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Enhancing rural connectivity through an extended internet cafés business models

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**Proceedings of the 19th ITS Biennial Conference 2012
Bangkok, Thailand**

**Enhancing Rural Connectivity through an Extended
Internet cafés Business Models**

By

**Idongesit Williams, Patrick Ohemeng Gyaase
and Morten Falch**

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Abstract

This paper discusses the potentials of an adaptation of the Internet café business model adopted for Internet access in African cities to improve rural Internet access through a partnership between the public and private sectors. The rural areas in most developing countries lack of Internet connectivity due to commercial unviability of such investment by the private sector alone.. The modernization theory is used to support the concept that the availability of Internet services in rural can be catalyzed if an Adaptation of the Internet cafés business model incorporating the public participation are replicated in the rural areas. . A study is carried out in Ghana, where the market players in the Internet café operations to ascertain the potential viability of public –private partnership in the provisioning of internet access in the rural areas in Ghana. A new business model in the form of Public Private Partnership is proposed that will facilitate the extension of Internet cafés into rural areas to enhance rural connectivity.

1.0 Introduction

Accesses to modern Information Communication Technologies (ICTs) have been identified as one of the potent tools for poverty alleviation among the rural population in developing countries (Qiang & Rossotto, 2009). Both governments and their development partners are therefore putting in measures aimed at increasing access to Internet connectivity by the rural population.. However cost and appropriateness of the business models employed have been identified as hindrances to widespread success to the delivery of internet connectivity in rural areas in developing countries. This paper therefore looks at the Internet Café Business Model in Ghana and how it could be modified to expand access to Internet connectivity in rural areas. This paper was inspired by the role of the Internet café phenomenon in facilitating universal access to Internet services in the urban and peri-urban Ghana.

The commercial unviability of investment in rural connectivity by the private sector has deprived most rural areas of Internet services and its attendant benefits., The participation of the rural population in the knowledge economy therefore requires a business model to

mitigate the cost of access to the rural population as well ensuring some level of return on investment to the investors. This is critical for the success of any rural connectivity strategy. Using modernization theory, research was carried out to assess the viability of the Internet Café Business Model in rural areas.

2.0 Importance of Rural Connectivity

The importance of Rural Internet connectivity especially for the rural communities cannot be overemphasized. Over 60 percent of the populations in the developing countries live in the rural areas. Most of whom are farmers and their farming activities contribute a large chunk of the gross domestic products of their respective countries (Qiang C. , 2010). Any innovation therefore that would enhance the livelihood and productivity in rural areas stands to benefit the country as a whole. With Internet connectivity, the rural population in Ghana stands to participate in and benefit from the emerging information and knowledge-based economy (Strover, 2001). Access to information is regarded as a critical value-addition needed to give meaning to the lives of rural dwellers (Sebusang & Masupe, 2003). High speed broadband lays the foundation for increasing productivity and the stimulation of economic development. The availability of high speed broadband could potentially attract knowledge workers and businesses that need large bandwidth, like call centers and engineering companies to these areas (Qiang C. , 2010) (Qiang & Rossotto, 2009).

Besides benefiting larger businesses, high speed broadband connectivity would allow an improved environment for encouraging new, local, home-based business start-ups that operate over the Internet. Local technical jobs will be created to solve youth unemployment and also boost local entrepreneurship to prevent local youth from not migrating to urban areas in pursuit of career opportunities. By helping the local economy to prosper, such a network will retain local jobs and businesses. Investment in this infrastructure is an investment in local people, who will in turn support local businesses thereby reducing the rural urban drift with its attendant problems (Strover, 2001).

In general, Africa has the lowest penetration of broadband Internet and the region where the formulation of ICT strategies has taken place at the slowest pace (Shih, 2008) (Jagun, 2008). Many African countries therefore rank low in terms broadband Internet penetration and Ghana is no exception.

Today, Internet connectivity has facilitated the availability of information other and services in ubiquitous and convergent manner through various telecommunication channels thus enabling the extension of services like E-commerce, E-learning, E-banking, E-government and other electronic services to rural areas which would be of great benefit to rural dwellers in particular and the economy as whole. The significance of a knowledge economy will be the boost in economic development as socio-economic status of the rural dweller improves. Aside the development of information economy, the importance of rural connectivity is manifested in the ability of the rural populace to communicate with their family and social circles without the hassle of travelling. Today, social networking applications such as Facebook, twitter and MySpace are enabling social interactions as never before witnessed in

the history of mankind. . With Internet connectivity, people in rural areas would be able to use these services to share their daily lives as well as learn about the world. Aside these applications, there are other services that enables human interaction such as email services, chat services and Voice over Internet Protocol (VoIP) which would enrich their lives and improve their communication with the rest of the world.

