

**ASSESSMENT OF THE PROSPECTS OF GLOBAL SYSTEM FOR
MOBILE COMMUNICATION (GSM) IN A DEPRESSED ECONOMY (A
CASE STUDY OF EKITI STATE)**

Okereke C. O.*

Department of Electrical/Electronic Engineering, The Federal Polytechnic Ado-Ekiti, Ekiti
State, Nigeria.

Article Received on 05/06/2018

Article Revised on 26/06/2018

Article Accepted on 17/07/2018

***Corresponding Author**

Okereke C. O.

Department of Electrical/
Electronic Engineering, The
Federal Polytechnic Ado-
Ekiti, Ekiti State, Nigeria.

ABSTRACT

Many nations of the world are battling daily trying to meet the needs of its citizenry. The situation in Nigeria is so hard that getting daily meal amidst dwindling economy has become so frustrating. No job for the young graduates, huge business losses incurred on a daily basis as a result of bad roads which has indirectly assisted the armed robbers to

disposes the the travellers of their valuables including business money; inadequate finance, inadequate educational infrastructure, poor communication and a host of other challenging issues leading to depressed economy. The foundation of human culture and society has always been communication. The importance of communication cannot be over emphasized for it forms a vital tool on which human race exists. This paper discusses the prospects of GSM in a depressed economy. Data for this paper was obtained through personal interview of subscribers and questionnaires which was administered to three major towns in Ekiti State Nigeria. The data obtained was analyzed using percentage and bar-charts. The result of the study showed that GSM has positive impact on the user, in terms of improved communication, business expansion and hence improved economy.

KEYWORDS: Communication, Prospect, GSM networks, depressed economy, Subscribers.

I. INTRODUCTION

The pace of change brought about by Global system for Mobile Communication (GSM) has had a significant effect on the way people live, work, study and interact worldwide. This emerging technology since its inception has added and increased access to information technology (IT) in the home, at work and in educational establishment (Elegbeleye 2005). Looking at life in general, before the advent of GSM gives one a clear understanding of the positive impact of GSM on individual lives in particular and the society in general. This new technology has improved the life of common people in different ways, cutting across every facet of life (Omeruo, 2007). This includes complete change in the way business is executed in Nigeria, which extends to e-learning. The Emergency of GSM also brought about proliferation of new Information and Communication Technologies (ICT) which has introduced an unstoppable revolution into education particularly in the area of teaching and learning, making distance learning possible and cost effective. (Ekejiuba, etal 2015). Presently in Nigeria, the dreams of many people have come through, following the emergency of National Open University (NOUN). Apart from its positive impact on the nation's economy, GSM also facilitates emergency medical assistance; long distance consultation; and quality assurance to remote locations; easing the cost of providing medical care throughout the nation (Ekejiuba and Adebayo, 2016).

GSM is the most popular standard for mobile phones in the world (Ekejiuba, 2016). GSM association estimates that 85% of the global mobile market uses the standard and it is used by over 7.7 billion subscribers worldwide (Statista, 2018).

Mobile connections including licensed cellular IOT as of April 2018, approximately stands at 8.5 billion, and unique mobile subscribers being 5 billion, with revenue generation in 2017 financial year put approximately at 1 Trillion (GSMA Intelligence 2018).

Global system for mobile communication is a digital system based on a narrow band, Time Division Multiple Access (TDMA) technology, this choice was based on spectra efficiency, subjective voice quality, cost of mobile unit, ability to support new services, feasibility of a band portable mobile unit, cost of a base station and ability to co-exist with existing systems (Dunlop and Smith, 1998).

Jekins (2004), in his report to GSM Association on the economic contribution of mobile service, opined that, "the deployment of GSM has helped to bridge the gap digital divide and

bring modern telecommunication service to chronically underserved communities in Africa, Asia and Latin America'. The report examines the impact that GSM can have in developing nations'.

History of GSM Technology in Nigeria

As reported by Nigerian Communication Commission (NCC), (2007), GSM made its first appearance in Nigeria in 2001, when ECONET wireless (Now Airtel), MTN and MTEL (a subsidiary of Nigeria Telecommunication (NITEL) were awarded licenses by NCC. Prior to GSM, Nigerians could not boast of an effective system of communication and had only 450,000 lines to a population of over 120 million. However, the entrance of GSM technology has brought about such a revolutionary transformation that millions of Nigeria's with no access to telecommunication now use mobile phone in their homes.

