

Burkina Faso ICT Sector Performance Review 2009/2010

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*Towards Evidence-based ICT Policy and Regulation
Volume 2, Policy Paper 19, 2010*

**BURKINA
FASO**

Research ICT Africa

Research ICT Africa is a non-profit public research network, which is interested in information and communication technology (ICT) development policy and its governance. It is based in Cape Town, South Africa and is under the direction of Dr. Alison Gillwald. It aims to bridge the strategic gap in the development of a sustainable information society and a knowledge-based economy by conducting research on the policies and governance of the necessary ICT to document efficient governance in Africa. Initially financed by the CRDI, the network tries to extend its activities through national, regional and continental partnerships. The creation of the Research ICT Africa network meets the growing need for data and analysis necessary for an appropriate but visionary policy in order to propel the continent into the information age. Through the development of a network, RIA seeks to build an African knowledge base capable of supporting the ICT policy and regulating processes on the continent. Coming as it does from a public interest agenda in the public domain, individuals, public and private sector entities, and civil society are also encouraged to use the research for training, future research or to enable them to participate more efficiently in the formulation of ICT policy and governance on national, regional and global levels. This research is made possible thanks to significant funds received from the International Development and Research Centre (CRDI), Ottawa, Canada, to whom the members of the network express their gratitude for its support. The network is formed by 18 African countries. Similar national studies are available for South Africa (Kammy Naidoo/Steve Esselaar), Benin (Dr. Augustin Chabossou), Botswana (Dr. Patrica Makepe), Burkina Faso (Dr. Pam Zahonogo), Cameroon (Prof. Olivier Nana Nzèpa), Côte d'Ivoire (Prof. Arsene Kouadio), Ethiopia (Dr. Lishan Adam), Ghana (Dr. Godfred Frempong), Kenya (Dr. Tim Waema), Mozambique (Francisco Mabila), Namibia (Dr. Christoph Stork), Nigeria (Prof. Ike Mowete), Rwanda (Albert Nsengiyumva), Senegal (Mamadou Alhadji Ly/Mar Cathy Dieng Sylla), Tanzania (Bitrina Diyamett), Tunisia (Prof. Farouk Kamoun) and Uganda (Dr. Nora Mulira).

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Summary

This document examines the information and communication technology sector's performance in Burkina Faso. It enables the potential and constraints of ICT to be better understood. It emerges that in spite of an improvement in teledensity, Burkina Faso remains one of the countries in the sub-region with the highest communication costs. Thus, ancillary measures are taken to support the telecommunications sector reforms and the results are satisfactory.

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Laboratoire d'Analyse Quantitative Appliquée au Développement- Sahel (LAQAD-S)

Table of Contents

Introduction 1

Socio-Economic Context 2

Population 2

Gross Domestic Product 3

Consumer Price Index 4

ICT Policy and Regulatory Environment 6

ICT Development Policy 6

ICT Legal and Institutional Framework 11

Analysis of the Information and Communication Sector in Burkina 14

The Telecommunications Sector 14

(i) Telmob 18

(ii) Zain Burkina 21

(iii) Télécel Faso 23

The Information Technology and Internet Sector 26

The Media Sector 27

The Government and Information and Communication Technologies 30

Evaluation of ICT Regulation Framework in Burkina Faso 31

Market Entry 31

Access to Rare Resources 32

Interconnection and Facilities 32

Pricing Regulation 32

Regulation of Anti-Competition Practices 33

Conclusion 34

Introduction

The development of information technology and communication infrastructure in sub-Saharan Africa is experiencing a big delay compared to the rest of the world. This contributes to the broadening of the digital divide that exists between industrialised and developing countries. This delay can be explained by economical structure and cannot be analysed in isolation. Thus, to better describe the state of information and communication technologies in Burkina Faso it would be worth knowing the socio-economic context within which this study was carried out.

This volatility in the GDP evolution summarises the fragility of the economy, in this case its vulnerability to natural shocks and its sensitivity to political and institutional instability, which is characteristic of the country during the 1980s.

According to the latest classification by the UNDP, Burkina Faso occupies the 177th position out of 182 countries classified according to the HDI. This follows from the cyclical and structural factors affecting the country. In fact, economic development in Burkina over the past three decades has been irregular. Real GDP experienced growth of 3,9% during the 1960s followed by a very volatile period from 1980-1993, with a growth rate situated at around 3,1% and a very high coefficient of variation of 134% (Ministry of Economy and Finance/World Bank, 1999). The GDP per capita deteriorated considerably during the 1980-1994 period with a negative average growth rate of 0.5%. This volatility in the GDP evolution summarises the fragility of the economy, in this case its vulnerability to natural shocks and its sensitivity to political and institutional instability, which was a characteristic of the country during the 1980s.

The post-devaluation period was marked by relatively good growth. The GDP per capita experienced growth of 2% per year between 1995 and 1998 (Ministry of Economy and Finance/World Bank, 1999). The average GDP growth rate reached 5,3% between 2001 and 2008. Production activity remains based on agriculture, notably on cotton production. Economic growth remains too weak to significantly increase the living standards of the population, of which nearly half live below the breadline. The incidence of poverty in the population – in other words, the proportion of the population living below the breadline – was 45,3% in 1998 compared to 44,5% in 1994 (MEF, 2000). In 2003, it was 46,4%, which is an increase of almost 2 points over the period 1994–2003. Furthermore, growing urbanization of the poverty phenomenon could be witnessed. The incidence of poverty in urban areas nearly doubled during said period, increasing from 10.4% to 19.9% (National Institute of Statistics and Demography (INSD), 2003). In spite of the growing pauperization of the urban population, poverty remains an essentially rural phenomenon in Burkina. More than 92% of the poor live in rural areas (INSD 1996, 2000, 2003 and 2007) and close to 95% of these rural poor are farmers (INSD 1996, MEF, 2000). Policies to improve the competitiveness of the economy and to support economic growth are essential.

Economic theory recognizes that a good economic infrastructure is essential for competitiveness and growth. Burkina is unfortunately characterized by an inadequate and very expensive economic infrastructure in relation to other countries in the area, which already offer costs about twice as high as those of competitors in Asia. In particular, the costs of transport, telecommunications, water and energy in Burkina are higher by far than the average of countries in the area, and are often the most expensive (Ministry of Economy and Finance/World Bank, 1999).

The rest of the study is organized into five sections. The first section provides the data that situates the study in its socio-economic context. The second section analyses the ICT policy and regulatory environment in Burkina. The third section deals with the telecommunications sector. The fourth section is about the use of information and communication technologies in public administration. The fifth section deals with the perception of the ICT environment in Burkina Faso. The sixth and final section concludes the report and draws out the main points.

