

# The Role of Cybercafé in Bridging the Digital Divide

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## ABSTRACT

*Digital divide exists for those who do not have access and use Internet to fight the war against world poverty. Despite the remarkable advances in technology, more than 80% of the world population does not have access to telephone or Internet (Family Care, 2006). There are many international projects and efforts aimed at bringing the Internet to people in developing countries. Most of these projects are initiated and sponsored by international and governmental institutions. In this paper, we examine one way of bridging the digital divide based on private initiatives and yet yielding greater results and benefits to those who use it, to narrow the digital gap. There are over 100, 000 cybercafés in Nigeria. We examine the technology deployed and its advantage; discuss the operations of cybercafés in Nigeria and how they are helping to bridge the digital divide. The study involves a survey of cybercafés and the users of cybercafés. The result of the survey provides insight into what users of Internet in a developing economy use the Internet for.*

**Keywords:** digital divide, cybercafé, Internet, Nigeria, VSAT, economy,

## INTRODUCTION

The World Summit on Information Society in its declaration of principles, expressed its “desire to build a people-centered, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge”, and is “fully aware that the benefits of information technology revolution are today unevenly distributed between the developed and the developing countries” (WSIS, 2003).

Digital Divide is the term used for the unequal access to information and communication technologies by various communities. The digital divide exists at various levels between developed and developing nations. The implications of digital divide are very serious, because information and communication technologies propel economies of the rich countries.

In emerging economies, numerous projects have been launched to set up community access centers. Various strategies, actions and initiatives are being taken at all levels to bridge the digital divide. There are many international projects and efforts aimed at bringing the Internet to people in developing countries. Most of these projects are initiated and sponsored by international and governmental institutions. Despite all efforts, the digital divide persists, because of poor infrastructure among other factors resulting in inadequate access to affordable telephones, broadcasting, computers and Internet. (NEPAD, 2003)

The most overlooked solution to bridge the digital divide is the cybercafé phenomenon in the developing nations. The use of cybercafés to provide Internet access and connectivity to the populace is increasing and helping to close the digital divide. This study examines the cybercafé phenomenon, the technology deployed and its advantages, and how it is used to bridge the digital gap.

## LITERATURE REVIEW

The implications of the digital divide has been documented in several reports (ITU, 2001, USIC, 2000, Bridges.org, 2001, OECD, 2001, Flor, 2003). Internationally, ICT is concentrated in the industrialized countries with little ICT in Africa. It is estimated that USA alone has over 183 million telephone lines while the continent of Africa has about 20 million telephone lines (ITU, 2001). In terms of the Internet, in 2000, there were about 137 million people with access to the Internet in USA and Canada (USIC, 2000). Africa has an estimated 274,742 In-

ternet hosts with PCs shares of 7,558,000, representing 1.53% of the world total (Ya'u, 2002). By mid-2002, there were 1.7 million dial-up Internet subscribers in Africa with 1.2 million in North and South Africa, and the rest of Africa having about 500,000 subscribers (Jensen, 2003). In 2004, less than 3 out of every 100 Africans use the Internet compared with an average of 1 out of every 2 people in G8 countries. (ITU, 2004). In 2002, Nigeria has a 1,030,000 Internet hosts with 420,000 Internet users and a total of 853,000 PCs, with a population of about 125,000,000 (ITU, 2004).

Problems faced by Internet users in Africa are many. These include the cost of telephone connection to the Internet service provider, poor line quality slowing connection speed, frequent line drops, significant infrastructure problems and trained computers operators (Kenny, 2000). In his paper, Kenny (2000) discusses at length, the costs of Internet provision and access in Africa. Ya'u (2002) identifies four dimensions that affect the digital divide in Africa. These are the international dimension, the African's isolation from the cyberspace, the uneven distribution of telephone lines among African countries, the unequal access of ICTs between urban and rural people.

