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IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON THE PUBLIC SERVICE DELIVERY IN LOCAL GOVERNMENT

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Abstract

This study examined the impact of Information and Communication Technology on the Public Service Delivery in the three Local Government Councils in Oyo Township. A descriptive survey design was employed and adapted questionnaire was used to collect data from the respondents. The population of the study consists of all staff in the three Local Government Councils in Oyo Township. An incidental random sampling technique was used to select four hundred and fifty (450) respondents from the population of the study and four hypotheses were formulated for the study. Out of the 450 questionnaires administered on the sample of the study, only 430 were returned. Data collected were analysed using both simple percentage and multiple regression analysis at 0.05 level of significant. The results of the study showed that there is significant positive effect of ICT on public service delivery. Also, the results indicated that ICT significantly improve public service delivery at reduce cost to the peoples. In addition, the results showed that ICT significantly ensure transparency and accountability in the public service delivery. Finally, the results indicated that the use of ICT was significantly affected by the following challenges (i.e. poor infrastructure, poor finance, broadband access, ICT expertise, leadership styles, culture and bureaucracy). The study recommends that there must be provision for continuous training of the local government personnel on ICT to keep them abreast of new development in information technology and sensitization programme must be organized continually for the personnel in the local government councils.

Keywords: Accountability, ICT, Local Government, Public service, transparency

INTRODUCTION

The relevance of Information and Communication Technology to governance of a country cannot be over-emphasized. In fact most countries of the world try to embrace ICT in running activities of government (Che Azemi, Romle, Udin, Mohd Yusof, Husin and Shahuri, 2016). ICT enhances better connectivity between the government and the people, thereby bringing government closed to the people. In recent time, many countries have tried to reposition their public service for effective and efficient service delivery. Consequently, government of nations have taken it upon themselves to carryout various reforms in the public sector by redesigning the structures, systems and processes to improve the delivering of services to their citizens (Adeyeye and Aladesanmi, 2010).

According to Ewuim, Igbokwe-Ibeto and Nkomah (2016), public service of any nation is an institution of governance and administration established essentially to deliver public good in

the most efficient and effective manner. The public service is therefore an influential public institution for service delivery and development (Kauzya, 2011). Proper service delivery is vital for the survival of a modern democracy or government and access to government information by citizens and organizations is therefore a fundamental ingredient in effective service delivery (Ewuim *et al.*, 2016). To this end, ICT tools support the work of governmental institutions and agencies in delivering public services and information in a more convenient, citizen centric and cost effective manner. Thus, in Nigerian public service, ICT can be an effective tool to ensure increased access to government services, improved value for money as well as increased productivity, transparency and better service delivery (Achimugu, 2011).

The application of ICT in public sector have promotes good customer relation services and also facilitate effective service delivery. The advent of ICT thus presents opportunities for its use to facilitate effective service delivery in Nigerian public services particularly our local government system, as many countries in the globe have embraced ICT as a way forward (Augustine, Joseph and Sunday, 2015). Nowadays, some state government in Nigeria have taken a huge steps in implementing ICT in their public sector to meet worldwide changes of information technology to promote more efficient and cost-effective government, facilitate more convenient government services, allow greater public access to information and make government more transparent and accountable to citizen (Che Azemi *et al.*, 2016).

However, one of the major challenges to public service delivery in Nigeria is inability to deliver service to the people effectively and efficiently. Public service delivery in Nigeria has been described as poor, inefficient and ineffective, inconsistent with citizen preference (Ewuim *et al.*, 2016). These problems are mostly due to lack of accountability, transparency, high cost of administration, wastage and lack of commitment in making service work for the citizenry (World Bank, 2012). It is against these backdrops that this study is carried out to examine the impact of ICT on the public service delivery in three local government councils in Oyo Township (i.e. Atiba Local Government, Oyo East Local Government and Oyo West Local Government).