Socio-Economic Context

Our attempt to understand the socio-economic context springs from the idea that it is fundamental in the performance of economic activities. Hence, this section gives information on the population, the GDP and the consumer price index of Burkina between 2002 and 2006.

Population

According to the RGPH (General Population and Habitat Census) 2006, the population of Burkina Faso is set at around 14.2 million people. Between 1996 and 2006, the population of Burkina experienced an annual average growth of 3.1%, compared to 2.4% between 1985 and 1996, and 2.7% between 1975 and 1985.

Analysis of this population according to residential area and age categories enables us to determine the extent of policy choices to put into place for sustainable human development.

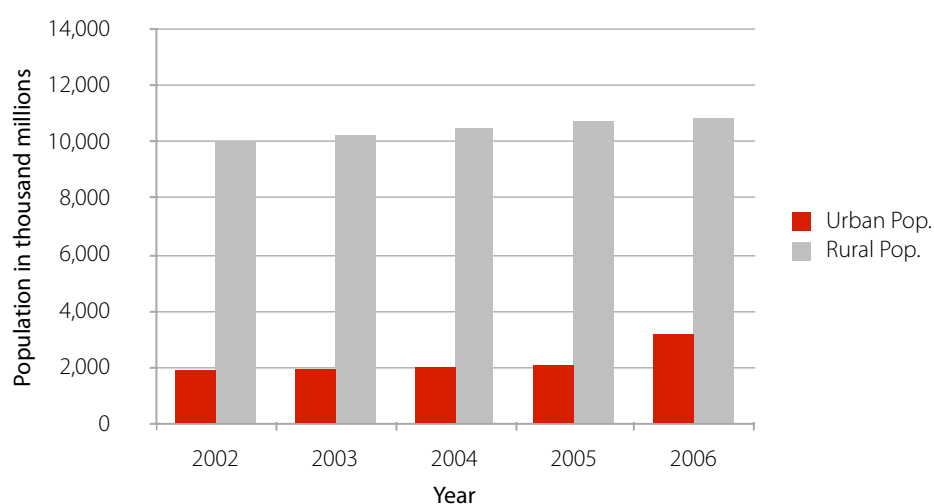
Analysis of geographical origins allows us to distinguish unequal distribution according to residential area. Over the 2002–2005 periods, the rural population represented more than 80% of the total population (Table 2.1). It decreased to about 77% in 2006. Despite this decrease, it is brought to light that the population of Burkina is essentially rural. Analysis of the structure by age indicates that the population of Burkina Faso is young, since 57% of the population was below the age of 20 years in 2006. The average age is 21.8 years and the median age is 15.5 years¹. These indicators give us an idea of the financial investments in physical and human capital that the country has to roll out to increase and stabilise the economic growth rate within the framework of the struggle against poverty, which remains an essentially rural phenomenon in Burkina.

Analysis of the structure by age indicates that the population of Burkina Faso is young, since 57% of the population was below the age of 20 years in 2006. The average age is 21,8 years and the median age is 15,5 years¹.

Table 2.1: Population size (thousand millions of inhabitants) between 2002 and 2006

	2002	2003	2004	2005	2006
Urban population	1 902,2	1 958,0	2 015,5	2 074,9	3 182,0
Rural population	10 003,9	10 239,0	10 480,1	10 727,4	10 835,3
Total population	11 906,1	12 197,0	12 495,6	12 802,3	14 017,3

Source : INSD



By grouping the population into households (a household being a group of people who make their production and consumer decisions under the authority of a single person, the head of the household), data indicates that in 2006 there were 2,360,126 households in Burkina. It can be observed that the geographic distribution of the number of households follows that of the

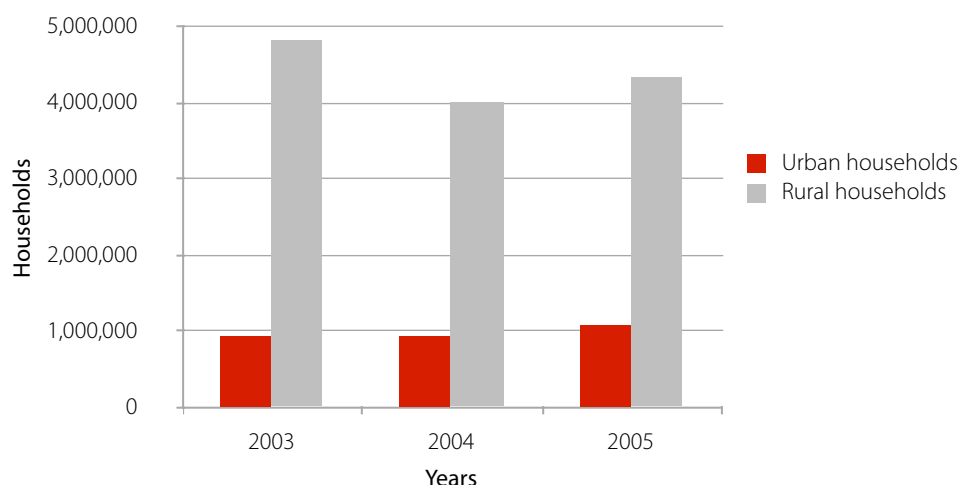
¹ The median age indicates that 50% of the population is older than 15,5 years and the other 50% is younger than 15,5 years.

population. In fact, despite a downward tendency between 2004 and 2005, rural households still represented the majority of the total number of households in the country. This period was preceded by an unexpected increase between 2002 and 2003 (increasing from 4,667,880 to 4,881,700 households). This situation can be explained by the effects of the crisis in Côte d'Ivoire, which led the population to a large-scale return to the countryside. So, from 2004 the evolution in the number of total households returned to a normal state as the situation in Côte d'Ivoire died down. The evolution of urban households was more stable, except between 2004 and 2005 (Table 2.2).

