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The Potential of Information Technology (IT) in support of Rural Agricultural Farmers in South East Nigeria

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ABSTRACT

The adverse effect of not embracing the potential use of Information Technology (IT) in agricultural sector in Nigeria has depreciated the production of agro products. The agricultural sector in a developing country like Nigeria has poor technological advancement in the sector, which the rural farmers in the country are not encouraged on the ways to enhance production rate of the agro products. This research delves into the application of Information Technology (IT) to enhance the development of agro products in the support of rural agricultural farmers in South East, Nigeria; where the rural farmers will have access to information on agro products globally via the use of mobile phones. Every information on agro products will be sent to farmers using their local language through mobile phones. This will boost their morale, as updated information gets to them regularly. When this is effectively carried out, it will enhance the production of the agro products, empower the youths as well as making predictions on raw materials of the agro products in order to avoid any scarcity.

Keywords: *raw material, computer, rural farmers, data, cell phone*

1. INTRODUCTION

Information and Communication Technology (ICT) is a vital tool in empowering the poor. Realizing the importance of this tool will enhance the development of these agricultural products especially in remote low productivity areas in the South East. But it is very unfortunate that these remote areas in the South East part of Nigeria are been affected by poor technological advancement, which decreases the production rate of the agricultural products. It is based on this background that the study on "The Potential of Information Technology in Support of Rural Agricultural Farmers in South East Nigeria has been undertaken to illustrate the idea of utilizing Information and Communication Technology in enhancing the performances of the agro products, empowering the youths and reaching out the farmers in their various needs of agro product information.

The researchers specifically investigated much on the use of Information and Communication Technology (ICT) in exposing the agro products, enhancing support in production and information management. Sustainable development of agricultural sector in this country as a developing nation should be deemed necessary so as to alleviate poverty among our farmers. Nigeria is blessed naturally with rich soil, but utilization is becoming very difficult because of the mismanagement of resources. It is important to note that since there is a drop in crude oil price in Nigeria, every attention should be focused on agriculture, which will enhance our economic growth by empowering our youths in reduction to unemployment. The aspect of ICT usage in this research work is not only exposing the agro products but equally disseminating available information to farmers irrespective of their location on the best period to farm, harvest, sell, and how to enhance the production.

Review of Related Literature

[3] cited in[7], ICTs are crucially important for sustainable development in developing countries. In an era of globalization accompanied by rapid technological change, a country's competitiveness and relevance in the global economy is increasingly determined by its capacity to effectively use information for designs, production and marketing [2]. A growing mode of delivery in such an environment is by Information and Communication Technology (ICT) that capture and store digitally encoded data, and then transmit and share results.

One of the identified agents thought which those in rural development will constantly experience change is technology. [1] Information Technology is the use of manmade tools for the collection, recording, re-management and exploitation of information. It includes those applications and commodities by which information is transferred, recorded, edited stored, manipulated or disseminated. [6] cited in [7], describe Information Technology as a revolution which has penetrated almost all fields of human activity, thus transforming economic and social life. The availability of the interest as a major component of ICT has improved access to information by information users tremendously.

The role of agriculture as the anchor of the rural economy is decreasing. The issue is not just one of the rural or agriculture natures of the firms, but also of their size, especially where one person or family provides the labour as well as management resource, [2]. At the most basic, the swift transmission information in electronic firm has attraction in an industry, which is highly dependent on external input ranging from location specific whether forecast through livestock movement regulations to current market prices. Looking beyond this e-commerce gives the small farm business, the knowledge management, and literacy play a key role in sustainable development. Agriculture and farming are one area where there is a constant evolution in methods, technologies and production which requires those involved in them to upgrade their skills and to constantly embrace new technologies and innovations, [8].

[5] distinguished five broad categories through which ICT is used in the agricultural sector. These include technical and economic development for agricultural procedures, community development, research and education, small and medium enterprise. Also, [9], pointed out that ICT has many potential applications in agricultural extension. It can bring new information services to rural areas where farmers, as users will have much greater control than before over current information channels. Access to such new information sources is a crucial requirement for sustainable development of the farming systems. Application of Information Technology in support of agricultural farmers in rural development fall into five main areas as outlined by Don Richardson;[5]. These are;

- Economic development of agricultural procedures
- Community development
- Research and education
- Small and medium enterprises development and
- Media networks [5].

