Chapter 15
Application of Digital Technologies in Agri-Supply Chain:
The Story of India and Comparative Narrative

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ABSTRACT

Agricultural supply chains are undergoing a huge change due to the advancements in digital technology. These technologies have triggered the unknown concepts of

DOI: 10.4018/979-8-3693-4330-2.ch015

sustainability, efficiency, and transparency. The integration of digital technologies like the big data analytics, blockchain, artificial intelligence (AI), and the Internet of Things (IoT) in agricultural supply chains is discussed in the chapter. IoT devices provide for precision farming and less resource waste. Blockchain technology improves transparency and traceability guaranteeing food safety. It also enables to confirm the calibre of agricultural products. Big data analytics is helpful in the better decision-making. All these technologies address the major issues facing the agriculture industry. The issues include resource management, climate change, and food security. But the technology adoption has its own challenges. It is necessary to address issues including data protection, farmers' digital literacy, and the large upfront costs associated with implementing new technologies.

1 INTRODUCTION

The versions that include their attributes illustrate the developments as a data philosophy for agriculture. It's referred to as “Agriculture 4.0,” “Digital Farming,” or “Smart Farming,” and it emphasizes data management in agriculture more than other fields. Agriculture 4.0 is based on Precision Agriculture principles, with producers using systems that generate data in their farms, which will be processed in such a way as to make proper strategic and operational decisions.

It is often referred to as Agriculture 5.0, with hyperintelligence embeddings like robotics and artificial intelligent (AI), deeper insights, and technical problems that usually lead to significant breakthroughs in disruptive agriculture-related technology. In contrast to farms that traditionally required a large workforce, the advancements expressed in the concept of Agriculture 5.0 imply that farms are using equipment that involves unmanned operations and autonomous decision support systems with robots and some forms of AI. They also follow the principles of Precision Agriculture. mostly seasonal, to maintain farm productivity and collect crops. A solution to the issue of a labour shortage that farms are suffering as a result of society shifting from being an agricultural society with huge numbers of people living on farms to people living in cities. (Rubio-Saiz, 2020).

In our discussion, we look at precision agriculture as the story of India, which has major challenges. Here, we discuss the systems that will help precision agriculture become robust in its formative stages. The challenges are complex due to weather patterns, fragmentation, and non-unified processes and structures,