step in this regard and very helpful to farmers to sell their products globally. Digital India movement launched on the year 2015 had its goals cleared of transforming rural India into a digitally empowered economy. After the implementation of this system many of the farm companies are started to sell their products digitally. However, beside all this, digitalization of agricultural selling is still a challenge for rural or low land holding farmers due to lack of knowledge, lack of digital tools, security concern and least awareness. The application of networking, information, and digitization has important strategic significance in the process of agricultural development and rural construction. By the end of 2022, the Internet penetration rate in India was 48.7%, increased fourfold in the last decade from 12.6 in 2012. While this may not sound that high, in absolute numbers that are 692 million people. India therefore ranks second in the world in terms of active internet users after China.

Given the popularity of the use internet services and social media across the different age grades in India, it is logical to expect that its use in the marketing of agricultural products will make a significant impact on the demand for agricultural products and thus on sales. The main objective of this paper is to explore the impact of the adoption of digital technologies i.e. Internet, social media and web applications in agricultural marketing by farmers, in developing countries like India on major performance indicators; such as cost of marketing, demand for agricultural products and turnover of farmers.

Adoption of social media for agricultural marketing in India

The main focus area of Indian Agriculture; in the current times has been on increasing the income of farmers. This took the shape of official government policy after the call of the PM of India to double farmers' incomes and the subsequent budget announcement to this effect (Govt. of India, 2016). One of the modern ways of uplifting the incomes is by the use of Digital Technologies in Agriculture to raise the overall efficiency of the agricultural production processes as well as the entire value chain.

Farmers are becoming more and more dependent on mobile phones in order to keep up with digital marketing and its information. Nowadays, a lot of individuals are curious about digital agriculture. Digital agriculture is seeing substantial developments and transactions. Whether they sell their agricultural products and services online or through traditional channels, all farmers aim to get the best price for their products. Farmers may sell their agricultural products at greater prices with the help of the marketing portion of digital agricultural marketing (Kiruthiga et al., 2015).

To expand their user or client base, farmers, however, like using internet services. Compared to traditional marketing, digital marketing is more economical and successful. By 2023, there will be 500 million internet users in India, according to a study predicted by the Internet and Mobile Association of India (IAMAI). This encourages the growth of the digital agriculture sector

and the possibility for farmers (sellers) and customers (buyers) to purchase and sell agricultural products. Furthermore, these digital marketing products and services will satisfy the needs and tastes of the growing population of our glorious India. Unquestionably, the future of food is digital and the future of digital is inevitably AI (Artificial Intelligence). From gene sequencing in plants to Internet of Things (IoT) networks of implements and sensors that are used in data generation and image recognition, AI applications are being deployed across different aspects of agriculture (Gurumurthy & Bharthur, 2019). India's National Strategy on AI also aims to realize the potential economic and social benefits the technology offers. Further, the National Strategy on AI recognizes agriculture as one of the priority sector areas for implementation of AI driven solutions (Niti Aayog, 2019). Conclusively, the Internet of Things system may increase farmers' production efficiency and the quality of their agricultural goods, which will increase farmers' revenue as the degree of agricultural digital transformation continues to develop (Zhang and Fan, 2023). A growing number of firms are drawn to digital marketing due to its many benefits. These benefits include flexibility, affordability, and time and money savings. Nonetheless, a sizable portion of farmers in the agriculture sector are ignorant of the potential benefits of digital marketing for their product sales (Komala and Murty, 2022).

