

## **UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES BY EXTENSION OFFICERS IN THE NIGER DELTA**

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### **Introduction**

The information and communication technology revolution is another intervention with the potential ensures that knowledge and information on important technologies, methods and practices are put in the right hands (Balita, 1998). The relevance of this revolution to agriculture is supported by the views of Jabbar (2003), who pointed out that the least expensive input for agricultural and rural development is knowledge. In order for extension officers to adopt new technologies, they need some level of awareness and interest to determine how the technologies will affect them and hence, evaluate the socio-economic consequences of the technology on them (Asiabaka, 2002). According to him (Asiabaka, 2002), for technologies to be acceptable they must be compatible to the socio-cultural environment, easy to understand and user-friendly. The degree to which the results of such technological innovation are visible makes them more amendable to adoption than those that are not easily observed. The degree of relative advantage which can also be measured in terms of social benefits and often expressed in economic profitability also determines the level of adoption of new technologies.

Certain generalizations have it that individuals with higher qualifications, more years of service, higher social status, higher degree of upward social mobility, and who have more specialized operations are more likely to adopt and use ICTs for extension services than those with lower social status (Flynn, 2003). This is in conformity with the views of Meera, *et al*, (2004) who stated that extension officers with a higher status, because they are more educated, are likely to be given preferential access to ICTs on the assumption that they are more likely to treat the equipment properly and learn how to use them more easily. Although ICTs such as computer, CD-ROM, internet and telephone are prime mechanisms for empowering and supporting rural extension services, many extension officers find themselves squeezed by decentralization, diminishing public funds, and privatization of public services even at this time that agriculture has become more information intensive (Muñyua, 2000).

### **Materials and Methods**

The population of the study consisted of all serving extension officers in the Niger Delta. A multi-stage sampling procedure was utilized to select 160 extension officers for the study. Thirty-five officers serving with the Agricultural Development Projects in four states of Akwa Ibom, Bayelsa, Delta and Rivers were sampled, making up 140 public extension officers. Ten extension officers were sampled from the Shell Petroleum Farms (SPF) and Agip Oil Farms (AGF), making up 20 private extension officers. Respondents were requested to respond to their perceived level of use of 13 ICT devices. This was done with the aid of a 5-point likert scale. A mean cut-off point of 3.0 was used to differentiate between: a well utilized ICT device (WU) ( $\geq 3.0$ ) and a poorly utilized ICT device (PU) ( $< 3.0$ ). Analysis of variance (ANOVA) was utilized to determine the existence of a significant relationship between the socio-economic characteristics of public and private extension officers.

## Results and Discussion

### Level of utilization of ICT devices

Table 1: Utilization levels of ICT devices

		AKA- DEP	RIV- ADP	DEL- ADP	BAY- ADP	MEAN max x = 5	REM ARKS	AGF	SPF	MEAN max x = 5	REMA RKS
1	Demonstration with Projector	2.54	3.11	3.20	1.62	2.6	WU	2.90	3.2	3.1	WU
2	Record with Camera	2.30	3.03	2.80	1.94	2.8	PU	2.30	1.9	2.1	PU
3	Oral presentation on radio/TV	3.54	3.54	2.91	2.70	3.2	WU	2.30	2.1	2.2	PU
4	Conduct and record cassette	3.03	3.06	3.00	3.11	3.1	WU	3.30	2.0	2.7	PU
5	Write Articles	3.05	3.04	2.20	2.90	3.0	WU	3.50	2.7	3.1	WU
6	Write Computer Programs	1.91	2.74	2.00	2.10	2.2	PU	2.80	3.2	3.0	WU
7	Generating Database	2.26	2.40	2.00	1.60	2.1	PU	3.10	2.4	2.8	PU
8	Typo. & Graphics design skills	1.80	2.03	2.06	1.51	1.8	PU	3.10	2.0	2.6	PU
9	Preparation of Slides	2.11	2.06	2.80	1.90	2.3	PU	2.80	2.2	2.5	PU
10	Sopil Mapping with GIS	1.60	1.70	1.82	1.52	1.6	PU	2.00	2.0	2.0	PU
11	CD-ROM	1.82	2.03	1.82	1.50	1.8	PU	2.00	2.0	2.0	PU
12	E-mail	1.54	2.23	1.90	1.00	1.8	PU	2.70	2.7	2.7	PU
13	Internet	1.66	2.03	2.03	1.94	2.0	PU	3.00	3.0	3.0	WU

WU = Well utilized ICT device

PU = Poorly utilized ICT device

Table 1 reveals that public sector extension officers were of the perception that they are proficient in the use of three ICT devices including: oral programmes presentation on Radio/Television ( $x = 3.20$ ); recording of cassettes for presentation on Radio/Television ( $x = 3.10$ ) and writing of informative articles for publication ( $x = 3.0$ ). With respect to private extension officers, it was revealed that they claimed proficiency in: demonstrating with projector ( $x = 3.1$ ); writing informative articles for publication ( $x = 3.0$ ) and using the internet to access information ( $x = 3.0$ ). Findings revealed a general lack of expertise in using most of the facilities by the officers in the public sector. A survey of the states has shown that extension officers in Bayelsa had the least response to their capability of using ICT facilities. This could be due to general lack of availability of these ICT facilities in their state. River State showed greater expertise in utilizing ICT facilities followed by Akwa Ibom State. On the general note, it was revealed that extension officers accrued low utilization levels with ICT devices like: CD-ROM, use of e-mail, and typographic and graphic design. This seems to support Zijp (1994) who stated that lack of skills and local support for training, operation and system maintenance have been identified as major barriers to the application of ICT

facilities in extension. Brainoh and Oladele (2000) also noted that training opportunities for the use of GIS was only recently introduced into Nigerian universities.

