



Umeaka Ernest and Ihe Ndubuisi/ Elixir Edu. Tech. 87 (2015) 36038-36043 Available online at www.elixirpublishers.com (Elixir International Journal)

Educational Technology



Elixir Edu. Tech. 87 (2015) 36038-36043

Impact of Information Technology on Public Sector Accounting in Nigeria

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ARTICLE INFO

Article history: Received: 18 October 2015; Received in revised form: 21 October 2015; Accepted: 27 October 2015;

Keywords

Information Technology, Information Communication Technology (ICT), Public Sector Accounting. ABSTRACT

The study focuses on the overall contribution of ICT on the public sector Accounting. IT has made tremendous changes in the world today due to its speed, ease of operation, cost reduction, efficiency and effectiveness. The study reflects that being on web ensures that nations or organizations are on the right track of speedy and sustainable developments. The study applied survey design using regression analysis. Questionnaires were administered to the appropriate target respondents and one of the findings among several others confirmed that less time is spent in the accounting processes with IT, making the report of the accountant ready within the shortest frame of time thereby facilitating decision-making, creating public awareness and making governance effective. It was then recommended that there should be training and retaining both external and in-house, because field studies revealed that most public workers are not computer literate. The few that are literates got that by self-help.

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Introduction

The world over has witnessed a whole lot of development due to innovations by science and technology. According to Nwabueze and Ozioko (2011), the development of any nation is usually measured by the degree and extent of the sociocultural, socioeconomic and political improvement that are brought to bear through the enterprises of science, technology and mathematics. Sustainable development leads to fulfilment of societal ideals considered relevant to the needs and aspirations of the society (Bajaj and Fariwantan, as in Olorundare: 2007). Nigeria needs to adopt a very high and sophisticated science and technology in order to build an organized and technologically compliant society, both in the public and private sectors of the economy. There is no doubt in today's Nigeria to say that science and technology have gained their stay in the society. But the big question is how sophisticated are they and how continually are they improved upon.

Information technology (IT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprises. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones (Daintith, 2009). IT in its totality is used to solve human and societal need for information in the area of decision making in almost all areas of life including the public sector. According to Ojo (2000), ICT is the systematic handling of the dissemination, processing, storage of information and communication by means of computer.

ICAN (2006), sees the public sector as all organizations which are not privately owned and operated, but which are established, run and financed by the government on behalf of the public. According to Adams (2004), accounting is a process of recording, communicating, summarizing, analyzing and interpreting government financial statements and statistics in aggregate and details; it is concerned with the receipts, custody and disbursement and rendering of stewardship on public funds entrusted. The assessment of a good public

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accounting is the accuracy of its statements, the conciseness and reduction of errors. To Ihe and Umeka (2006), public sector accounting is the composite activity of recording, analyzing, summarizing, communicating and interpreting the financial transactions of government and its agencies. From the given definitions of public sector accounting, it could be seen that there should be orderliness and transparency in the presentation of government transactions for there to be a good stewardship and accountability. It is in the creation of this gap that IT becomes imperative. In the past, documentation was done manually which gave room for a lot of paper work, waste of time, errors, and other anomalies.

According to Butler (2012), the definition of IT by Leavitt et al (1958) consists of three categories: techniques for processing, the application of statistical and mathematical methods to decision making, and the simulation of higher order thinking through computer programs. Based on the storage and processing technologies employed, it is possible to distinguish four distinct phases of IT development: premechanical (3000BC-1450AD), mechanical (1450-1840), electromechanical (1840-1940), and electronic (1940-date). Before 1999, according to Nworgu (2007), the ICT resources and facilities in the public sector were limited that only few wealth Nigerians had access to its facilities and services, until recently the industry appeared to be making a significant wave in the Nigerian polity. Internet facilities were rare to come by and the Fax remained for a long time as the only means available to Nigerians for transmitting and receiving data or documents to and from other parts of the globe. The perception of the public about ICT was low as at then. Most people could only send fax, e-mail, SMS and calls only when they got to the business centers. But the picture is entirely different now owing to the fact that huge investments have been made by both the public and private sectors in the IT industry within the country. Evidence from scholars indicates that between the late 1990s and 2008, Nigeria witnessed a tremendous expansion in ICT resources and facilities, more than 20 million Nigerians now have access to GSM. With the liberalization policy of the federal government, more GSM

operators and internet providers (ISPs) have been licensed and are now operating in the country. Even Nigerians in the rural villages now have access to their facilities and services.