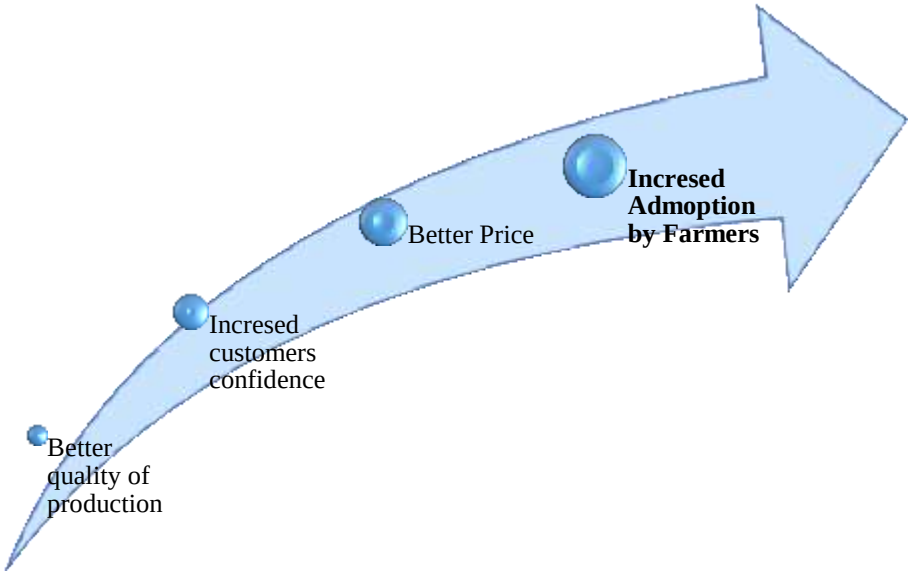

Fig 1: Virtuous cycle of future Online Marketing

Use of social media in marketing agricultural products and cost of marketing

The way farmers interact with consumers and get information has been greatly impacted by the Internet. Agriculturalists now have free and immediate channels for communication with their audience members because to the utilization of user-generated material on social media. It's also critical to emphasize that farmer's benefit from digital marketing platforms because they allow them to increase the selling price of their agricultural products while reducing the cost of marketing those products (vegetables, cotton lint, maize grains, and paddy). It is quite advantageous to employ digital marketing as a commercial and informational tool. Studies also show that the selling of huge amounts of agricultural commodities is aided by the use of social media, and they recommend that the Indian government and state governments establish strategies and regulations that would lead to the sustainable expansion of the digital agriculture industry (Reddy, 2021).

Farmers and FPOs use Android phones to access social media platforms like YouTube, Facebook, Twitter, WhatsApp, and other internet services. They connect with domestic and international marketplaces to sell their agricultural commodities at the most suitable rates by using aforesaid digital information. Digital marketing is used by all farmers, either by large scale farmers or small land holders, to increase pricing and sales. Because digital marketing removes commission brokers and middlemen, buyers may obtain farm-fresh goods at competitive costs. Previous research indicates that since digital marketing successfully changes agricultural practices, it is strongly recommended for agricultural growth. The government must make the necessary measures to increase farmers' awareness of the advantages of digital marketing (Oseremen, 2020). Farmers gain more from the selling of agricultural products in digitally managed marketplaces than they do from traditional markets. Furthermore, it differs from market to market due to the development of the facilities and infrastructure that are available to the sellers and buyers in the market (Jairath, 2012). *The new and developing strategy in the agriculture industry emphasises the use of social media for products and on-field service marketing.* Diverse social media platforms facilitate the creation of vital relationships with customers, educate the public about cutting-edge farming practises, and foster teamwork. It sparks interest from potential customers and helps to create a lively community. Through blogs, articles, and engaging topics, farmers may establish a connection with their intended audience (Komala and Murty, 2022).

Use of social media in agricultural marketing and sales turnover

Options for e-commerce or business-to-business development are offered by sponsored social media ads. These function in a manner akin to cost-per-click ads, and they simplify the user experience by promoting products through popular mainstream channels. It makes it possible for farming businesses to make more money online. The usage of sponsored social media ads

contributes to the growth of e-commerce. It gives opportunities to increase social media exposure and makes agricultural marketing goals more clear. Professional social media management tools enable the optimization of marketing concepts for optimal results. It helps establish a solid social media following and gives SEO backlinks from reputable sources. To put it briefly, it is beneficial to promote your agricultural business and raise awareness in new regions.

Contribution of e-commerce websites

Developing an online store helps advance the marketing of your agricultural enterprise. Customers may discover more about your company's offerings through it, and it aids in agribusinesses' revenue growth. It is advantageous to display the entire range of agricultural products, including agricultural accessories and equipment for food processing. It may be quite advantageous to use e-commerce websites to promote the items under your brand. In order to simplify the selling of agricultural products, information and communication technology (ICT) helps the agricultural marketing industry by making it easier to organize, evaluate, and support smallholder marketing (USAID FACET project, 2012). Collaborate with a digital marketing firm offering an extensive array of web development services. The website will help increase brand awareness and audience reach. It has previously been established that insufficient extension services and restricted access to information, respectively, are to blame for a gap in the adoption of technology and low levels of agricultural productivity. The need of obtaining correct information at the right time for the advancement of Indian agriculture should also be emphasized. Using a tool that makes use of digital technology, young farmers may engage in agribusiness more successfully (Balu, 2020).