3.0 Cost of Broadband

In developing countries, one of the main hindrances of rural Internet is the cost. With the average installation fee for broadband Internet of about \$120 and monthly subscription fee of between \$65- \$1000 (Data gathered from Internet Service Providers in Ghana, Nigeria and other developing countries) (NITA, 2009). The end user subscribes either on a shared or dedicated basis depending on the size of bandwidth made available by Internet Service Providers. With Customer Premise Equipment (CPE), ranging between \$200 and \$10,000, the cost is far beyond the means of most citizens. The Ghana Internet Services Providers Association (GISPA) members buy a dedicated e1 (which is 8 x 256 kilobits per second) from Vodafone Ghana's SAT3 undersea cable at \$4500 per month. Non-GISPA - \$8,000 While Non-ISP -\$12,000 (Akakpo, 2008). These costs make it also commercially unattractive for the ISP's to invest in the rural areas due to high initial capital requirement and low return on investment. Both the high cost of a broadband connection and the price of personal computers put broadband internet access beyond the reach of most Ghanaians (NITA, 2009).

4.0 Modernization Theories

Modernization theories emerged after the Second World War to explain the economic development in Western Countries and North America (Eisenstadt, 1974). The concept of Modernization as it pertains to social evolution has been viewed in different perspectives. Moore (1963) viewed the concept as a total transformation from a traditional society to a technologically advanced society with economic prosperity. Kendal (2007) views modernization as a process of urbanization and industrialization. Przeworski & Limongi (1997) views economic development and how it relates to the spread of democracies. McQuail (2000) views modernization as the process of spreading education. Many other views have developed over the years. In whatever perspective modernization was viewed, it seeks describe how to transform developing countries with traditional economies into modern countries with industrial and knowledge economies. The modernization theory therefore posits that developing countries or traditional societies could transform into developed or modern societies if the process of social change followed the same pattern as that of the developed countries (see Fukuyama, 1995; Inglehart & Baker, 2000; Mark, 2009). Hence as a result, modernization theorists have been involved in investigating the diffusion of western lifestyle and technological innovations to other areas of the world (Chengdan, 2009).

The modernization theory has undergone three evolutions or phases. In the 1950's modernization theory wave included, Economic development, literacy, cultural development and national identity development (McQuail 2000). Economic development focused on

diffusion of technological and social innovations from the west to the developing world. Literacy and cultural development focused on creating a state of mind favorable to modernity through literacy, essential skills and techniques from the west to the developing world. National identity development focused on transmitting democratic ideals to the new nations that were just decolonized.

Modernization theory in the 1970's focusing on the transference of western ideals to develop the traditional countries came under criticism as being pro-western. This second phase of modernization theory was critical of the influence of Western Modernization (Inglehart & Baker, 2000). Zapf (2004) redefined modernization as resulting from actions by individuals and collectives, not an automatic development of systems.

The third strand of the modernization Theory (Post-modernism) gained prominence in the 1990's with its advocates neither favoring nor against western modernization, but highlighting the consequences of modernity to individuals in Society (Giddens 1991).

In this paper the concept of modernization theory being used is that of that of the first wave that pertain to economic development. Technological advancement has been credited to social change in a society. Attempt is made in this research to extend or replicate as the case maybe, depending on the findings, a business model that has enabled the diffusion of Internet services in the cities to rural areas of Ghana. Access to Internet drives modernization even in the advanced countries hence the use of modernization theory to explain how the public role the Internet café business models would drive the wave of modernization in the rural areas.

5.0 Existing Business models for Internet Cafés

Four business models have been identified in the operations of Internet café in most of the developing countries. These business models differ by reason of their value propositions and services.

- i. The first business model provides **basic Internet service** using PC and laptops.
- ii. The second business model provides **tele-center services** in addition to the provision of basic Internet services.
- iii. With the third business model, Internet Service Providers own their own Internet cafés while selling Customer Premise Equipment, computer accessories and mobile phones.
- iv. The fourth Business model involves the provision of a cafeteria with video and computer game services in addition to Internet services.

In the early 1990's the Internet café phenomenon developed in Ghana with the first business model and still The most prevalent because it is relatively easy to set up and maintain. A prospective entrepreneur just needs a small square meter of operational area normally an office or a shop and could start operation with 2 PCs (one acting as a server), a router, 2 desks and table, a source of ventilation and access to electricity. With growing Internet savvy generation and clientele these small Internet cafes grow gradually either by expanding to include other ancillary services or fizzle out of business in the face of their inability to satisfy

the increasing demand of improved services required by their clients. The second business model either naturally results from the growth of the first business model or a better endowed entrepreneur who in addition to the provision of Internet services provide tele-center and photocopying services. These additional services provide the Internet café operators diversified stream of income.

The third business model is few in Ghana since it is capital intensive to set up and operate. The operators this model do not primarily see themselves as Internet cafés any longer. Rather the Internet café is regarded as either a subsidiary or a department of a larger IT service company. The fourth business model cuts across the three models and in addition providing gaming services and or cafeteria services.

