

# Chapter 6: Ghana

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**POLICY AND REGULATORY CHANGES.** In response to global policy changes in the ICT industry, Ghana was among the first African countries to reform its ICT sector and establish the necessary legal and regulatory frameworks to support the growth of the sector. Since 1990, the government of Ghana has liberalised the telecommunications sector with the aim of enabling the private sector to participate in the provision of services to increase access and coverage, introduce value-added services and boost consumer access to the state-of-the-art technology (Frempong and Atubra 2001).

The liberalisation policy was based on a five-year accelerated development programme (ADP) for the telecoms sector, introduced in 1994. It aimed to increase teledensity from 0.31% to about 1.5-2.5% through provision of public and private payphones; improve public access in rural and urban areas; expand coverage of mobile services; promote Ghanaian ownership of telecommunications companies; and retain overall public regulatory control of the sector through the creation of a single agency (Spintrack 2004).

The strategies adopted to achieve these objectives included the privatisation of Ghana Telecoms (GT) through the sale of a strategic stake to an international operating company; the creation of a competitive duopoly by licensing a second national network operator with similar rights and obligations as Ghana Telecom; the liberalisation of value-added services, mobile cellular telephone services, data transmission, paging and payphones; the establishment of a regulatory agency for the sector; and allowing large corporate users to develop their own private networks (Ministry of Transport and Communication 1994).

National Indicators	
Country	Ghana
Population	20
Poverty (% of population below US\$1 a day)	44.8
Adult literacy rate (% ages 15 and over)	73.8
Urban population (% of total population)	36.7
GDP per capita (US\$)	209
Surface area (000 km <sup>2</sup> )	239

The print and electronic media were also liberalised in response to constitutional provisions and in line with changes in the global environment. The Fourth Republican Constitution called for the removal of impediments to the establishment and operation of both print and electronic media. As a result of these developments, the ICT landscape in Ghana is now characterised by the proliferation of services such as cellphones, pagers, cable TV, the Internet and its ancillary services and a myriad of print and electronic media operators all trying to utilise niches in the market.

The government of Ghana introduced its ICT4AD policy in the latter part of 2003. The overall objective of ICT4AD was to engineer an ICT-led socio-economic development process with the potential to transform Ghana into a middle-income, information-rich, knowledge-based and technology-driven economy and society (Ghana government 2003). The strategic focus of the policy was to simultaneously target the development of the ICT sector and industry and use ICT as a broad-based driver of developmental goals, with emphasis on the development, deployment and exploitation of ICTs as engine for all sectors of the economy (Ghana government 2003). In effect, the national ICT policy was to provide a general framework for ICTs to be developed and utilised for the rapid socio-economic development of the country.



**REGULATORY FRAMEWORK.** With the introduction of these changes in the sector came the need to evolve new and appropriate institutional and regulatory structures. Prior to the introduction of the reforms, the then P&T Corporation played the roles of both a player and a referee. The Corporation provided licenses to private users who wanted to establish their own radio links after obtaining frequency from the Ghana Frequency Registration Board and also provided equipment standards and granted equipment-type approvals to such private users (World Bank 1988). With the reform of the sector, the regulatory function of the P&T was placed in the hands of the National Communications Authority (NCA), which was established in 1996. The NCA became the central regulatory body tasked with the responsibility of regulating communication by wireless, cable, radio, television, satellite and similar technology for an orderly development and operations of efficient communication services in Ghana.

In addition to the NCA, another regulatory institution, the National Media Commission (NMC), was established to regulate both the electronic and print media, whilst the NCA is mandated with the regulation of communication.

**MARKET OUTLOOK.** The implementation of the ADP led to the partial privatisation of Ghana Telecoms through the sale of 30% of its shares to G-Com Limited, a consortium led by Telekom Malaysia, in 1997, with Telekom Malaysia granted the management of the company under a management contract.

A duopoly was created in 1997 by licensing a second national network operator, Western Telesystems Ghana Ltd – a joint venture between Western Wireless Inc of USA and Ghana National Petroleum Corporation, operating under the name of Westel. Both Ghana Telecoms and Westel were granted exclusivity rights for a five-year period in voice telephony. An authorisation was

given to Capital Telecoms to provide telecoms services in rural areas in the southern part of the country.

Over the following years, four mobile telephone companies have been licensed – Millicom Ghana Limited, (a subsidiary of Millicom SA), Kasapa Ghana Limited (formerly a joint venture between Kludjeson International and Hutchinson Whampoa of Hong Kong), Scacom Ghana Limited and One Touch, a subsidiary of Ghana Telecom. The four mobile operators made Ghana one of the most liberalised telecoms markets in Africa.

There are a number of companies providing other ICT services in the country. At the end of 2004, NCA had licensed a total of 133 companies to provide Internet services in the country. Of these, only 25 had actually commenced business. In the same vein, of 136 companies licensed to provide VSAT data operations, only 57 were in operation. In all, 166 telecoms equipment dealers (mobile phones and accessories and terminal equipment dealers) were also licensed. Finally, a host of other companies has sprung up to provide ancillary services such as repairs and servicing of terminal equipment, web designers, and LAN and WAN developers.

