



## Extent of mobile phone technology use in marketing agricultural products in Ankpa L.G.A Kogi State, Nigeria

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### Abstract

*This study examined the extent of use of mobile phone technology in marketing agricultural products in Ankpa Local Government Area of Kogi State. The study specifically described the socioeconomic characteristics of agricultural products marketers, extent of mobile phones usage in marketing agricultural product and the challenges associated with the use of mobile phones by the marketers. Two-stage random sampling technique was employed to select 120 agricultural products marketers and questionnaires were administered to them. The data obtained was analyzed using descriptive statistics and mean score from a Likert - type scale. Results from the study revealed that the marketers were dominated by (76.67%). Also, majority (70.8%) of the respondents were married, and had between male 1 to 10 years of experience in marketing. The results on extent of mobile phone usage revealed that it was used in obtaining prevailing market price ( $\bar{x} = 3.91$ ), getting updates on market situations ( $\bar{x} = 3.78$ ), level of demand of products ( $\bar{x} = 3.25$ ) to a great extent. The major challenges faced by the respondents in using the mobile device to market their products were lack of electricity ( $\bar{x}=3.75$ ), network failure ( $\bar{x}=3.50$ ), high tariff charges by operators ( $\bar{x}=3.38$ ), and the high cost of mobile phones ( $\bar{x}=3.22$ ). It is recommended that concerted efforts should be made by the government in stabilizing power supply in the country, so that the problem of power supply associated with the used of mobile phones in marketing of agricultural products can be resolved, and that the network service providers should make available toll-free lines where exchange of information related strictly to agriculture could be exchanged.*

**Keywords:** Technology, marketing, information, prices and demand.

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### Introduction

The world is fast becoming a global village and a necessary tool for this process is communication, of which telecommunication is a key player. The quantum of development in the telecommunications industry all over the world is very rapid as one innovation replaces another in matter of weeks. A major breakthrough is the wireless telephone system, which comes in either fixed wireless lines or the Global System for Mobile communication (GSM) (Wojuade, 2005).

Agricultural marketing can be defined as

the performance of all business activities which direct forward flow of goods (agricultural products) and services to consumers, in order to accomplish the producers' objectives (Olukosi, Isitor and Ade 2007). To be successful in the market place, rural communities' needs to adopt new technologies, access new type of information and gain new enterprise skills so that they are in position to evaluate and invest in new opportunities as they arise, (Food and Agricultural Organization) (FAO, 2006).

Modern communication technologies

open up the possibility for market information services to improve information delivery through short message services (SMS) as well as voice message on cell phones and the rapid growth of radio stations in many developing countries offers the possibility of more localized information services (Bako 2007). The importance of mobile phones among agricultural marketers cannot be overemphasized as it makes it very easy for them to interact with ease and immediacy.

It may seem glaringly obvious to say that most African, Caribbean and Pacific (ACP) countries are dominated by agriculture. Yet until recently, the importance of agriculture in these countries economics and social lives was to some extent unapparent. Government and donors paid little attention to this sector, preferring to let a liberalized global market take its course (Technical Center for Agricultural and Rural Cooperation CTA, 2011). Worthy of note among the problems facing agriculture today is marketing of agricultural produce. Access to markets and marketing information by small - holder farmers depending on agriculture in developing countries have always been challenging. Factors such as poor road infrastructure, illiteracy, financial constraints, poor communication means and lack of access to information, all limited their access to markets. These smallholders depend on traditional means of communication and sell their produce at the farm gate and local markets. The use of information and communication technologies (ICTs) is one approach to linking smallholder farmers to markets (Mawazo, 2015). Mobile phone is just one of the numerous modern technologies that can be utilized as a source of market information to encourage buyers and sellers of agricultural products to exchange information and strengthen market linkages (Banks, 2009).

