

Assessment of Availability and Use of Information and Communication Technology (ICT) Resources in Energy Research Centre, University of Nigeria Nsukka: An Empirical Study

Jonathan N. Chimah¹, Chukwubuisi H. Chikwelu

National Centre for Energy Research & Development, University of Nigeria Nsukka

Abstract: *The Information Communication Technology (ICT) productivity paradox has generated considerable interest among practitioners, professionals, the theorists and especially economists. Because productivity is the fundamental economic measures of ICTs' contribution, it should be closely examined at the micro level (unit, departments) or macro level (organizations, or institutions). Based on the above premise, this paper seeks to assess the ICT resources available in each unit of the Energy Research Centre; as well as how the units use the resources in terms of being fully utilized, partially used or not used at all. Observation and interview were the two instruments used in data collection. Recommendations are made based on the findings on the need to provide and use ICT resources in order to enhance productivity.*

Keywords: ICT Resources, ICT Availability, ICT Use, Energy Research, Productivity

1. Introduction

Information Communication Technology (ICT) refers to systems for producing, storing, sending and retrieving digital files. These files can contain text, sounds and images, both still and moving. ICT can be applied in any kind of environment for any kind of job. The characteristics of ICTs are that they have faster response to enquiries, accurate in data accessibility, sophistication in use, complex in nature, more durable, resilient, effective and efficient (Bartlet, 2002). This definition shows that information communication technology is just the technology of transmitting digital information. Its major concern is how to communicate already process information to the target audience.

Information Communication Technology (ICT) is the name given to the linking together of computers, telecommunications and office equipment. The convergence of these technologies has led to eradication of geographical and psychological distances between individuals, units, departments, branches, organizations and governments. Advancement in ICT has been knitting together functions within organization.

There is no doubt that the impact of Information and Communication Technology (ICT) is very significant. The real challenge is not technology (adoption) per se, but the ability to take advantage of its emerging functionality. Reaping the full benefits of ICT adoption requires not only a full understanding of ICT applications and their potential but also a readiness to change, all of which points to the importance of mobilizing human resources and constantly improving technical capabilities. Moreover, as more and more firms successfully adopt and implement ICT applications, the comparative competitive advantages derived from the adoption of these applications may very well disappear if firms do not stay ahead (Ajibola, 2010).

For firms that lag behind, ICT adoption becomes merely a question of survival. This partially explains why contradictory results concerning the impacts of ICT application have often been observed. ICT adoption as such is a necessary but not sufficient condition for increased productivity, key competitive and strategic benefits, and stronger financial performance.

Based on the above premise, it therefore becomes necessary that availability and use of ICT resources in the Energy Research Centre be assessed in order to determine the impact it has on staff performance and productivity.

2. Literature Review

Related literatures were reviewed on the following sub-titles considered as major variables in the research topic.

2.1 ICT Resources

The information communication technologies facilities include computers Internet, CD-ROMs, Wide World Web, E-mail technology, digital camera and the like (Uhegbu 2007). We shall briefly explain some of these technological categories and then show their relevance in information acquisition, generation, storage, retrieval, processing and delivery.

- i. Computer – is a programmable, multi use machine that accepts data-raw facts and figures, process or manipulates such into information we can use as summaries, totals or reports. The purpose of a computer is to speed up problem solving and increase productivity (Sawyer and Williams, 2003:56). According to Madu and Adeniran (2005), a computer is an electronic device that is capable or accepting data in the form of coded electronic signal, storing the data and applying prescribed

processes to the data on the basis of a set of predetermined instructions called programmes.

- ii. Digital cameras – are used for digital photography. A digital camera uses a light-sensitive processor chip to capture photographic images in digital form on a small diskette inserted in the camera or on flash memory chips.
- iii. Internet – a worldwide network that connects hundreds of thousands of smaller networks. These networks link educational, commercial, nonprofit and military establishments and even individuals.
- iv. The World Wide Web (WWW) is the fastest growing sector of the Internet because it utilizes the hypertext Mark-up Language (HTML). The HTML is used to transfer text, sound, graphics and video. The web differs from gopher in that its documents, known as “pages” are full of graphics and colour and include sound and video which are written in hypertext.

2.2 ICT Compliant Organization and or Society

According to Aina, Mutula and Tiamuyu (2008) the environment that defines an information society includes:

- the institutional capacities to collect, organize, store and share information and knowledge;
- stimulate creation, processing, dissemination of information to all people to information through the use of ICTs;
- facilitate speed and ubiquity of information flows through ICTs;
- enhance information sharing within countries and across the globe;
- use ICTs to improve productivity and quality of life;
- create, receive, share and utilize information in any media, regardless of frontiers;
- develop high quality ICT networks;
- enhance effective legal and regulatory frameworks for unhindered access by individuals to communication media and information sources;
- build secure networks to enhance information through trust in using ICTs;
- provide protection of privacy through confidentiality;
- human resource development strategies; and
- develop human capacity to exploit the benefits of ICTs

2.3 Availability and Utilization

Utilization of information is also governed by its availability. Availability here not only means that information is provided but it also entails accessibility. Availability of information is meaningless if those want to make use of it cannot have access to it. To effect proper and effective utilization, information must not only be available in the right quantity and time, but also be accurate and its sources credible, reliable and received within the closest proximity to the user.

Information utilization is the actual putting into appropriate use of acquired information. Utilization of information differs from person to person and from one corporate organization to the other according to their information

needs and other socio-economic imperatives (Uhegbu, 2007).

3. Methodology

Two complementary instruments were used for collecting primary data; interview and observation. These instruments were very fruitful in gathering data especially as the researcher who is a staff of the Energy Research Centre being studied found it easier to interview heads of the unit and also to observed things himself.