**ACCESS TO TELECOMS SERVICES.** Access to telephone services improved considerably in the early stages of liberalisation and until recently, landlines dominated the telecoms landscape in Ghana. The teledensity of landlines, especially that of GT, increased from a stable position of 0.3 in the early 1990s to 0.9 in 1999 and 1.4 in 2003. In absolute terms, the number of landlines has increased from a stagnant level of 44,200 in 1990 to 204,700 in 2000 and 363,103 in 2004.

Ghana is one of few countries in Africa where landlines have experienced sustained growth. In South Africa, two million landlines were installed during the past five years, but only 665,819 have remained connected (Gillwald et al 2004). In spite of the inroads

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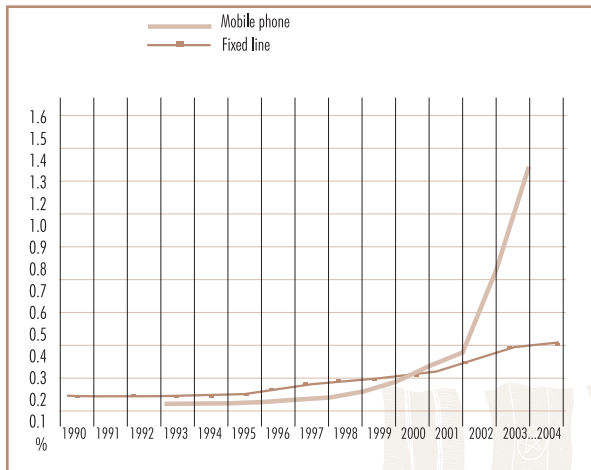
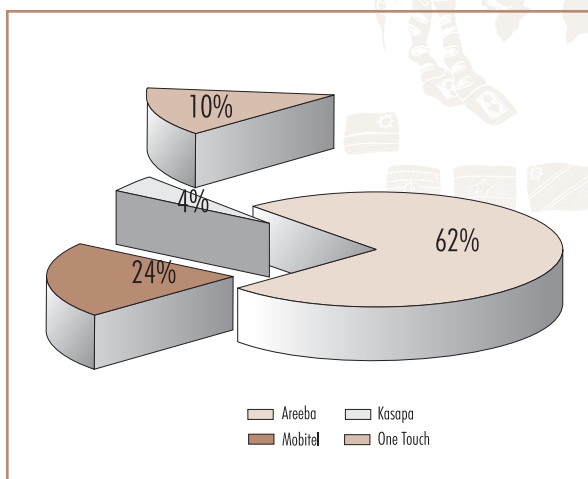


Figure 6.1: Trends in penetration of landline and mobile telephones

made by mobile telephony in Ghana, there is still a huge demand for landlines, with more than 180,000 people on the waiting list at the end of 2002.

The sector's performance could have been even more remarkable if the two national network operators had achieved their licence obligations of rolling out a total of 275,000 landlines by 2002. They were hampered by internal management problems, poor access to capital and regulatory inadequacies (Frempong 2004). Other factors which have hindered the rapid deployment

Figure 6.2: Market Shares of Mobile Telephone Operators (2004)



of landlines, especially after the liberalisation of the industry, include political interference, a weak regulatory regime, associated problems of interconnection and trade wars between the operators (Haggarty et al, 2003).

Echoing global and continental trends, the mobile telephone market performed better than the fixed line sector. By 2002, mobile telephony had outpaced landlines, and by the end of 2004, the total number of mobile subscribers was more than three times that of landline subscribers (see figure 6.3). The total number of landlines in 2004 was 363,103, compared to 1,382,000 mobile connections.

Though the performance of mobile seems impressive, it cannot compare favourably with other African countries such as Uganda, Senegal and Cameroon. Cameroon, with two mobile companies – Mobile Telephone Network and Orange (formerly Mobilis) – raised the country's mobile subscription levels from 2,000 in 1999 to one million in the early 2000s (Nzega 2004).

Problems of interconnection and cartelism, especially before the year 2000, contributed to the sluggish growth of mobile. The improved performance of the mobile sector in the 2000s was fuelled by the launch of a mobile service by the incumbent (GT), as there was a perceived fear by the other operators that GT would use its extensive infrastructure to support the new mobile telephone operator (Frempong 2004). The existing operators adopted new marketing strategies, including reducing prices of starter packs and call charges and introducing rewards and incentive packages.

In terms of coverage, two mobile telephone operators have covered the 10 regions of the country, and their services are available in more than 100 towns. Areeba has covered 111 towns ([www.spacecon.com](http://www.spacecon.com)),



while One Touch is available in 117 towns ([www.onetouch.com](http://www.onetouch.com)). Gradually, mobile telephones are becoming household technology, especially in the urban areas of the country.