The core business models of Internet café operations in Ghana have some common attributes which can be identified using the business model canvas by Osterwalder et al (2010). This business model canvas is an improvement of the business model conceptual framework by Faber et al (2003). Faber et al (2003) identified four components in the development of their framework. These are Service Design, Organization Design, Technology Design and Financial Design which is easier to identify when considering a single firm. There may be common attributes pertaining to a cluster of firms within a business ecosystem whose financial, technological and organizational designs can be explained but each firm within the ecosystem may define their services differently, thus making it impossible to get a clear common attribute in terms of service design.

However, Osterwalder et al (2010) Business Model Canvas consists of nine blocks that can be used to explain a cluster of business models within a business ecosystem. The Nine blocks include key partners, key activities, key resources, value proposition, customer relationship, customer segment, channels, cost structure and revenue stream.

Table 1: Business Model Canvas for Internet Café in Ghana

Key Partners	Value Proposition Requirement	Value Propositions	Customer Relationships	Customer Segments
Internet Service Provider	Telecoms / IT Network	Internet accessibility	Personal assistance	Mass Market
Hardware/Software providers		Internet service at low price	Channels Hand bills Banners Radio Adverts	
Utility Service Providers	Financial	Internet service either 16 or 24 hours a day		
Office landlord	Physical (components for the cybercafé) Human	Internet service with high/low speed		
Cost Structure Fixed cost: Rent, Utility bills, ISP bills, tax, Salaries, amortization, cost of equipment		Revenue Stream Usage fee, Subscription fee, Price is volume dependent (charged per hour)		

5.1 Key Partners

- i. Internet Service Providers (ISP): They provide bandwidth to the Internet café operators. In Ghana WiMAX, ADSL, UMTS, EDGE and GPRS technologies are provided by the Internet Service Providers. Vodafone, Millicom, Bharti Airtel, KASAPA and MTN who are mobile network providers also provide ISP services.
- ii. Hardware/Software providers: In various parts of Accra, Kumasi, Sunyani and other cities in Ghana, there are equipment vendors who also sell hardware and software to Internet café operators. Some also provide equipment maintenance services to the Internet Café operators.
- iii. Utility Service Providers: The Electricity Company of Ghana (ECG) plays an important role as the Internet café operators need electricity to deliver their service.
- iv. Office Landlords: Most Internet Cafes in Ghana are hosted in rented offices.

5.2 Key Value Proposition Requirement

Telecom/IT networks: On the Open Systems Interconnection (OSI) Model, The media layers which are the Physical, Datalink and Network layer are very important because the host layers (Transport, Session, presentation and Application) require it in order to function. Hence to deliver the value proposition at the application layer, the service providers at the network layer and transport layer has to be in place. Externally, the network layer is operated by the telecom operators and which controls the infrastructure at the physical and data link layer. The transport layer is controlled by the Internet Service Providers. Internally the media layers and the host layers are controlled by the systems administrator at the Internet Café. If any of these key requirements is not in place, then value proposition cannot be delivered.

5.3 Key Resources for Value Proposition

- i. Financial Resources: Capital to start and sustain the operation of the Internet café.
- ii. Human Resources: Personnel for the operation and management of the Internet café.
- iii. Physical Resources: This includes hardware, software and furniture as well as the operational area.

5.4 Value Proposition

- i. Internet Access: People are able to access the Internet either from an Internet café closer to them or in their houses.
- ii. Internet service at a low price: For as low as 50 Pesewa(0.26\$) per hour
- iii. Internet Service available between 16/24 hours a day: Most Internet cafés run for 12 hours a day between 6am and 10pm while others run night shifts providing 24 hour service.
- iv. Internet service available at either a high or low speed: The speed (data rates) offered at each Internet café differs. This is because of the service package the operator signs

up with the ISP. The cafés with higher bandwidth charge higher hourly rate than those with narrower bandwidth.

5.5 Customer Relationship

Personal Assistance: At the Internet cafés customers receive personal assistance from the Internet café assistant.

5.6 Customer Segment

Mass Market: The Internet service offered is for the masses with no specific design market segmented although often the target implicitly is the youth from Junior high school leavers to university graduates.

5.7 Advertising Channels

To attract customers to their businesses the operators use various form of advertisements such as hand bills, road banners and radio adverts.

5.8 Cost Structure

Expenditure is as a result of service offered by key partners such as ISP's, Electricity consumed, and rent for operational space, maintenance of equipment and salary of staff in certain cases.

5.9 Revenue stream

Revenue is accrued mostly from Internet usage fee and subscriptions as well as the additional services provided in each Business Model.

5.10 Limitations of the Current business model

The Internet cafés in cities are all privately owned and market driven venture. . The telecommunication infrastructure is readily available in cities, therefore with a little investment; an entrepreneur can start an Internet café and make profit, depending on the market size that he can capture. Although the current business models work well in the cities, they might not be viable for expanding Internet services to the rural communities. The characteristic of rural communities such as low population density, sparse settlement separated by bushes and tall trees, low income levels high rate of illiteracy and low level of technology appreciation makes private sector-driven commercial Internet service provision in these areas commercially unviable. This calls for public sector participation if the rural communities are to benefit from the modernization that Internet access and use can bring to the economy as whole.

