



Role and Impact of E-Commerce in Agro Based Industries in India

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ABSTRACT:-

This research paper involves a study of the impact of E-Commerce on agro based industries in India. The research study has highlighted the Information Technology, Management Information Systems, Finance and Accounting, Marketing and of E-Commerce on agro based industries. E-commerce is a way of conducting business over the Internet. Though it is now become a familiar concept in business and has the potential to alter the traditional form of economic activities. Already it affects such large sectors as communications, finance and retail trade and holds promises in areas such as education, health, and government. The largest effects may be associated not with many of the impacts that command the most attention but with less visible, but potentially more pervasive, effects on routine business activities. The agro based industries uses digital marketing tools to attract the customer and now a days it is increasing trend. India is 70% depended on agro and Agro based Product Therefore it is important to know the effect of digitalization on agro industries.

1. Introduction

The digitalisation of agriculture describes integrating cutting-edge digital technology into the farm production system, including artificial intelligence (AI), robotics, uncrewed aviation systems, sensors, and communication networks. Production of all food grains in India was predicted to be 275 million tonnes (MT) in 2017–18. India is the world's top producer of pulses (25 per cent of total output), consumer of pulses (27 per cent of total consumption), and importer of pulses (14 per cent). According to the Food and Agriculture Organization (FAO), this makes India the world's second-largest food producer.

India is the world's top producer of pulses, paddy, wheat, and wheat, respectively. The National Agricultural Research System (NARS), which includes the Indian Council of Agricultural Research (ICAR) institutes and State Agricultural Universities, is one of the largest agricultural research systems in the world. Agriculture in India employs over 42 per cent of the labour force (2019), contributes 19.9 per cent of the Gross Domestic Product (GDP) (2020-21), and provides food security for about 1.3 billion people. Hence, technology and the digitalisation of agriculture here play a role of a catalyst to improve and increase production.

According to the NITI Aayog research on artificial intelligence, agriculture must expand at a rate of 4 per cent or higher right now to maintain an annual growth rate of 8–10 per cent. Digitization is crucial for achieving this level of success. The NITI Aayog predicted in a report that by 2025, AI in agriculture would be worth \$ 2.6 Bn and rise at a pace of 22.5 per cent Compound Annual Growth Rate (CAGR). AI currently helps farmers increase yield by assisting them in choosing better crops, hybrid seeds, and resource-efficient farming techniques. It is also utilized to improve farming productivity and accuracy to assist farmers in creating seasonal forecasting models.

2. Research Methodology

For the said present research study is based on the secondary data. Such secondary data is collected from various reference books on E-Commerce, E-Business, Marketing Management, Marketing Research, Mobile Commerce, Internet Marketing, and Electronic Advertising, Economics, Commerce, Management, Banking etc. For the said research study the secondary data is also collected from the various National and International Research Books and Journals which are related to E-Commerce, Internet, Commerce, Banking, Management and Information Technology. The present research study the data pertaining to the following objectives was collected by the review of the literature on the subject concerned. The literature was thus collected by visiting libraries and various concerned websites.

3. Objectives of the Research Study

Many E-Commerce business activities present different objectives. These may be specific and immediately measurable objectives as well as more general and complex.

The objectives of present study are:

1. To understand the present status and trends of E-Commerce; and
2. To reveal the key variables influencing the increased usage of E-Commerce.
3. To study the role and impact of e-commerce based industries in India.

4. E-Commerce Agro Base Industries In India

E-commerce is breaking down barriers and has quickly infiltrated even the most traditional industries, such as agriculture. The global Agritech industry is expected to be valued at \$41,172.5 million by 2027, growing at an 18 % CAGR over the next five years. The rapid changes in the digital tech sphere have made it possible for Agritech brands to introduce innovative changes in the agricultural value chain. The evolution of digital technology now represents a new way for farmers to sell their products to a diverse range of buyers such as agribusinesses, merchants, restaurants, and consumers.

The rapid adoption of agritech is evident from the fact that over 1000 agro-based businesses operate in India alone. Cutting-edge agritech solutions are enabling farmers and agriculture-related service providers to break free from centuries-old, outdated agricultural practices and join the main-stream multi-channel markets. Agri e-commerce has not only given the farmers access to better tools to improve their harvest but also improves farmers' access to new markets and boosts value chain transparency. It allows farmers to avoid many intermediaries, resulting in higher income, less waste, and the ability to deliver fresher produce to buyers.