Table 2.2: Total households between 2002 and 2005

	2002	2003	2004	2005
Urban households	-	939000	939000	1082211
Rural households	4667880	4811700	4000000	4327271
Total households	-	5750700	4939000	5409482

Source: INSD



Gross Domestic Product

Over the past ten years, Burkina has experienced rather satisfactory economic development

Over the past ten years, Burkina has experienced rather satisfactory economic development. Nominal GDP records an average growth of 8.36% over the 2002–2008 period, increasing from 2,256.7 thousand million F CFA in 2002 to 3,646.9 thousand million F CFA in 2008. In addition, growth peaked in 2008 with an increase of 12.62%. The real GDP (at the 1999 price) experienced an average growth of 5.7%, increasing from 2,096.1 thousand million F CFA in 2002 to 2,921.8 thousand million F CFA in 2008. GDP per capita experienced an average growth rate lower than the geographic growth rate setting it at 2.39% during the same period (Tables 2.3 and 2.4). In terms of GDP growth, the 2007–2008 period seems to be the best period except so far as GDP per capita is concerned. Globally, 2008 remains the best production year over the period regarding the real GDP value.

Table 2.3: GDP evolution between 2002 and 2008

	2002	2003	2004	2005	2006	2007	2008	Average
Current GDP*	2256,7	2513,1	2656,2	2862,1	3017,5	3238,2	3646,9	2884,3857
Real GDP (1999 base)*	2096,1	2264,1	2369,1	2537,4	2677,4	2774,1	2921,8	2520
GDP per capita (1999 base)	174451	178454	181971	189870	194999	196344	200957	188149,43

Source: Automated Forecasting Instrument (2009)

*(thousand millions of FCFA)

Table 2.4: GDP growth rate between 2002 and 2008 in %

	2002	2003	2004	2005	2006	2007	2008	Average
Current GDP*	-	11,36	5,69	7,75	5,43	7,31	12,62	8,36
Real GDP (1999 base)*	-	8,01	4,64	7,1	5,52	3,61	5,32	5,7
GDP per capita (1999 base)	-	2,29	1,97	4,34	2,7	0,69	2,35	2,39

Source: our calculations from Automated Forecasting Instrument data

*(percentage %)

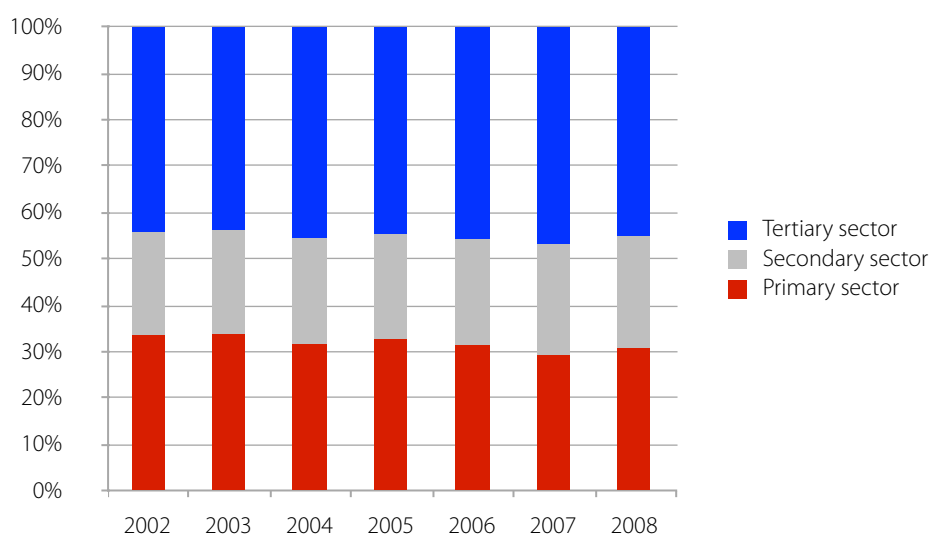
Analysis of GDP structure shows that economic growth in Burkina draws from the primary and tertiary sectors. On average, the contribution of each of these two sectors over the period 2002–2008 was 38% of GDP compared to less than 25% for the secondary sector (Table 2.5). In addition, the contribution of the tertiary sector over the considered period was higher and reached 47% in 2007. This set-up shows the state of underdevelopment in Burkina and the investments that have to be made to construct a competitive economy that is capable of maintaining long-term growth.

Analysis of GDP structure shows that the economic growth in Burkina draws from the primary and tertiary sectors.

Table 2.5: Distribution of GDP per sector of activity in % between 2002 and 2008

	2002	2003	2004	2005	2006	2007	2008
Primary sector	33,6	33,7	31,6	32,8	31,5	29,3	30,8
Secondary sector	22,2	22,5	22,9	22,6	22,7	23,8	24,2
Tertiary sector	44,2	43,8	45,5	44,6	45,8	46,9	45,1
Total	100	100	100	100	100	100	100

Source: Automated Forecasting Instrument



Consumer Price Index

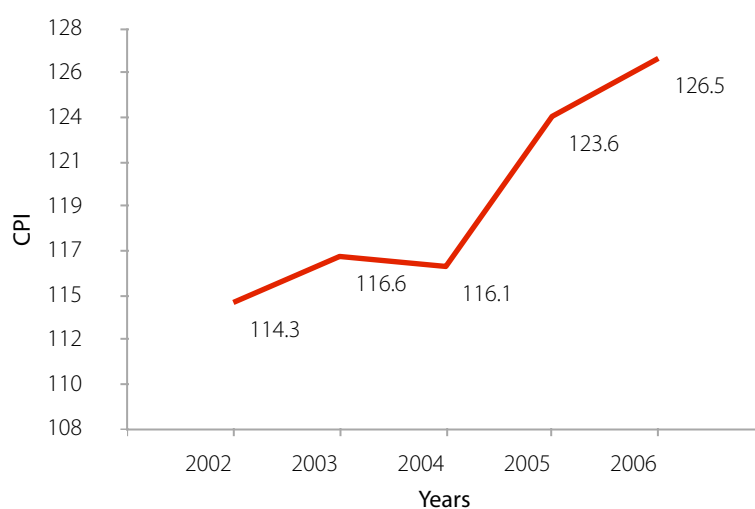
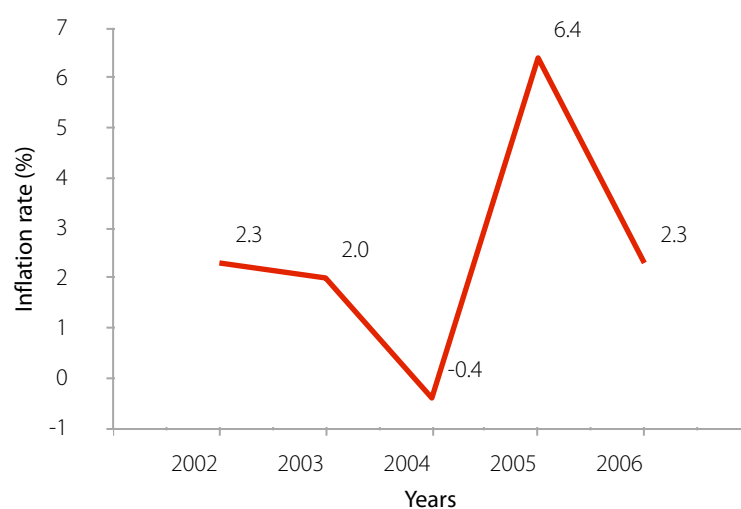
The economic development over the 2002–2006 periods was marked by a remarkable control of prices. On average, the CPI was at 119.42 (2000 base) and the average inflation rate was around 2.5%. A disaggregate analysis indicates that in 2004 inflation was under control in Burkina, but in 2005, prices experienced a considerable and worrying rise with an inflation rate of 6.4% (Table 2.6). This situation is largely due to the unfavourable conditions of the international environment, marked by a strong rise in global hydrocarbon and lubricant prices, as well as the Dollar exchange rate. To this, we could also add the harmonization of the UEMOA (West African Economic and Monetary Union) tax policy, which put value added tax (VAT) into effect at an average rate of about 18%. These exogenous