Today, GSM phone is now in almost every palm, pocket, handbags, offices, schools, shopping centres, beer parlours and a host of other areas (Atajeroamiwo and Oberobe, 2007).

Information and communication technology can generate employment both directly and indirectly, thus reducing unemployment. This is evident with the introduction of GSM; thousands of Nigerians are working in the telecommunication companies like the Mtn Ng, Glo Ng, Airtel and Etisalat. Many Nigerians today are making their living through the sales and services of handsets and its' accessories, SIM packs and some have commercial centers where people can make calls and browse (Ogundipe, 2006). Nowadays cashless transactions have been made easy and possible through the advent of GSM thus reducing loses but increasing efficiency safety and productivity.

Structure of a GSM Network and how it works

The GSM network is divided into three major systems. These systems include: the network sub system (NSS), the base station (BSS) and GPRS core network (Wikipedia, 2015). GSM is a cellular network which is made up of a large number of signal areas called cell. A large coverage area is achieved through cells integration or overlapping (Mobile Network Guide, 2018). Since adjacent cells use the same frequencies, there is possibility of hand offs. Hand offs allow the mobile telephone to communicate simultaneously with two or more cells. The best signal is selected until the hand off is complete (Ekejiuba and Adebayo, 2016). In the TDMA system, frequency planning is very crucial, so as to avoid interference of cells with

one and another which is a big challenge in telecommunication industry affecting efficiency in service delivering.

Within each cell is found a base station or mobile tower. Base station is responsible for handling traffic and signaling between mobile phone and network switching subs system. Its functions include: speech channel trans-coding, paging, allocation of radio channels to mobile phones, quality management of transmission and reception over the air interface and all other radio network (Ekejiuba, 2016). The base stations are connected to a digital exchange where the communication is sent to other telephone or data network. The higher the population density the more base stations needed for improved quality of service (OoS) (Mobile Network Guide 2018).

III. MATERIAL AND METHOD

The data used for this study was obtained through personal interview of subscribers and administration of questionnaires. The survey was carried out by administering a well-structured questionnaire to mobile telephone subscribers, operators and professionals in the field. A total number of 400 copies of questionnaires were distributed among three towns in Ekiti State, Southwest Nigeria. Ado-Ekiti being the state capital and Ikere Ekiti is one of the populous towns in the state. The questions were based on the impact of the four GSM networks in Ekiti State on their income, business and education enhancement. These networks are MTN, GLOBACOM, Airtel and Etisalat. The number of questionnaires distributed to each of the town with its percentage is shown in table 1. The percentage distribution is based on the population of individual town. Out of the number administered, 388 questionnaires were returned by the respondents making 97% of the total questionnaires administered as shown in table 1.

Table 1: Distribution of Questionnaires.

Town investigated	No of questionnaires distributed		No of questionnaires returned	
Ado-Ekiti	200	(50%)	194	48.5%
Ikere-Ekiti	150	(37,5%)	146	36.5%
Ire-Ekiti	50	(12.5%)	48	12%
Total	400	100%	388	97%

Chi-square

Ire Ekiti has the least because of urban migration of youths for education and greener pasture.

Table 2: Age range of the Respondents.

Age	Ado-Ekiti	Ikere Ekiti	Ire Ekiti	Total	Percentage %
16 – 25	41	44	04	89	22.9
26 – 35	59	40	08	107	27.6
36 – 45	35	26	08	69	17.8
46 – 55	30	20	10	60	15.5
56 – 65	21	12	12	45	11.6
66 – 75	08	04	06	18	4.6

Table 3: Income Level of Respondent.

Income Level	Ado-Ekiti	Ikere Ekiti	Ire Ekiti	Total
Low	48 (24.7%)	41 (28.1%)	14(29.1%)	103
Middle	73 (37.6%)	75 (51.4%)	25(52.1%)	173
High	40 (20.6%)	17 (11.6%)	6(12.5%)	63
Indifference	33 (17.0%)	13 (8.9%)	3 (6.3%)	49
Total	194	146	48	388

Table 4: Result of Increment in Income in Percentage.

Factor	Ado-Ekiti	Ikere Ekiti	Ire Ekiti
GSM	85.7	75.0	72.3
Others	14.3	25.0	27.7
Total	100	100	100

Table 5: Effect of GSM on Business in percentage.