2. MATERIALS

In this research work, the materials used are fresh fruit bunches, palm kernel, honey comb, drum and cell phone.

3. METHODS

Fresh fruit bunches

When the oil palm fruits are harvested, the fruits are sterilized, striped off the bunches, and crushed to extract the crude oil.

Palm kernel

This is the nut extracted from fresh fruit bunches when the fruits are sterilized, threshed, mashed, and pressed out the crude oil.

Honey comb

Honey bees transform nectar into honey by a process of regurgitation and evaporation, which the local pots or drums are used in a hive to collect the honey.

The tables 1-4 depicts the raw_material table, product table, stock_event table, and farmer's profile table. Each table shows entity attributes to which the table is representing, individual fields together with their datatypes, size, and constraints.

Table 1: Raw _material table

P / F	Field name	Description	Datatype	Field Size
P	Id	raw material's identification number (primary key)	Integer	11
F	raw_material_stock_id	raw material's stock identification number(foreign key)	Integer	11
-	Name	raw material's name	Character	45
-	Description	description of raw material in stock	Integer	445
-	quantity_in_stock	quantity of raw material in stock	Integer	11
-	expiring_date	expiring date of the raw material	Date	-

Table 2: Product Table

P/F	Field name	Description	Datatype	Field Size
P	Id	Product's identification number (primary key)	Integer	11
F	Stock_id	Product's stock identification number (foreign key)	Integer	11
-	Product_code	Product's code	Character	10
-	Product_name	The product's name	Character	135
-	Product_description	The description of the product	Character	445
-	Product_price	The product's selling amount	Decimal	10,2
-	Product_file_name	Product's image file name	Character	979
-	Uses	What the product is used for	Text	-
-	Processing_details	Product' processing details	Text	-
-	Quantity_in_stock	Quantity of the product in stock	Integer	11
-	Product_season	Season's of which the product is produced in large quantity	Character	95
-	Expiring_date	Expiring date of the product	Date	-
-	Best_period_to_sell	Best period to sell the product	Character	135
-	Storage_system	Storage system used for storing the product	Character	375

The available products used for this research work are palm oil, palm kernel oil and honey. The product's description is given globally such that farmers or end users will know the detailed information on each product, the processing details, storage systems for the products, the product season among others.

Table 3: Stock_Event Table

P/F	Field name	Description	Datatype	Field Size
P	Id	Stock event's identification number (primary key)	Integer	11
F	Stock_id	Product's stock identification number	Integer	11
F	Product_id	Product's identification number	Integer	11
	Date	Transaction date	Date	
	Quantity	Transaction quantity	Integer	11
	Action_performed	The action that was performed	Charater	75

In stock event table, all transactions made such as the type of product transacted, date purchased, quantity purchased and delivery details are given.

Table 4: Farmer's Profile Table

Field	Data Type	Size	Null	Description	Action	Extra
Farmer_id	Integer	11	No	Unique role identification number	Primary key	Auto-increment
Name	varchar	90	No	Farmer's name	-	-
Sex	varchar	6	No	Farmer's sex	-	-
Address	varchar	275	No	Address of the farmer	-	-
Product _interest	varchar	176	No	Farmer's product interest	-	-
Phone_no	varchar	32	Yes	Farmer's mobile phone number	-	-

The farmer's profile table simply gives a detailed information about the farmers which include their names, addresses, and most importantly their phone numbers in order to reach them at any point in time. The information on the best period to plant, the type of soil suitable for farming, the required tools needed for farming, and the best period to harvest will be communicated to farmers at regular intervals through their mobile numbers. What the farmers are required to do is to follow up the calls it comes on regular basis.

Results

The information required on each product as regards to the best period to farm, harvest, sell, and how to enhance the production is communicated to farmers via mobile phone.

4. CONCLUSION

The relevance of agriculture cannot be overemphasized, especially with the recent situations of Nigeria crude oil depreciation. There is an urgent need to reform the agricultural sector in Nigeria through technological advancement, which will enhance the performances of the agro products.

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