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# *Electronic Communications in Nigeria*

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## Abstract

Electronic communication is still very weak in Nigeria as very few organizations are making adequate use of the facility. The major problems militating against the adoption of sending messages electronically in Nigeria include:

- a low-level computing culture;
- a poor telecommunications infrastructure; and,
- a general lack of awareness.

However, there are some positive developments which indicate that Nigeria might soon emerge out of the doldrums and join the global electronic network village. One such key development is the extension of the project for Capacity Building for Electronic Communication in Africa (CABECA) to Nigeria.


## Introduction

Electronic communication or networking refers to any of several forms of information exchange between two or more computers through any of several methods of interconnection (MS/MAS, 1992). It is inexpensive because of its speed, and because it can use existing public phone lines as a medium. Multiple messages can be sent in a single phone call, lowering the cost still further, while error-correcting modems can ensure reliability of transmission.

The most common network applications are: electronic mail (E-mail), whereby messages originating from one computer can be sent via some medium to another computer or computers that are connected to a network and have an electronic address; "bulletin board systems" (BBS), generally used for the posting and retrieval of information items; and "conferencing systems," which allow multiple users to post messages that are seen and responded to by other users, creating an electronic conversation.

**[The Group-Decision Support System, GDSS] uses the computer to conceal the contributors' identities so that ideas can be suggested and selected according to merit rather than the contributor's organizational role...**

The group-decision support system (GDSS), the latest application of electronic networking, has emerged to improve organizational decision making and ensure that members of an organization will feel that they are part of the organization's decision-making efforts and therefore will support resulting changes (Palmquist, 1992). Essentially, a GDSS functions as a real time, electronic brainstorming session among members of a decision-making work group. It uses the computer to conceal the contributors' identities so that ideas can be suggested and selected according to merit rather than the contributor's organizational role.

Some of the key opportunities offered by electronic communication are:

- elicitation and conduct of national, regional or worldwide collaborative research initiatives. For example, through an electronic mail link, a scientist can contact international counterparts, compare data, collaborate on publications, arrange to attend conferences, and locate funding for a research project (AAAS, 1993);
- gathering, storage, and dissemination of vital information. For example, the worldwide E-mail communication network, the Internet, is a vast source of information on all subjects, and the size of this network is expanding very rapidly as more and more data, journals, etc. become available in electronic form (Robinson, 1993);

- administrative purposes, e.g., for circulating internal memos or minutes of meetings (AAAS, 1994);
- online library service and searching (MAS, 1994);
- computer-aided distant learning and tutoring, e.g., a member of staff on sabbatical leave may continue to remotely tutor his or her student, or a foreign professor can co-supervise a local postgraduate student (AMS, 1994);
- commercial applications: appropriate centers can serve as "consultancy units," e.g., by offering on-line technical advice, allowing remote utilization of computing facilities on a lease or hire basis, selling non-sensitive information, serving as e-mail bureaus, or simply serving as e-mail nodes for other organizations (AAAS,1994). For example, one can obtain news, weather reports, sports reports, stock reports, and travel arrangements on commercial networks like America Online, Compuserve, and Prodigy; and,
- Political applications: In the United States of America, both houses of Congress as well as various state and local governments have Internet addresses where voters can check out position papers and legislative records; the White House is also not left behind as it has its own searchable archive of every speech President Bill Clinton has ever given (Bott & Lipkis, 1994). Individual politicians are also logging on to big commercial services like Prodigy, Compuserve and America Online to debate voters and measure the public pulse (*Newsweek*, Sept. 12, 1994).

Of course, there are some drawbacks to the use of electronic networking. For example, there is no way to notify the recipient of a pending electronic message until he or she turns on the terminal, while most of the widely available e-mail packages cannot transmit graphics. It must also be acknowledged that there is a potential for impersonation in electronic communication: While E-mail systems require the authorized user to log on with a password, lax security could reveal passwords to others, who could then participate and read another's mail (Burton, 1994). However, the advantages of using electronic networking far outweigh its disadvantages, and since timely access to pertinent information is key to socio-economic development, a developing country like Nigeria has no choice but to adopt its usage. Hence, the reason why this paper examines the current status of electronic communication in Nigeria.