Schilderman (2001) believes that the establishment of sustainable ICT in developing countries is likely to take time and considerable efforts. The high cost of international bandwidth is a major constraint, with developing countries often having to pay the full cost of link to a hub in a developed country. Many developing countries have less than 10 Mbps of international Internet bandwidth (ITU, 2004). One of the challenges facing service providers in Africa is how to provide broadband connectivity in an unfriendly environment and make Internet connection affordable to the people. In most of the countries, the cost of one hour of Internet access can wipe out a day's wage.

There are many recent technological innovations that make ICT cheaper to the people. One of them is the VSAT technology, used for interactive voice and data broadcasting (Hudson, 1999). However, the reduction in the cost of Internet connection is not enough to reduce the digital gap. A new public access regime is needed. A Cybercafé provides a regime that provides both cheaper connection and easy access to Internet.

There is little research on what cybercafés are used for and who use them. (Callon, 1987). Since the early 1990, a number of people have undertaken researches on cybercafés (Wakeford, 1999). Stewart (2000) addresses the role of cybercafés in the general development of use and knowledge about multimedia and concludes that cybercafés are for technical access, for consumption of multimedia and serve as community and cultural spaces. Internet cafes are located world-wide and people use them to access web mail because it is more affordable than personal ownership of equipment.

The concept and name of Cybercafé was invented in 1994 by Ivan Pope in a proposal outlining the concept of a café with internet access from the tables. Inspired by this proposal, a cybercafé called Cyberia was opened on September 1, 1994 in London, England. In 1995, the first cybercafé was opened in East Village, New York City. (Sonia *et al.*, 2003). There are over 100, 000 cybercafés in Nigeria. (The Guardian, 2006). Adomi (2005) did study the effects of a price increase on cybercafés in Abraka, Nigeria. But there is no reported study of the extent of the contribution of cybercafé in bridging the digital divide in a developing country.

## THE STUDY AND METHODOLOGY

The study objectives are to determine the contribution of cybercafé in making Internet accessible to many people in a developing economy and to examine the patronage of cybercafés. The study also examines the various types of users of

cybercafés in terms of their professions and what they use internet for, while in the cybercafés. The study covers the surveys of cybercafés in Ibadan and Lagos, and a survey of users of cybercafés in the two cities. The two cities are selected because of their prominence in terms of Internet diffusion. Lagos is the commercial capital of the country with all major commercial activities. The population of Lagos Metropolitan is about 12 million. (Census, 2005). Ibadan is the major educational center with the first university in Nigeria, a prominent Polytechnic and a large student population.

The study also investigates the type of users of cybercafés and what they use the Internet connections in the cybercafés for. A questionnaire was designed and administered at about twenty cybercafés. Each user-client was given a questionnaire to complete as he/she comes into the cybercafé. Seven hundred questionnaires were distributed. Five hundred and forty-eight users were completed and returned the questionnaires. This represented about 78 percent that can be considered good for analysis (Babbie, 1979).

Part of the survey is for the users to rank reasons for using cybercafés and to rate the reasons. A rating between 1 and 5 indicates the nearness to most important or least important a reason is to the user. A questionnaire on rating important reasons is the traditional data collection tool which does not force respondents to confront the relationships between the reasons (Margado, *et al*, 1999). Rating method is used because important reasons could be termed to be homogenous considering the level of economic, political development and the environments within which the cybercafés operate. Rating is also used because it allows the evaluation of one reason at a time rather considering all reasons simultaneously. Simple descriptive statistics such as means are used to determine the ratings of the important reasons (Pinsonneault, *et al*, 1993).

## RESULTS

The first observation of the cybercafés is the fact that no beverage is served in any of them. This is contrary to what is available in a typical cybercafé in Europe, Canada or U.S.A. A cybercafé in this study is purely an Internet center where a user can connect to the Internet. The center is also used to send and receive fax messages and to make telephone calls, especially, international long distance calls. Another observation is the fact that high tariff of dial-up connection for long distance and international calls makes it not feasible to use telephone dial-up facilities for Internet connections. It is also discovered that all the cybercafés

surveyed use the same technology, VSAT, because it provides access to Internet at a cheaper rate to the users. VSAT technology is used for interactive voice and data broadcasting (Hudson, 1999).