ICT in Nigeria

The public sector has a lot of obligations to the society, as well has a lot of users to feed with its information. These users range from internal to external, and they have several needs to be meet. The range of their needs is to be met almost at the same time and being so numerous, there should be a data base for their information to be conveyed to these users. IT forms this data-base and makes governance effective and smooth electronically.

Actually, the term originated as information technology (IT) until recently when it was thought that the communication component ought to be highlighted because of its significance. It was then that the concept transformed to information and Communication Technology (ICT), (Olusanya and Oleyede, 2003).

The formulation of a National Information Technology Policy (NITP), which was formed in 2001 by the Federal Executive Council, marked a significant development in the industry. With the enactment of this policy came the establishment of an implementing agency- the National Information Technology Development Agency (NITDA) in same 2001. According to Isoun (2003), this agency is charged with the responsibility of implementing Nigeria's IT policy as well as promoting healthy growth and development of the industry in Nigeria. The major thrust of the IT policy could be gathered from its vision and mission statement. Vision of the policy is to make Nigeria an IT-capable country in Africa and a key player in the information society by the year 2015, using IT as an engine for sustainable development and global competiveness. Its mission statement on the other hand is to use IT for education, wealth creation, poverty alleviation, job creation and global competiveness. The IT policy adopted as a major strategy, the reliance on human capacity building for realizing its vision and mission according to (Isoun).

IT Resources and Facilities

For sustainable development, Attama and Owolabi (2008), recognized the following as primary IT resources; computers, the internet, e-mail, and the World Wide Web.

Computers

Computers are no longer just mathematical tools but essential management resources. Different operations can be handled more efficiently using computers. Using the computer such activities as information generation, processing, analyzing, storage and communication for sustainable development could be executed easily. The greatest assets of the computer noted by these scholars are its speed, cost effectiveness and optimal utilization of available resources. Worthy of mentioning here are some computer accessories such as CD ROM, diskettes, flash drive etc.

The Internet

According to Ogbomo (2004), internet is a network of computers that communicate with each other, often over telephone lines. It has proven to be the most valuable vehicle for accelerated information flow, the potentials of the internet lies in the provision of global platform for information sharing among organizations, individuals and governments. Information sharing creates awareness, ensures continuous use of products and services, provides feedback and support for organizations. The contention here is that any government that

has current and useful information is empowered to enhance productivity and good governance.

Electronic Mail (E-mail)

Attama and Owolabi maintain that e-mail is the most widely used resource of the internet. It is provided for sending and receiving mails (messages) through electronic devices. The e-mail has made intra and inter-organizational communication faster and cheaper. It has become the life wire for business and organizational communication.

World Wide Web (www)

The www has made the world a global village as an internet based resource. According to Chiwetalu (2003), it is a utility based on hypertexts (hypertexts simply documents through keywords in document or page), a visit to a website helps organizations to locate products, information, pursue political or social agenda, exchange ideas or/information and transact business.

It is this view that the Oxford Advanced Learners Dictionary (1998) observed that ICT is the exchange of view and ideas between persons and groups.

As a result, many organizations, ministries and parastatals in Nigeria have their own websites through which they make relevant information available to members of the public.

Impact of ICT on the Nigerian Public Sector

Okolo (2011), postulates that the world community (of which Nigeria is a member) is today a global village as a result of the application of ICT in closing the communication gap between persons, nations, and continents in different parts of the globe.

According to Rosen and Well (2001) in Okoto, ICT is a global phenomenon that has greatly influenced development of all facets of human endeavour.

Policy Reforms

Various reforms have been implemented at various times. An example is 6-33-4 policy on education. Although a study by Jegede and Owolabi (2003) reveal wide gap existence between policy and implementation in the public sector, Wali (2010) contends that the relationship between ICT and the various organizational activities is similar to government and civil servants, while government outlines policies, civil servants execute those policies. Ihe and Obdiah (2013), postulate that ICT acts as a tool for the actualization of various organizational activities in order to implement and enforce policies. This could be seen in the areas of good governance, education, legal system, organizational management.

Good Governance

In the public sector, policy makers have approved of IT as imperative model due to its qualities and benefits (Attama et al, 2008). It is the acclaimed engine room of modern day global development and sustainable growth according to the United Nations Conference on Trade and Development (2005). Seeing in the same line with UNCTAD, Anehobi (2007) opined that no institution or organization can still rely only on the traditional printed information resources to perform efficiently.