Channels of advertisement

The traditional marketing of agricultural products consists of determining the farm products, producing in the right quality, storing to ensure that the products are available; and transporting the products to the places where they are required. It consists mainly of non-verbal communication between the producer and the consumer. The producer (farmer) conceives a product that is required by consumers, produces it in a manner perceived to be consistent with customers` requirement, stores it, and distributes to locations perceived to have adequate demand.

A marketing channel may be defined in different ways according to Moore et al. (1991) the chain of intermediaries through whom the various food products pass from producers to consumers constitutes their marketing channels. Marketing channels are actually a sets of interdependent organizations or 'intermediaries' engaged in the process of making manufacturers' (or producers') products or services available to their end-users (Kumar et al., 1995). In marketing channels of various forms connecting producers and end-consumers, the major intermediaries includes wholesalers, distributors, agents and brokers (Krafft et al., 2015). Farmers frequently incorporate a number of positioning and advertising strategies into one when attempting to reach their main clientele. For example, "location" and "promotion" are factors that matter both online and offline in the modern world. Specifically, where a product is located on a business website or social media account, and the specific kind of searches that will lead to the product's targeted ads being displayed. (Komala and Murty, 2022)

Marketing channels are among the most important elements of any value chain and their importance stems from the fact that significant amounts of a nation's economic outputs flow through them. However, intermediaries are important to perform certain functions i.e. transportation, storage, selling, advertisement, and relationship building. In modern time, as the forms of channels and intermediary types have proliferated, producers' marketing channel choices and decisions are becoming as complex as the decisions about product features and prices. Interestingly, research on designing of market channels, organizational relationships, and operations, has grown steadily through time since the pioneer works of scholars (i.e. Louis Stern and Louis Bucklin).

The number of buyers in the present digital agriculture marketing method has increased. Farmers may obtain market information via the digital and internet-based apps on their Android phones, which might potentially minimize market distortions, losses from logistics and shipping, and product damage and spoiling. In the context of national and international digital marketing, Android mobile and internet-based digital apps can assist in finding farmers, agri-input dealers, agri-output purchasers, storage warehouses, and accredited financial institutions for investment reasons. Farmers in the digital agricultural marketplaces are making more money from their harvests. Customers may so be able to obtain a competitive advantage. Agribusiness companies are using a technology known as *"Blockchain"* to trace the origin of every bag of produce they purchase straight from the farmer. The phrase *"Blockchain"* describes a type of technology that may identify low quality standards in any agricultural product's food grain supply chain, allowing for swift and efficient legal action against the offending corporation. It helps guarantee that customers receive top-notch, freshly harvested agricultural products. Every day, private sector organizations lead the efforts to properly deliver the vital information to the farmers as well as the buyers. The welfare of the nation's farmers is mostly the responsibility of institutions like I.T.C. (e-choupal), Reliance, "More" (Aditya Birla group), AGMARKNET, M & M (Shubhlabh), Godrej group, N.A.F.E.D., NAAPANTA APP, A.P.M.C., etc. in India. Revenue increases when agricultural products are promoted using digital marketing, especially for smallholder farmers. Because of the industry's apparent future, young people from rural regions with modest holdings are being urged to continue working in agriculture.

KISAN Mandi Online Agris

On April 26, 2016, it established itself in the market as a private limited company and was later designated as a startup by the Department of Industrial Policy and Promotion of the Government of India. The first agricultural company in India to launch a free online marketplace for farmers is Kisan Mandi Online Agri Market Private Limited (KisanMandi.com). With the aid of Gramme Sahayaks, KisanMandi.com is helping farmers with the grading, packing, and logistical support they need to sell their

agricultural products directly to consumers. This will enable farmers to receive a higher price for their crops than what the APMC mandi pricing now offers.