Have you encounter any positive change in your business	Ado-Ekiti	Ikere Ekiti	Ire Ekiti	Total
Yes	68.2	71.4	69.2	69.6
No	18.2	22.2	24.6	21.6
Indifference	13.6	6.4	1	8.8
Total	100	100	100	100

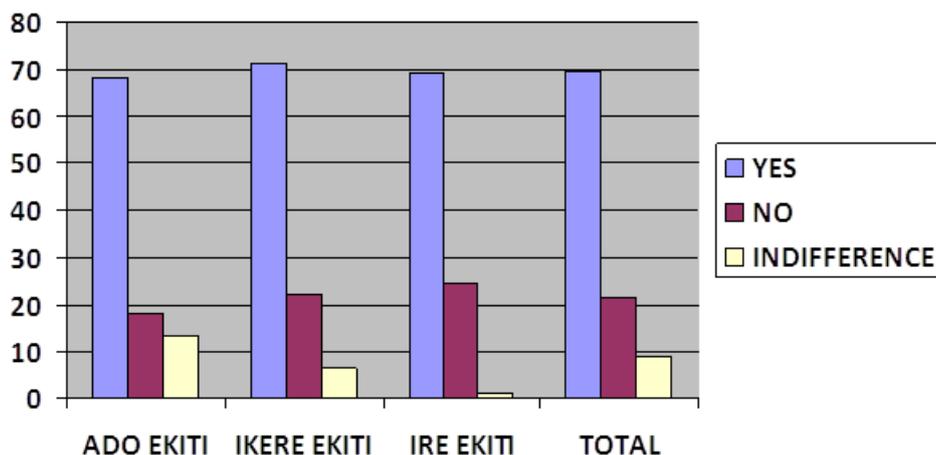
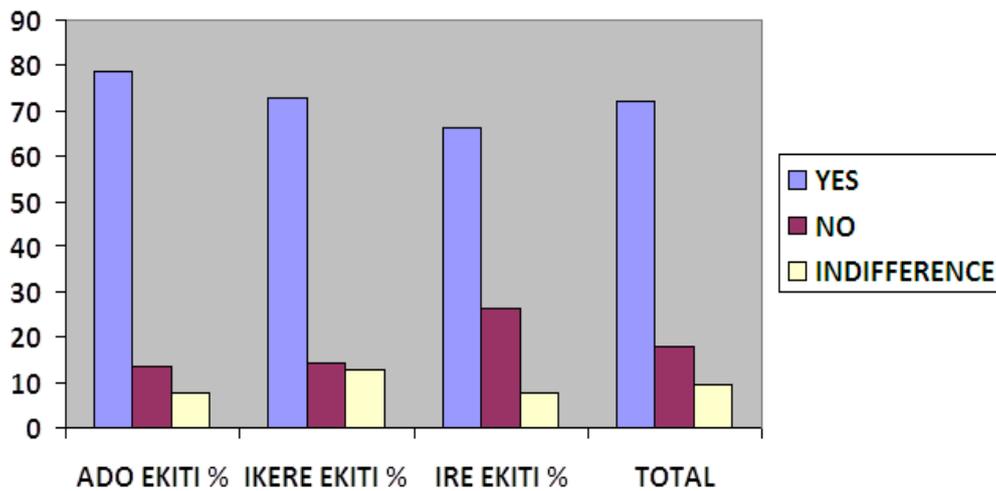


Table 6: Business Enquiry through GSM.

Do people make enquiry about your business through GSM	Ado-Ekiti %	Ikere Ekiti %	Ire Ekiti %	Total %
Yes	69.7	71.4	69.3	70.1
No	21.2	19.1	23.1	21.1
Indifference	9.1	9.5	7.7	8.8

Table 7: Improvement on Communication and knowledge Enhancement.

Has GSM improve your communication and widen your knowledge	Ado-Ekiti %	Ikere Ekiti %	Ire Ekiti %	Total %
Yes	78.8	73.0	66.2	72.7
No	13.6	14.3	26.3	18.0
Indifference	7.6	12.7	7.7	9.3



IV. RESULT AND DISCUSSION

The results of the findings are as shown in tables 2 to 7. Table 2 shows that the greater number of the subscriber falls within the student and work force age that is age 16 to 55 across the selected study area. Tables 3 to 4 shows the income level of the respondents and those on middle income being the highest with 73%, 75% and 25% respectively in all the towns investigated and these was also shown using bar charts. The increment in their income was attributed to the introduction of GSM as unfruitful trips are no longer embarked on and less hazardous business trips are achieved as most business transactions are now done online which is cheaper and safer. Information are disseminated at lesser cost, knowledge enhancement are achieved even within the comfort of ones house as shown in tables 5 to 7.

