INFORMATION REQUIREMENT FOR RURAL DEVELOPMENT THROUGH TELECENTRE IN KADUNA STATE, NIGERIA

STATE THE

A Project Submitted to the College of Arts and Sciences in Fulfillment of the

requirements for the degree of Master of Science

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Universiti Utara Malaysia

By

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Abstract

Rural information telecentre content play major a role in information dissemination for the rural farmers. Telecentre information content system is a device in ICT that used to alert rural people to know what is going on in the community and updating them about improvement in their daily activities livelihood. This research work address the objectives of user requirement needs for rural ICT, in community development centers in south and north of Kaduna Nigeria. General research method was used. The prototype of telecentre content system was developed with the use of PHP, Java script for the programming language and micro media directory, Xamp as well as *Adobe* Photoshop. Ten people tested the usability of prototype. The developed telecentre content system brings about adequate information about their daily need when compare to previous way of life and improve the rural farmers to have basic knowledge in using computer. With the use of this device, positive turn around will manifest in Kaduna rural livelihood and increase in income level through market information alert.

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1.0 Introduction

Information and communication technology (ICT) is an indispensable tool of the contemporary world. In fact, culture and society have to be adjusted to meet the challenges of the knowledge age. The advancement of ICT has brought about rapid technological, social, political and economic transformation which eventuated in a network society organized around (Castells, 1996). In addition, the development and proliferation of interconnected computers on a global scale has made the world to become compacted through telecenter and development of rural ICT. The quantum leap and advancements witnessed in recent times in generated tremendous wealth and economic prosperity in many countries around the world. The field of ICT has transformed virtually every facet of human activities and has

ICT have general impacts on all aspect of society whether rural or urban. Its impact has succeeded in molding the world and developing countries including Nigeria. VanBorn (2004), stated that the changing phases of most societies is influence by ICT in general and internet connectivity in particular. Yapa (2008), submits that the advancement of any nation today is measured by the degree to which its citizens have access to information communication technology

Moreover, mere non implementation of information and technology policy in Nigeria serve as one of the greatest impediment to achieving any ICT programmed in the country. In 2001, IT Policy is implemented during the establishment of a National Information Technology Development Agency (NITDA), but not well grounded in its implementation this is due to

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REFERENCES

- Asmi, Y (2008). Integrated Rural Development: the Ethiopian Experience and the Debate: Scandinavian Institute of African Studies, Uppsala, Sweden
- Baron, L. F.(1999). Experiements in Community Access to New Communication and Information
- Biswas, S. (2001). Digital Empowerment: Seeds of E-Volution, in Outlook India, April 9, 2001 edition. Published available at http://www.outlookindia.com/archivecontents.asp?fnt=20010409
- Brain, E., Whitacare, P., Hartman, S. & Boggs, W. (2007). *The economic impact of Telemedicine Capability:* A Rural Hospital. December 2007. Retrieved from: www.ruralhealthworks
- Burnt., P.V and Kinnucan, M.T.(1995). Information Models and Modelling Techniques for Information Systems. Annual Review Information Science and Technology (ARIST), (25) pp175-208

Castell, M. (1996). The Rise of the Network Society. (2) Oxford: Blackwell Publishers.

Chapman, R,Slaymaker,T and Young, J.(2007). Livelihood Approaches to Information and Communication in Support Rural Poverty Elimination and Food Security. Pp23-34

Dahms, M.(1999). For the Educated People Only. Reflections on a Visit to Two

- Dandar, N. (1999). Establishing a Public Internet Centre in Rural Areas of Mongolia, in Telecentre Evalaution: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/html/main.html
- Day, P and Harris, K. (2010). Down to the Earth Vision: Community Base IT Intiative and Social Inclusion
- Delgadillo, K., & Raúl B. (1999). Learning Lessons from Telecentres in Latin Development in Senegal: An Overview. Paper available at America and the Caribbean, in Telecentre Evaluation: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/html/main.html
 - http://www.unrisd.org/cgibin/dnld1.pl?filename=infotech/sagnaeng.pdf:385.5k&thisp ge=infotech/publicat/publ.htm&filetitle=Information+and+Communications+Techno ogies+and+Social+Development+in+Senegal
- Ducatel, K and Halfpenny, P. (1993). Telematics for Community? An electronic Village Hall for East Manchester. Environment and Planning C: Government and Policy (11) 367-379