# Present Status of Electronic Communication in Nigeria

The use of electronic networks for communication is still very low in Nigeria. Only the international organizations and a few local institutions are making use of the opportunities provided by electronic communication. The organizations using electronic communication as of now include:

- **United Nations Organizations.** United Nations organizations, such as the World Bank and the United Nations Development Programme (UNDP), which have offices in Nigeria, are connected to their respective organization's worldwide electronic communication network. They communicate electronically with their headquarters and other national offices on official matters. Most of the organizations batch outgoing messages and send out the batch once in a day; incoming messages are also often downloaded once a day.

- **International Institute of Tropical Agriculture (IITA).** The International Institute of Tropical Agriculture (IITA), Ibadan, is one of the non-profit, international agricultural research centres currently supported by the Consultative Group on International Agricultural Research (CGIAR). The CGIAR group members are part of the CGNET electronic mail network.

  The E-mail facility at IITA was installed in 1985. The organization was, initially, using a modem and a dedicated telephone line to link to a gateway in London. However, after sometime, it was becoming very difficult to get through to London and messages were also getting muddled up before reaching the gateway. Hence, the organization switched to transmitting via a satellite called INMARSAT. Messages are batched and sent once in a day and at times up to 56 messages per day may be involved. Researchers and administrative staff use the facility to communicate with other staff members in IITA's outer stations as well as colleagues in CGIAR institutions. Administrative staff at times also use the facility to send out press releases. It is noted, however, that the facility is hardly used for internal communication.

- **Yaba College of Technology.** The Department of Computer Technology, Yaba College of

Technology, Lagos, serves as the national node for the Regional Informatics Network for Africa (RINAF), which is a joint project of the Intergovernmental Informatics Programme (IIP) of UNESCO and financed by the Italian Government (Abba, Giordano & Trumpy, 1992). The RINAF project was set up with the aim of facilitating communication among the African research and academic institutions as well as bolster existing communication nodes in Africa with the ultimate goal of moving them towards full Internet connectivity.

The E-mail facility at the Yaba College of Technology was installed in July 1992 and is connected to a gateway in Italy. A few researchers in Lagos and other parts of the country have since linked up, free of charge, with the node via modems. However, the node hasn't been functioning effectively due to telecommunications and logistics problems. In response, there are renewed efforts by the node coordinator to improve the effectiveness of the services and to ensure the sustainability of the project.

- **University of Ilorin. Ilorin.** The Faculty of Health Sciences, University of Ilorin, Nigeria, in conjunction with McMaster University, Ontario, Canada, has been operating a stable data communication link since January 1990. The idea of a communication link between McMaster University and the Faculty of Health Sciences, University of Ilorin, was first broached in 1989. The project was proposed to aid information dissemination between the Faculty, which is a member of the "Network of Community-Oriented Educational Institutions for Health Sciences," and other members of the network around the world (Mejabi, 1992).

  The link operates via a relay method whereby calls are initiated **daily only from** Canada between 12.00 noon and 3.00 p.m. Nigerian time. After establishing that there are messages to be downloaded or picked up, the computer system in Ilorin is then connected to the modem to allow for the interchange of files. When the files have been exchanged successfully, the connection is broken and files received are processed at both ends.

  This relay method has, according to Mejabi, yielded excellent results by way of making abstracts/paper texts available with minimal delay to faculty members. The facility is also being used by the faculty members to exchange information with international committee members of their network, to arrange meetings on a tight time schedule, and to send bulky documents around.

- **Obafemi Awolowo University. Ile-Ife.** A similar arrangement to the one above operates at the Obafemi Awolowo University, Ile-Ife. The arrangement is between the Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC) and the University of Kuopia, Finland. The point-to-point linkage was established in 1992. The system is being used by the faculty members of the Complex for the same purposes as their counterparts in the Faculty of Health Sciences, University of Ilorin.

- **Others.** In addition to the organizations listed above, it is most likely that a couple of organizations and individuals are also making use of electronic communication facilities. For example, the 1994 *User's Guide to Networks in Africa* (AAAS,1994) listed two individuals that are connected to a public Fidonet and a third to the Association for Progressive Communications (APC) FidoNet node.