blows have put a serious strain on the population's buying power and contribute to the increase in the cost of living in Burkina Faso. From the point of view of a common market construction, respecting the criteria of macroeconomic convergence is imperative. In the communication sector, the "price war" in which mobile telephone operators are engaged, contributes to bringing prices down. In fact, the decrease of unitary prices and bonus systems has lowered the price levels of telephone communication.

Table 2.6: Consumer Price Index (CPI) from 2002 to 2006 (2000 base)

	2002	2003	2004	2005	2006	Average
CPI	114,3	116,6	116,1	123,6	126,5	119,42
Inflation rate (%)	2,3	2	-0,4	6,4	2,3	2,52

Source: INSD



ICT Policy and Regulatory Environment

The telecommunications sector in all the countries in the UEMOA area was partially or totally liberated. Most of the time, the liberalization was preceded by putting mono- or multi-sectoral regulatory organs into place by the promulgation of telecommunication laws. The objectives of these reforms are essentially to contribute to the growth of global well-being.

Generally, the cost of local communication for three minutes from a fixed line varies between 60 F CFA and 160 F CFA and monthly subscription fees are between 2.000 F CFA and 6.000 F CFA in the UEMOA region. Analysis per country shows some disparities. In fact, studies have shown that Burkina displays the highest telecommunication costs in relation to other developing countries and particularly those of the UEMOA. For example, for international calls, costs in Burkina are twice that of Senegal (Ministry of Economy and Finance/World Bank, 2001). Yet the role of these infrastructures in development has been highlighted by the economy theory. In order to make companies competitive, the reform of the telecommunications sector becomes a necessity. In this sense, the Government has undertaken a certain number of reforms since 1998 and it has clearly stated its NICT (New Information and Communication Technology) development policy through the statement of a sectoral telecommunication policy, the national communication policy for development and national IT master plans.

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ICT Development Policy

With the support of financial partners, Burkina has drawn up new information and communication technology sectoral development policies. These policies were later revised because shortcomings and failures were recorded on certain points.

The Sectoral Telecommunications Policy Statement

Carried by the multiple technological innovations and the wind of liberalization, the Government adopted a sectoral telecommunications policy statement in July 1999. The sectoral policy document announces the objectives pursued and the strategies that should be applied in order to obtain them.

The Government pursues the following objectives through this sectoral policy :

a - Better contribution from the sector to the economic, social and cultural development of Burkina Faso.

In this capacity, the Government wanted to increase the total number of telephone lines to 125,000 lines in 2003 for a population of 12,174,000 inhabitants, which would have corresponded to a telephone density of 1 line per 100 inhabitants. The objective for 2005 was to aim for a total number of 215,000 lines for a population of 12,758,000, or a telephone density of 1.66 lines per 100 inhabitants.

However, it is noted that in 2005 this objective had not been met for fixed lines, where telephone density still remains at 1 line per 100 inhabitants. For mobile telephones, telephone density in 2005 was 5.4 lines per 100 inhabitants.

In accordance with its objectives, the government counts on increasing the total number of telephones to 3.7 lines (fixed and mobile) or a teledensity of 25 telephones per 100 inhabitants by 2010.

b - Contribution from the sector to the development of the country by strengthening service penetration and accessibility to the population in rural areas.

For rural areas, the government wanted to equip all department administrative centres and big production centres (developed areas, mining areas, rearing centres, etc.) by the year 2002 and to equip 5% of the 8,000 villages with at least one telephone line for communal use by 2005, operating by means of new technologies, notably satellites.

With a total of 100,000 fixed lines and 650,000 mobile phones, Burkina has made noticeable progress in the area of telecommunication even though serious problems remain. In terms of infrastructure and service development, mobile telephone service can be found in 107 towns, of which 88 are commune administrative centres (351 commune administrative centres total).

The development and modernization of the fixed line network will speed up within the framework of the privatization of the incumbent operator in order to ensure service provision to all 351 commune administration centres by 2010, and thus, to contribute to the consolidation of the decentralization process

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c - Protection of strategic interests linked to the telecommunications sectors, notably taking into account all the aspects linked to safety and defence.

A collaborative work tool was designed and constructed for information management, and for the fight against organized crime. It is to be applied at Gendarmerie and Nation Police structure levels. However, even though pilot initiatives for applying these tools were executed successfully, their rollout still remains in the planning phase due to a lack of adequate processing and means of communication.

d - The sector taking charge of its own independent management and financing its activities.

Despite the significant progress made, the following shortcomings remain in the sector :

- inadequacy of existing infrastructures supporting the new uses of ICT ;
- low level of investments for the roll-out of fixed and mobile networks ;
- low participation from national economic operators in investments made in the sector ;
- virtual absence of content and services adopted to local needs ;
- low level of local skills development ;
- low level of ICT appropriation by individuals, companies and the Administration.

e - Total audio-visual coverage of the national territory.

At the beginning of the 1990s, the radio scene consisted of two radio stations: national radio and rural radio. These days, it consists of more than 80 stations, of which about 20 are in the capital. This expansion has been possible thanks to the wave of liberalization that was initiated in 1990 in Burkina Faso. Among these radio stations, we find international stations including Radio France Internationale (RFI). With the support of the High Council for Communication, the government intends to put about 60 stations into place with one in each of the 45 provinces and the remainder in the 15 regions that make up the country.