E-CHOUPAL

Since its launch in June 2000, the firm has expanded to eight states of India (Madhya Pradesh, Karnataka, Andhra Pradesh, Maharashtra, Rajasthan, Uttarakhand, and Tamil Nadu) and has erected 6,450 kiosks. Through 6,100 installations, the services serve over 40 lakh farmers who raise wheat, rice, soybeans, coffee, lentils and prawns in over 35,000 communities. Through this project, the idea of agricultural extension services is meant to be brought from the Internet to the farm. With the use of an internet-connected computer, farmers may deal directly with a buyer on E-Choupal, a virtual marketplace, and receive a higher price for their goods. E-choupals are Internet kiosks located in villages that provide access to weather, market pricing, and scientific farming methods. The programme provides farmers with the necessary data, goods, and services to raise agricultural output, increase farm-gate price realizations, and reduce transaction costs. Additionally, the business has started a flagship extension project called *"Choupal Pradarshan Khet"* (CPK), which consists of demonstration plots that farmers may use to increase farm production via the adoption of best practices in agriculture. It is also presently collaborating with agri-startups to provide farmers a variety of services, such as crop advice services, location-specific weather predictions, crop quality testing, etc. According to a corporate study, by implementing all advised practices and inputs, the earnings of about 34,000 farmers—out of the 10 lakh beneficiaries under CPK—have doubled (107% rise). Through the internet and other digital media, this platform links rural farmers with consumers of agricultural products like as coffee, soy, wheat, rice, pulses, and oil seeds. Through the use of digital media made possible by this effort, farmers may also receive the essential manures, agricultural chemicals, and other farm supplies. Each kiosk is capable of serving over 600 farmers within a five-kilometer radius that encompasses 10 communities. Therefore, the requirement for an intermediary is eliminated. The amount of money that farmers take home has increased as a result of the availability of e-Choupal services. Based on the most recent data available, the ITC Company serves farmers and clients in more than six thousands e-Choupals, which are situated in 3513 villages throughout 11 Indian states.

Reliance Group

The CEO of the Reliance Group, Mr. Mukhsh Ambani, has come up with a proposal to quickly establish a 5,000-acre contract farming company in the states of Telangana, Andhra Pradesh, and Karnataka. This means that it could be able to rank among the leading agricultural commercial centers for the export of farm goods. The Reliance Foundation supports farmers' access to markets in several ways, but one major and comprehensive strategy has been to develop and fortify more than 100 Farmer Producer Organizations (FPOs). A significant number of them have been offering mentorship assistance to other FPOs within their districts, resulting in a domino effect. FPOs connected other FPOs to the market, assisted in setting up and managing Minimum Support Price (MSP) procurement facilities, and helped them get agricultural inputs while offering general training and capacity building. Reliance Fresh Stores was the company's initial concept, and farmers would supply fresh fruits and vegetables to it since selling directly to Reliance would greatly benefit them. As a result, transportation costs are reduced.

AGMARKNET (Agricultural Marketing Research & Information Network)

A website for electronic trading that unites 585 markets throughout 16 states. More than 164,53 lakh M.Ts worth of agricultural goods have been transacted on the e-NAM platform. In order to maintain the commodities, it was made to ensure that agricultural products moved from one market to another as smoothly as possible. The platform makes it simple to view daily pricing and arrivals information for different wholesale markets around the nation, broken down by variety and product. Important commodity arrivals and price trend updates are also released on a regular basis. Additionally, the webpage displays future pricing from National Multi-Commodity Exchange of India Ltd. In order to access global commodity price trends, links have also been made with the websites of the Asian & Pacific Coconut Community (APCC) and the Food and Agriculture Organization (FAO). The portal is connected to the NIC's trade resource and TRADENICONLINE websites, which provide their members with a wealth of value-added online data distribution services. It offers a standard platform for the gathering and sharing of value-added information by export promotion organizations, commodities boards, regulatory agencies, and trade and industry groups.

National Agricultural Cooperative Marketing Federation of India Ltd

The top governing body overseeing the cooperative marketing system in India is NAFED Established in 1958, this remarkable cooperative organization is the oldest of its kind for purchase, sell, and supply agricultural, marketing, and processing necessities, such as manure, seeds, fertilizer, packing machinery, construction supplies, processing machinery for agricultural commodities, forest produce, dairy, wool, and other animal products, as well as agricultural implements and machinery; to benefit the farmers of Indian Horticultural crops. It is beneficial to the farmers since it eliminates the need for intermediaries, which results in more earnings and better pricing.