The injection of IT into public sector administration enhances efficiency in the delivery of services to the people. Citing Heber 1990, Nwabueze and Ozioko (2011) accepted that IT helps in taking high decisions and at the same time saves time. It is in line with these laudable roles that the federal government of Nigeria in order to ensure the full exploitation of the potentials of ITs in sustainable democracy laid foundation for e-government in Nigeria (Aragba-Akpore, 2004). Adamali (2006), in their research confirmed that countries that have adopted and applied electronic services (IT) to their operations have witnessed dramatic improvement in their development efforts. They added that for such countries like Singapore, United States, Canada, Japan and most European nations, IT is a strong tool for sustainable development and improving the quality of governance, widening democratic space, increasing productivity, administrative effectiveness and cost savings. It is not therefore surprising that the application of IT in governance is engendering much concern in many countries of the world. Education

In agreement with the Commonwealth of Learning (2006), Becta (2004) and Akale (2003) are of the opinion that most of the discussions and initiatives on ICT in Education tend to focus on the use of ICT for teaching and learning only. This emphasis on instructional applications of IT in education has an antecedent. Earlier, educational interest in technology has always centered on the instructional application of such technology to improve teaching and learning. It can empower teachers and learners and promote skills and knowledge necessary for 21st century workplace (World bank 2003), (Trucano, 2005). The case of the computer provides a perfect illustration of this point. Long before the emergence of ICT, educational Interest in the computer centered on its instructional application as exemplified by computer-assisted instruction (CAI), Computer –aided testing (CAT), etc.

At this point, it becomes quite understandable why the emphasis at the basic and secondary education levels should exclude research application of IT. The primary responsibility of teachers at these levels is defined exclusively in terms of teaching. However at the higher education level, teachers' primary responsibility involves three parts of teaching, research and community service (Dede in Cogburn, 2006). It is not out of place to suggest here in effect that any approach to ICT adoption at the higher education level that stressed only on instructional applications and ignores research applications, will be grossly inadequate in meeting the needs of both teachers and students. According to Jurich and Thomas (2002), ICTs are opening new doors for people with disability to have enhanced access to education in conventional and distance education settings.

The essential features of IT in education research as stated by Nworgu (2007) include:

> Learning how to optimize the creativity of African scientists through participation in international networks and working with data sets.

> Accessing various kinds of research information, which would necessitate a link to the libraries group.

➤ Learning new methods for disseminating knowledge produced in Africa and using them.

> IT applicants run through the entire gamut of the educational research process. The advocacy for the indispensability of IT in educational research can be further strengthened by the following arguments that tend to underscore the values derivable from applying IT in educational research.

 \succ It reduces time and cost of conducting educational investigation.

> Data sets and library resources can be shared by institutions in different locations

► Educational researchers have easy access to current literature materials

> Data sets, irrespective of size can be stored and retrieved when needed.

> Researchers in different locations can collaborate more easily, etc.

Discussing the usefulness if IT in sustainable development, Ijatuyi and Adebayo (2006) advised on the need for a well equipped IT centre in all educational institutions to enable them live up to their social and political responsibilities.

Legal System

According to Nwabueze et al (2011), globalization driven by IT is having a phenomenal impact on acquisition of legal, and other relevant learning, teaching and research materials in law libraries across the country. Through IT, lawyers and students can have access to current Court proceedings,/cases and law reports anywhere, anytime and in any form in the country.

In a study by Okon and Bassey (2008), there is no doubt that the integration of ICT into the practice of law is of much benefit to the profession in Nigeria in the 21st century. ICT is a remarkable tool for providing comprehensive, current and timely legal services to the citizenry. The relevance of ICT adoption and utilization in Nigerian legal system for effective and efficient service delivery is a contributory factor to sustainable development in Nigeria.

Organizational Management

ICT is an essential part of national infrastructure and factors greatly in the public sectors. It creates business opportunities, especially for organizations located far from urban centres and improves links among organizations, suppliers and clients. When used well, ITC can also make management and operation more efficient.

In another vein, Attama et al (2008) cited Sangowusi as saying that ICT is very useful in corporate environment because it promotes performance and improves efficiency.

The impact of ICT on public sector accounting

The Impact of ICT on public sector accounting cannot be over emphasized. ICT according to Sheiler (2014) has impacted accounting processes in a very good way. It is difficult to find anybody doing manual accounting with paper and pencil these days.

Since accounting is about dealing with information, mainly business information, any advances in this area will have a positive impact in the accounting department from the old days of the battery operated calculator to the fast computers of today.