As for television coverage, two public channels exist. National television covers more than 80% of the country and can be internationally received thanks to a satellite network and the regional channel of Hauts bassins (RTB2). Four other private television channels (CANAL3, SMTV, TVZ Africa and BF1) and two denominational channels (CVK and Impact TV) also occupy a place in the market, but their broadcasting is restricted to the capital and the second biggest city in the country. Finally, the television scene in Burkina has grown thanks to the official installation of the Pan African channel AFRICABLE on 12 December 2007 in Ouagadougou. Thanks to this channel, certain programmes on the national channel can also be received via satellite.

f - Making new information and communication technologies (Internet and others) available throughout the national territory.

According to Ouedraogo (2007), the main group of users, whether it is Internet, telephones or computers, is concentrated in the capital, which makes up more than 70% of supply and demand. Apart from big cities such as Bobo Dioulasso, Ouagadougou, Ouahigouya, Koudougou and Banfora, the others represent an almost negligible situation.

Also, concerning Internet coverage, a backbone exists, which links Ouagadougou and 5 other cities with a 2 Mbts/sec connection: Bobo Dioulasso, Koudougou, Kaya, Ouahigouya, and Fada.

g - Ensuring the convergence of information technology, telecommunications, IT and audio-visual media.

According to the CNUCED (United Nations Conference on Trade and Development) 2006 report, the digital divide between southern and northern countries continues to grow. In fact, the ICT penetration rate for 48 countries in the southern hemisphere (of which 90% are in Africa) is 1% due to the lack of innovative infrastructure. In fact, only a steady pace of innovations will allow African countries to provide a vast market to potential investors who want to operate in markets where their competitors are already established.

h - Better service quality through competition, which should lead to a decrease in rates on the very short term.

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Despite applying sectoral ICT development plans, the relatively high cost of telecommunication services in relation to the average income of citizens and to the serviceable rate in certain countries in the sub-region affects the buying power of households.

In order to guarantee the most rapid development of electronic communication networks and services that are open to the public, it is imperative to develop policies favouring competition.

i - An increased contribution from the telecommunications sector to GDP and employment.

Since 2001, there has been growth in the contribution from the telecommunication sector to the formation of GDP, increasing from 2.30% in 2001 to 3.45% in 2005.

The growth from contributions from the telecommunications sector to GDP was made possible by putting strategies into place that allow an increase in private investments, improving the quality of services provided and growth in resources that can contribute directly to the reduction of poverty.

j - The contribution from the sector to consolidate the country's integration with regional and sub-regional groups.

The interstate interconnection of electronic communication networks raises the question of the harmonization of practices with national legislation. However, outside of Burkina Faso there is no legal framework designated to inter-state connection clauses. Conscious of the role and the importance of information and communication technologies to the social and cultural integration of the people and to the construction of a common economic space, the institutions of the sub-region, (UEMOA, ECOWAS and OHADA [Organisation for the Harmonisation of Business Law in Africa]) are working to harmonise policies and regulatory frameworks of member countries in order to reduce the development discrepancies in this vital sector.

The objectives, cited above, have been accompanied by two strategies.

Firstly, a telecommunications regulatory organ had to be put into place. This organ is l'Autorité de Régulation des Télécommunications (ARTEL) (Telecommunication Regulation Authority), put into place by Decree no. 99-419/PRES/PM/MC.

This organ is responsible for playing the role of arbitrator and regulator, and its aim is to create favourable conditions for dynamic and legal competition between the different operators. According to MPTIC (Ministry of Post and ICT) (2008), ARTEL is experiencing problems and confronts them with difficulty. In fact, apart from the lack of adequate equipment for the management and control of frequencies, the following difficulties exist :

- **Regulatory framework**

The main difficulty encountered remains the near impossibility at present for ARTEL to recruit, train and maintain competent human resources in a sector where the demand for telecommunication competencies and regulation is increasingly high. This situation is due to the clauses in the current regulatory framework.

- **Universal service**

This is a very important constituent in ARTEL's tasks. However, the implementation process has currently been put on hold.

Secondly, a favourable environment has to be set up for the liberalization of certain telecommunication market segments permitted by Act no. 051/98/AN. This liberalization had to keep into account the exclusive rights system applied to segments such as fixed lines, telex, telegraphs and international access.

Consequently, it made a move to bring new shareholders to the fixed-line network (ONATEL) in 2000 to allow this company to adapt in an increasingly competitive environment. The privatization of ONATEL was effective in December 2006 and the structure was taken over by Maroc Telecom. In fact, Maroc Telecom holds 51% of the fixed-line capital and of the mobile operator ONATEL's capital. The rest of the capital is divided as follows: Government (23%), ONATEL staff members (6%) and private individuals (20%).

It has to be noted that this liberalization was accompanied by distinguishing between the regulated competition system and the free competition system. The regulated competition system covers the radio electric networks such as cellular networks and point-to-point networks (walkie-talkie networks). The free competition system applies to all the value added services in which the private sector can invest immediately.

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National Communication Development Policy

As far as the written and audio-visual press is concerned, a national communication development policy was drawn up in July 2000 with the objective of promoting a type of communication which links all organizers of sectoral development policies. The objectives of the National Communication Policy for Development are to :

- a - Meet the technological needs of the various categories of the rural and urban population.
- b - Democratise access to the main information media.
- c - Promote information forwarding to the central decision structures from base communities established in the different provinces.
- d - Contribute actively to putting national development strategies into place.
- e - Promote free expression within rural populations by involving them in the assessment of social questions that concern them directly (education, health, female circumcision, the role of women, religion, protection of natural resources, land management, agro-pastoral production, etc.).
- f - Support the initiatives of village organizations, associations and groups.
- g - Make communication and popularization methods and techniques available to public and private organizations that intervene in the different development sectors.

The implementation of this policy should be translated by :

- the broad popularization of the new strategy to all the development role players and partners,
- the implementation of a series of legal and institutional reforms,
- the development and decentralization of public service media,
- the development of channels and local communication means, and
- drawing up sectoral communication development strategies for developing and supporting monitoring-evaluation.

Information Technology and Internet Development Policy

In the framework of the implementation of the second master plan of national IT 1996–2000, the Government initiated a broad programme centred on major objectives, the results of which are largely visible today.

The Information Technology and Internet Development Policy is based on the master plans of national IT. In the framework of the implementation of the second master plan of national IT 1996-2000, the Government initiated a broad programme centred on major objectives the results of which are largely visible today.