VSAT (Very Small Aperture Terminal) is a device used to receive satellite transmissions. The “very small” component of VSAT refers to the size of the dish antenna mounted on a roof or wall or placed on the ground. The first component of a VSAT is the outdoor unit made up of the antenna, the low-noise blocker (LNB) which receives the satellite signal and the transmitter which sends signals. The second component is the indoor unit which is a PC containing receiver and transmitter boards and an interface for communicating with the existing in-house equipment – LANs, servers, and PCs. Connecting the indoor unit to the outdoor unit is a pair of cables.

VSAT is not limited by the reach of the cable since it can be placed anywhere that is the view of the satellite. VSAT is capable of sending and receiving all sorts of video, data and audio content at the same speed no matter the distance from the switching offices and infrastructure. VSAT technology is cost effective and provides quick implementation. Maintaining VSAT is limited to yearly maintenance.

A typical VSAT in a cybercafé has the following equipments;

- A 1.8 or 2.4 meter dish with 4W BUC and a satellite receiver mode for C-Band or KU-Band.
- A wireless access point and bridges
- 128/256 or 256/512 kbps bandwidth
- A server with appropriate operating system and other softwares for network administration and administration. Examples of the softwares are Windows NT, LINUX, Mikrotik, and Cyberclock

The cost of a VSAT start-up package, as revealed by the investigation, is shown in Table 1 in U.S. dollars.

The minimum computers available in a cybercafé surveyed are 10. While most of them have about 20 systems, one in particular has 30 computers connected to the VSAT. The connection fee is one hundred naira for an hour payable by a user (about \$1.00). It is less than \$1.00 if the user comes in after 10.00 p.m. The average number of clients in a cybercafé is 200 per day. If we considered that the number of Cybercafés across the country is 100,000, (The Guardian, 2006) then we have about 20 million people connecting to Internet daily. This represent about 16% of the population.

Table 1. Cost of VSAT installation

Purchase Options	Personal	Professional	Corporate	Commercial
Lease Purchase – 8 Months	1,800.00	2,500.00	4,500.00	9,100.00
Lease Purchase – 12 Months	2,000.00	3,000.00	5,200.00	10,000.00
Full Purchase	5,000.00	5,500.00	8,000.00	10,500.00
Bandwidth	32/128	64/256	128/256	128/512
# of Terminals Supported (Max)	5	10	20	30+
# of Voice Parts	1	1	1	1

Note: All start up packs include: Complete Indoor and Outdoor Equipment, 4 months bandwidth, quarterly software and maintenance installation charges. (Koochi Communications, 2004)

Table 2. Type of users by age-group

Age-group (Years)	Businessmen	Workers	High Sch Student	Univ./Poly Student	Professionals	Total
10-18	0	0	35	0	0	35
19-25	15 (4.3%)	92 (26.1%)	0	245 (69.6%)	0	352
26-30	52 (58.4%)	2 (2.2%)	0	15 (16.9%)	20 (22.5%)	89
Above 30	0	0	0	0	72	72
<b>Total</b>	<b>67</b>	<b>94</b>	<b>35</b>	<b>260</b>	<b>92</b>	<b>548</b>

Table 3. Internet applications

Internet Applications	Percentage of Users
Chatting	74.8
E-mail	89.2
File Transfer	33.4
Research	53.5
Shopping	7.5
Information	69.3
Education	20.3
Others (entertainment, etc)	8.8

Table 4. Time connected to Internet

Age-Group	Average Time (Hrs)
10-18	2.19
19-25	2.50
26-30	2.66
Above 30	2.04

Table 5. ICT equipment usage

ICT Equipment	Percentage of Users
Telephone service	62.2
Mobile/Cell phone	80.7
Text/SMS Usage	63.7

Table 6. Reasons for using cybercafés

Reasons for using Cybercafés	Mean	STDV
Ease of using cybercafé	1.74	0.834
Cost of ISP Services	1.78	1.042
High Telephone charges	1.90	1.004
Affordable Cybercafé Services	1.93	0.872
Cost of Computers – expensive	2.14	0.924
Unreliable telephone services	2.33	1.380
Unreliable Power Supply	2.54	1.318
Lack of Computer Technicians	2.82	1.450

The study finds that 64.2% of the users of cybercafés are in the age-group 19-25 years, 16.2 % are in the age-group of 26-30 years, 13.1% are above 30 years old. Only few, 6.4% are in the age-group of 10-18 years. In the terms of the types of work the users do Table 2 shows the age-group by job types.