The aim of this organization is to assist, plan, and encourage the cooperative institutions' partners' and associates' marketing and trading endeavors in agricultural and other commodities, articles, and goods. Through its Consumer Marketing Division, NAFED Bazar Chain runs a number of stores selling groceries and other consumer goods at reasonable costs under the Nafed Bazaar name. In the near future, the NAFED Bazaar chain will grow to include more than 200 locations throughout India. It also provides a wide range of government facilities with groceries, office and stationery supplies, and other FMCG goods. With the help of a committed group of NAFED-trained Direct Sales Partners and Kisan Kart vending carts, NAFED will shortly introduce a Direct Sales Channel for the selling of specialty and distinctive goods directly to consumers.

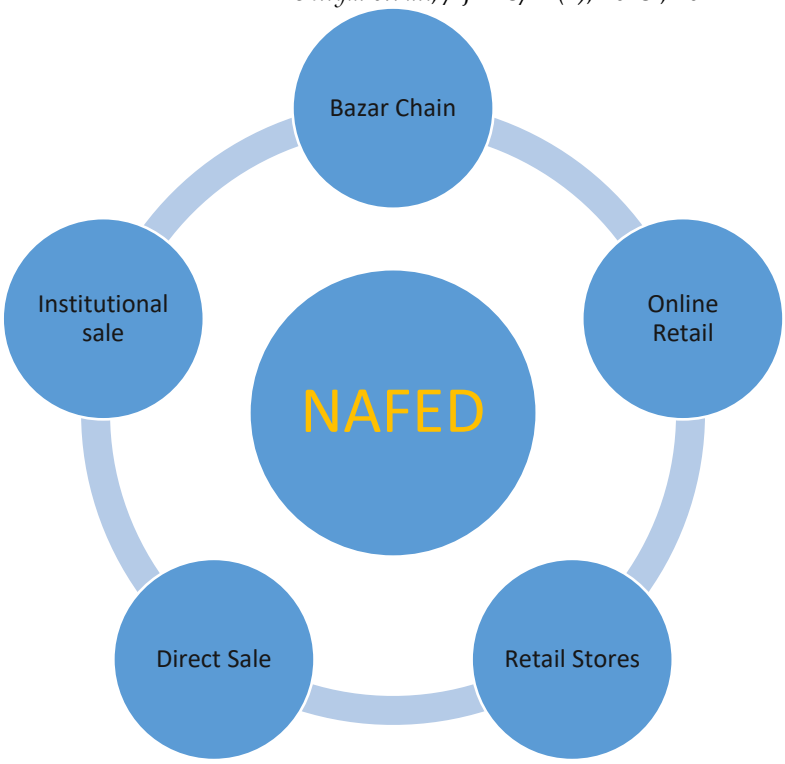

Fig 2: Network of NAFED

IKISAN

The Nagarjuna Fertilisers and Chemicals Ltd (NFCL) Ikisan Agri-Informatics & Services Division was established in 1999. In addition to being active in other important economic sectors, NFCL, a company owned by the Nagarjuna group, is well-known in the Indian agricultural input market. Ikisan's website, www.Ikisan.com, is the top agricultural gateway for meeting the many needs of the agricultural industry.This industry includes crop nutrients, crop protection chemicals, specialty nutrition, micro-irrigation, agricultural research and development, and biotechnology. It has its own staff and infrastructure and is headquartered in Hyderabad. Ikisan is among the few companies that have managed to survive and thrive in a developing subsector with enormous development potential. In order to work together on the Rural E-Seva Project, which aims to build roughly 6,000 information kiosks in rural areas of the state for the purposes of e-governance and information, Ikisan and the Government of Andhra Pradesh signed a Memorandum of Understanding. The sole entity possessing a distinct objective and the ability to optimize information technology across the whole agri-value chain. It provides information on a variety of topics, including managerial practices, the weather, and market pricing for items. This organization helps farmers with every facet of their company, from planting to selling seeds, by utilizing information technology. Among other things, it provides information on the market, product prices, the climate, and different farm management techniques.

Mahindra and Mahindra group

The Mahindra & Mahindra firm founded two divisions in 2000, one of which was called the Mahindra Krishivihar in Madhurai. The division's goal was to offer agricultural extension services to farmers and to buyers of large quantities of product. The second one is named "MAHINDRA SHUBH LABH," and it is a section of agricultural tools that sells items such fertilizer seed drills, power tillers, disc harrows, ploughs, and tractors.