These days, the fruits of the investments granted over the course of the second master plan (1996–2000) to introduce ICT into the public administration level are now visible. Generalisation of the use of bureaucratic tools, which led to greater productivity in the administrative processing of files, can generally be noticed at all levels of public administration. More specifically, on the financial administration level, the use of ICT has permitted the improvement of transparency and accuracy in financial resource management. The principal business processes linked to the management of State personnel, public expenses, tax receipts (customs and taxes) and the centralization of accounting operations have been entirely computerized. This has, in particular, led to the fibre optic interconnection of about thirty Administration buildings in Ouagadougou and the installation of specialized lines between the Regional Treasuries and the Principal Treasuries in 12 cities.

Concerning the **administration of semi-autonomous regions**, a computerization process was also initiated on the basis of a communal software platform in order to establish decentralization through rigorous, transparent and efficient management.

On a **legal administrative level**, collaborative work tools have been designed and constructed for the penal, social, administrative, civil and economic channels in order to be implemented at the Courts of First Instance, Administrative Courts, Labour Courts, the Court of Appeal, the Court of Cassation and the State Council.

In addition, investments have been granted in the **education system** in order to introduce diverse management tools (financial, administrative and academic management at university level, management of bursaries and student loans, and management of academic statistic production at primary teaching level, etc.). These investments have encouraged the introduction of computers in

the teaching area. At the level of health systems, ICT has contributed to the improvement of, inter alia, communication (interconnection of health training in rural areas with the help of a radio type system), the management of a national health IT system, the management of essential, generic medicine, and the management of pharmacies and hospital management.

Concerning **environmental and natural resource management**, a network has been set up in order to encourage the formation of stakeholders, the definition of common references and the collection and transmission of information.

Finally, the point of these achievements has been **the attainment of economic and cultural potential and the improvement of the competitiveness of economic operators**, notably in the creation of a computerized file of companies in Burkina, the creation of websites for the Trade Point of Burkina, the FESPACO (Panafrican Film and Television Festival of Ouagadougou) and the SIAO (International Arts and Crafts Fair) in order to create a place where economic meetings and exchanges with the rest of the world can take place.

Following these results, a pilot operation tasked with putting administration online was initiated by the Government, with the support of the United Nations Development Programme and the International Institute for Communication and Development (IICD). This has allowed for the provision of each institution and each Ministry with a website in order to improve the development policies and the services provided to citizens and companies. This operation has also allowed the construction of a digital library of all the official newspapers published since 1954 in order to give value to the rich memory of the nation.

Multimedia content in the national languages in the field of popularizing agriculture and of education on the subject of public health are also being drawn up. In addition, the investments granted have enabled the electoral file to be computerized and placed online, which contributed to the organization of the transparent and uncontested presidential elections of November 2005. These efforts have also allowed the realization of electronic identity cards for biometric authentication. In 2010, about 3 million Burkinabe held such cards and they were required for the 2010 presidential election. These different activities have enabled their initiators to better understand the potentials and constraints of ICT. They have also contributed to the creation of the conditions required in order for the use of these technologies to be generalized across national cyber-strategy structuring programmes.

To consolidate this knowledge, the Government has, since January 2006, undertaken to implement a Governmental Intranet through the construction of a broadband voice and data network on a national scale. Big public and private companies have not been left behind in this process. They have, for the most part, implemented sophisticated systems to facilitate the management of their operations.

In terms of infrastructure and service development, the results below were obtained on 31 December 2005 :

- a global teledensity (fixed and mobile) of 5,5 telephones per 100 inhabitants compared to a teledensity of 0,41 telephones per 100 inhabitants in 1998;
- fixed telephone service in 251 towns (against an expected 400) of which 205 (out of 351) are commune administrative centres;
- mobile telephone service in 107 towns of which 88 (out of 351) are commune administrative centres;
- complete digitization of the telecommunications network;
- linking up the national network through fibre optics to Côte d'Ivoire, Mali and Togo with access to underwater fibre optics via Côte d'Ivoire and Senegal;
- development of value added services (SMS, internet and voice services) notably for mobile communication;
- increase in international internet connection bandwidth from 120 kilobytes per second in 1998 to 72 megabytes per second;
- putting an IP backbone in place, consisting of points of presence in eight cities;
- introduction of WiFi and ADSL for high speed internet access;
- introduction of a wireless local loop connection for fixed line subscribers as an alternative to a wire network;

- installation of a government intranet linking 12 cities;
- existence of more than 12,000 tele-centres and more than 1,000 internet cafés;
- total number of computers estimated at 30,000;
- growth of telecommunication operator investments from 34.5 thousand million F CFA in 2001 to 56.4 thousand million F CFA;
- growth of telecommunication operator turnover from 47.5 thousand million F CFA in 2001 to 101.2 thousand million F CFA;
- growth of contribution from the telecommunications sector to the formation of GDP from 2.3% in 2001 to 3.45%; and
- the indirect creation of about 35 jobs by means of making use of private tele-centres, internet cafés and the distribution of cards.

The objective of popularizing awareness, training, improvement and research in IT is essentially aimed at engaging the whole society in the ICT appropriation process to obtain a significant increase in the productivity and competitiveness of the economy. The National Internet and Other ICT Week has been taking place since 2006. The recruitment of high-level teachers in IT has also been planned. In fact, two teachers in 2007, four in 2008, six in 2009 and ten in 2010 were to be recruited to strengthen the capabilities of establishments such as the ESI (Higher School of Information Technology) and l'Institut Burkinabe des Arts et Métiers (IBAM) (Burkinabe Institute of Arts and Crafts), in the training of IT professionals.

ICT Legal and Institutional Framework

Telecommunications

The Government of Burkina undertook to reform the telecommunications sector through the adoption of Act no. 051/98/AN in 1998. This law should allow :

- the promotion of telecommunication development through the creation of an appropriate legal framework taking into account the demands of liberalization;
- the promotion and encouragement of the telecommunications role as fundamental economic, social and cultural development instrument;
- the promotion of the emergence and development of a competitive telecommunications sector to facilitate user access to new telecommunication services at the best prices; and
- the development and improvement of public telecommunications service through better national coverage of basic telecommunication service.

This reform establishes three legal systems. Its application is controlled by a regulation authority called Autorité de Régulation des Télécommunications (ARTEL).

The three systems are as follows :

(i) The exclusive rights system

This system concerns fixed-line telephones, international access, telex and telegraphs. These exclusive rights have been granted to the incumbent operator (ONATEL) until 31 December 2005 by Decree no. 2000-155.

(ii) The regulated competition system

This system governs the mobile telephone sector. In accordance with the law, this sector has to be led by three operators, one of which is the incumbent operator ONATEL.