**INTERNET.** While Internet penetration in Ghana seems very low according to ITU Basic ICT Statistics (2005), the number of Internet users per 10,000 inhabitants increased to 172 in 2004, which is higher than the African average of 123.21. By way of comparison, in 2003 South Africa had more than 3.1 million Internet users and Egypt 1.9 million users, while Ghana had 170,000 (ITU 2003). Most users in Ghana have access through shared Internet connections – offices, cyber cafés, friends, and to a lesser extent, homes (Ahiabenu II 2003).

Internet cafés are the most important source of Internet access in Ghana. In early 2003, there were more than 750 Internet cafés in Ghana, mostly using dial-up. About 90% of these are located in Accra, with the rest in other cities such as Kumasi and Takoradi (Ahiabenu II 2003). The largest cyber café is Busy Internet in the central part of Accra, with over 100 computers. The key Internet players are Network Computer System, Africa Online, Internet Ghana and Integrated Digital Network.

**BROADBAND.** There is an emerging market for broadband services in the country. Digital subscriber line technology (DSL) was first introduced in 2001 by Internet Ghana and in August 2004, GT introduced Broadband 4U in Accra. The service, according to Gruen Associates (2005), will be made available to the other parts of the country from 2005, and may achieve full coverage in 2017. The availability of SAT3 fibre loop, and effective utilisation of the network belonging to the Volta River Authority (VRA), may lower broadband costs and accelerate broadband's expansion into the other parts of the country. The

VRA is Ghana's electricity generation and transmission entity that has established a fibre network to link its key installations across the country. The network has excess capacity which, if effectively commercialised, will positively impact on broadband access in the country.

The relatively competitive price (which some analysts describe as predatory) of GT's service is increasing subscriptions for broadband. Though no data on the level of subscriptions has emerged, there are good prospects for the service, especially in the major cities and towns.

**PRICING AND AFFORDABILITY.** Access to services lies not only in physical availability, but also in affordability – the ability of customers to pay for the service. In Ghana, accessibility and affordability are critical issues confronting increasing access to ICT services.

Telecoms pricing has seen some changes in the country, especially within the mobile market segment. Since October 2003, mobile operators have reduced call charges, which is increasing affordability. Areeba reduced its call charges from eight to six units per minute for peak periods and six to four units per minute for off-peak, and Mobitel, Kasapa and One Touch followed suit. They have also introduced per-second billing, allowing users to pay for the actual time used. However, inter-network call charges have not been affected. It is relatively expensive to make inter-network calls, defeating the purpose of price reductions.

Furthermore, the increase in interconnection charges between cellular and fixed line networks – from US\$0.06 to US\$0.2 per minute – in October 2003 had serious financial implications for accessibility to telephone services, especially for rural dwellers. Previously, callers to cellular networks from communication centres paid US\$0.1 per minute; with the new tariffs, they pay US\$0.3 per minute (Frempong

and Braimah 2005). Most people in rural areas rely on communications centres for access to telecoms services, but the popularisation of mobile telephone kiosks in the country may reduce this.

Interestingly, GT, under the guise of tariff rebalancing, has reduced its tariffs. Call charges from its network to the mobile networks have been reduced from US\$0.2 to US\$0.16 per minute. Before October 2003, GT complained about imbalances in exchange of traffic between it and the mobile networks and called for the revision of interconnection charges.

**DEMAND-SIDE ANALYSIS.** The analysis of this section is based on a national survey conducted in Ghana in 2004. The survey was based on household and individual usage of mobile, landline and public telephones, and Internet services, among others.

**DEMOGRAPHICS.** The survey was conducted in three main locations in the country – major towns, other towns and rural areas. The sample size consisted of 1,301 respondents, of which 42% were from the major towns, 37% from other urban areas and the remainder (24%) from the rural areas

The gender and age distributions were taken into consideration. The composition of the sample on a gender basis was 51% male to 49% female. The age distribution of the sample showed 16% between ages of 0–9 years. Each of the teenage groups (10–14 and 15–19) constituted 12% (see figure 6.3). The age distribution of the sample conformed to the age structure of Ghana’s population. The national population statistics showed that the age group under 25 constituted almost 61% of the country’s population (Statistical Service 2004).

In terms of income classification, the majority of the respondents fell within the income bracket of less than €100,000 and €600,000 (US\$11–US\$67) per month. About 17% of them earned salaries less than €100,000 (US\$11), while a significant number (23%) were earning between €400,000 and €600,000 (US\$45–US\$67) per month. Further, 18% earned between €600,000 and €1,000,000 (US\$67–US\$112) per month, while 7% had income within the range of €1 million and €1.9 million (US\$112–US\$213) per month. In all, only 2% had income over €2 million (US\$224) per month. Generally, the bulk of the respondents came from the lower-income group, i.e. 58% of the sample earned salaries between €1,000 and €1,000,000 (US\$0.11–US\$112) per month.