This research aims to examine the impact of ICT on public service delivery in the three local government councils in Oyo Township, Oyo State, Nigeria. Specifically, the objectives of this research are:
   (i)   To examine the effect of ICT on public service delivery.
   (ii)   To examine the extent to which ICT improve public service delivery at reduce cost.
   (iii)   To evaluate the extent to which ICT ensure transparency and accountability in the public service delivery.
   (iv)   To examine the challenges facing the use of ICT in public service delivery.

REVIEW OF LITERATURE
Information and Communication Technology (ICT) is a term with different meaning and have been severally defined in the literature. Some scholars sees it as a term that encompasses a lot of activities involving the acquisition, storage, processing and dissemination of information

through the use of appropriate software and hardware designed facilities for that purpose (Ewuim *et al.*, 2016). For instance, ICT is seen as computer systems, telecommunication, networks and multi-media application that enhances knowledge for the execution of given task which entails skills and processes necessary for carrying out activities in a given context (Olasanmi, Ayoola and Kareem, 2012). Wangwe (2010) define ICT as an integrated system that incorporates the technology and infrastructure required to store, manipulate, deliver and transmit information, the legal and economic institutions required to regulate ICT access and usage, and the social and inter-personal structures which allow information to be shared, facilitate access to the ICT infrastructure, and through which innovation takes place.

The issue of service delivery is all about the customer service and effectiveness. Effectiveness in customer service typically refers to ''doing the right things'' and measures constructs like customer satisfaction on dimensions, such as service quality, speed, timing, and human interaction (Ewuim *et al.*, 2016). A service is effective whenever its outcomes or accomplishments are of value to its customers (Inyang, 2008).

With respect to ICT and effective public service delivery in Nigeria which is central to this study. The use of ICT in public sector and how its affect the service delivery of government have been commonly debated among scholars by looking at what different technologies and their applications enabling governments to do what it does in term of service delivery (Ewuim *et al.*, 2016). Ssewanyana and Buslier (2007) in their study examined the extent of adoption and usage of ICT on one hundred and ten firms in Uganda. The study explained that the majority of respondents strongly agreed that ICT provides increased savings, increased efficiency, improved service delivery, low transaction costs, and improved market performance to organisation that invest in ICT.

Ogbomo (2009) in his study used 200 respondents to investigate information and communication technology in local government administration, using Oshimili North Local Government Area of Delta State as a case study. The study found out that the benefits of ICTs towards local government administration are enhancement of communication and increased productivity. The study equally revealed that ICT in government has set the stage for greater transparency and possibility for greater citizens' participation.

ICT enabled systems offer the potential to eliminate opportunities for corrupt use of discretion by dis-intermediating services and allowing citizens to conduct transactions themselves. Such systems also extend accessibility of information within the public sector and by providing enhanced accounting, monitoring and auditing systems; such systems ensure that public business is more fully open to senior managerial and external scrutiny (Pathak, Naz, Singh and Smith, 2010). Enhanced communication means that citizens can be more fully involved in all aspects of government, including policy-making, thus reinforcing the creation of a culture of trust and mutual interest (Naz, *et al*., 2006).

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Several researchers have conducted research on the challenges facing the usage of ICT on public service delivery. For instance, the result of the study carried out by Ssewanyana and Buslier (2007) revealed that the adoption and usage of ICT by firms in developing countries follow the same pattern as in developed countries, and they only differ in the level of usage and adoption as there are various factors such as high costs of hardware, software, internet and ICT professionals, which inhibit government from adopting appropriate policies to address them. Dhakal and Jamil (2011) cited by Augustine *et al.* (2016) had undergone research in the internal revenue offices of Kathmandu Valley in order to understand the problems and challenges of ICT for improving service delivery in Nepal. Data revealed that the majority of the respondents saw much improvement in terms of easiness to know information in time (70%), easiness to make complaint (59%); and service delivery in time (52%). On the other hand, more than half of the respondents confirmed that reporting of services like 'decreasing discrimination'(61%) and 'easier to report'(50%) has been in the improvement process. The study concluded that there has been improvement in the application of ICTs; but that there is still lack of skill and technical know-how to use ICT for better delivery of services (Dhakal and Jamil, 2011).