Another key limitation of the current business model is the absence of existing telecommunications infrastructure in these areas and the fact that greater majority of the people finds no or little use for Internet. These makes start-up cost very high and unattractive for private sector to lead the provision of the Internet service as was done in the urban areas.

There is therefore the need for public sector participation by putting in place both demand-side and supply-side measures in order to stimulate both the delivery and utilization of Internet services in the rural areas.

There have been low successes of only public sector delivery on Internet services in rural areas as in the case of community information centers in Ghana where the absence of demand side measures and lack of sustainability of the supply side measure put in place (NITA, 2009).

This paper therefore proposes an extension of the existing Internet café business model to include public participation. This measure will improve the potential for profitability and attract private sector-led profit oriented Internet service provision in the rural areas to drive modernization in these areas.

6.0 A Proposed Model: An Extended Business Model for PPP in Rural Internet Service

Provisioning

To facilitate effective collaboration between the public and the private sectors in the provisioning of Internet access in the rural areas, it is important to understand the roles and interests of the public sector and the private sector players in the provisioning of Internet access (Nijkamp et al., 2002; Pongsiri, 2002). While the private sector is profit oriented and they would want a guaranteed Return on Investment (ROI) over a reasonable period (Scharle, 2002), the public sector is interested in the availability, affordability and accessibility of Internet services in these rural areas (Milne, 1998). These often conflicting interests require some level of synergy of interest as well as some concessions. The public sector desires for the development of ICT in rural areas requires commitments and incentives that would be attractive to the private sector to invest in the Internet connectivity in order to achieve the public objective.

Build Own Operate (BOO) form of Public Private Partnership is proposed therefore by this paper where the public sector is willing to provide the necessary incentives and investments that would induce and stimulate the private sector to invest in the provision of Internet Services in rural areas. The private sector players in this model are Network Operators, Internet Service Providers and private entrepreneurs willing to set up Internet Cafes in the rural areas.

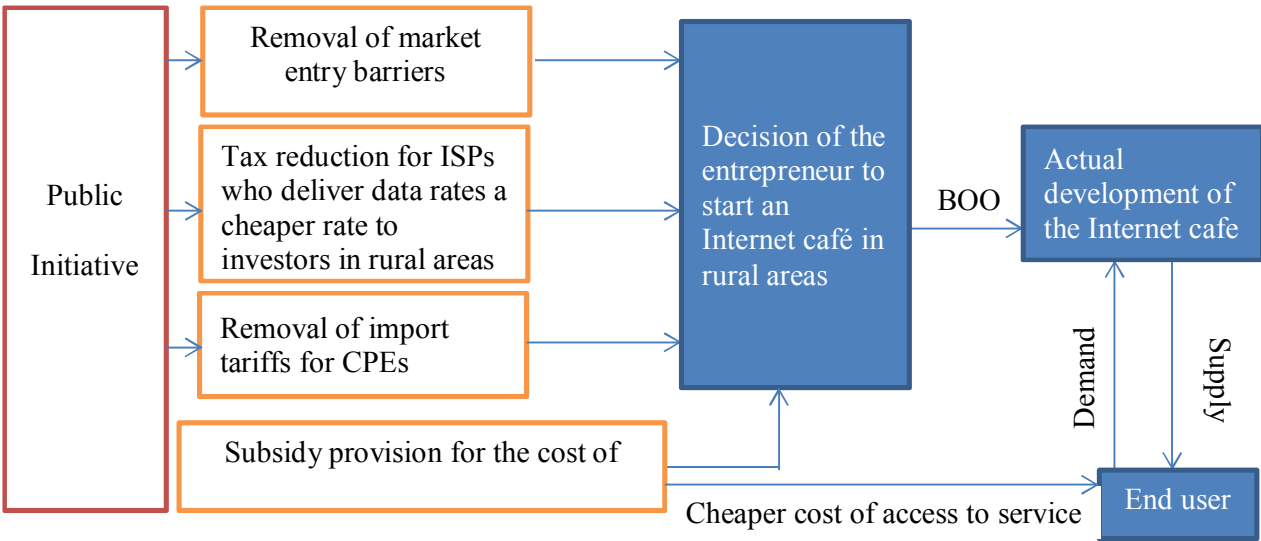
In the proposed model as seen in **figure 1** below, the public sector would grant a removal of market entry barriers to the private sector in form of incentives such as tax reduction for ISPs would charge a special lower price for an equivalent bandwidth in the cities to private Internet café owners operating in rural areas. Removal of import tariffs on Customer Premise Equipment (CPE) for Internet café operators operating in these rural areas as well as other tax exemptions granted to the private sector at least for a considerable period of time would be vital to stimulate investment in the provisioning of rural Internet Service.