Digital Agriculture Initiatives in India

- The Digital Agriculture Mission 2021–2025 was launched in September 2021 by Narendra Singh Tomar, Union Minister of Agriculture and Farmers Welfare. Five Memorandum of Understandings (MoUs) were signed to advance digital agriculture through pilot projects with Cisco, Ninjacart, Jio Platforms Limited, ITC Limited, and National Commodity and Derivatives Exchange (NCDEX) e-markets Limited (NeML). The Digital Agriculture Mission 2021–2025 aims to encourage and speed up projects based on cutting-edge technologies, including AI, blockchain, remote sensing, robots, and drones.
- Over 1,000 agri-tech start-ups are based in India, and various venture capital funds, loan funds, and angel investors have long supported the sector. These start-ups have innovative ideas that assist farmers in improving farming techniques and produce.
- To provide farmers with real-time data and the necessary advice, NITI Aayog has teamed up with International Business Machines (IBM) to create a crop production forecast model supported by AI. It aids in enhancing crop output, soil quality, agricultural input control, and early disease outbreak warning.
- In August 2019, Cisco created an Agricultural Digital Infrastructure (ADI) solution to improve farming and knowledge exchange. This played an essential role in the data pool that the Department of Agriculture developed under the National Agri Stack.
- The Jio Agri (Jio Krishi) platform was introduced in February 2020, and it digitalized the agricultural ecosystem along the entire value chain to empower farmers. The platform's primary function leverages data from standalone applications to offer counsel. Its advanced features use data from various sources, input it into AI algorithms, and then deliver precise, individualized advice.
- India is gradually embracing climate-smart farming methods, which will assist in altering the country's ecology and cutting greenhouse gas emissions from agricultural activities. For instance, the farmers in Gujarat's Dhundi village have begun employing solar electricity and other sustainable energy sources for irrigation.
- Microsoft and the Indian government have teamed up to support India's small-holder farmers by running a pilot programme called 'Unified Farmer Services Interface'. The alliance aims to boost farmers' incomes through improved price management and increased agricultural yield using AI sensors. The collaboration would accelerate the use of AI in farming.
- Six institutions are a part of the government's Sensor-based Smart Agriculture (SENSAGRI) programme. Drones would be utilised in this concept to scout over land areas efficiently, acquire priceless information, and instantly communicate the data to farmers.

India is also helping the farmers by providing agricultural loans that will help increase natural farming practices and significantly modernise agriculture, emphasising agri-waste management. In addition, 11 crore farmers have received \$ 26.4 Bn through the Pradhan Mantri (PM) Kisan Samman Nidhi initiative. Additionally, the market for organic products has grown to \$ 1.5 Bn. The government is also encouraging AI to revolutionise agricultural and farming trends and giving financial support to agri-tech firms.

India is continually working to develop and implement regulations that would improve the sustainability of its agricultural industry. Partnerships between corporations and the government can aid in developing a smart agriculture industry, given India's dynamic corporate structure.

The Digital in Agriculture Today

One of the key elements that define 'digital' in agriculture is the use of technology. More commonly referred to as agriculture technology, or agritech, it encompasses the application of modern technologies in conjunction with the internet to reconstruct the practice of agriculture globally. Being digital has given large and medium organizations the power to unearth and analyze unprecedented volumes of agri big data, which has further enabled various stakeholders to create more value in the processes they oversee.

- **Farm-level data** derived from a combination of sources, including mobile-based **agriculture apps**, sensors, drones, farm implements and machinery, robotic devices, and other IoT devices, makes it possible for producers to capture vital farm data round the clock. This data, when processed with satellite and weather-based information, allows crop producers to monitor the growth of crops in real-time, assess the performance of the farm plots, and estimate the output for each farm plot with a fair amount of accuracy.
- **Precision agriculture** presents diverse opportunities for the use of artificial intelligence to optimize farm processes. It allows producers to translate raw agri data into actionable insights that help improve the quality and quantity of the harvest. AI is also empowering producers to choose the best crops and crop varieties for their region, and leverage farm automation to minimize the use of resources.
- **The digitalization of the entire process**, from production and harvest to warehousing and distribution, is strengthening communications between the various stakeholders in the agri-ecosystem. Digitalization has also enhanced visibility along the supply chain for the different actors, making the process more transparent and highly efficient.

5. E-Commerce Agro Base Industries In Maharashtra

In recent years e-commerce is gaining immense importance in agricultural sector in India. In Maharashtra 4 Agricultural universities and 76 agricultural colleges had led foundation in agricultural sector growth. Collaboration with different foreign country like Israel to facilitate contemporary methods of crop production for additional crop production set technological advancement in Maharashtra. Proliferation of internet technology and its availability has increased and easier access to Maharashtra Farmers. The study examined the response of U-Link Agritech Pvt. Ltd. working in the Pune District. The focus of study was to find response of farmers towards "direct-to-farmer" technology platform. This has been done by knowing farmers awareness level, attitude towards exiting e-commerce technology acceptance level. The study was conducted in Pune District. This study has contributions and managerial implications to the information system knowledge base as well as agricultural sector in India. The rate at which technology innovations like the internet information is adopted by consumers constitutes an important part of the technology change or integration The exploratory research design have been used for collecting secondary data like company sale order records ,books other record on the internet etc. while descriptive research have been used for collecting primary data.

6. Challenges of E-commerce in India

India has less credit card population, lack of fast postal services in rural India. Accessing the Internet is currently hindered down by slow transmission speeds, frequent disconnects, cost of Wireless connection and wireless communication standards over which data is transmitted. High-speed-bandwidth Internet connection not available to most citizens of the nation at an affordable rate. In India, mostly people are not aware about the English language or not so good in English language. So that for the transaction over internet through electronic devices, language becomes one of the major factors to purchases, hire and sell a particular product or services. Multiple issues of trust in e-commerce technology and lack of widely accepted standards, lack of payment gateways, privacy of personal and business data connected over the Internet not assured security and confidentiality of data not in place to deploy ubiquitous IT Infrastructure and its maintenance.

7. Conclusion

Growth of e-commerce depend to a great extent on effective IT security systems for which necessary technological and legal provisions need to be put in place and strengthened constantly. While many companies, organizations, and communities in India are beginning to take advantage of the potential of e-commerce, critical challenges remain to be overcome before e-commerce would become an asset for common people. With the explosion of internet connectivity through mobile devices like Smartphone and tablets, millions of consumers are making decisions online and in this way enterprises can build the brand digitally and enhance productivity but government policies must ensure the cost effective methods/solutions. Ecommerce in India is destined to grow both in revenue and geographic reach. The challenge of establishing consumer trust in e-commerce poses problems and issues that need further research.

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