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**TITLE:** Assessment of the Adoption of Automated Technologies in Poultry  
Production in Southwestern Nigeria

**DEGREE:** M.Sc. Technology Management

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## CERTIFICATION

This is to certify that this research entitled “Assessment of the Adoption of Automated Technologies in Poultry Production in Southwestern Nigeria” was carried out by Adekunle Ayomide FALOPE as part of the requirement for the award of Master of Science in Technology Management at the African Institute for Science Policy and Innovation, Obafemi Awolowo University, Ile-Ife, Nigeria.

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## **DEDICATION**

This research work is dedicated to God Almighty, the giver of all knowledge, wisdom and understanding, for the good health and wellbeing that were necessary to complete this research.

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## ABSTRACT

The study assessed the types of automated technologies used in poultry production in Southwestern Nigeria. It also examined the extent and level of adoption of Automated Production Technology (APT) and investigated the factors influencing the adoption. This was with a view to providing evidence-based information on the automated technologies in poultry production that would enhance poultry farms performance and stimulate appropriate policy formulation in Southwestern Nigeria.

The study involved the use of primary and secondary data. Primary data were obtained with the aid of structured questionnaire (designed and administered among respondents in the selected farms) and oral interview schedule where necessary. The population of the study consisted of all selected poultry farms in Southwestern Nigeria. A multi-stage sampling technique was used to purposively select 60 poultry farms that made use of automated technologies in poultry production; 20 farms each were selected from Ogun, Ekiti and Oyo States respectively. The secondary data were obtained through academic journals and other relevant publications.

The results of the study revealed that majority of the poultry farmers have post-secondary school qualification and they have been in the business for up to 15 years. It also showed that the farmers used automatic watering system (76.7%), automatic debeaking (34.9%), automatic feeding system (16.3%) and automatic ventilation system (11.6%) among others. It showed that 11.6% of the farms did not make use of automatic feeding, watering, ventilation, debeaking, egg and plucking system. It showed that 73.3% of the technologies were locally fabricated and 26.7% imported. The results further revealed that adoption of technology and the level of use

were moderately utilized respectively. Regression analysis revealed that educational background ( $z=1.96$ ,  $\rho=0.05$ ), cost of implementation ( $z=2.07$ ,  $\rho=0.05$ ) and cost of acquisition ( $z=-1.70$ ,  $\rho=0.05$ ) among other factors had impact on the adoption of automated technologies in poultry production and these were found to have positive significant effect on poultry production.

The study concluded that the adoption of automated technologies in farms had positive impact on poultry production and thus, should be encouraged among poultry farmers in Southwestern Nigeria.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Automated technologies have been used extensively in many facets of science and technology. The use of these technologies have been known to improve productivity. Automation is the use of machines, control systems and information technologies to optimize productivity in the production of goods and delivery of services. Automation is the answer to Nigeria's quest for being a world-class industrial competition. The Nigerian farms are slowly beginning to feel the stimulus for the instrumentation, control and automation industry. It is something that needs constant innovation and identification of trends in technology, and the innovations that thrust the implementation of automation in other countries. Nigeria, as one of the world fastest growing economies is based on agriculture and farming, has not taken to technology at a rather quick pace. This is why adoption in poultry production cannot be overemphasized (Dheerajand Ashish, 2016).

Rapid technological progress in the modern poultry sector has resulted in a reduction in the cost of production of poultry meat and eggs (OECD-FAO, 2007). This opinion has shown that major investment of Automated Technologies in the agricultural sector, has the potential of bringing about drastic increases in profit and minimal loss to the farmers.

Industrial automation utilizes sensors, control systems, embedded design, and information technology to minimize the need for human intervention. In the scope of industrialization, automation is a step beyond mechanization. Whereas mechanization provides human operators with machinery to assist them with the physical requirements of work, automation greatly reduces the need for human sensory and mental requirements. (Sulmanet *al.*, 2013).

The poultry industry is divided into two separate sections – poultry meat production and egg production. Poultry production spans the world ranging from simple backyard coops to highly advanced, technologically sophisticated rearing operations. Poultry production in developing countries can provide a reliable protein source for growing populations, and its development can signal a country's transition to a modern agricultural base. As poultry production systems become increasingly automated, monitoring systems are being integrated with control systems to provide the farmers with real-time and historical information on how various systems such as environment control, feeding, egg handling, and water are performing.

Oluyemi and Robert (2000), also reported that poultry industry in Nigeria has developed in business with millions of birds and with the native birds gradually being replaced with improved strains, balanced ratios, intensive housing and with better poultry equipments.

The value of the commercial poultry industry in Nigeria is estimated at N80 billion (US \$600million) and is rated as the most industrialized component of the livestock subsector. Over 25million people are employed directly and indirectly in the commercial poultry industry. An estimated 85million people involved in rural family poultry production are managing total asset of about N320 billion (\$2,400 million). The entire poultry subsector contributes over 25% to the agricultural domestic product (FMARD, 2011).

## **1.2 Statement of Problem**

Current agricultural policy thinking (the Agriculture Transformation Agenda) is an initiative of Federal Ministry of Agriculture and Rural Development (FMARD 2011), supports the adoption of automated poultry technology in poultry farming activities in Nigeria. However, research carried out by the FMARD shows that there is limited information in the southwestern region to serve as input into the policy development process in the region (FMARD, 2011).

Achieving the objectives of poultry/livestock agriculture and millennium development initiatives require information on poultry automated technology usage, its extent of adoption, and factors influencing its adoption, hence this study.

### **1.3 Research Questions**

These are the following research questions;

- i. What are the automated technologies being used in poultry production?
- ii. What is the extent and level of adoption of these technologies in poultry farms?
- iii. What are the factors influencing the adoption of these automated technologies in poultry production?

### **1.4 Objectives of the Study**

The broad objective is to recommend policy measures to promote the adoption of automated technologies in poultry production.

The specific objectives of the study are to:

- i. characterize the types of automated technologies being used in poultry production;
- ii. examine the extent and level of adoption of these technologies in poultry farms, and

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