(iii) The free competition system

This system concerns value added services such as the Internet.

Laws, decrees and bylaws have been passed or taken to accompany the implementation of a sector telecommunications policy (see Appendix 1).

Information Technology and the Internet

(i) Information Technology

Information technology was introduced into Burkina Faso in 1970, through the creation of a National Information Processing Centre (CENATRIN). It enjoyed the status of an industrial and commercial public establishment and benefitted from a monopoly in the automatic processing of state data and that of public establishments. At that time, the acquisition and importation of technological products and services were subject to special procedure. The importers recommendation no. 02/MFC/DC/CE of 26 February 1973 made it an obligation to submit any authorization requests to the CENATRIN for their opinion before any IT processing material could be imported.

With the advent of micro-technology, which is less expensive and easier to implement, this policy on the centralization of IT processing was abandoned at the end of the 1980s in favour of a policy connecting the technological tools and the end user. This led to the implementation of two new structures for the coordination and implementation of sector development plans :

- The Conseil Supérieur à l'Informatique of Faso, presided over by the Prime Minister, head of government, has the task of defining the main lines of the national IT policy in relation to Development Plans, to examine the IT plans and programmes, to recommend projects, studies and programmes in the field of IT and related disciplines and finally to recommend all proper measures for the control and promotion of IT.
- The Délégation Générale à l'Informatique, which is placed under the supervision of the Prime Minister, head of government, which is made up of the help tool for decisions, execution and control of the state's IT policy, is responsible for :
 - IT planning, regulation and control;
 - planning, monitoring of training and research in IT;
 - delivery of agreements for the supply of technological equipment and services;
 - technical supervision of IT processing centres, IT training centres and all other public structures whose activities enter into the framework of its appointment;
 - supervision and validation of IT blueprints for ministers and public establishments;
 - promotion and popularization of IT tools; and
 - to give its opinion on any IT markets of the State and its divisions.

To promote the specialization and development of excellence, a procedure to grant agreements by the Délégation Générale à l'Informatique for the provision of IT services was adopted in 1998. This procedure distinguishes five fields of activity :

- sale and maintenance of material;
- software sales;
- study, assistance, advice and development of software;
- networking;
- training.

For each of the five fields of activity, only the Companies or Company Groupings who have a valid technical agreement with the Délégation Générale à l'Informatique can participate in public markets for IT service benefits to the advantage of the state and its divisions.

The customs duties pertaining to the importation of IT products are determined by the Common Exterior Tariff (TEC), which is adopted in the West African Economic and Monetary Union (UEMOA) framework. This rate makes provision for :

- 5% for importation customs duty (DDI)
- 1% for statistic importation tax (TSI)
- 1% for solidarity community tax (PCS)
- 0.5% for community tax (PC)
- 1% for contribution to the implementation verification programme (CPVI)
- 18% for VAT

IT service benefits (including training) are also subject to VAT at 18%. However, to give rise to the modernization of industrial companies, the government instituted, by decree, a special temporary tax on the importation of IT material by these companies for the duration of one year starting from 17 September 2002. This clause exempted these companies from VAT.

Today, the acquisition and importation of IT products and services are no longer subject to special procedures. Authorisation prior to importation has been replaced by request prior to importation, which is more flexible and less constraining.

(ii) Internet

The benefits of Internet access services are part of the free competition system but can be subject to declarations or authorizations delivered by ARTEL. It is limited in practice by the exclusive rights for international access awarded to the incumbent operator until 31 December 2005.

At the end of December 2006, the Burkina Internet scene consisted of 25 Internet Service Providers (ISPs). On 31 December 2007, ARTEL registered about 30 ISPs, which were listed on the Internet market (MPTIC, 2007)

At the end of December 2006, the Burkina Internet scene consisted of 25 Internet Service Providers (ISPs). On 31 December 2007, ARTEL registered about 30 ISPs, which were listed on the Internet market (MPTIC, 2007). About 15 of these ISPs are active, including Fasonet, ONATEL's Internet division, which occupies a dominant position in this market.

Requests for the creation of (.bf) domain names have to be submitted to ARTEL by an intermediary of the local Internet service provider. They are awarded to all public and private companies who are regularly established in the national territory or abroad, or to any brand sharer who is officially registered with a competent authority of the World Intellectual Property Organisation (WIPO). The **gov.bf** domain is reserved exclusively for public administration.

Laws, decrees and bylaws have been passed or taken to accompany the implementation of the IT and Internet development policy (see Appendix 2).

Communication Media

The Conseil Supérieur de la Communication guarantees the honouring of legislative and regulatory texts that protect and organize the freedom of communication. The Conseil Supérieur de la Communication is an administrative authority which was created on 01 August 1995 in accordance with the clauses of Act no. 56/93/ADP of 30 December 1993 bearing on IT. It sees to the protection of fundamental principles such as the guarantee of the consistent practice of the profession, honouring of current legislation and the ethics relating to IT in Burkina, honouring of principles governing publicity in the media, and the guarantee of promotion of national culture through audio-visual media.

In the framework of the management of radio link space in Burkina, the Conseil Supérieur de la Communication issues permission to use private sector radio and television frequency bands. It also authorizes the use of television rebroadcasting systems through the MMDS process and draws up special requirement specifications for public and private audio-visual media.

In addition, the Conseil Supérieur de la Communication sees to the pluralism and the balance of IT through the content of audio-visual media programmes, sets the rates before granting political parties access to public media during election campaigns, and exercises control over media programmes in Burkina to certify their conformity with the clauses in the requirement specifications and the signed agreements. In relation to executive and legislative authorities, the Conseil Supérieur de la Communication can be consulted for projects and the proposition of laws relating to the media, to formulate proposals, give options and make recommendations on the relevant questions in its field of competence.

Regulation is exerted over means of calls to order, formal demands, authorization withdrawals, on the basis of seisin, the right of initiative or complaints, and when there is a violation of the law, lack of ethical rules and non-compliance with the required specifications.

Laws, decrees and bylaws have been passed or taken to accompany the implementation of the media development policy (see Appendix 3).

Analysis of the Information and Communication Sector in Burkina

The Telecommunications Sector

The development of the telecommunication sector in Burkina has been impressive over the course of the past ten years. Its structure changed drastically with the introduction of the GSM network in December 1996. Even though only fixed lines existed until 1995, there were three mobile telephones for one fixed line by the end of 2004 (MEDEV, 2005).