The farmers lack the kind of information which would help them make informed

decisions about who to sell to, and at what price. Among the obstacles to technology adoption and commercialization, many farmers who markets their agricultural produce lack information about prices and demand in different markets and contacts to potential buyers. They therefore sell their produce to the middle men at a very low price. In recent years, the mobile phones become more increasingly available and the services that are offered through the mobile phones have been developed to address these constraints. Such services can be used to transmit market information, connect buyers and sellers, or manage deliveries by a large number of small-scale farmers (Baumüller, 2015). Farmers are increasingly now using their mobile phones to market products from their farms to existing customers and generate new ones, receive orders and track deliveries, obtain timely market price information and keep in touch with everyone along their entire supply chain, all these done through interpersonal contacts without having to travel over great distances (Karamagi, 2009). All of these are made possible due to the presence of telecommunication networks in the study area. The mobile networks available and used in the study area are MTN, GLO, AIRTEL, and 9MOBILE.

This study examined use of mobile phone technology in marketing agricultural products in Ankpa Local Government Area of Kogi State. The study specifically described the socioeconomic characteristics of agricultural products marketers, the extent of their mobile phone usage in the marketing chain of agricultural product and the challenges associated with the use of mobile phones by the marketers.

## **Methodology**

### **Study Area**

This study was carried out in Ankpa Local Government Area (LGA) which is

located in the eastern part of Kogi State, Nigeria. The study area has an estimated population of 309,930 inhabitant and a land mass of 262km<sup>2</sup>(NPC, 2007). Ankpa local government has nine (9) districts, which are; Ankpa district, Adanawo district, Adawo district, Udama district, Emekutu district, Ika district, Ojoku district, Okaba district and Enjema district. A significant part of the population earns their livelihood from agriculture. Cash and food crops mainly cultivated in the area are cashew, yam, cassava, maize, cowpea among others.

### Data Collection and Analysis

A two-stage random sampling technique was employed to select respondents for this study. Stage one involved the selection of 3 (33.3%) districts from the LGA. Stage two involved random selection of two villages from each of the districts selected. Stage 3 involved random selection of 20 respondents from each of the villages making a total of 120 respondents for this study. Relevant data for this study was then collected with the use of questionnaire. The data obtained was analysed using descriptive statistical tools and mean score from the Likert-type scale.

District	Villages	Number of Respondents
Adanawo	Ojogobi	20
	Emanyi	20
Emekutu	Ikanekpo	20
	Atuma	20
Ankpa	Opulega	20
	Ogaji	20

## Results and Discussion

### Socio-economic characteristics of marketers

Table I shows that the business of agricultural products marketing is mainly dominated by the male (about 76%), owing to the fact that male are heads of household and are usually in possession of productive resources in the household. Also, the majority of the respondents were married (about 70 percent), and had some level of formal education (about 67%). In terms of marketing experience, about half of the respondents had between 1 to 10 years of experience in marketing agricultural products.

### Extent of mobile phone usage in agricultural product marketing activities

The result presented in Table 2 shows the extent of agricultural marketers' use of mobile phones in their daily activities. It is evident

from the results that they used their phones in obtaining information on prevailing market price ( $\bar{x}= 3.91$ ) to a great extent. The next areas of marketing in which marketers used their phones to a great extent is to get updates on market situation ( $\bar{x}= 3.78$ ) and current updates on the level of demand for various agricultural products ( $\bar{x}=3.25$ ). Checkmating activities of middle-men ( $\bar{x}= 2.44$ ) and transportation arrangements ( $\bar{x}=2.12$ ) are other areas of marketing that the respondents made use of their mobile phones to some extent.

Mobile phones are indeed employed by marketers in various agricultural product marketing operations. This has been stressed by Banks (2009) that mobile phones offer a real opportunity to deliver real time agribusiness information, to promote product and services, and to establish real-time market links between producers, buyers and consumer.

