Chapter 6
Realizing the Economic Welfare of Farmers: The Case of Digital Agriculture in East Java, Indonesia

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ABSTRACT

During this industrialization era, agriculture is still the key to the economic development of developing countries, such as Indonesia. This chapter aims to see how relevant the current agricultural model is. The method used is the literature review. With the development of digitalization, agriculture in Indonesia, which still uses little technology, must be encouraged to be more technologically literate. In the future, the government must pursue agricultural digitalization to increase the level of farmer welfare so that agriculture can become a driving sector for industrialization and economic growth.

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INTRODUCTION

Indonesia is one of the countries where the majority of the people work as farmers. Therefore it is known as an agricultural country. Economic growth supported by the agricultural sector requires the government to pay special attention to this sector. However, when viewed together, farmers have always been marginalized until now. Its role, which is quite significant in supporting the economy and being the key in meeting food needs, does not seem to promise a decent life for farmers. Not because no one pays attention, but because the farmer's problem is a double squeeze phenomenon. Farmers have problems both externally and internally, especially in this era of digitalization, where farmers must be easier and faster to adopt and diffuse technology in agriculture. Therefore, it is crucial to reform traditional agriculture into modern agriculture by including digitalization in every up and downstream agricultural activity.

THE SCOPE OF DIGITALIZATION IN AGRICULTURAL SECTOR

Agricultural digitalization is a change and development of methods in agriculture, starting from the early planting period, processing, marketing to post-harvest. The development of traditional agricultural systems towards digitalization in agriculture is a possible solution to overcome the problems farmers face, both internally and externally. Therefore, the Ministry of Agriculture launched the Agriculture 4.0 program, precision agriculture combined with digital information technology, namely cloud computing, mobile internet, and big data (Ministry of Agriculture, 2019).

Cloud computing is a technology that utilizes the internet as central processing of applications and data, where users who have access rights can participate in managing them. One cloud computing implementation is digitizing agricultural training, for example, the integration of training reporting information systems, one-stop access to agricultural activity, and digital administration governance (Caya, 2020). Technology and internet-based applications, which are easier for farmers, have been widely developed by the Agricultural Research and Development Agency (Balitbang). Thus, farmers can take part in online training organized by the ministry of agriculture and other institutions to absorb information that has been integrated into one page using cloud computing.

In the agricultural sector, big data lead a significant role, like storing various data, including mapping agricultural land. The land mapping was accompanied by data collection on commodities and agricultural products (Wibowo & Dairoh, 2018). Apart from being owned by the Central Bureau of Statistics, this big agricultural data has also been developed by local governments, such as the Brebes Regency,