Equipment

The most obvious impact of ICT in accounting is the presence of computers, printers, scanners and faxes. ICT transformed the accounting world-on more green sheets and pencils. The good news is that prices are affordable on most of the equipment.

Software

Besides the equipment, public accountants appreciate the software. For instance, spreadsheet programs are highly efficient at helping accountants with calculations and reporting. The first spreadsheet program according to Sheiler (2014) was called VisiCalc, and was designed by Robert Frankston and Dan Bricklin in 1979 to simplify financial analysis. It performed calculations over 254 rows and 63 columns.

	Data Ar	nalysis		
Variable Entered/Removed				
Model	Variables	Variables	Method	
	Entered	Removed		
1	PA, AB, AW ^a		Enter	
9	All requested v	ariables enter	ed	

a.	All	requested	variab	les	ent	terec	1
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		Μ	odel Summa	ry
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872 ^a	.760	.695	.26968
- Dradietars (Constant) DA AD AW				

a. Predictors (Constant). PA, AB, AW

	ANO	VA [°]			
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	2.533	3	.844	11.611	.oo1 ^a
Residual	.800	11	.073		
Total	3.333	14			

A NOT A h

a. Predictors (Constant), PA, AB, AW b. Dependent Variable: IT

C 60 • (3)

Coefficients						
Model	Unstandardized Coefficients		Standardized	t	Sig.	
			Coefficients			
	В	Std. Error	Beta			
1 (Constant)	5.400	.677	-1.058	7.978	.000	
PA	1.000	.286	-200	3.496	.005	
AB	-200	.295	.529	-677	.512	
AW	-1.000	.381		-2.622	0.24	

In 1983, a more sophisticated spreadsheet program, Lotus 1-2-3, allowed more rows and columns plus data management and graphs. This was a hit with accountants, who often need to analyze data, and perform complex computations and modelling. These days excel and spreadsheets became the life made easy and efficient for accountants.

There are accounting programs in the market that are easy to use and affordable, such as the Microsoft access, the quick book, tally, Dac-easy, Peachtree etc. These software can help accountants in their daily tasks to pay bills, record and report transactions. The program helps to keep all data organized and in a centralized location.

Internet

This is not different from the internet discussed earlier as result not much will be said here. The internet opened many doors and made life easier in many ways, especially in the accounting area, where documents can be shared, research can be conducted and taxes can be filled all online.

Security

ICT is used widely used in accounting security. Identifications and passwords limit access to confidential information. Instead of binders and papers lying around, security can be greatly enhanced with the proper computer programs. Using a program, accounting information can be encrypted in a way to prevent unauthorized use, making it quite safe. A lost, stolen or misplaced laptop or desktop computer can be tracked using security software that can be activated remotely.

Education

Much has been said about this earlier. The present day professional accountant can now proudly be called a digital accountant as ICAN demands that such pass through an ICT program before induction.

General Ledger

Years Ago, a general ledger, a list of accounts and transactions, was kept in paper pads and then manually

maintained, a time-consuming task for accountants. If the balance sheet did not balance, it sometimes took accountants days to find the mistake. These days are over; with computerized accounting, mathematics is handled automatically and financial statements are compiled at the push of a button.

Modules

While the general ledger contains general accounts and transactions, details of transactions are often kept in separate modules. Information from these modules is then transferred to the general ledger . For example, the accounts payable module handles all issues regarding accounts payable, including vendor names, invoice dates, check printing and other data important to the bill paying process. When invoices are entered and paid, expenses or accounts payable and cash are recognized and transferred to the general ledger. There are modules for accounts receivable, inventory and other processes that need working space outside the general ledger, but connected to it.

Specialized Accounting Software

A trend in programming practices is to target certain organizations and make entire programs customized for such organizations. The result is entire systems made with tools specific to certain sectors, such as non-profit making or manufacturing. That makes computerized accounting fast to set up and use. Instead of waiting for a programmer to develop your software, you can buy off the shelf that is about 90 percent good for your purposes and requires only minimal customization.

Risk

Information Systems help with speed and accuracy, but there is still room for human error. If incorrect information is entered, the system may not catch it, Errors and fraud still happen in accounting, and internal controls are needed to prevent or detect these risks. A computerized system should have secure access to avoid unauthorized use; management must review reconciliation to make sure they are reasonable and accurate; and payments should be made only on approved bills to avoid fraud and errors.