**Table 1: Socio-economic characteristics of marketers**

Characteristics	Percentage	Mean
<b>Gender</b>		
Male	76.67	
Female	23.33	
<b>Total</b>	<b>100</b>	
<b>Marital Status</b>		
Married	70.8	
Single	10.8	
Divorced	7.6	
Widowed	10.80	
<b>Total</b>	<b>100</b>	
<b>Education Level</b>		
0-10	28.3	
11-20	67.6	
> 20	4.10	
<b>Total</b>	<b>100</b>	
<b>Marketing experience</b>		
1-10	49.1	13 years
11-20	38.3	
21-30	5.0	
31-40	7.6	
<b>Total</b>	<b>100</b>	

Source: Field survey, 2016

**Table 2: Extent of mobile phone usage in agricultural product marketing activities**

Variables	TGE	TSE	TLE	TNO	Mean	Rank
Prevailing market price	111	7	2	0	3.91*	1 <sup>st</sup>
Market situation	103	10	4	3	3.78*	2 <sup>nd</sup>
Level of demand	54	46	16	4	3.25*	3 <sup>rd</sup>
Activities of middle men	15	27	74	4	2.44	4 <sup>th</sup>
Transportation	11	23	55	31	2.12	5 <sup>th</sup>

Source: Field survey, 2016 \* To a great extent Legend: TGE - "To a Great Extent", TSE - "To Some Extent", TLE - "To a Little Extent", TNO - "To No Extent"

**Benefits derived from mobile phone usage in marketing agricultural products**

Table 3 shows the perceived benefits of mobile phone usage in marketing agricultural products. The major findings revealed the following: Mobile phone has helped in accessing market information (86.5%); using phone calculator to know proper price (83.7%); it has helped in reducing the cost of transportation (82.7%); used in contacting the

loaders (71.3%); information storage (60.6%); efficient tracking/monitoring of products (54.9%); increased profits resulting from elimination of middlemen (51.7%). Martin and Abbott 2011 carried out a related study on mobile phone and livelihoods among farmers in rural Uganda. They found that mobile phones were used for agricultural purposes such as accessing market information, increasing job opportunity, gaining agriculture

advice, and saving travel costs for no longer meeting with buyer's face – to – face. Their findings further revealed that the farmers were also saving the cost of transporting goods to markets in which there was no guarantee of

getting a buyer. Also, Abdul Razaque, Changfeng and Jianbin (2016) found that despite low income of farmers, they still purchase mobile phones to get all possible marketing information from related agencies.

**Table 3: Benefits derived from mobile phone usage in marketing agricultural products**

Benefits of mobile phone	Percentage
Mobile phone has helped in accessing market information	86.5*
Increased profits resulting from elimination of middlemen	51.7*
Efficient tracking/Monitoring of products	54.9*
Increased contacts with other marketers	46.8
Using phone calculator to know proper price	83.7*
Increased contact with extension agents	44.5
Information storage	60.6*
Kinship maintenance	38.4
Using phone camera to take products sample	29.8
Used in contacting the loaders	71.3*
It has helped in reducing the cost of transportation	82.7*

**Source:** Field survey, 2016

multiple responses recorded

**Challenges faced by marketers in the use of mobile phones**

Challenges marketers faced in the use of mobile phones alongside their weighted mean scores are presented in Table 3. The lack of electricity with a mean score of 3.75 topped the list of the challenges they face. This is not surprising as the mobile phones needs to be charged and kept on for use at all times. This becomes rather difficult in the face of unstable power supply as is been currently experienced in the study area and most parts of the country.

The power problem is closely followed by network failure with a mean score of 3.50. The major GSM operators still find it difficult to provide very reliable signals for users especially in rural areas. This poses a challenge as users are not able to get the full complement of the GSM technology. High tariffs by telecommunication operators ( $\bar{x}=3.38$ ), high cost of acquiring mobile phones ( $\bar{x} = 3.22$ ) are other major constraints faced by marketers in the use of mobile phone technology.

