

Community Networking Via Information and Communication Technology

Idam Eugene O.

Department Of Electrical Engineering,
Nnamdi Azikiwe University, Awka,
Anambara State, Nigeria.

T. Alumonna

Department Of Computer Engineering,
Nnamdi Azikiwe University, Awka,
Anambara State, Nigeria.

Madu Modestus

Department Of Works And Maintenance
Federal Polytechnics Nekede,
Owerri-Imo State, Nigeria

Abstract- Networking, one of the connecting channels that brought about the present globalization and serves as a means of bringing few people with common interest together in order to achieve common, as well individual goals is the main base for Information Technology. In the recent past it became the effective tool of transforming the world into a global village. The concept of bringing the world together was achieved via the global inter-networking of computers and other IT devices. In some other parts of the world like Nigeria, many are yet to discover the benefits of the networking at the basic level of internet or intranet. The intrinsic qualities of the new media would somehow naturally faster stronger relationships and stimulate rural community regeneration in Nigeria. This paper looks at the basics of networking and emphasizes the need to bring the knowledge to our rural communities as well encourage both public and corporate organization with the strength of a community to invest in, setup, run and maintain private intra – and inter-networks.

A INTRODUCTION

The word community in the context of this paper simply refers to a social system comprising of set or group, interrelated and interconnected by shared or common interests and mutual concerns, over a defined period of time.

The two concepts, set/group and relation are of course necessary and sufficient respectively to define the community. However, the time period is also a necessary factor defining the community existence at least to a level of significance.

Considering the rural community as a social group with an existing traditional practice, then we need to employ effective procedures with careful steps that would encourage them to transit to the current IT practice bearing in mind that traditions die-hard. The rural folks still have trust and of course honour their gong man, the market square congresses,

The modern IT, and evolving needs of the present civilization had its application initially targeted at aiding urban and industrial life. With the world now nearly a global village, the necessity has come to integrate the rural folks into the larger community. We have to bear in mind what it took to get the present level of IT awareness and utilization in the urban centres. Therefore, special attention should be taken to design programmes that would ensure careful transitions of the rural community.

Another group of communities whose interest is being considered in this paper are those based in the urban centers, even at the centre of the public institutions' control units. They have all the ICT means to form the units that make up for the set or groups, but the right interrelations and interconnections are either not there, not employed or not effectively utilized. These set or group under the influence of mere effects of institutionalized practice and tradition may even prove more difficult to change that those residing in the rural Nigeria using the existing or conventional methodologies.

From the above one can consider the following as an integral IT community:

- World made up of continents
- Continents made up of sub-regions/Nations
- Nations made up of regions, provinces
- Provinces made up of towns/villages
- Towns made up of streets/precincts
- Streets made up of families
- People working, and living in certain area
- People in an organization, working and communicating.
- Branch managers under general manager
- Officers in an organization, relating with division or unit heads
- Military commands (divisions, battalions, garrisons) under military headquarters

- Police, immigration, other social service whose units are tied to a central control administrative headquarters.
- As fallout of the Tunisia submit. Computers of various makes and other IT equipments are likely to start competing with other household appliances and related office equipments such as radio and television sets very soon both in the urban and rural areas.

It is therefore imperative that we consider transition programmes that would guarantee the following:

- Make it possible for the prospective users to have access to the right equipments at affordable costs
- Helps to allay fears and ensure a smooth transition.
- Avoid discouraging or disruptive scenarios.
- Builds up confidence and ensure that users become comfortable.

The advent of network technologies first in telecommunication, then in computer utilization many years back no doubt sowed the birth of the modern community integration. It can now be used to bring people with common interest and concerns together as social mobilization tools.

However, this paper focuses on the needs to encourage intra-networking along inter-networking. That is, the communities particularly the urban settlers, they should be encouraged to do and invest on both intranet and internet!

NETWORKING

The primary aim of introducing the network technologies years back was to promote resources sharing and distribution among group of people working towards achieving common goals. Today, it has become a veritable tool of integration. First, within small areas of coverage, now it has encompassed the whole world and even reached out into the space.