The network operators would then be incentivized to finance network expansion to these rural areas since it would be utilized by the stakeholders. The entrepreneurs would then have

the incentives to invest in setting up the Internet cafés and obtain the return on their investment. The rural population would then have access to affordable Internet services to aid the modernization and participate in the knowledge economy. This would ensure effectiveness and efficiency in the supply side of the Internet services provision in rural areas.

The supply side of the market alone would not ensure the sustainability of the model, there is the need for the public sector to stimulate the demand side of the market. This can be done through such measures as regulation of the price for end users Internet services. Implementing e-government programs such as registration of properties and school admission among other services would also stimulate demand for Internet usage among the rural population assuring the private sector of patronage and assured stream of revenue while the Public sector participation would ensure availability, affordability and accessibility of Internet services through the Extended Internet café business model in rural areas. Thus in the new Extended business model, the key partners will now include the public sector and the revenue stream will also include subsidy from the public sector, although for a limited period of time.

Figure 1: Framework for an Extended Business Model for PPP for Rural Internet Access



Based on this framework, a new business model for rural Internet access for rural areas that encourages Public Private Partnership in Build Own and Operate (BOO) is developed as seen in table 4 below and validated by results from data collected from the purpose.to develop .

7.0 Methodology

The case study research approach was adopted. The Internet café business model scenario in Ghana was used in this study. The significance of the case is the similarity of the business

model adopted in Africa and in some developing countries the in provisioning on Internet services. Hence the findings in Ghana can be applicable to other developing countries. Effort was made to understand the drivers for the development of the Internet café business models in cities and the potential drivers for the extension of these business models to rural areas.

The method of data collection was through questionnaires and interviews. Secondary data was also used where available. These Questionnaires were and interviews used to identify the difficulties in replicating the Internet café business model in rural areas in Ghana. Purposive sampling method was used to obtain the data from Internet cafe entrepreneurs and public officials.

A total of 25 Internet cafés were surveyed in Accra and Sunyani, 5 Mobile Network Service Providers and 5 Internet Service Providers were interviewed. The Mobile Network Service Providers were MTN, Expresso, Millicom Ghana ltd, Bharti Airtel and Vodafone.

The extended business model was proposed based on the responses received from the survey as presented and analyzed below.

8.0 Data Analysis and Discussion

Table 2: Responses from Internet Cafe

Question	SA	A	I	D	SD
To what extend did the following influenced your decision to set up Internet Café					
Availability of Network Infrastructure	20	5	0	0	0
Demand for Internet Service	22	3	0	0	0
Tax Exemptions	0	1	5	7	12
Cheap of Connectivity	2	4	2	8	9
Low start-up capital required	5	6	3	5	6
Low cost of Hardware required	4	2	2	10	7
Constant and reliable Internet Services	7	9	4	2	0
Constant and reliable Power Supply	5	4	6	6	3
Trained ICT specialist, (Profession)	5	5	8	4	3
Absence of Internet Café in the rural areas and reasons					
I intend setting up similar enterprise in the Rural areas	0	0	3	2	20
Absence of Connectivity infrastructure	23	2	0	0	0
It is expensive to set up due to Technology required	22	3	0	0	0

High cost bandwidth	20	3	2	0	0
High running cost	12	8	5	0	0
High Cost of CPE	9	8	3	4	1
Low Demand for Internet Services	18	5	2	0	0
Tax pressures from Local governments	2	2	8	8	5
Lack of Constant and reliable power supply	3	5	5	6	6
To what extent would the following influence your decision to set up Internet café in the rural area.					
Cheaper rates for Bandwidth to rural areas	9	7	2	4	2
Provision of Network Infrastructure	8	8	1	5	3
Cheaper hardware (CPE) through subsidies	10	6	0	6	3
Presence of demand for Internet services	10	8	7	0	0
Provision of equipment and start up by government	9	8	3	3	2
Tax Incentives	7	7	3	5	3

Key: SA = *Strongly Agree*, A = *Agree*, I = *Indifferent*, D = *Disagree*, SD = *strongly disagree*

To analyze the supply side of the market from their perspective the Internet café operators were asked for factors that influence their decision to set up Internet cafes in the cities, factors affecting the replication of same business model in the rural areas and the factors that would positively influence their decision to invest in setting up of cafés in rural areas. The Internet café operators interviewed identified the availability of connectivity and the demand for Internet service as major drivers to their starting up of the Internet café as indicated in in figure 2 below.