**Table 4: Challenges faced by marketers in the use of mobile phones**

Constraint	Mean	Rank
Lack of electricity	3.75*	1 <sup>st</sup>
Network failure	3.50*	2 <sup>nd</sup>
High tariffs	3.38*	3 <sup>rd</sup>
Technical know-how	1.81	4 <sup>th</sup>
Lack of network coverage	1.5	5 <sup>th</sup>
Lack of operating skills	1.45	6 <sup>th</sup>
Reliability	1.42	7 <sup>th</sup>
Cost of maintenance	1.28	8 <sup>th</sup>

**Source:** Field survey, 2016

\*Major constraints

### Conclusion and Recommendations

1. Mobile phone has helped in accessing market information and reduction in the cost of transportation. Communications facilitated by mobile phones reduce distance and time farmers have to travel to access services. Services are delivered within a relatively short period of time and at a reduced cost. Mobile phones enable farmers to access distant information within a very short time.
2. Male, perhaps for being head of households possess more mobile phones than their female counterpart while majority of the respondents are educated enough to be able to handle and operate a mobile phone
3. A sizeable percentage of the respondents have been involved in marketing of agricultural products for average of approximately 13 years and have employed the usage of mobile for their marketing activities. Particularly, it provides faster access to market information and updates on demand and prices.
4. It is recommended that efforts should be made both by government and network providers to regulate the tariff plans and upgrade the network in order to handle the problem of network failure and high tariff faced by the marketers. The network providers can develop links or app that enables farmers to sell their produce collectively by connecting them with a ready market through a mobile phone-enabled service. The link should be capable of aggregating farmers' orders, provide them with current market prices and facilitate access to large-scale markets such as exporters, wholesalers and retailers. The government also should do more in

stabilizing power supply in the country, so that the problem of power supply associated with the used of mobile phones in marketing of agricultural products can be tackled. The network service providers should make available toll-free lines where exchange of information related strictly to agriculture could be exchanged

### References

- Abdul Razaque C., Changfeng C. and Jianbin J. (2016). Mobile Phone Impact on Agriculture and Price Information among Farmers. *Indian Journal of Science and Technology*, Vol. 9(39), DOI: 10.17485/ijst/2016/v9i39/98432, October 2016
- Bako, N. (2007). *Information Technology and Nigeria Mass Media*. Retrieved from <http://www.mobilephonetool.htm>.
- Banks K. (2009). A Program to Reach many Farmers. *ICT Update*, issue 47, February. Pp. 18-19.
- Baumüller, Heike (2015). Assessing the Role of Mobile Phones in Offering Price Information and Market Linkages: The Case of M-Farm in Kenya. *The Electronic Journal of Information Systems in Developing Countries*, EJISDC (2015) 68, 6, 1-16 [www.ejisdc.org](http://www.ejisdc.org)
- CTA (2011). *Modernizing Farms Paths to Success*. Spore Magazine for Agricultural and Rural Development in ACP countries. Special Issue – August, 2011. <http://spore.cta.int>
- FAO (2006). *A Market Facilitator: Guide to Participating in Agro-Enterprise Development*. FAO Rome. Pp 11-12.
- Karamagi, H. (2009). No more split Milk. *ICT Update*. Issue 47, February. P 4-7
- Kotler, P. (1980). *Principle of Marketing*. Prentice Hall, Engle wood, New Jersey.

- Pp. 423-427.
- Martin, B.L and Abbott, E. (2011). Mobile Phones and Rural Livelihoods: Diffusion, Uses, and Perceived Impacts among Farmers in Rural Uganda. *Information Technologies and International Development*, 7, 17-34.
- Mawazo, M. M. (2015). *Linking Rural Farmers to Market Using ICTs*. CTA Working Paper 15/12 | November 2015. ICTs for Agriculture Series
- Olukosi, J.O SU. Isitor and M.O Ade (2007). *Introduction to Agricultural Marketing and Prices: Principles and Application*. Living books series. Gu Publication, Abuja Pp 1-6.
- Wojuade, J. I. (2005). *Impact of global system for mobile telecommunication on Nigerian economy. A case study of some selected local government areas in Oyo State Nigeria*. An M. Ed Thesis, University of Ibadan, Ibadan, Nigeria.