### Test of relationship between socio-economic characteristics and level of utilization of ICT devices

To test the above hypothesis, the socio-economic characteristics of respondents were considered as independent variables while their level of utilization of ICT devices was considered as dependent variable. The socio-economic characteristics considered in this analysis were age, qualification, area of specialization, years of service, annual income, marital status and work status. A result of the ANOVA estimation as shown on table 2 reveals as follows:

Table 2: ANOVA Estimation of Relationship Between Socio-economic Characteristics and the Use of ICT Facilities to Perform Various Agric Extension Tasks

	AKA- DEP F-value	RIV- ADP F-value	DEL- ADP F-value	BAY- ADP F-value	MEAN F-value	SPF F-value	AGF F-value	MEAN F-value
Age	0.85ns	1.22ns	0.19ns	1.09ns	0.84ns	0.39ns	1.08ns	0.74ns
Qualification	3.23*	5.93**	1.86ns	0.87ns	2.97**	0.42ns	0.3ns	0.36ns
Area of Specialization	4.06**	1.97ns	0.45ns	1.86ns	2.09ns	0.45ns	3.22*	1.83ns
Years of Service	3.2*	3.13*	1.36ns	3.22*	2.72**	2.78*	0.8ns	6.8**
Annual Income	0.17ns	2.91*	0.67ns	2.35ns	1.53ns	0.94ns	2.34ns	1.65ns
Marital Status	0.6ns	1.96ns	2.8*	4.81**	2.54**	3.39*	2.79*	3.09**
Work Status	3.87**	3.16*	1.42ns	0.59ns	2.26ns	2.59*	0.66ns	1.63ns
Mean Response	2.11ns	2.45*	2.27ns	2.35ns		1.8ns	1.76ns	
Root MSE	1.37ns	1.25ns	1.26ns	1.84ns		1.17ns	1.2ns	

Df = 7, 24

F-critical = 2.37 at 1% = 3.50 at 5%  
level of significance.

\*\* = significance at 1%;

\* = significance at 5%, and

ns = not significant

**Age:** The age of extension officers in both public (0.84) and private (0.74) sectors had a positive but not a significant relationship with the utilization of ICT facilities at  $P < 0.01$ . The use of ICT facilities cuts across age boundaries to include individuals in universities, governmental organizations, government officials, project officers, technicians, rural producers as well as farmers (CTA, 1998).

**Qualification:** The academic qualification of extension officers in public sector (2.97) had a significant positive relationship at  $P < 0.01$  with the utilization of ICT facilities, whereas, there was no significant positive relationship between the qualification and usage of ICT facilities by private extension officer (0.36).

**Area of specialization:** The table also showed that the area of specialization of public (2.09) and private (1.83) extension officers had no significant positive relationship at  $P < 0.01$  although Akwa Ibom State (4.06) and AGF (3.22) showed significant positive relationship at  $P < 0.05$ .

**Years of Experience:** The number of years of service of the public (2.72) and private (6.8) extension officers showed a significant positive relationship at  $P < 0.05$  in ability to use ICT devices to perform their tasks. With the recognition by the civil service that the scope of responsibilities of the worker increases with years of service, the government even makes provisions for the senior officers to be provided with

ICT facilities. The status of these senior officers which makes for higher income also imply that without being aided, they can acquire the various, or at least some of these ICT facilities.

**Annual Income:** The annual income of the extension officers in public (1.53) and private (1.65) sectors had no significant positive relationship with their ability to use ICT devices to perform their duties although Rivers State (2.91) showed a significant relationship in this variable at  $P < 0.01$ . Data obtained from field survey has also shown that the salary of HND holder in the private sector exceeded by 5.5 times the salary of a public sector worker. For those holding first degree only, the private worker's salary exceeded the public worker's salary by 8.39 times while those with M.Sc. degree in the private sector exceeded that of public sector colleagues by 10.68 times. In spite of the above, the enhanced economic status of the private sector extension workers did not show through the acquisition and utilization of ICT facilities. The employing establishments provided ICT facilities. Where the extension workers do, they are not doing this for their establishment, but for their personal private convenience. This therefore shows that extension officers in the private sector though of better economic disposition, only acquire ICT facilities for private use where their establishments do not provide.

**Marital Status:** The marital status of the public (2.54) and private (3.09) extension officers had a significant positive relationship in their capacity to use ICT devices to perform their tasks. However, Rivers State (1.96) and Akwa Ibom State (0.60) had non-significant relationship in this variable at  $P < 0.01$ . For senior extension officers to share their work time, with family roles, there is need to have facilities and equipment that ease and quicken the pace of their duties, otherwise they may meet with failure, with all the consequences.

**Work Status:** Table 2 further revealed that the position held by the extension officers in public (2.26) and private (1.63) sectors had no significant positive relationship with their usage of ICT facilities to perform their tasks at  $P < 0.01$ . Variations were also observed in States like Akwa Ibom (3.57) and Rivers (3.16) as well as in SPF (2.59) where there existed a significant positive relationship in this variable. This was so observed because most of the officers attained higher posts through promotion earned from years of service in both the public and private sectors.

## **Conclusion**

This study has shown that personal and socio-economic characteristics of extension officers such as marital status and years of service significantly affect positively their use of ICT facilities for agricultural extension work. Although the results of this study showed that quite a good number of the public sector extension workers were at socio-economic levels which the ICT facilities can be acquired by them, and this is even more so in the private sector, it is strongly recommended that the various establishments should provide ICT devices to their workers to make extension services more available and so more useful to the farmers.

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