# **CHAPTER ONE: INTRODUCTION**

## 1.1 Background of the Study

Agriculture remains a crucial sector in Nigeria, providing employment to over 70% of the rural population. Yobe State, located in the North-eastern part of Nigeria, is no exception. The state’s agricultural sector, which focuses on crops such as millet, sorghum, and groundnuts, heavily relies on manual labour due to the limited mechanization of farming processes. However, finding and managing farm labourers remains a significant challenge due to factors such as distance, communication barriers, and lack of a streamlined process for matching labourers with farmers can motivate them to increase production and efficiency. It also has an additional ripple effect on job creation in the local, regional, and potentially across the global economy.‎

In recent years, technology has been utilized to bridge gaps in various sectors, including agriculture. The emergence of web-based tools and platforms offers a new approach to managing agricultural labour more efficiently. These tools have the potential to connect farm labourers with farmers in need, streamline hiring processes, and provide data-driven insights for better management. Thus far, several studies have offered nuanced insights into the importance of applying digital technology for Food and Agriculture both in developed and developing nations (Bolfe et al., 2020; Prause et al., 2021;Smidt and Jokonya, 2022). For instance, Prause et al. (2021) examined how digitalization is changing the organization of the food system in the context of the third food regime and submitted that the application of digital technology has been instrumental in improving precision in input use among farmers by offering information on weather and ecological conditions. Bolfe et al. (2020) suggested that digital technology has been able to reduce labour costs on the farm through the use of automated machines and robotics. National surveys and literature on digital agriculture in OECD countries indicate a broad adoption of digital technologies in staple crop farming, as well as ample evidence of adoption in livestock and specialty farming (McFadden et al., 2022). In contrast to the large literature on the importance of digital technology in agricultural production, research on how digital technology promotes market participation among smallholder farmers in developing nation context is sparse: our literature search identified three studies (Cai et al., 2022; Nedumaran et al., 2020; Okello et al., 2010). Nedumaran et al. (2020) found that the application of digital technology could enhance the inclusion and market efficiency of smallholder farmers in India. Using survey data from 855 litchi growers from southern China, Cai et al. (2022) found that smart phone users are more likely to engage in outsourcing technology-intensive tasks than non-smart phone users. Finally, Okello et al. (2010) investigated the awareness and the use of digital technology for market linkage by smallholder farmers in Kenya. This study identified socioeconomic characteristics such as the cost of mobile phones, the cost of airtime recharge vouchers, education, and lack of electricity for recharging phone batteries as the major obstacles to mobile phone ownership and use. The study also highlighted that male farmers are less constrained than females in terms of ownership and use of mobile phones. Furthermore, the study concluded that if the constraining challenges were effectively addressed, increasing smallholder farmers’ awareness of mobile phones would open up opportunities to strengthen their market connections. This present study uses a double hurdle model of market participation decision to understand the extent to which benefits of mobile phone ownership and use can be harnessed to improve farmers’ decision to participate in staple crop markets as well as the extent of participation. Market participation in the context of this study represents the ability of farmers to participate in agricultural output markets efficiently and effectively (Haile et al., 2022) and it forms an indispensable route to catalysing economic growth and development of many developing economies (Tray et al., 2021). There is a growing consensus among policymakers and researchers on the importance of increased market participation among smallholder farmers in ensuring poverty eradication and food security in developing countries. Market participation can provide new revenue generation and increased income for farmers (Usman and Callo-Concha, 2021). Beyond income generation, Ume et al. (2020) showed that market participation among smallholder considerable research has investigated the factors facilitating market participation, however, empirical evidence on the underlying drivers has not been fully understood. Recent research findings are suggesting that the drivers depend on location-specific factors and hence vary from place to place.

Relatively, there is a variation in the level and manner of effect each driver of market participation can portend, which makes it difficult to generalize findings. As stated by Ume et al. (2020), the drivers of market participation are still contentious in literature, hence, for clarification of uncertainties and for establishing a coherent body of scholarship, further empirical research is essential. Recognizing the importance of digital technology in agriculture, it is therefore important to analyse and synthesize what is known about the benefits of mobile phones influencing market participation in order to provide a more robust knowledge base that will inform smallholder market integration programmes and policies. The goal of the research, therefore, is to ascertain if digital technology can promote market participation among smallholder farmers.

## 1.2 Problem Statement

Despite the potential of web-based platforms to optimize labour management in agriculture, there is a noticeable gap in the adoption of such technology in Yobe State, Nigeria. The lack of an organized system for outsourcing farm labour leads to inefficiencies, including mismatches in labour supply and demand, lack of transparency in payment systems, and difficulty in managing labourer performance. There is a pressing need to develop a user-friendly, web-based farm labourer outsourcing tool to address these issues.

## 1.3 Objectives of the Study

- General Objective: To develop a web-based tool for outsourcing farm labourers in Yobe State, Nigeria, to improve the efficiency of agricultural labour management.

- Specific Objectives:

1. To assess the current challenges faced by farmers and labourers in Yobe State.

2. To identify the technological requirements for developing a web-based outsourcing tool.

3. To evaluate the impact of such a tool on labour management and productivity.

## 1.4 Research Questions

1. What are the key challenges faced by farmers and farm labourers in Yobe State regarding labour management

2. What features should a web-based farm labourer outsourcing tool include to address these challenges

3. How will the implementation of this tool affect agricultural productivity in Yobe State

## 1.5 Significance of the Study

This study's findings will be significant for multiple stakeholders, including farmers, labourers, policymakers, and technology developers. For farmers, this tool will streamline the labour hiring process, reduce costs, and improve farm productivity. For labourers, it will create more job opportunities, ensure fair payment, and provide job security. For policymakers, it could serve as a model for other states and countries with similar challenges.

## 1.6 Scope and Limitations of the Study

The study will focus on the agricultural sector in Yobe State, Nigeria, with particular attention to the labour management practices of small to medium-scale farmers. It will cover the design, development, and potential impact of a web-based outsourcing tool for farm labourers.

## 1.7 Definition of Terms

- Outsourcing Tool: A software platform that facilitates the hiring and management of temporary workers.

- Farm Labourers: Individuals employed to perform various agricultural tasks, such as planting, weeding, and harvesting.

- Web-Based Platform: An online tool or application that can be accessed through internet browsers on various devices.