CONCLUSION

The introduction of Global System for Mobile communication (GSM) has positive impacts on the lives of users. This cut across almost every spheres of life ranging from improved state of economy of the user to his communication skill. The result of the findings showed that the availability of GSM in a town has positive impact on the economy of users. It also provides services such as Short message Service (SMS), General Packet Radio Service (GPRS) and Multimedia Message Service (MMS). Finally, GSM has been a contributing factor to the increment in income of user using it for business and has also empowers business hence; GSM can be seen as a positive contributor in a depressed economy in a nation like Nigeria.

RECOMMENDATION

It is recommended that for individual subscriber and society at large to enjoy the benefits brought about by GSM, a standard law should be enacted which will enhance the continual functionality of GSM network. This can be done if:

- i. Government should enact policies on telecommunication bills which will ensure competition, regulations, for social and economic development.
- ii. Policies that will encourage more investors should be formulated by government,
- iii. Service provider should bring about reduction in tariff for special service provided such as general Packet radio Service (GPRS), SMS and MMS which will improve socio-economic state of the community.
- iv. Service provider should upgrade existing infrastructures.

REFERENCES

1. Atajeromawwo, E.J. and Obenebe, I. Information and Communication Technology (ICT) Development for Economic Reform in Nigeria. Proceedings of 3rd Engineering Forum, School of Engineering the Federal Polytechnic Ado- Ekiti, Ekiti State Nigeria, 2007; 39-42.
2. Dunlop, J. and Smith, D.G. Telecommunications and Engineering. Stanley Thornes Publisher Ltd United Kingdom, 1998; 541-557.
3. Ekejuiba, C.O. "Comparative Analysis of Cost Effective of Powering GSM Base Station with Solar Energy for Economic Benefits (Case Study: Ekiti State)" International Journal of Scientific and technical research in Engineering (IJSTRE), 2016; 5: 17 – 22.

4. Ekejiuba C.O. and Adebayo, A. A. “Improving Service Delivering of Telecommunication Industry. A Panacea to Economic Challenges Facing Nigeria International Journal of Scientific Engineering and Applied Science (IJSEAS), 2016; 2(6): 101–106.
5. Ekejiuba, C.O., Adebayo, A.A and Adeoye O.S. Assessment of GSM Network, Failures, Quality of Service Evaluation and Its impacts on E-Learning” international Journal of Scientific Engineering and Applied Science (IJSEAS), 2015; 1(5): www.ijeseas.com.
6. Elegdeleye, O.S. Prevalent Use of Global System of Mobile Phone (GSM) for Communication in Nigeria; A break through in Interactional Enhancement or a Drawback? Nordic Journal of African Studies, 2007; 14(2): 193-207.
7. Gsm Association, Gsm World Statistics, 2007. <http://www.gsmworld.com/gsmstats.html>.
8. GSMA. Intelligence, Definitive Data and Analysis for the Mobile Industry, 2018. <http://www.gsmaintelligence.com>.
9. Jekins, G, The Economic Contribution of Mobile Services. A report to the GSM, 2004. Association, <http://www.gsmworld.com/using/public.policy/esh/index.html>.
10. Mobile Network Guide, “Improving Mobile Signal”, 2018. www.mobilenetworkguide.com.
11. Ogundipe, O. M., The Application of information and communication (ICT) in the Millenium Development Programme. Proceedings of 2nd Engineering Forum, School of Engineering the Federal Polytechnic Ado- Ekiti, Ekiti State Nigeria, 2006; 73-77.
12. Omeruo, K. The Impact of GSM Mobile Phone on Nigeria. Ezines Articles, 2007. [http://ezinearticles.com/?theimpact-of-gsm-mobile-phone-on-nigerias\\$Id=516198](http://ezinearticles.com/?theimpact-of-gsm-mobile-phone-on-nigerias$Id=516198).
13. Statista, Technology and Telecommunication. Number of Mobile (cellular) subscriptions worldwide from 1993 to 2017, 2018. <https://www.statista.com/statistics/262950/global-mobile-subscription-since-1993>.