The low income structure may be related to the youthful nature of the sample, but the general income status of the respondents raises questions about the patronage of ICT services in the country, as the level of salaries may be linked to ownership and effective usage of ICT services.

Figure 6.3.: Demographics

Age	%	Income Range	%
0-9	16%	0 to 99,999	17%
10-14	12%	100,000 to 149,999	8%
15-19	12%	150,000 to 199,999	4%
20-24	11%	200,000 to 299,999	7%
25-29	10%	300,000 to 399,999	12%
30-34	8%	400,000 to 599,999	23%
35-39	6%	600,000 to 799,999	9%
40-44	5%	800,000 to 999,999	9%
45-49	5%	1,000,000 to 1,299,999	4%
50-54	4%	1,300,000 to 1,599,999	2%
55-59	2%	1,600,000 to 1,899,999	1%
60-64	2%	1,900,000 to 2,199,999	0%
65->	5%	2,200,000 to 2,499,999	0%
Total	100%	2,500,000 to 2,799,999	0%
		3,800,000 to 4,199,999	0%
		4,200,000 to 4,499,999	1%
		4,500,000 to 4,799,999	0%
		5,200,000 to 6,999,999	1%
		<b>Total</b>	<b>100%</b>

Location	%	Gender	%
Major Towns	42%	Male	51
Other Urban	33%	Female	49
Rural	24%	Total	100
Total	100%		

**PENETRATION.** In this section, we look at how the various ICT services such as mobile telephones, landlines, the Internet, and other services have been taken up.

**MOBILE TELEPHONES.** Mobile telephony has made an impressive entry into the telecoms market. This versatile technology outstripped landlines within 10 years of its inception and is now triple that of fixed.

Figure 6.3 provides information on the mobile subscribers interviewed as part of the survey. The majority (about 83%) were from the major towns in the country, 16% from other urban areas and an insignificant 0.4% from rural areas. The trend cannot be disputed because most of the operators have concentrated their services in the major cities and towns, where there is a huge market for their services. This also confirmed by the urban-based pattern of telecoms development in Ghana and other developing countries.

The proliferation of mobile telephony in Africa can facilitate the drive to achieving universal access to telecoms services on the continent. For example, most rural communities along major highways can easily pick up the signals of most mobile telephone networks. Potentially, this can be utilised to increase access to telecoms services, as considerable number of communities are dotted along major highways. However, the absence of electricity in most of these communities may be a handicap.

In view of this, the poor access in rural areas raises the issue of non-utilisation of the available signal along the major highways, and also raises the need to develop infrastructure that can support the use of mobile telephones in rural areas. There is a need to identify and test quality of the telephone signal in such areas and encourage people to use the service.

In terms of ownership, mobile telephones seem to be popular among the youth and young adults. This is

Location	Major towns	83.2
	Other urban	16.4
	Rural	0.4
Gender	Male	58.2
	Female	41.8
Age	0- 9	0.5
	10-14	1.5
	15-19	3.6
	20-24	12.9
	25-29	19.0
	30-34	15.4
	35-39	11.8
	40-44	8.0
	45-49	12.1
	50-54	6.4
Income	55-59	3.1
	60-64	1.6
	65->	4.2
	1-100,000 (US\$ 0.1-US\$ 11.2)	4.5
	101,000-200,000 (US\$ 11.3 - US\$ 22)	6.2
	201,000-300,000 (US\$ 23 - US\$ 34)	5.4
	301,000-400,000 (US\$ 34 - US\$ 45)	7.9
	401,000-500,000 (US\$ 45 - US\$ 56)	9.2
501,000-1,000,000 (US\$ 56 - US\$ 112)	20.3	
1,001,000-1,500,000 (US\$ 112 - US\$ 168)	47.6	

Figure 6.4: Breakdown of mobile sample according to age, income, location and gender (%)

illustrated in Figure 6.4, where almost 40% of respondents who own mobile telephones fall between the ages of 20–29. Mobile is less popular with those over 50, who formed only 15.3% of the sample.

About 20.3% of mobile users fall within the income bracket of €501,000 and €1,000,000 (US\$56–US\$112), a

Figure 6.5: Duration of ownership, in months

Period	%
0- 6	21.7
7-12	19.2
13-24	27.8
25-36	15.3
37-48	8.3
Above 49	7.8

Source: Survey Data, 2004

bracket in which many young adult users fall. The income range of c1,001,000 to c1,500,000 (US\$112–US\$168) had the highest subscription rate of 47.6%.

The period in which the majority of the people acquired mobile telephones corresponded with the era of competition in the industry, that is, after 2002. The majority (68.7%) of users subscribed to the service within 1–24 months. Therefore, it can be deduced that most of them subscribed to the service in 2003 and the early part of 2004, the time when most operators launched aggressive marketing strategies to improve their subscriber bases. These strategies included reduced prices of starter packs, lower call charges and various incentive packages.