Network Levels

- **Private Networks:** Multi-user connections that can serve a restricted geographic area, usually less than 50 miles. This could depend on available transmission infrastructures.
- **Local Area Network (LAN):** A private network in which one or more computers can communicate with other computers or with peripheral devices. This indeed was the foundation of electronic mail and other message switching services.
- **Wide Area Network (WAN):** A physically expanded LAN devised to cover larger area.
- **World Wide Web (WWW):** This is the global network with the worldwide access. Also seen as the internet shop.

When configuring a network, there are variables or factors to be considered.

The most important are:

- **Data Transmission Medium:** This could be twisted-pair wire, coaxial cable or optic fiber.
 - a. Twisted-pair wiring uses copper wire similar to those used for home and office telephone connections. It supports only single-channel communication. That is, only one signal can be sent or received at a time. Where there is no need for multi-channel connections, transmission of large volume of text, graphic, or voice devices or communities spanning. Long distances, its cheap and ease of connectivity with the terminals.
 - b. Coaxial cable supports two types of transmission. Base band, the single Channel links that supports high speed data communications rates up to 10 million bit second. And broadband, the multi channel transmission links in which up to 30 different signals can travel over the cable at the same time.
 - c. Optic fiber is the fastest, with higher capacity for networking. It offers high degree of security from illegal tapping as well as total immunity from electrical interference.
- **Topology:** This refers to the physical arrangement of the computers or IT devices to enable them communicate with one another. A network could therefore be structured into bus (tree), ring or star topology.
- **Access Method:** The method by which users can access the network. It dictates the way in which the network shares communications time among the connected workstations.

In all, the organization prospecting to mount a network has to determine the protocol, and platform of the network after due consideration of all the prevailing factors such as security, users profile, timeliness, control and cost.

Intra-networking, Inter-networking

The words internet and intranet recently registered in the English dictionary were actually coined from the words inter, intra and network respectively. While internet refers to software connecting other networks, intranet refers to software used in private network(s) that maybe standing alone or connected to the internet.

Thus communication between workstations or terminals within a private network or an organization is therefore referred to as intra-networking, while between terminals from two or more separate networks or organizations require the internet software.

Community Wide Web (CWW)

The word web, a descriptive word used to qualify the interconnecting of computers and other devices worldwide (WWW) could also be applied to a community and as well connecting members of the community.

For instance, a family database containing information often required by every member of the family, if it is to justify its creation, it must be made available to every family member at any time.

Rural Communities in Nigeria

Majority of the Nigerian population (85%) live in the rural areas in abject poverty. They are primarily dependent on agriculture and related jobs. The situation in the rural areas is characterized by lack of ownership of land and other assets by the majority, few income earning opportunity especially in remote areas, the seasonal nature of agriculture production and uncontrolled unemployment syndrome. It is further governance structures, leaving the majority of the people without access to basic social services. By and large, the poor, disadvantaged by low levels of literacy and lack of power, are left out of decision-making processes. The rural areas are also typified by a high degree of fragmentation of markets and personalized, unequal relationships. Inadequate access to financial, political, natural and information resources leaves most of the rural people at the of subsistence. More ten 80% of the Nigerian population are unaware of the Nigerian government efforts towards joining the global village, via the Nigerian National Technology Policy.

The current economic reform of the Nigeria government has created a new set of rural dwellers. Some of whom are educated farmers with farm settlements. These corps of people no doubt would want to access IT facilities that would enable them to receive and send document, compute and enjoy entertainment.

The computer education program of the Federal Ministry of Education lunched about twenty years ago for the pilot schools needs to be reviewed and expanded to cover our entire public commence the registration of students for computer science in our secondary schools. Government and schools proprietors should be implored to furnish the schools with modem IT infrastructures, both for teaching and usage.

Campus Community

As it stands in most of our tertiary institutions, efforts are being made to train and retrain both academic and non-academic staff at senior cadre in IT literacy. Besides, lots of efforts had been made towards complete automation by the managements of these institutions which failed to yield effective results. This was largely due to wrong setups or bad philosophy. The right personnel may be coupled with wrong or inadequate resource. Where the resources are about being adequate, they may soon be packed up owing to lack of qualified personnel to utilize them or poor maintenance systems. With the increasing volumes of data and stressfully high degree of responsibilities weighing down on the shoulders of the officer cadres and the management to embrace complete automation with the right perspectives. For now, only few of our higher institutions could meet up with the order recently given by the Honourable Minister of Education on the issue of academic calendar. Among them are those that have started processing payment of school fees, sales of admission forms, admission placements, semester results listings, etc. on the internet. However, administrative and management trends within the campuses are still as usual.