# Constraints in The Use of Electronic Communication in Nigeria

As noted earlier, electronic communication is still very weak in Nigeria as very few organizations and individuals are making use of the medium. Even the few who are doing so are only using it for international connections; hardly anyone uses it to send messages locally. The major problems militating against the widespread, as well as efficient, usage of the medium include:

- **A Low-level Computing Culture.** In Nigeria, very few institutions have computers. It is only the banks, industries (e.g. oil) and international centres that use computers routinely in their operations. Also, the majority of public organizations and research institutes that have computers obtained them through foreign grants. The computing facilities in the universities are also grossly inadequate as most of the facilities are concentrated in their computing centres without any terminals provided at the

departmental level. Although a few of the departments in these universities have acquired computers through donations or grants, the number of computers acquired are hardly sufficient for the computing requirements of the staff members. However, some individual staff members have acquired computers through foreign research grants, or else have purchased them while abroad on sabbatical, doing a short course or degree programme; although, no individual lecturer can buy a computer system from his salary because nobody earns more than USD 250 per month.

**The major reason for the inability of most organizations to purchase computers is the critical shortage of foreign exchange**

The continuing devaluation of the national currency, the naira, since 1986 has also escalated the prices of computer systems: as the costs of computer hardware and peripherals are falling in the US and Europe, the costs rising in Nigeria due to the continuing depreciation of the naira. Even for those who have been able to acquire computers, they still have to contend with the problems of unstable power supply, and shortage of skilled personnel for the maintenance of the systems.

- **Poor Telecommunications Infrastructure.** The telecommunications system in Nigeria is plagued with many problems. Firstly, the number of telephone lines are inadequate as there is only one telephone line to about 200 people with thousands of registered clients on the waiting list (*Sketch Nigeria Limited*, 1994). Secondly, many of the existing lines are out of order much of the time, either due to the difficulty of maintaining or updating the infrastructure[1], vandalization of the lines by thieves (e.g., sometimes large pieces of telephone cables are cut by thieves and the metals resold), or through corrupt practices of the officials. In addition, the efficiency rate of the lines working is reported to be less than 30 per cent compared to 70 per cent in other developing countries (Aragba-Akpore, 1994b). The worrisome aspect of this inefficient operation is that it is often easier to telephone internationally than within the country. The implication of this, for electronic communication, is that it would be easier for Nigerian users to communicate with colleagues abroad than with those within the country.

- **Lack of Awareness.** Most Nigerians are not aware of the existence and potential of electronic communication, the exception being mainly those who have been abroad and have had the opportunity to use it. In the first instance, the devaluation of the naira has made it difficult for people to subscribe to international magazines, such as *PC Magazine* while *The Guardian*, the only local paper that reports regularly on computers and networking and which, in fact, carried an article on the Internet in its issue of July 31, 1994 (Okoro, 1994), is regarded as elitist and is read mainly by intellectuals. It is even becoming difficult to buy that this publication regularly as the cost has risen astronomically, and the paper is also currently on a six-month ban by the Federal Military Government for being confrontational.

**Nigeria is just now changing from analog to digital telephone systems while developed countries are changing from digital to computer-based systems!**

# Current Initiatives

The constraints enumerated above are truly daunting. However, all hopes for efficient electronic communication in Nigeria are not lost as there are encouraging developments taking place in the country. In the first instance, the Nigerian Telecommunications (NITEL) Plc has introduced a packet switch data line service in the country; the first X.25 Packet Switch Exchange was commissioned in Victoria Island in June 1994 (Aragba-Akpore, 1994b). This development, when fully operationalized, would greatly improve the delivery and transfer of data between Nigeria and other countries.