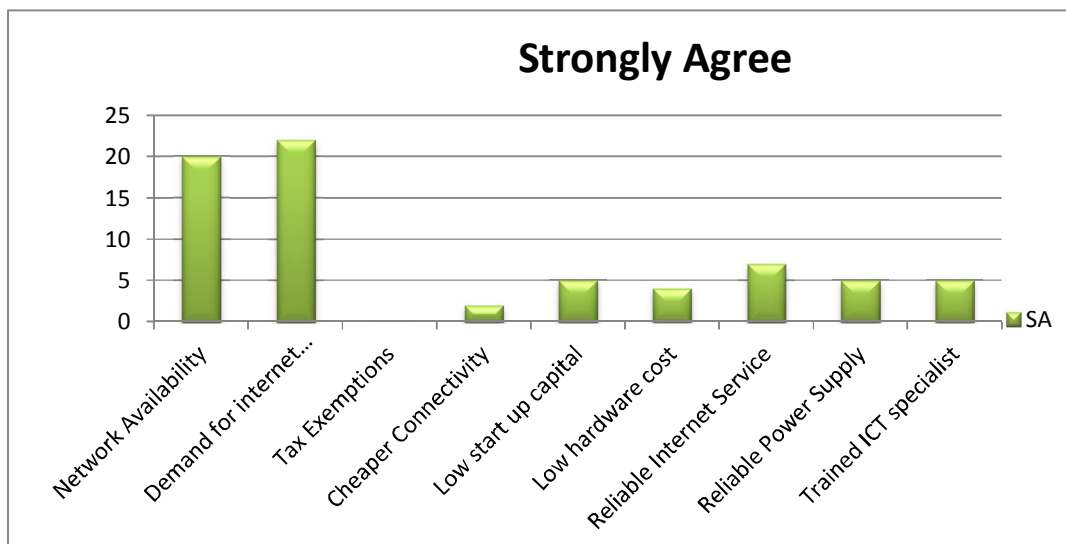


Figure 2 Major drivers for the development of Internet Cafés in urban areas

Figure 2 indicates that constant and reliable Internet services and power supply also rank high as drivers for decision to set internet cafés in the cities. There is no tax exemption in Ghana for the development of Internet Cafés hence, that factor plays a minor role as a driving force for the Internet café operators.

None of the respondents was willing to set up the Internet café in rural areas. Among the major reasons discouraging such venture are cost of bandwidth, high cost of setting up technology and absence of connectivity as expressed in figure 3 below.

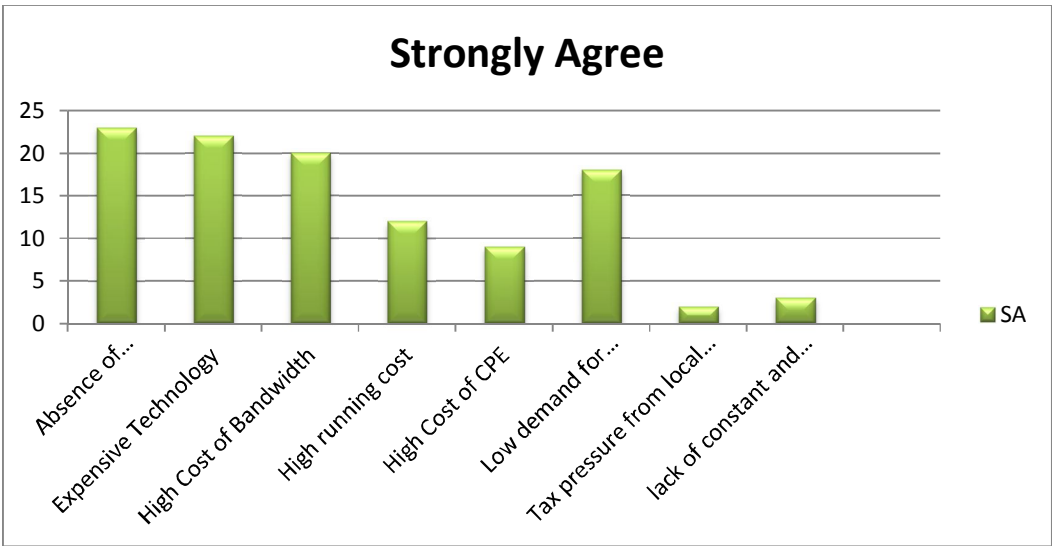


Figure 3: Major Inhibitors for the development of Internet Cafés in rural areas

Figure 3 indicates that high running costs as well as low demand on Internet services are significant disincentives for setting up Internet cafés in the rural areas. . The availability of power supply and taxation is not ranked high as disincentive to the big Internet café operators, but it was of course a problem for the small Internet café operators. High cost of Customer Premise Equipment (CPE) was also not much of a problem to many of the respondents.

On The factors that would positively influence their decision to investing in Internet cafés in the rural areas, cheaper bandwidth, availability of network infrastructure, cheaper CPEs through subsidies, tax incentives, and subsidized equipment would significantly have positive influence on the decision small Internet café operators to invest in rural areas as seen in figure 4 below.