- Fuchs, C., & Eva, H. (2008). Africa and the Digital divide. Telematic and Informatic 25 (2008) pp 99-116
- Fuchs, R. (1998). Little Engines That Did: Case Histories from the Global Telecentre Movement
- Gomez, R. P., Hunt, & Lamoureux. E.(1999). *Telecentre Evaluation and Research*: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/nn/06_Tel
- Goodman, D., & Watts, M.(1997). Globalizing food: Agrarian questions and global restructuring
- Goodman. J. (2005). Linking Mobile Phone Ownership and Used to Social Capital in Rural South Africa and Tanzania, Vodafone Policy Paper Series (3) pp53-68
- Graham,S,(1992) Best practice in Developing Community Teleservice centres. Published by the centre for Applied Social Research,Faculty of Economic and Social Studies. University of Manchester
- Harris, R, M, and Dwedney, P.(2001). Barriers to information: How formula help systems fail battered women, westport, Connecticut; Greenwood publishing Group
- Holmes, R.(1999). Gender Analysis of Telecentre Evaluation Methodology, in http://www.idrc.ca/telecentre/evaluation/html/main.html http://www.telecentros.org.mz/relator.htm
- Harris, Roger W,(2004) Information and Communication Technologies For Poverty Alleviation.Kuala Lumpur: UNDP-APDIP, 2004
- Hunt, P.(2001). *True Stories*: Telecentres in Latin America and the Caribbean, in the Electronic Journal on Information Systems in Developing Countries, Volume 4. Published available at http://www.is.cityu.edu.hk/ejisdc/vol4.htm
- Information System. (2011). All about Information System and its Application. Retrieved on January 30, 2011 at http://en.wikipedia.org/wiki/Information system
- IICD. (2006). ICTs for Agricultural Livelihood: Impact and Lessons Learned from IICD Supported Activities. Retrieved on June 24, 2006 at http://www.ftpiicd.org/file/publications/IICD-agric-impact-2006.pdf
- Intven, H., Jeremy O., & Edgardo S. (2000). *Telecommunications Regulation Handbook*, (ed.) Hank Intven. The World Bank: Washington, D.C. Published available at www.infodev.org/projects/314regulationhandbook
- Jensen, M.(2005). The Wireless Toolbox: A guide to using low cost Radio Communication System for Telecommunication in Developing Countries-African Perspective .IDEC.January,2005. Litrature online.

- Joseph, L. (1999). *Telecentre Evaluation*: A Tele-community Perspective, in Telecentre Evaluation: A Global Perspective
- Kayatekin, M. S., & Ayse K. (1997). (Eds.), Observations on some theories of current agrarian change. Review of African Political Economy, 25(76), 22–30
- Kyabwe, S., & Richard. (1999). Buwama and Nabweru Multipurpose Community Telecentres: Baseline Surveys in Uganda, in Telecentre Evaluation: A Global Perspective
- Macome, Esselina & Carlos Cumbana. (2001). Assessment of the Manhica and Namaacha Pilot Telecentres Year One
- Manir, A.K. (2009). Access to Information: the Dilema for Rural Community Development in Africa. *Paper Presented in GLOBELICS Daka*
- Meera, S.N., Jhamtani, A. and Rao, D.U.M.(2004). Information and Communication Technology in Agricultural Development: A Comparative of Three Projects from India. *The Agricultural Research and Extension Network Paper 135*
- Munyua, H. (2005). Information and Communication Technologies for Rural Development and Food Security: Lesson from Field Experience in Developing Countries. SD Knowledge: Communication for Development
- Oliver, S. (2009). *Knowledge Solutions: Watching and monitoring*. February 13, 2010. From www.adb.org/knowledge solutions. Readiness for the Networked. World glossary. http://cyberlaw.havard.edu/readinessguide/glossary.htmml. United Nations Development Programme (2007)
- Oyelaran, O., & Nyaki, B. (2010). *Internet Access in Africa*: Empirical Evidence from Kenya and Nigeria. Telematics and Informatics 21 (1), pp 67-81
- Parkinson, S. (2005). Telecentre Access and Development: Experience and Lessons for Uganda and South Africa. International Development Research Centre, Ottawa
- Prekop, P. (2005). A Qualitative Study of Collaborative information seeking. Journal of Documentation. Vol. 58, No.5. pp 533-547
- Pride Africa. (2000). *Reaping Digital Dividends with PRIDE*. Paper published available at http://www.drumnet.org/
- Punch, K. F. (2006). Developing Effective Research Proposals, 2nd ed. London. SAGE publications Ltd
- Qvortrup,L. (1994,27 February 1997)Community Teleservice centres:A document for the world Telecommunication Development Conference (WTDC) On the impact of Community Teleservice centre (CTSCs) On rural development [online]:

- Richardson, D., Ricardo R., & Moinul H. (2000). Grameen Telecom's Village Phone Programme in Rural Bangladesh: A Multi-media Case Study. Paper available at www.telecommons.com/villagephone
- Robinson, S. R. (1998). *Telecentres in Mexico: Learning the Hard Way*. Paper available at http://www.devmedia.org/documents/robinson.htm
- Robinson, S. R. (1999). On Estimating Telecentre Demand in Mexican Rural Municipios, in Telecentre Evalaution: A Global Perspective. Paper available at http://www.idrc.ca/telecentre/evaluation/html/main.html
- Robinson, S. R. (2000). *Rethinking Telecenters*: Knowledge Demands, Marginal Markets, Microbanks and Remittance Flows, in the Internet Magazine, Vol. 6, No. 2
- Roman, R., & Colle, R. (2002). Themes and Issues in telecentre Sustainability

Sagna, O. (2000). Information and Communication Technologies and Social

San-Sebastien, C. (1999). Telecenter Evaluation Issues - The Salvadoran experience, in Telecentre Evalaution: A Global Perspective. Paper available at http://www.idrc.ca/telecentre/evaluation/html/main.html

Scharffenberger, G. (1999). Telecentre Evaluation Methods and Instruments: What

- Shakeel, H., Michael B., Bruno M., & Sam We. (2000). Comparing Urban and Rural Telecenters Costs. MIT Media Laboratory, E-Development Group.
 Technologies in Bogota, in Telecentre Evalaution: A Global Perspective. Paper published on the World Wide Web and available at http://www.idrc.ca/telecentre/evaluation/html/main.html
 Telecentre Evalaution: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/html/main.html
- Staplehurst, B. (1994). Telecentres: Lesson from Europe. National Rural Eenterprise Centre, Stonelleigh Park, Warwickshire.
- Uhegbu, N. (2008). Constraints on the information of National info-policy for Nigeria. Journal of Information Sciences 31 (1) pp 41-47
- UNDP (2010). The Information Process of Stakeholder in Community Rural Information System
- Vaishnavi, V., & Kuchler W. (2008). Design research in information System. Retrieved December 20, 2009. From: http/www.isword.org/researchdesign/dris/sworld.htm
- VanBorn, J. (2004). Copeter and the User. Copeter.ruslan.ru/outcomes/JVB.doc Works and why? in Telecentre Evalaution: A Global Perspective. Paper available at http://www.idrc.ca/telecentre/evaluation/html/main.html

- Yapa, N (2008). Utilization of ICED for LIS with special reference to Sri Lanka. Retrieved on May 24, 2010 at http://scholar.google.com/scholar?hl iminary Evaluation of Online Access Centres: Promoting Micro E-business Activi
- 4Young, J., Gail R., & Jeff R. (2001). *A Pretty in small, Isolated Communities:* in the Electronic Journal on Information Systems in Developing Countries, Vol. 4. Available at http://www.is.cityu.edu.hk/ejisdc/vol4.htm
- Yusuf, O. (2005). *Information and Communication Technology*: Analyzing the Nigerian National Policy for Information Technology. International Education Journal, 6 (3) pp 316-321
- Zahurin, M. A., Shafiz A., Wan-Rosaini, S & Nor ladah, Y. (2010). A Conceptual Model forPsychological Empowerment of Telecentre users. Computer and Information Science, 3(3)
- Zulkefti, I., Aninis, S., & Feizharudean, T. M. (2009). The Roles of Community Based Telecentre in Briesty. The digital Divide in Rural Malaysia. International journal ofHumanities and Social Sciences. Vol. 3(1). P 84