UZHAVAN App

To encourage the use of Tamil, the Tamil Nadu government launched a bilingual smartphone app in both Tamil and English. Real-time data is one of the twelve essential agricultural services that technology offers to farmers. It provides the details on agricultural goods, including costs and routes of distribution. The e-market feature of the Uzhavan app, which was made available to users during the COVID shutdown, has helped farmers earn a fair price for their products by providing a platform that links them with online customers. The system gives farmers access to all the market data and extension services they want, and it is based on Android mobile applications. The primary feature is that both buyers and sellers may access each other's phone numbers and complete their transactions. The government is not actively involved in the transaction; rather, it only acts as a platform to facilitate commerce, according to Government officials (Information Technology and ATMA).

NAPANTA App

It is an internet-based programme designed to help farmers in rural Andhra Pradesh and Telangana. It may be possible to obtain pricing trends and graphs for over 95 distinct commodities over the last three consecutive and concurrent years, in addition to market data for over 3,650 agricultural marketplaces. When it was created, Telugu and English were utilized. It offers data on the geoclimatic conditions of a certain area, provided by the Agriculture University of Telangana. It gives farmers advice on where

and how to get a free soil test done, as well as how much urea to use based on the kind of soil. He thinks that the demands of the farming community will be met by this material, but if they have any special questions, they may still contact the Agriculture Forum of NaPanta, which is made up of retired agriculture officers, scientists, and other professionals.

Technology acceptance model, Theory of agricultural marketing cooperatives

Agriculture 4.0 is described as *"integrated internal and external networking of farming operations"* by the European Agricultural Machinery Association (CEMA). This implies that all agricultural sectors and processes have access to digital information; correspondence with outside parties, including suppliers and final consumers, is also conducted electronically; and data transfer, processing, and analysis are (mostly) automated. Utilizing Internet-based portals can make it easier to handle massive data sets and to network both inside the farm and with outside partners. The same article continues by stating that robots and (some kind of) artificial intelligence would be the foundation of Agriculture 5.0.

Problems and Challenges

- Some of the farmers are unable to utilize Android smartphones because they lack computer literacy and don't know how they operate. Thus, it is plausible that issues pertaining to the sale of agricultural products might arise with them.
- Many merchants from different countries and regions may be found. Consequently, it is not feasible to predict when or at what price Indian farmers' commodities will be sold.
- Farmers may occasionally browse phone internet portals or fraudulent websites since there is no security. We will be wasting our time and energy on this.
- Since many consumers still prefer to make in-person purchases, one cannot just rely on internet marketing. It is crucial to rely on offline marketplaces to some extent as a result.

Conclusion

There is a growing need for digital skills in developing countries, notwithstanding the paucity of research on the use of digital technology by agribusiness entrepreneurs in the production and sale of agricultural commodities. Conversely, the TOE model is employed to ascertain an organization's readiness for integrating novel technology. The environment, the organisation, and the technology itself are the three variables that affect how rapidly a technology is adopted. The several process technologies and the internal and external infrastructure are all included in the technical section. The high degree of distortion brought about by middlemen and the costs involved in marketing have rendered the conventional means of selling agricultural products unviable. It is essential that we continue to liberalize the agriculture industry and endeavor to improve the farmer and customer experience on digital platforms.

Furthermore, it is advised that agriculture be treated as an industry in order to enable precise estimates of investment, profit, and loss. Farmers will be able to reduce expenses that aren't strictly necessary for the production of crops if this occurs. It is crucial to put into practice a plan that will reduce cultivation costs while increasing crop yield in order to optimize profits. The strategic objective of rural revitalization in India is achieved by the deep integration of the digital economy and agricultural growth, which fosters agricultural output through agricultural digital transformation and expands sales channels through industrial upgrading. The government of India and each of its states must develop strategies and policies aimed at supporting the development of a sustainable digital agriculture sector. Building successful models is essential to both the economic prosperity and social advancement of rural agricultural communities. One way to do this would be to start building online markets near agricultural producers. Enhancements are required for digital marketing infrastructure for agriculture, Internet of Things in agriculture, smart technologies, and internet infrastructure.

Disclosure statement

No potential conflict of interest was reported by the authors

Funding

No funding was received to assist with the preparation of this manuscript

Competing interest

The authors declare no competing interests

Contribution

Dr. Surabhi Dhar: Data curation, methodology and investigation. Dr. Akshat Uniyal: Conceptualization, supervision, methodology, reviewing, draft preparation, editing and writing. Mr. Uttam Kumar: Conceptualization assistance, draft preparation and analysis. Dr Nidhi Lohani: Experimental assistance validation and editing.

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