Research Methodology

Information technology is more or less the current fashion in the society these days; hence any study that cuts across it mainly finds its source electronically via the internet. Many researchers have got so many works in this area and that is why the research adopts the ex-post facto method using both the primary and secondary data. The questionnaire was drafted and administered to the accountants in the Federal Ministry of Finance, Federal Inland Revenue Service and some accountants in the audit firms who audit government parastatals, ministries and agencies. A total of sixty questionnaires were administered but fifty eight were got in return. Regression and ANOVA were used but run electronically with the aid of electronic software called the Statistical Package for Social Sciences (SPSS).

Research Hypotheses

 H_{o1} : IT does not have any significant relationship with the job of a public accountant.

 H_{o2} : IT has not made any positive impact on the administrative bottleneck in public sector accounting.

 H_{o3} : IT has not in any way helped to reduce the workload of a public accountant.

The above hypotheses will lead to the formulation of a model to test the hypotheses, thus

y = bo + b1x1 + b2x2 + b3x3 + ueq1
y = IT Information Technology
bo =consonant
$x_1 = PA$ public accounting
x2 =ABAdministrative Bottleneck
x3 =AW Accounting Workload
u = stochastic variables (ie variables outside the study)
Note
The study operates at a 5% level of significance.
Hence the model progresses to;
IT = bo + b1PA + b2AB + b3AW + ueq2
Our SPSS result then transform the eq 2 into
$\mathbf{T} = 5 + 100 + \mathbf{DA} = 0 + 0 + 0 + 11 = 0 + 0$

IT = 5.400 + PA -0.200AB - AW + U.....eq3 "7.978" "3.496" "-0.677" "-2.622" Note

The figures in parenthesis under eq 3 represent the t-statistic

Discussion of Findings

From our result, it could be seen that IT has a significant positive relationship of (3.496) with public sector accounting. That is to say that the adoption of IT in the accounting department of the public sector enhances the job of the accountants; speed and accuracy are assured, less time is spent and cost is reduced. IT has a negative relationship of (-0.677) with administrative bottleneck in public sector accounting. This is to confirm that less time is spent in the accounting processes, making the report of the accountant ready within the shortest frame of time. On the other hand IT has a negative relationship of (-2.622) with workload. This means that the adoption of IT reduces the workload of accountants. That is to say a lot of paper work is reduced to the barest minimum, thereby increasing their speed, efficiency and effectiveness.

Judging from the F-statistic which has a positive value of (11.611) with a probability of (0.001) which is less than 5% level of significance, we conclude that our study is in line with

empirical studies and is good for any policy formulation related to IT and public sector accounting.

From the result of our study, there is an R-square value of (76%) and an R-square adjusted value of (70%,) which shows that IT contributes approximately (70%) to PA, AB and AW. The remaining (30%) is attributed to "u" which are other variables that are outside the scope of our study. **Conclusion**

It could be deduced from the above that being on the web would put any nation or organization on the right course of speedy and sustainable development in line with the emerging changes in technology, economic and political model.

This article has been able to x-ray the impact of IT on public sector accounting in Nigeria, and from our findings, we can comfortably deduce that our study is in line with previous researches such as carried out by;

(Ukodie, 2004) that, IT is the engine of the 21st century and beyond; as it will chart the economic, religious, cultural, legal and social life of nations, particularly that of the developing countries.

It is also in line with Nwabueze et al (2011), citing Nkereuwem 1996, that the importance of IT for sustainable development has long been recognized by developing countries. IT has impacted on different sectors of the Nigerian economy especially the public sector. The application of IT has emerged as the most radical development of the 21st century. It has facilitated speedy information transmission, high level decision making, reduces cost/in organizational management as well as opens vast opportunities for information sharing among individuals, and government institutions.

It is a fact that IT is very indispensable to Nigerian sustainable development drive. Presently in Nigeria, It has been successfully integrated in the public sector in the process of state administration, leading to a view concept of egovernment. The potential benefits of IT to sustainable development in Nigeria have been accepted as an imperative paradigm (Nwabueze et al, 2011).

Recommendations

The Nigerian public sector should adopt IT in its accounting procedures and follow the trend of its modifications as an international best practice in order to be IT –compliant and to meet up with millennium development goals of 2020.

Equipping the accounts departments of the public sector is not just the challenge but the most pressing challenge is the adoption of a good maintenance culture for the IT resources and facilities.

There should be trainings and re-training both external and in - house, because field studies revealed that most public worker are not computer literate. The few that are literates got that by self help.

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