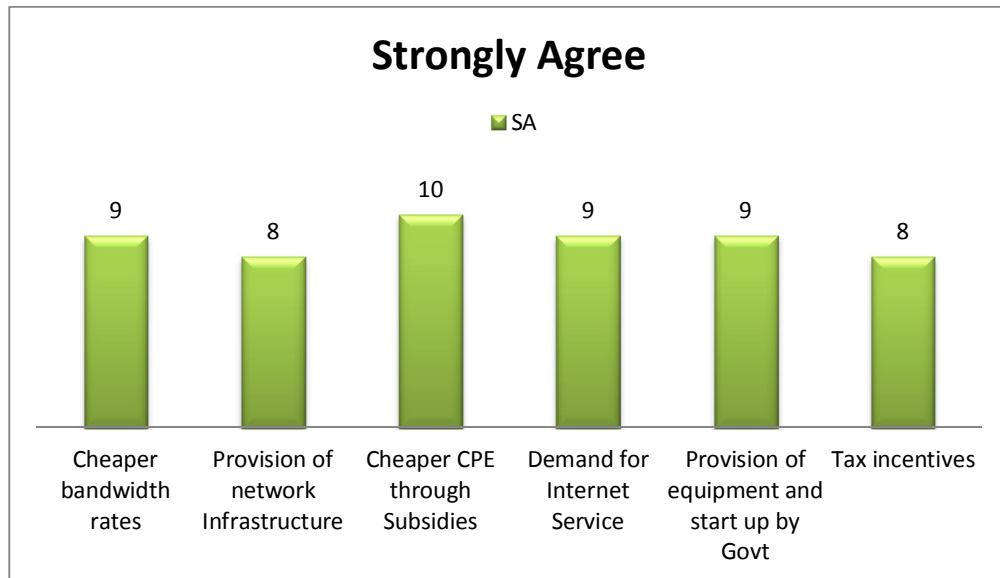


Figure 4: Response to market incentives for the development of Internet Cafés in rural areas

This pattern of response validates the new business model proposition expressed in figure 1. There are differences in the drivers influencing the decision of Internet café operators to invest in rural areas and those influencing investment decisions in the urban areas. The commercial unviability of rural areas makes it impossible for the same drivers to be significant in both settings. To attract the private entrepreneurs into the rural Internet services provision therefore requires both demand and supply side intervention from the public sector. For fair number of the respondents demand for Internet service seem not to matter much because the Internet café operators believe the value proposition they offer could create the demand required to sustain their business. However, the availability of subsidized CPEs seems to be a positive driver that cuts across the big and small Internet café operator and this could be achieved through tax waiver and subsidies.

Having identified the role the availability of connectivity played in the responses received, the Mobile Network Operators (MNO) providing much of the connectivity in Ghana were contacted. The essence was to ascertain the level of Internet connectivity provided by these MNOs in rural areas. And their answers are indicated in Table 3 below.

Table 3: Network Service Providers (5)

Questions	A	I	D
Our services cover large part of rural areas	5		
We provide Internet services in the rural areas	3	2	
Our network infrastructure in the rural areas support high speed Internet connectivity			5
There low demand for fast Internet in the rural areas	5		
Cost of equipment does not make it economical to deploy fast Internet in the rural areas	5		
Deliberate public support could facilitate the deployment of high speed Internet connectivity	3	2	
There is no tax incentives for deploying fast Internet connectivity	4	1	
Tax incentives would facilitate the deployment of fast Internet connectivity	3	2	

Key: A = Agree, I = Indifferent, D = Disagree,

The table above is an indication of connectivity in rural areas from all the network operators but there is no high speed Internet service. This is because of low demand and since the costs of deploying network technologies are high, it is not commercially viable to deploy broadband infrastructure in the rural areas where they operate. However the majority of the mobile network providers are willing to upgrade their equipment to support faster Internet connectivity if there are market incentives for the deployment of faster Internet service in rural areas. These tax incentives and other market incentives will of course make up for the shortfall in revenue, enabling the Internet café operators explore the downstream of the market.

The findings expressed here fits in the framework in figure 1. Hence the new Business model Canvas that will facilitate PPP enabled Build Own and Operate Internet Services as an extension of the existing Internet cafés business models in rural areas of developing countries is expressed in table 4 below.

Table: The expected business model canvas for Internet cafés in rural areas:

Key Partners	Value Proposition Require	Value Propositions	Customer Relationships	Customer Segments
Internet Service Provider Hardware/Software	Telecoms / IT Network	Internet accessibility	Personal assistance	Mass Market

providers	Key Resources for Value Proposition	Internet service at low price	Channels	
Utility Service Providers	Financial	Internet service either 16 or 24 hours a day	Hand bills Banners Radio Adverts E-government programmes**	
Office landlord	Physical (components for the cybercafé)	Internet service with high/low speed		
Network operators	Human			
Public sector**	Market incentive from public sector**			
Cost Structure Fixed cost: Rent, Utility bills, ISP bills, tax, Salaries, amortization, cost of equipment		Revenue Stream Usage fee, Subscription fee, Price is volume dependent (charged per hour) Limited Subsidy from the Public sector**		

The sentences with double asterisk (**) indicates updates to the business model that would be extended to rural areas as proposed in this paper.