- The library is still piled up with books on paper.
- Staff and students who can afford had to trek many meters to check for references.
- Messengers take hours, or even days to return applications or memos requesting approval for money or other resources.
- Memos arrive destinations days after effective compliance date or even get missing.
- Staff and students records database are being kept on manual files.

Our library while requesting for new books, journals or copies of the old ones could as well ask for the electronic copies on compact disc or any other storage media. Those downloaded from the cyber-source could also be maintained electronically. A database of such texts could be created and maintained on the library resource networks at distance locations.

To redress the problems of transacting applications and memos, all the offices can be intra-networked using the Appropriate software to drive the mails from sources to destination.

Also, application for admission can be processed and admission lists routed between the admission office and the departments without engaging any manual courier.

Staff and students records can be created, updated and maintained on the campuses community web using a dedicated network software that would ensure security and data integrity and other systems controls.

The campus community web could also serve purposes such as:

Effective communication medium between the management and the campus community.

From time to time both classified and other formal information can be placed on the community web.

Lecture notes, practical guides, inaugural lectures and other academic resources can be logged on also be place on the CWW for future references can be logged on the CWW for easy access by both students and other academic interests.

Backed up of generations of student seminar and project write-ups can also be placed on the CWW for future reference by students and others.

To evolve an effective CCW for a campus community, the management needs to encourage IT utilization at both operational and management levels of the institution. Each officer at the senior cadre should be encourage to win a system in his or her unit or department head's office. The unit or department heads office in turn intra-networked to the system in the division heads office; and finally those of division heads office to the chief executive.

The campus web database contents, access monitoring and control would be managed a committee of stakeholders in the management of the institutions.

Benefits/Future Implications

The current trend in provisions and utilizations of ICT facilities no doubt portends some future challenges both as individuals as well as groups in communities. In the recent past, it was common to hear “your future lies in your hand” expressing the belief that what you become in future depends on what you set your hands to perform now. We are now discovering the future that lies in the heads with brains that could source, collect, collate, validate or verify, process and finally manage large volumes of data and information from various sources.

The global inter-networking (Internet) as the popular medium of transaction has become a major subject of concern to many observers including the author of this paper.

Perhaps, one cannot help but think of a better option for the following:

Two dons whose offices are located at over 1 kilometer apart in same campus transacting or exchanging research materials.

Tutors officering instructional materials or guides students unable to make physical contact (as the case during year 2003 bird flu epidemic in China).

- Military or Security Service Chiefs dispatching logistics and orders to subordinates or commands avoiding the risks of sharing communication channels with public.

The future challenges may also involve Building Structural Designs Engineering. Our large and tall buildings may need to add to the existing electricity and water pipes networks, communication networks that ensure proper ultra-networking of every viable rooms. This ensures that communication terminals are always readily available for the occupants of the rooms to plug in and enter the local network at any time.

B CONCLUSION

Sustainable development hinges upon the rural communities own initiative and wisdom. Efforts from development activities can encourage the communities in activating their inner faculties so that they can determine their coping capacity to put up with ever changing and challenging situations.

In each community, the web database contents can be managed by the community IT stakeholders. Community informatics projects around the world would continue to provide innovative, impressive and creative uses of the new ICTs for fostering a diverse range of social works. The CWW can also serve as effective medium for mobilization of the community. This in turn would ensure effective social, economic and potential integration. However, based on the current belief that the power to live, succeed, progress, and dominate depends on how much information you can gather and manage, the CWW would no doubt serve as the open door to the future social and economic empowerment and as well an effective forum for poverty eradication in our society.

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The Author

Idam Eugene O. was born on 27th May, 1985 at Afikpo-North Local Government Area of Ebonyi State. He attended Government Secondary school, Afikpo where he sat and passed the West African School Certificate Examination in 2004. He studied Electrical Electronics Engineering Technology at the Federal polytechnics Unwana-Afikpo, Ebonyi State, Nigeria and graduated upper Credit in Higher National Diploma (HND). He is equally a postgraduate student of Nnamdi Azikiwe University, Awka, Anambara State, Nigeria. He loves researching and extensive reading.