The price reductions were initiated by Mobitel, which reduced its tariffs by 34% in the early part of 2003 and later in the year embarked on promotional sales, where starter packs were sold at c149,000 (US\$16.39) (Frempong 2004). Kasapa also introduced a pre-paid system and charged c800 (US\$0.088) per minute for own-network calls and c1,200 (US\$0.132) for calls to other networks<sup>1</sup>. Areeba, for its part, reduced call charges on its pre-paid service from eight to six units per minute for peak periods and six to four units per minute for off-peak in November 2003. Prior to this, it had organised promotions, with a new car as first prize. It is likely that these competitive activities attracted most of the respondents and are also linked to the 258% increase in mobile subscriptions in 2003.

**PRE-PAID MOBILE SERVICES.** One of the underlying factors influencing the popularity of mobile telephones in Ghana and other developing countries is the introduction of the pre-paid system. This provides easy access for the majority of subscribers, who might have found the post-paid system expensive.

About 22.4% of pre-paid mobile telephone subscribers in major towns spent between c1,000 and

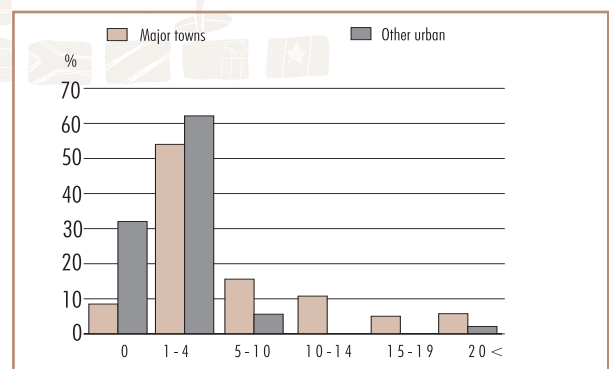
Cedi	US\$	Major Towns	Other Urban
1-5,00	US\$0-0.55	22.4	39.1
5,001-10,000	US\$0.56-1.01	0.8	2.2
10,001-15,000	US\$1.02-1.65	0.4	0
15,001-20,000	US\$1.66-2.02	2.1	2.2
20,001-30,000	US\$2.03-3.03	3	2.2
30,001-50,000	US\$3.04-5.05	8	13
50,001-100,000	US\$5.06-11	42.6	26.1
100,000->	US\$11->	20.7	15.2

Figure 6.6: Expenditure of pre-paid subscribers

c5,000 (US\$0.11-US\$ 0.55) per month on mobile services, compared to 39.1% in other urban areas. The low consumption pattern of this class of subscribers may be related to their monthly income. However, a significant number of subscribers (42.6%) in major towns and other urban areas (26.1%) spent between c50,001-c100,000 (US\$5.5-US\$11) on mobile communications. In all, 63.1% of the sampled subscribers in major towns spent more than c50,000 (US\$5.5) monthly on mobile telephones, compared to 41.3% in other urban areas. This emphasises the variations in expenditure patterns on mobile telephones between users in major towns and other urban areas, and also provides some economic justification for the concentration of ICT services in the key cities of the country.

**EXTENT OF SMS USAGE.** Unlike some developed countries such as the Netherlands, where there is a limit to the number of SMS that can be sent per month by a

Figure 6.7: Number of SMSs sent per week



subscriber, there is no limit on the number of SMS a subscriber can send in Ghana.

The majority of subscribers in major towns and other urban areas send a relatively small number of SMSs per week. In major towns, almost 54% sent between 1-4 SMSs per week, with 62% in other urban areas. About 11% sent between 10-14 SMSs per week in the major towns.

In other urban areas, 30% did not send SMSs at all. The low usage of SMS in this survey confirms an earlier study conducted in 2003, where it was found that only 3% of the sample had used SMS within a three-month period (McKemey et al 2003). The low usage of the SMS facility may be due to high illiteracy levels (31%).

**INTERNET ACCESS.** The level of access to the Internet in the sampled towns and rural areas shows a low level of access in the country. Residents in major towns mainly access the Internet through Internet cafés, followed by access at work or school. Access to Internet at home in major towns and other urban areas accounts for only 1.9% and 2.2% respectively. This confirms the assertion by Ahiabenu II (2003), that most of those using the Internet gain access at collective access points such as work, school or cyber cafés.

On the whole, Internet access is rising. It increased from 78.43 users per 10,000 people in 2003 to 172.15 in 2004. However, this level of penetration is lower than Senegal, for instance, where there were 469.16 users per 10,000 people in 2004.

One of the critical factors limiting household access to the Internet is the investment involved. Although it is possible to purchase a second-hand “Internet-ready” computer for between US\$200-US\$300, it is still expensive for the majority of Ghanaians. According to Southwood (2004), a typical web user has to pay a monthly subscription fee averaging US\$30 for unlimited access and one email account, plus a telephone usage rate of c200 (US\$0.03) per minute.