9.0 Conclusion:

Based on the findings this study confirms the view that the present connectivity, economic and social situation in rural areas makes commercially unattractive to replicate the existing Internet service provision business models in these areas. However given the role the Internet cafés business model has played and continues in the penetration of Internet services in many cities in developing countries it is important to create an enabling environment for this model to also succeed in the these areas since the public sector alone has failed to deliver such service all these years.

Modernization theory used to support the development paradigm that the development and modernization benefits the urban people enjoy as a result of access to Internet can be enjoyed by the rural dwellers as well, if the same development path is used with a little adaptation. Hence market incentives are needed from the public to prop the demand side and the supply side of the market to enable this business model to be replicated successfully in rural areas to trigger the modernization of the rural areas as has done in the cities.

The findings of the study also support the proposal that the Internet café operators are would be willing to invest in Internet services provisioning in rural areas if the bottle necks of network availability, high cost of bandwidth are either removed or reduced. These require the intervention Government in the provision of enabling environment hence the proposal of Public Private Partnership (PPP) enabled Build Own Operate (BOO) to facilitate Internet service provisioning in the rural areas in Developing countries where the government will grant market incentives that will create enabling market environment to incentivize the Internet Café operators not only establishing the Internet café but operating and owning it.

Bibliography

- Akakpo, J. (2008). *Rural Access: Options and Challenges for Connectivity and Energy in Ghana*. Accra: GINKS and IICD.
- Chengdan, Q. (2009). Constructing a New Disciplinary Framework of Modern World History Around the Theme of Modernization. *Chinese Studies in History Spring*, 42, 7-24.
- Eisenstadt, S. (1974). *Studies of Modernization and Sociological Theory*. 13.
- Faber, B., Ballon, P., Bouwman, H., Haaker, T., Rietkerk, O., & Steen, M. (2003). Designing business models for mobile ICT services. *16th Bled Electronic Commerce Conference eTransformation*. Slovenia: Bled.
- Fukuyama, F. (1995). Confucianism and Democracy. *Journal of Democracy* 6.2, 20.
- Giddens, A. (1991). *Modernity and Self-Identity; Self and Society in the Late Modern Age*. Cambridge: Polity Press.
- Giddens, A. (1991). *The Consequences of Modernity*. Stanford (Cal). Stanford (Cal), Oxford, Cambridge: Stanford University Press, Basil Blackwell, Polity Press.
- Inglehart, R., & Baker, W. (2000). *Modernization, Cultural Change and the Persistence of Traditional values* (Vol. 65). *American Sociological Review*.
- Jagun, A. (2008). Regional Report; Africa. *Global Information Society Watch*, 63-67.
- Kendall, D. (2007). *Sociology in Our Times* (7th Edition ed.). Wadsworth Publishing.
- Marks, G. (2009). Modernization Theory and Changes over Time in the Reproduction of Socioeconomic Inequalities in Australia. *Oxford Journals*, 88, 917-944.

- McQuail, D. (2000). *McQuail's Mass Communication Theory* (4th ed.). Thousand Oaks, New Delhi: Sage Publications.
- Milne, C. (1998). Stages of Universal Service Policy. *Telecommunications Policy*, 22, 775-780.
- Moore, W. E. (1963). *Social Change*. Englewood Cliffs N.J: Prentice Hall.
- Nijkamp, P., Van der Burch, M., & Vidigni, G. (2002). A comparative institutional evaluation of public private partnerships in Dutch urban land-use and revitalization projects. *Urban studies*, 39, 1865-1895.
- NITA. (2009). *Implementation of E-government Network*. Accra: NITA.
- Osterwalder, A., Pigneur, Y., & Smith, A. (2010). *Business Model Generation*. self-published.
- Pongsiri, N. (2002). Regulation and Public Private Partnerships. *The International Journal of Public Sector Management*, 15, 487 - 495.
- Przeworski, A., & Limongi, F. (1997). Modernization Theories and Facts. *World Politics*, 49.
- Qiang, C. (2010). Broadband Infrastructure Investment in Stimulus Packages: Relevance for Developing Countries. *Info*, 2.
- Qiang, C., & Rossotto, C. (2009). *Economic Impacts of Broadband, In Information and Communications for Development 2009, Extending Reach and Increasing Impact*. Washington: World Bank.
- Scharle, P. (2002). Public Private Partnerships as a social game. *Innovation*, 227-252.

- Sebusang, S. E., & Masupe, S. (2003). ICT Development in Botswana: Connectivity for Rural Communities. *The Southern African Journal of Information and Communication*, 4(2).
- Shih, E. K. (2008). IT Diffusion in Developing Countries. *Communications of the ACM*, 43.
- Strover, S. (2001). Rural Internet Connectivity. *Telecommunications Policy*, 25, 331-347.
- Zapf, W. (2004). Modernization Theory- and the Non-Western World. *Comparing Processes of Modernization*. Wissenschaftszentrum Berlin für Sozialforschung: University of Postdam.