

Chapter 17

Driving Agricultural Performance by Leveraging Digital Technologies in Agriculture 4.0

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ABSTRACT

Agri-food sustainability has grown to be the globe's most important issue throughout the years. Technologies that promote environmentally friendly agricultural farming have proven effective in reducing poverty brought on by increased food demand. Agri-food system uses have been significantly altering the global landscape recently as consequence of internal and external variables. The forthcoming contribution

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of study is that we can utilize it for enhancing economic efficiency, better control mechanism and improved decision making. This study will prove beneficial to the users and other stakeholders like technology providers, experts and society at large. Furthermore, this study provided guidelines for further research on the proposed concept. The conclusions drawn in the study will be helpful to researchers, experts, smart technology suppliers and policy makers who ultimately are responsible for supporting the evolution to extra sustainable and cultured agri-business practices.

1. INTRODUCTION

The farming industry is a decisive industry which upsets all facets of humanity because it has contributed to meeting global food needs and ensuring adequate nutrition.

Moreover, the agricultural output is very important for the economic wellbeing of a country, happiness and wellness of its citizens. Farmers face lots of challenges in producing crop like lack of stable prices of agricultural product, scary an unpredictable weather conditions, the exposure of agricultural output to insects and diseases.

A cutting-edge technology called digital agriculture (DA) is assisting in meeting the aggregate mandate for ecologically cognizant agriculture on a worldwide scale. Reduce waste, maximize farming components, and improve crop yields by incorporating several DA sub-branches—like artificial intelligence, automation and robots, detectors, Web of Things (IoT), and statistical analytics—into agricultural procedures. By utilizing the geospatial information technique crop functions can be managed in the best manner to reduce the cost of production and improve the productivity. One more benefit which we can derive by utilizing this technique is the optimum utilization of resources and limitation of wastage.

This research paper will emphasize upon the requirement of digitizing farming procedures and practices so that it may ultimately result in augmenting the overall productivity. This paper also aims to check the economic and financial feasibility of farming products.

To guarantee food security and dependability, a remarkably undeveloped agricultural sector must also modernize its technological infrastructure. Additionally, the implementation of environmentally friendly e-agricultural supply chain administration (e-AgriSCM) is greatly aided by blockchain technology. Products websites (web design) in the era of blockchain innovations in electronic advertising need to match supply chain collaborators' expectations for guaranteeing effective processes.

For fulfilling the requirements of a growing world population and address current difficulties including labor shortages, resource limited availability, global warming, and ecological issues like the condition of the soil, the environment, and the clean-

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