The following hypothesis was formulated and tested for this study:
   (i)   There is no significant positive effect of ICT on public service delivery in the three local government councils in Oyo Township.
   (ii) ICT does not significantly improve public service delivery at reduce cost to the peoples in the three local government councils in Oyo Township.
   (iii) ICT does not significantly ensure transparency and accountability in the public service delivery in the three local government councils in Oyo Township.
   (iv) The use of ICT in public service delivery in the three local government councils in Oyo Township does not significantly affected by the following challenges (i.e. poor infrastructure, poor finance, broadband access, ICT expertise, poor data systems and lack of compatibility, leadership styles, culture and bureaucracy).

RESEARCH METHODOLOGY
The descriptive research design of the survey type was employed in the study. The population of the study consists of all staff of the three local governments' council in Oyo Township (i.e. Atiba Local Government, Oyo West Local Government and Oyo East Local Government). An incidental random sampling technique was used to select four hundred and fifty (450) respondents from the population. A structured questionnaire using a Likert scale format of (1-4) four points; strongly agree, agree, disagree, and strongly disagree was designed into various sections A, B and C to gather possible information from the respondents. Each section asks specific questions from the targeted respondents. Section A is to gather data on the demographic background, section B deals with the effect of ICT on public service delivery, in what ways do ICT improve public service delivery at reduce cost and how ICT ensure transparency and accountability in public service delivery while section C seeks from the respondents whether some identified factors affect the usage of ICT in public service delivery in the Local Government System. Tests for content, face and construct validity were conducted

using 20 respondents aside from the sample of the study, the data collected were analyse using correlation test to calculate the internal consistency reliability of the survey instrument and the variables and the result is 0.78 which shows that the instrument is reliable. Only 430 copies of the completed questionnaire were retrieved from the staff to give 96% return rate. Therefore, four hundred and thirty (430) questionnaires were used and analyse with Statistical Package for Social Sciences (SPSS) package 20.0. In this study, the statistical techniques adopted are simple percentage analyses, Pearson correlation (r) and the use of regression analysis to test the hypotheses.

RESULTS

Table 1 showed the demographic information of the participants. The table indicates that 14.0% were health officers, 9.8% were accountants, 4.9 were auditors, 8.1% were nurses, 2.1% were veterinary doctors, 22.1% were education officers, 11.6% were engineers, 4.4% were head of departments while 23.0% were other categories of workers in the local government. In terms of gender, 54.7% were male and 45.3% were female; this shows that male was more represented than female participants. Based on the age of the participants, 87 out of 430 respondents fall in the age bracket of 21-30years making 20.2% of total respondents, 135 respondents are 31-40years making 31.4%, 163 respondents are 41-50years making 37.9% and 45 respondents are 51-60years making 10.5%. The table above indicates that the age bracket of 41-50years has the highest. Also, in terms of highest qualification of the respondents, 18.1% have SSCE, 9.8% have trade craft certificate, 22.6% have either NCE or OND, 28.8% have either bachelor degree or HND, 10.0% have master degree while 10.7% are other certificate that was not listed. Finally, Table 1 shows that 32 out of 430 respondents have been in service for less than 5years making 7.4% of total respondents, 137 respondents have been in service between 5-10years making 31.9%, 198 respondents is 11-16years making 46.0%, while 63 respondents have been in service between the range of 17yrs and above making 14.7% of total respondents. The table shows that those who have been in service between 11-16 years have the highest respondents.

Table 1: Demographic data of the respondents

Demographic	Frequency	Percentage
Category of the Respondent		
Health Officer	60	14.0
Accountant	42	9.8
Auditor	21	4.9
Nurse	35	8.1
Veterinary Doctor	09	2.1
Education Officer	95	22.1
Engineer	50	11.6
Head of Department	19	4.4
Others	99	23.0

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Gender		
Male	235	54.7
Female	195	45.3
Age		
21-30 years	87	20.2
31-40 years	135	31.4
41-50 years	163	37.9
51-60 years	45	10.5
Highest Qualification		
SSCE	78	18.1
Trade Craft Certificate	42	9.8
NCE/OND	97	22.6
B.Sc/ B.Ed/B.A/HND	124	28.8
M.Sc/M.Ed/M.A	43	10.0
Others	46	10.7
Years of Service		
<5 years	32	7.4
5-10 years	137	31.9
11-16 years	198	46.0
17 years and above	63	14.7

Source: Field Survey, 2017

The first stepwise regression analysis (Table 2) is used to test hypothesis one. The results indicated that ICT does not improve standard and quality in public service delivery (β=.019, $p>0.05$). The model explains approximately 73% of the variance in effect of ICT on public service delivery (adjusted R^2=.731).