Eighty-seven percent of the respondents use computers at least once a week, with about ninety-two percent of the respondents use the Internet at least once a week. Of those connecting to the Internet, about eighty-six percent are connected for at least two hours at a time. Most of the users, 89.2% use the Internet for e-mail. Table 3 shows application areas of the respondents.

On the length of time connected to the Internet, the average connecting time by a user is 2.89 hours. Table 4 shows the average time connected to the Internet at a sitting by age-groups.

If the uses of other ICT (information and communication technology) equipments are considered, Table 5 shows the percentage of the respondents who own or use the specific equipment and/or application.

Table 6 shows the ranking of the reasons why people use the cybercafé, from the most important using mean ratings and their standard deviations. The lower the mean of a reason the more important it is to the users. The higher the mean of a reason, the least important is the reason for using cybercafé. The standard deviations indicate the variability of the means – the higher the standard deviation of a given reason, the lower the level of agreement among the respondents on the issue

## DISCUSSION

In discussing the results of this study, the following interrelated factors, adapted from Peters (2003), are applied to determine the effective utilization of Internet by the people:

1. Physical Access: The VSAT technology has made Internet available and accessible to many people
2. Appropriate technology: VSAT technology is appropriate to the local needs and conditions. There is little dependence on infrastructure, especially, power supply.
3. Affordability: Internet through VSAT technology is affordable to the people. The rate of one hundred naira (less than US\$1.00) per hour makes it very affordable to the people. This rate is far less than the hourly rate of \$5.40 for Nigeria in 2004 (Daub, 2004). Affordability is important in increasing the number of customers of cybercafé. A change in price regime usually exhibits this fact. (Adomi, 2005)
4. Socio-cultural factors: People are not limited in their use of Internet based on gender and religion. However, one noticeable factor is the paucity of the number of females using the cybercafés. Women have not taken advantages of opportunities available on the Internet.
5. Trust: It is not possible to determine the confidence of the people in the technology in terms of privacy, security or cyber crime. This is because few users use the Internet for any financial transaction
6. Legal and regulatory framework. There are no laws and regulations limiting the use of Internet.
7. Local economic environment: There is presently no local economic environment favorable to the use of Internet. But most institutions that required one kind of registration or other are now encouraging people to online or to make available information about their organizations.

This study reveals several things regarding the cybercafé phenomena. It shows that many people, hitherto, unrecorded, use the facilities in the cybercafés. While efforts are being made by institutions to close the digital divide, greater efforts are currently being undertaken by private individuals to close the divide. It is not uncommon to hear people who have no access to Internet to talk about receiving “mails” through Internet.

The age-group of users of cybercafés indicates that the youth of the country are now conversant with the Internet. This points to the fact that in the very near future, this group will continue to use the Internet

## CONCLUSION

If the digital divide is to be bridged, efforts such as the establishments of cybercafés by the private entrepreneur should be encouraged by the governments. This study reveals that the private can do more to bridge the gap than the public sector. The operations of cybercafés indicate sufficient understandings of local needs and conditions and attempts to satisfy these needs through market forces. More people are connected to the Internet than before because of the operations of cybercafés. More people are now empowered in developing countries to overcome development obstacles.

This study is an initial effort to investigate the cybercafé phenomena and the VSAT technology to bridge the digital divide. In the near future, the results of the study shall be compared with similar study in other developing nations so as to understand the differences among the needs of Internet users. In addition, future researches can examine the economic impact of cybercafé in the local economy, and cybercafé and knowledge management in a developing economy.

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