4. Result and Discussion of Findings

The table below shows the various units of the Energy Research Centre, including the directorate and the extent of use of the ICT resources available.

NCERD Units	ICT Resources Available	Used often	Used occasionally	Not used at all
Administration	5 Computers, 1 Scanner, 2 Printers	√	(1)	X
Accounts	4 Computers, 1 Scanner, 2 Printers	√	X	X
Audit	2 Computers	√	X	X
Biomass	4 Computers	√	X	X
Business Consultancy	1 Computer	X	√	X
Director’s Office	1 Computer, 1 Copier, 1 Fax machine, 1 TV with cable network, 1 laptop, 1 telephone		√ √ √ √	Fax machine is in not in use
Fossil Energy	4 Computers	√	X	X
Energy Info & Manpower Dev.	4 Computers	√	X	X
Energy Efficiency & Environment	3 Computers	√	X	X
Solar Thermal	3 Computers	√	X	X
Photovoltaic	3 Computers	√	X	X
Wind & Meteorology	3 Computers	√	X	X
Library & Information	4 Computers, 1 Copier	√	(1)	X
Media	2 Computers	√	X	X
ICT	24 computers, 2 scanners, 1 copier	10 (Internet)	5	9
General Office	1 computer, 1 copier	√	X	X
Store	1 computer,	X	√	X

The general ICT resources available in the Energy Research Centre are: V-SAT (Internet), Computer Systems and Intercom. However other ICT resources are identified in the data collected and analyzed in the proceeding pages. Administration unit of NCERD has 5 computers, 1 scanning machines and 2 printers. 4 of the computers are used often except 1 that is used occasionally. Accounts unit has 3 computers, 1 scanning machine and 2 printers all of which are used often. Energy Efficiency and Environment, Solar Thermal, Photovoltaic and Wind/Meteorology units all have 3 computers which are used often.

Audit and Media Units have 2 computers each. But while Audit unit use the two computers always, one of the computers in Media unit is used occasionally.

Biomass, Fossil, Energy Information & Manpower Development and Library & Information Units all have 4 computer systems each. The first three units use all their systems often; but library unit has one computer that is not used often, reason being that it is dedicated to library users who use it only when they want to check a material on CD-ROM or access the Internet if when the system is connected to the Centre's V-SAT Internet facility.

Also the data shows facsimile machine is available only in Director's office though it is not used at all. Business/Consultancy, Director's office, General office and Store units all have (1) one computer each. Business/Consultancy unit, Director's office and the Store all use their computers occasionally but General office uses the computer often. In the ICT unit out of the 24 computers installed, 10 are connected to the internet, 5 computers are not connected and they are used occasionally, while 9 computers are not used at all.

5. Conclusion and Recommendations

Going by the aforementioned, it is evidenced that information communication technology resources are available in the National Centre for Energy Research and Development University of Nigeria Nsukka. It is also clear that the proper utilization of these ICT tools are minimal. Reason for this underutilization is associated to both power failures and lack of ICT skill to use them. Also attributed to cause of under-usage is lack of proper maintenance of the systems. In order to maximize the use of the ICT resources the followings are recommended.

- Various Units and offices that are yet to be networked with Internet facilities should be networked in order to give staff equal opportunity to access Internet resources. Putting in place education and training programmes in ICTs for staff
- Creating conducive conditions for production, processing, and dissemination of local content;
- Making available appropriate electricity power supply sources
- Maintenance and update of available ICTs equipments
- Procurement of other equipments that will enhance R & D
- Staff in the ICT unit should conduct a feasibility study and know the actual requirements of NCERD staff for them properly utilize the ICT resources.
- Staff who are still unskilled or outright illiterate in ICT use should update themselves with ICT skills within or outside the Research Centre.

6. Future Prospects of the study

It is envisaged that this study will be made known to the Director and Management Committee of the Energy Research Centre so that the identified lapses in ICT resources provision and utilization could be given adequate attention in terms of procurement and training of the

administrative, research and technical staff of the establishment. This will of course improve research activities and outputs. Further research in the near future will reassess the ICT resources as well their productivity impacts on staff visa-a-vis research outputs and development.

References

- [1] Aina, L.O., Mutula, S.M. and Tihamiyu M.A. (2008) (ed.), Information and Knowledge Management in the Digital Age: Concepts, Technologies and African Perspectives. Ibadan, Third World Information Services Limited. Pp 36-42.
- [2] Ajibola I. O. (2010) Computer Application for Effective Collection Development Paper presented at the Annual National Workshop of the Nigerian Library Association, FCT Chapter held at (Michael Imoudu National Institute for Labour Studies) Illorin, - 26th October, 2010
- [3] Bartlet, A. (2002) Information and communication technology and integrated pest management. In: FAO and Field Schools: Bringing IPM to the grassroots in Asia. Rome: Italy: The FAO. P.8.
- [4] Madu E. C. and Adeniran, T.N. (2005) Information technology: uses and preservation of resources in libraries and information centres. Ibadan: Evi-Coleman. P.35.
- [5] Sawyer, S.C. and Williams, B.K. (2003) Using information technology. 5th ed. New York: McGraw-Hill. P.56.
- [6] Uhegbu, A. N (2007) The Information User: Issues and Themes. Okigwe; WHYTEM Publishers Nigeria

Author Profile

Jonathan Chimah is a research librarian at the National Centre for Energy Research & Development. He holds Masters Degree in Library & Information Science.

Henry Chukwubuisi Chikwelu is an administrative staff of the Energy Research Centre. He is a PhD candidate of the University of Nigeria Nsukka.