The results also indicated that ICT repositioned the governance and thereby improved service delivery to the peoples (β=.313, $p<0.05$). ICT enable peoples to have access to timely information (β=.416, $p<0.05$). ICT enable peoples to participate effectively in the governance (β=.249, $p<0.05$). ICT increase reliability in public service delivery (β=.962, $p<0.05$). ICT promotes assurance, knowledge, courteous, trust and confidence (β=.514, $p<0.05$) .   ICT increase accessibility of the public service to the peoples (β=.245, $p<0.05$). The F Value is equal to (167.857) and hence is significant at ($p<0.05$) and this assures that there is positive effect of ICT on public service delivery. Therefore, the hypothesis which stated that there is no significant positive effect of ICT on public service delivery in the three local government councils in Oyo Township is not accepted.

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Table 2: Regression Analysis to test significant effect of ICT on public service delivery

Model	B	Std. Error	Beta	t	Sig. value
1 (Constant)	11.783	1.343		8.770	.000
ICT repositioned the governance and thereby improved service delivery to the peoples	1.529	.130	.313	11.793	.000
ICT enable peoples to have access to timely information	2.191	.150	.416	14.563	.000
ICT enable peoples to participate effectively in the governance	1.572	.186	.249	8.464	.000
ICT increase reliability in public service delivery	4.652	.151	.962	30.793	.000
ICT promotes assurance, knowledge, courteous, trust and confidence	2.878	.165	.514	17.414	.000
ICT increase accessibility of the public service to the peoples	1.587	.187	.245	8.486	.000
ICT improve standard and quality in public service delivery	.100	.137	.019	.730	.466

R	R^2	Adjusted R Square	Std. Error of the Estimate	F change	Sig. F change
.736	.731	2.429	.858	167.857	.000

Source: Field Survey, 2017

The second stepwise regression analysis (Table 3) was constructed in order to test hypothesis two. The results indicate that ICT does not support the citizens to spend fewer resources in obtaining public service delivery (β=.067, p>0.05). The model explains approximately 8% of the variance in ICT improvement on public service delivery at reduce cost (adjusted R^2=.079).

The results also indicated that ICT reduce transaction cost in public service delivery (β=.193, p<0.05). ICT reduce unnecessary expenditure of the peoples in public service delivery (β=.109, p<0.05).   The F Value is equal to (12.203) and hence is significant at (p<0.05) and this assures that ICT significantly improve public service delivery at reduce cost to the peoples in the three local government councils in Oyo Township. Therefore, the hypothesis which

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stated that ICT does not significantly improve public service delivery at reduce cost to the peoples in the three local government councils in Oyo Township is not accepted.

Table 3: Regression Analysis to test whether ICT significantly improve public service delivery at reduce cost

Model	B	Std. Error	Beta	t	Sig. value
1(Constant)		45.986 1.002		45.913	.000
ICT reduce transaction cost in public service delivery	.882	.250	.193	3.532	.000
ICT reduce unnecessary expenditure of the peoples in public service delivery	.533	.234	.109	2.275	.023
ICT support the peoples to spend fewer resources in obtaining public service delivery	.369	.295	.067	1.251	.212

R change	R^2	Adjusted R Square	Std. Error of the Estimate	F change	Sig. F
.281	.079	.073	4.514	12.203	.000

Source: Field Survey, 2017

The third stepwise regression analysis (Table 4) was constructed in order to test hypothesis three. The model explains approximately 26% of the variance in ICT ensure transparency and accountability in the public service delivery at reduce cost (adjusted R^2=.258).

