Study on Artificial Intelligence and Data Analytics in Agri-Food Industry

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Abstract

The combination of data analytics and artificial intelligence (AI) is currently transforming the food and agriculture sector. The use of these technologies in supply chain management, agriculture, food processing, and sustainability projects is growing. They encourage eco-friendly behaviors, lower expenses, and increase efficiency. AI enhances logistics, boosts food security, lowers waste, and promotes precision farming. Adoption is hampered by issues like traditional farmers' rejection, high implementation costs, and data security issues. Through case studies, literature reviews, andsurveys with industry employees, this study investigates the effects of AI and data analytics. It emphasizes how inventory control, machine learning-based quality assurance, and predictive analytics enhance operational effectiveness. Furthermore, machines and robots reduce food waste, and intelligent supply chains support sustainable practices, save money, and save time. The results show that data analytics and AI improve food tracking, maximize the use of resources, and support sustainability initiatives. However, there are still issues, such as a lack of digital skills, risks to cybersecurity, and regulatory demands. Financial and resource limitations particularly impact small and medium-sized businesses (SMEs). The report suggests working with regulators, training employees, and conducting small-scale pilot testing of AI solutions. Future studies should evaluate possibilities for AI to create sustainable food systems, particularly in developing countries, as well as long-term economic benefits and ethical issues.

Keywords
Artificial Intelligence, Data Analytics, Food Supply Chain, Sustainability and Food Waste Reduction.

Biographies
Bugude Maithri is a student of the course MBA in "Business Analytics and Operation Management", at Ms Ramaiah University of Applied Science, Bengaluru.