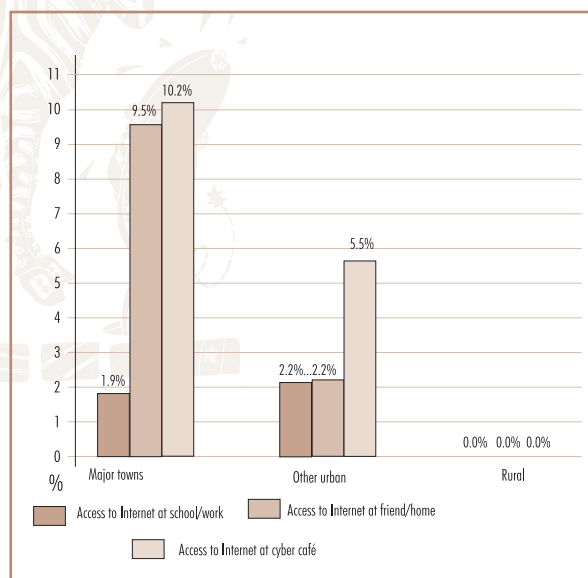


Figure 6.8: Access to Internet and others

Internet usage is negligible in rural areas, which is concerning, since the bulk of Ghana’s population that generates the greater part of the country’s income, live there. Therefore, providing Internet access and other ICT facilities is not only an issue of equity, but has great economic consequences for the whole country. This is due to the inherent positive contributions ICTs can make to improve efficiencies, productivity and the well-being of rural people.

To reduce this gap, the government has drawn up a programme to establish community ICT centres throughout the country. At these centres, rural people will be trained and have access to a number of ICT services, including the Internet. Under the programme, ICT centres are to be established in 230 communities. The first phase consists of establishing 62 community ICT centres, of which 60 have been completed and awaiting commissioning<sup>2</sup>.

In comparing household ICT facilities such as working PC, Internet connection and telephone, it is evident that household telephones are prevalent mostly

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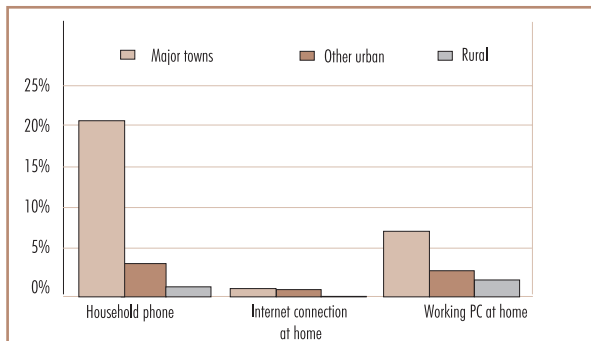


Figure 6.9: Computer, Internet and fixed line penetration at home

in the major towns. Availability of residential telephones and working PCs is also encouraging in other urban areas (see figure 10.9).

Nationally, residential access to telephones is on the rise, especially since 2000. A significant increase was recorded in 2000, when the number of residential landlines grew by 115.8% over the previous period. The continuous increases in the numbers of residential lines, especially in the 2000s, were helped by government's policy of using fixed line telephones to reach under-served urban and rural areas.

**RESIDENTIAL USAGE OF ICT FACILITIES.** The data depicted in figure 10 shows the penetration of residential telephones and the level of expenditure. The uptake of residential telephones by the sample is low. Only 21% of the households in major towns had telephones, 3.8% in other urban areas and below 1% in rural areas.

Apart from the financial implications, one factor which has restricted the uptake of residential telephones relates to the type of residential accommodation most Ghanaians occupy. A large number of Ghanaians, especially the lower-income group, live in rented compound houses, and relocation of landline subscriptions when moving between rented premises is difficult. Because of this, many people have not availed themselves of the service, even where available.

However, the situation is changing, especially in the case of middle-income earners who are acquiring properties in housing estates across the country. The concentration of houses in these estates has made it easier for telecoms companies, especially Ghana Telecom, to target and deploy their services there. Therefore, the gradual increases in residential telephones can partly be linked to this trend.

There is a common characteristic in household expenditure on telephones. In major towns and other urban areas, most households spent between c1,000-c100,000 (US\$0.1-US\$11). About 44.4% of households in major towns were in that range, as were 77% of households in other urban areas. Only 10% of households in major towns spent between c401,000-c500,000 (US\$45-US\$56) on telephones.