The results indicated that ICT reduce discretion and chance of bribery (β=.150, p<0.05). Also, ICT increase transparency and openness in public service delivery (β=.484, p<0.05). The F Value is equal to (75.432) and hence is significant at (p<0.05) and this assures that ICT significantly ensure transparency and accountability in public service delivery in the three local government councils in Oyo Township. Therefore, the hypothesis which stated that ICT does not significantly ensure transparency and accountability in the public service delivery in the three local government councils in Oyo Township is not accepted.

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Table 4: Regression Analysis to test whether ICT significantly ensure transparency and accountability in the public service delivery

Model	B	Std. Error	Beta	t	Sig. value
1 (Constant)	39.168	1.088		36.016	.000
ICT reduce discretion and chances of bribery	.798	.221	.150	3.605	.000
ICT increase transparency and openness in public service delivery	2.831	.243	.484	11.636	.000

R change	R^2	Adjusted R Square	Std. Error of the Estimate	F change	Sig. F
.511	.261	.258	4.039	75.432	.000

Source: Field Survey, 2017

The fourth stepwise regression analysis (Table 5) is used to test hypothesis four. The results indicate that poor data system and lack of compatibility does not affect the usage of ICT in public service delivery (β=-.024, p>0.05). The model explains approximately 77% of the variance in some factors affect the usage of ICT on public service delivery (adjusted R^2=.774).

The results also indicated that poor infrastructure affect the usage of ICT in public service delivery (β=.240, p<0.05). Poor finance affect the usage of ICT in public service delivery (β=.465, p<0.05). Broadband access affect the usage of ICT in public service delivery (β=.287, p<0.05). Inadequate ICT expertise affect the usage of ICT in public service delivery (β=.627, p<0.05). Leadership style affect the usage of ICT in public service delivery (β=.432, p<0.05). Culture and Bureaucracy affect the usage of ICT in public service delivery (β=.051, p<0.05). The F Value is equal to (244.086) and hence is significant at (p<0.05) and this assures that the use of ICT in the three local government councils in Oyo Township is significantly affected by the following challenges (i.e. poor infrastructure, poor finance, broadband access, ICT expertise, leadership styles, culture, and bureaucracy). Therefore, the hypothesis which stated that the use of ICT in the three local government councils in Oyo Township does not significantly affected by the following challenges (i.e. poor infrastructure, poor finance, broadband access, ICT expertise, leadership styles, culture, and bureaucracy) is not accepted.

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Table 5: Regression Analysis to test significant effect of some factors affecting usage of ICT on public service delivery

Model	B	Std. Error	Beta	t	Sig. value
1 (Constant)	16.412	1.044		15.727	.000
Poor infrastructures affect the usage of ICT in public service delivery	1.683	.200	.240	8.418	.000
Poor finance affects the usage of ICT in public service delivery	2.969	.213	.465	13.910	.000
Broadband access affects the usage of ICT in public service delivery	1.480	.136	.287	10.899	.000
Inadequate ICT expertise affects the usage of ICT in public service delivery	3.191	.126	.627	25.228	.000
Poor data system and lack of compatibility affects the usage of ICT in public service delivery	-.124	.208	-.024	-.592	.554
Leadership style affects the usage of ICT in public service delivery	2.373	.190	.432	12.509	.000
Culture and Bureaucracy affects the usage of ICT in public service delivery	.324	.157	.051	2.064	.040

R change	R^2	Adjusted R Square	Std. Error of the Estimate	F change	Sig. F
.88 2	.778	.774	.226	244.086	.000

Source: Field Survey, 2017

DISCUSSION OF THE FINDINGS
Findings from Table 2 show that there is significant positive effect of ICT on public service delivery in all the three local government councils in Oyo Township. This finding corroborates the findings of Ewuim *et al.,* (2016) that found a positive correlation between ICT and public service delivery in Amuwo-Odofin local government in Lagos State of Nigeria. Also, this result was supported by Brown (2012) that ICT have helped to promote, enhances efficiency

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and makes positive impact on growth and development of organization thereby improves the overall performance of government at all levels and increases the effectiveness of services in areas such as health, education, agriculture etc.