Secondly, there are various electronic mail projects being developed in the country. Some of these are:

- **CABECA at the University of Ibadan.** The project for Capacity Building for Electronic Communication in Africa (CABECA), a joint effort by Canada's International Development Research Centre (IDRC) and the Pan African Development Information System (PADIS) of the United Nations Economic Commission for Africa, was launched in 1993 and is meant to provide training, documentation, equipment, and support for selected Fido-based network sites in Africa(MU/AAAS, 1993). CABECA's overall objective is to provide technical assistance to bring about sustainable computer-based networking in Africa, at an affordable cost, and accessible to a wide variety of users from both the private and public sectors.

  Already, significant progress in the implementation of CABECA are taking place in the Eastern and Southern African countries participating in CABECA (Adam,1993) and now, CABECA has extended its operations to Nigeria. The University of Ibadan has been chosen as the national node and the communication equipment will be located at the Africa Regional Centre for Information Science. Already, a 486 personal computer, a communication software and 10 modems are being shipped to the country, and an expert in UNIX and FIDO based systems electronic communication is expected to come from PADIS in November 1994 to install the system as well as organize a one-day workshop for potential users. The users are expected to come from non-governmental organizations, academic, government and private institutions.

- **GreenNet at the Federal Environmental Protection Agency.** The Federal Environment Protection Agency (FEPA), Abuja, was in October 1994 connected to the GreenNet Fidonet gateway in London. The equipment for the connection, which includes a 486 PC, a modem and a communication software, was provided by the Pan-African Development Information System (PADIS) based in Addis Ababa. The organization also sent an expert in electronic communication to install the system as well as provide training for the system operator. The operator is expected to go for a further 2-week training at the Environment Liaison Centre International (ELCI) in Nairobi.

- **E-mail Project for Nigerian Universities.** The National Universities Commission, the body that coordinates the activities of Nigerian universities, has recently given a large sum of money to the universities to be used in setting up computer-based management information systems. In addition, the Commission in October 1994 set up a team to explore E-mail potential among Nigerian Universities. The team has submitted its report and a proposal for the funding of an E-mail project in Nigerian universities is being prepared for submission to a major international development agency by February 1995.

- **HealthNet at the University College Hospital. Ibadan.** HealthNet is a telecommunications system that links health professionals in the developing world with their colleagues abroad. HealthNet, a network based on digital radio and a low earth-orbiting satellite, provides a reliable, inexpensive way for people to share health-related information, even in areas where communication **is limited by** economic conditions, disaster, or a poor communications infrastructure (AAAS, 1994). It is administered by a Massachusetts-based organization called SatelLife. Ground stations, which send and receive messages, have been installed and made operational in Zambia, Uganda, Kenya, Tanzania, Zimbabwe, Mozambique, and the Congo (Abba, Giordano & Trumpy, 1992). Preparations have reached an advanced stage to extend the facility to Nigeria. The ground station will be located at the College of Medicine, University College Hospital, Ibadan.

- **Other Initiatives.** Some research institutes, organizations and individuals now have the cost of electronic communication facilities budgeted for in their research grants. For example, the Carnegie Corporation of New York has been funding scientific and technical information projects in Africa for some time now. One of such projects is the development of scientific databases and information systems at the University of Ibadan. At the 1993 meeting of the grantees, a communication network among the grantees was recommended by them (NRC, 1993). It was resolved that each grantee should include estimated costs for participating in the electronic network in their grant renewal proposals.

# Summary and Conclusion

Electronic communication is still very weak in Nigeria as only very few organizations and individuals make use of the facility. Even those that do so use it to communicate with colleagues abroad and not with those within the country. The major problems hindering the widespread use of electronic communication in Nigeria are a low-level of computing culture, poor telecommunications infrastructure, and a general lack of awareness. However, there are some interesting developments which point to the fact that it will not be long before Nigeria joins the global electronic village. Of these developments, the two key ones are the commissioning of the first X.25 Packet Switch Exchange in June 1994, and the extension of the project for Capacity Building for Electronic Communication in Africa (CABECA) to Nigeria. Though the implementation of such electronic communication projects in Africa have encountered problems (Adam & Hafkin, 1992; Hailu, 1992; Villars, 1992), the potentials of the use of the medium for enhancing socio-economic development are too enormous for any nation to be discouraged by initial problems; Nigeria should first get connected to the global electronic village and worry about the associated problems later.

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