In comparing household telephones to other ICTs, it is evident that radio, and to some extent television, are the most popular ICT facilities in the country. About 90%

Figure 6.10: Household telephone and expenditure

	Cedi	US\$	Major towns	Other urban	Rural
Household Phone			21.0%	3.8%	0.4%
Household Expenditure (Median)			160,000	42,500	0
Household Expenditure (range)	1-100,000	US\$0-11	44.4%	76.9%	0.0%
	101,000-200,000	US\$11.1-22	28.8%	7.7%	0.0%
	201,001-300,000	US\$22.1-33	11.1%	0.0%	0.0%
	301,001-400,000	US\$33.1-44	5.6%	0.0%	0.0%
	400,001- 500,000	US\$44.1-55	10.0%	0.0%	0.0%

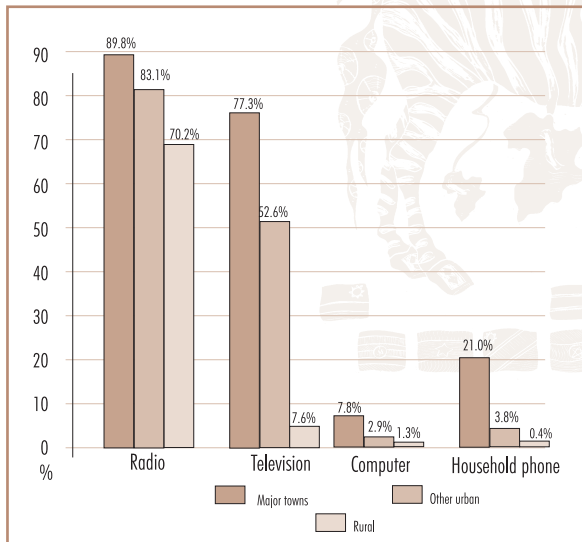


Figure 6.11: Household ICT Appliances

of households in major towns have radio, 83.1% in other urban areas and 70.2% in rural areas. This is due to the low cost of owning a radio and the proliferation of radio (FM) stations in the country after the liberalisation of the airwaves. By the end of 2004, the NCA had allocated frequency to 140 companies to operate FM radio stations in the country, of which 84 had commenced business.

Ownership of television is equally high. About 77.3% of households in major towns have television, 52.6% in other urban areas and 2.6% in rural areas. The relatively high level of ownership of television sets by households is also linked to the liberalisation of the airwaves, which has led to the licensing of four

companies to provide free-to-air services and another four on a subscription basis. The second factor, a recent phenomenon, is the burgeoning trade in used TV sets, imported mainly from Europe. These used TVs are reasonably priced and therefore accessible to many.

PC ownership is lowest, at 7.8% in major towns, about 3% in other urban areas and 1.3% in rural areas. The generally low household ownership of computers, coupled with low levels of residential telephone services, have a negative implication on household subscriptions to Internet services. Ownership of computers and availability of telephone service are prerequisites for an Internet connection.

**PUBLIC ACCESS.** Access to public-based telephone facilities is fairly distributed, though still low in rural areas. From the data, 54.5% of respondents have access to payphones in major towns and 46.5% in other urban towns, while rural access was 9.6% (see figure 12).

In the case of telecentres or communications centres, the major towns had access of 30.6%, other urban towns 31.8% and 10.7% in the rural areas. Interestingly, private telephone kiosks have a relatively higher presence in the rural areas. They registered 44.8%, while the major towns and other urban areas had 77.8% and 63.8% respectively.

The data depicts the agility of the private sector as an important partner in increasing access to ICTs in urban and rural areas of Ghana. Therefore, support

Figure 6.12: Access to public telephone facilities

	Cedi	US\$	Major towns	Other urban	Rural
Public payphones penetration			54.5%	46.8%	9.6%
Telecentre/community penetration			0.0%	0.0%	0.0%
Public access penetration			30.6%	31.8%	10.7%
Private telephone kiosks penetration			77.8%	63.8%	44.8%
Payphone spend	0- 5,000	US\$0-0.55	18.9%	31.3%	24%
	5,001-10,000	US\$0.56-1.01	0.5%	4.7%	7.5%
	10,001-15,000	US\$1.02-1.65	8.1%	10.6%	5.5%
	15,001-20,000	US\$1.66-2.02	10%	17.5%	13%
	20,001-25,000	US\$2.03-2.75	8.1%	4.7%	11%
	25,001- >	US\$2.76- >	50%	31%	39%

should be provided to such entrepreneurs to establish ICT businesses to facilitate access to such services. Though the national ICT4AD and the Telecoms Policy of Ghana recognise the important role the private sector can play, one wonders why the government should give the ownership and running of the community ICT centres to the District Assemblies. Such facilities could be franchised to the private sector, while the government provides technical support to keep the centres running. The private sector, without government support, has demonstrated dexterity in managing such centres in rural areas, and government needs to revisit its decision.

The growing importance of communication centres, private telephone kiosks and other public facilities is bolstered by the level of expenditure on communications by rural people. Though still low, an improvement in the rural economy will definitely support the burgeoning trade in communications services. For example, 39% of respondents spent over €25,000 (US\$2.75) per month on

communications, higher than in other urban areas. What's more, looking at the poverty situation in the rural areas, spending €25,000 (US\$2.75) per month on telephones, though a small amount, is a significant portion of household income.

The policy implication is that although the cost of extending telephone services to the rural areas might be high, evidence shows a real demand for services that could make such services profitable in the long run. The data reveals the importance rural people place on electronic communication, and they might increase their expenditures as their standard of living increases.