The findings from table 3 also revealed that ICT significantly improve public service delivery at reduce cost to the citizens in the three local government councils in Oyo Township. This was overwhelming agreed by respondents that ICT reduce transaction cost in public service delivery and also reduce unnecessary expenditure of the citizens in public service delivery. This result was supported by Ewuim *et al.,* (2016) that the internet facilities have helped in ensuring quick and effective service delivery, reducing overhead cost of operation and has eased the working procedure of the civil servants. Ainabor (2011) concurred that one of the overarching rationales for application of ICT in public sectors is improved efficiency and effectiveness.

Also the findings from table 4 indicated that ICT significantly ensure transparency and accountability in the public service delivery in the three local government councils in Oyo Township. This result was supported by UNPAN (2012), that ICT can be used in diverse applications to accelerate information dissemination, improve efficiency of public services, increase the transparency and accountability of government administration, to reduce corruption, and facilitate citizen participation in governance. Also, this situation is well expressed by Danfulani, (2013), when he said that, there is no contesting the fact that the infusion of ICT into public sector in Nigeria has massively downsized the level of corrupt activities in the sector.

Finally, the findings from table 5 also show that the usage of ICT on public service delivery is significantly affected by the following challenges (i.e. poor infrastructure, poor finance, broadband access, ICT expertise, leadership styles, culture, and bureaucracy) in the three local government councils in Oyo Township. It was found that 24% of the total variance agreed that poor infrastructure affect the usage of ICT in public service delivery, 47% of the total variance agreed that poor finance affect the usage of ICT in public service delivery, 29% of the total variance agreed that broadband access affect the usage of ICT in public service delivery, 63% of the total variance agreed that ICT expertise affect the usage of ICT in public service delivery, 43% of the total variance agreed that leadership styles affect the usage of ICT in public service delivery while 5% of the total variance agreed that culture, and bureaucracy affect the usage of ICT in public service delivery. This result was supported by Gichoya (2005) that the following factors affecting the implementation of ICT projects in government (i.e infrastructure, finance, poor data system and lack of compatibility, skilled personnel, leadership style, culture and bureaucracy). Also, Maphephe (2013) identified that both broadband access and ICT expertise affect the effective service delivery of e-government in Lesotho.

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CONCLUSION

From this study, it was found that impact of the ICT in public service delivery in the three local government councils in Oyo Township cannot be overemphasised. ICT enable citizen to have access to timely information, peoples are more participated in governance, promotes assurance, trust and confidence, increase accessibility of the public service to the peoples, repositioned the governance and thereby improve service delivery to the peoples.

Also, it was found that ICT reduces both transaction cost of the public service delivery and unnecessary expenditure of the peoples in public service delivery. In addition, it was found that ICT reduce discretion and chances of bribery and increase transparency and openness in public service delivery.

However, it was found that the following challenges (i.e. poor infrastructure, poor finance, broadband access, ICT expertise, leadership styles, culture, and bureaucracy) impeded the usage of ICT in public service delivery. Therefore, governments should try their possible best to avert these problems so as to enable the local government staff effectively utilize the ICT to enhance the efficiency of service delivery to the peoples.

RECOMMENDATION

Based on the findings of this study, the following suggestions are hereby recommended:

(i)   Government must provide adequate ICT infrastructures to all local governments in Nigeria that will enhance successful implementation of ICT application in public service delivery.

(ii)   There must be provision for continuous training of the local government personnel on ICT to keep them abreast of new development in information technology.

(iii)   Government should make a policy that will enforce computer literacy compulsory for the appointment of public or civil servant at all levels in Nigeria.

(iv)   Sensitization programme must be organized continually for both the personnel in the local government councils and entire populace in Nigeria so as to enlighten them on how to use available ICT tools in public service delivery.

(v)   Government can subsidy the cost of purchasing computers, communication equipment, and other information technology accessories to enable people to purchase at cheaper rate and affordable price.

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