The length of time used to reach a communications facility is linked to the number of facilities in the area. Most individuals in major towns and other urban areas spend less time accessing public phones, telecentres and private telephone kiosks (see figure 6.13).

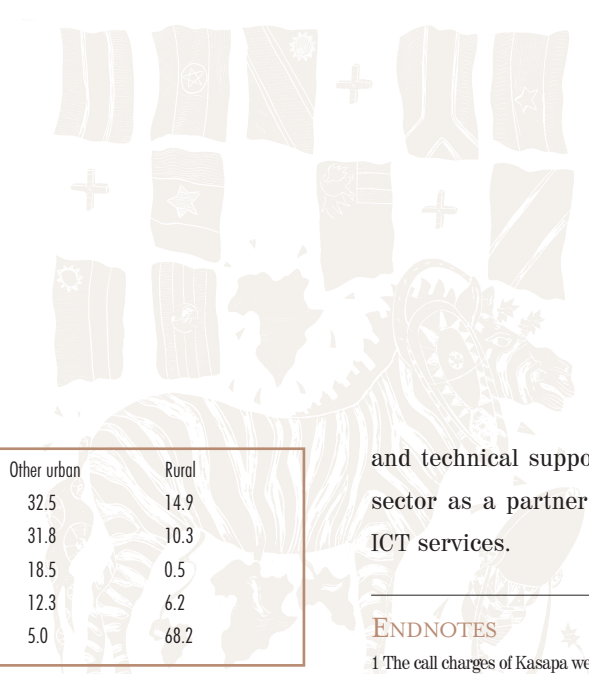
For example, 69.5% of individuals in major towns took between 0-15 minutes to reach a public phone, as opposed to 51.6% in other urban areas and only 18.2% in rural areas. Most rural people walk for more than 60 minutes to access payphones and private telephone kiosks.

The length of time the majority of rural people walk illustrates the point that the government's old policy of using payphones to achieve universal access was not very successful. The objective was to provide at least one payphone for every rural community of 500 people. To buttress this point, the strategy to boost the rapid deployment of payphones was never implemented. As part of the strategy, a new business entity was to be created to manage GT's payphones, and new public payphone operators were to be licensed for every region (Atubra et al 2000).

**ACCESS TO THE POST OFFICE.** The experience of people in rural areas in spending a longer time reaching public communications facilities is repeated in the case

Figure 6.13: Time spent accessing public telephone services

	Time (mins)	Major towns	Other urban	Rural
Time to public phone	0-15	69.5	51.6	18.2
	16-30	18.1	30.2	0.0
	31-45	8.2	9.3	9.1
	46-60	2.5	7.7	4.5
	61->	1.6	1.1	68.2
Time to telecentre	0-15	78.8	71.3	88.9
	16-30	11.8	24.1	5.6
	31-45	8.2	3.7	0.0
	46-60	1.2	0.9	0.0
	61->	0.0	0.0	5.6
Time to private kiosk	0-15	95.8	85.4	10.4
	16-30	2.7	9.7	2.1
	31-45	1.5	2.7	4.2
	46-60	0.0	1.8	4.2
	61->	0.0	0.4	79.2



	Major towns	Other urban	Rural
0-15	32.3	32.5	14.9
16-30	31.0	31.8	10.3
31-45	12.3	18.5	0.5
46-60	11.5	12.3	6.2
61->	13.1	5.0	68.2

Figure 6.14: Time to post office by foot

of access to post offices. The majority (68.2%) of rural people walk for more than one hour to post or receive letters from post offices. Only 13.1% of respondents in major towns and 5% of those in other urban areas have to walk for over an hour to reach a post office.

**CONCLUSION.** The discussion has looked at the policy and regulatory issues affecting ICT development and uptake in Ghana. Demand-side analysis has enabled a better understanding of the supply-side issue.

The analysis has confirmed the availability and usage of ICT services in the country. Most of the ICT infrastructure and services is urban-based, mostly in Accra (the national capital) and the other regional capitals. However, there is considerable evidence that people in rural areas value communication as much as urban dwellers, and are willing to pay proportionately large portions of their incomes to use them.

Contrary to the opinions of many analysts, there is an evolving market for communication services in the rural areas. This has been demonstrated by the increasing level of expenditure on telephone services in these areas. There is a conviction, demonstrated in this study, that improvements in the rural economy will exert a great impact on the telecoms market in the rural areas. As a result, the view of rural areas as not being economically viable may not be entirely correct.

Finally, the survey has shown that the few telecoms services in the rural areas have been driven by the private sector. This trend conforms to the rationale behind the telecoms liberalisation policy. Financial

and technical support should be given to the private sector as a partner in achieving universal access to ICT services. □

#### ENDNOTES

- 1 The call charges of Kasapa were revised in line with the new interconnection charges approved for the sector by the NCA during the last quarter of 2003. Kasapa now charges €900 per minute for intra network calls and €1,750 for inter-network calls.
- 2 Of this number, five community ICT centres were opened in the northern part of the country this year.

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