Telecommunication Operators

In Burkina, the telecommunication market consists of two systems. They are fixed-line telephones and mobile telephones. The fixed-line market was a state monopoly held by the National Telecommunications Office (ONATEL) until 2006. As for mobile telephones, three GSM mobile operators (Telmob, Zain Burkina and Telecel Faso)² have been sharing the market, which was experiencing continued growth, since 2000. The rapid growth of the number of mobile telephones is distributed differently between the three operators who hold mobile telephone operating licences. On 31 December 2007, these three mobile operators had a total of 1,858,039 subscribers, which corresponds to a mobile teledensity of 13.53 telephones per 100 inhabitants. The total number of subscribers of each of the three operators can be expressed in terms of market share, which is 49.80% for Zain Burkina, compared to 33.67% for Telmob and 16.53% for Telecel Faso (MPTIC, 2007). However, it should be noted that this market sharing is very unstable, keeping in mind the strong competition between operators and the low costs of transition from one operator to another. Because of this, all mobile telephone operators can quickly gain or lose market share according to its commercial policy or that of the other operators. In this way, competition in the sector has allowed the number of mobile subscribers to double in the space of barely two years, increasing from 1,858,039 in 2007 to 3,823,625 in 2009 (INSD, 2009).

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Apart from these operators, it is important to note that certain sectors of activity relating to telecommunications are being shared or create competition with local companies. This mainly involves terminals (telephone sets, answering machines, portable radios, photocopiers and telex), private automatic exchange (PABX) and their facilities, cabling and many others where local companies such as DIAFCA, CFAO Technologie, SIGEC TELECOM and ENERCOM are real competitors.

Table 4.1: Telecommunication operators in Burkina

Name	Date of creation	Type of licence
ZAIN BURKINA	30/05/2000	Mobile telephones
TELECEL FASO	25/05/2000	Mobile telephones
TELMOB	01/01/1996	Mobile telephones
ONATEL-SA	01/01/1960	Fixed line telephones

Source: DELGI

Fixed-line Telephones

ONATEL is the only telecommunications operator to hold a fixed-line operating licence in Burkina Faso. ONATEL was born from the demise of the Office des Postes et Telecommunications (OPT) by decree no. An IV 274/CNR/ TRANS of 19 February 1987. It was first set up as a Public Industrial and Commercial Establishment (EPIC) and was then transformed into a State-owned company (SE) by decree no. 94-338/PRES/MIC/MCC of 2 November 1994 of which the State holds 100% of the capital. Under this new status, it was placed under the triple supervision of the Ministry of Communication and Culture (MCC), the Ministry of Commerce, Industry and Arts and Crafts (MCIA) and the Ministry of

² Since 29 December 2006, ONATEL and its mobile telephone subsidiary Telmob have been privatized and taken over by Maroc Telecom. Subsequently the telecommunications market in Burkina is completely dominated by private operators.

Economy and Finance (MEF), and was responsible for ensuring public telecommunication service and telecommunication regulation and legislation. Furthermore, ONATEL represents Burkina in international telecommunication organizations such as the International Telecommunications Union (UIT) and the Pan African Telecommunications Union (UPAT).

ONATEL's interurban transmission network is essentially (90%) made up of digital radio links. International communication access (voice, data, images etc.) takes place through a secure satellite transmission by two earth stations, one Standard A station and the other Standard B. The biggest advance on this level is the connection via SAT 3 fibre optic links to underwater cables via Senegal, Côte d'Ivoire and Benin. Apart from the national network, there are about ten transmission and/or reception VSAT and DAMA stations installed by the private sector (big national and international companies and international institutions) for specific usage.

The policy of large-scale linking at reduced rates has allowed for rapid growth in the number of clients. In volume, fixed-line telephones represent 17.76% of the market compared to 82.24% for mobile telephones. The total number of subscribers increased from 61,908 in 2002 to 116,746 in 2007, a global teledensity of 0.85 main telephone lines per 100 inhabitants (Table 4.2).

Analysis of networks indicated that the ONATEL telephone network consisted of 143,301 operational main fixed lines in 2008, being 1.2 main lines per 100 inhabitants. This rise is explained by the willingness of public authorities to provide all rural areas with fixed lines (Table 4.3).

Table 4.2: Number of subscribers and fixed-line teledensity in Burkina

	2002	2003	2004	2005	2006	2007	2008
Number of operators	1	1	1	1	1	1	1
Total subscribers	61 908	66 639	85 225	90 000	94 758	116 746	143 301
Teledensity per 100 inhabitants	0,52	0,55	0,68	0,7	0,72	0,85	1,2

Source: Our calculations from ARTEL and MPTIC data

Table 4.3: Fixed line telephone network in Burkina

	2002	2003	2004	2005	2006	2007	2008
Operational main telephone lines	79 700	89 000	105 000	113 340	115 746	128 665	150 151
Main lines per 100 inhabitants	7	7	8	9	0,85	0,94	1,1
Waiting list for main lines	320	1000	750	600	-	-	-
Number of towns and cities served	177	182	185	192	269	308	308

Source: Our calculations from ONATEL data

Tables 4.4 and 4.5 indicate that subscription pricing and fixed-line fees experienced a significant drop between 2002 and 2005. Subscription fees for business fixed lines decreased from 94,840 F CFA in 2002 to only 25,000 F CFA in 2005. The rate for residential telephones decreased from 39,840 F CFA in 2002 to 17,500 F CFA in 2005. The same can be said regarding monthly fees (Table 4.5). These rates are still valid as they have not changed significantly since 2005. These results show that the cost of fixed-line access has dropped drastically, especially for business users. This reduced the production costs of companies in Burkina Faso considerably and made them more competitive.

Table 4.4: Fixed-line subscription fees in Burkina

	2002	2003	2004	2005	2006	2007	2008
Business telephone	94 840	94 840	47 000	25 000	25000	25000	25000
Residential telephone	39 840	39 840	21 000	17 500	17500	17500	17500

Source: ONATEL

Table 4.5: Monthly fee for fixed line telephones in Burkina

	2002	2003	2004	2005	2006	2007	2008
Business telephone	4 500	4 500	2 500	2 500	2500	2500	2500
Residential telephone	3 000	2 500	2 500	2 500	2500	2500	2500

Source : ONATEL

ONATEL distinguished two pricing periods for fixed lines: off-peak and peak hours. Generally, communication rates are lower during off-peak hours than during peak hours. Contrary to the access costs, which decreased over the period, we notice an increase in communication rates, locally as well as internationally, over the 2002–2005 period. On the other hand, communication rates have experienced a remarkable decline over the course of 2006 (the year in which the incumbent operator was privatized) and this tendency continued until now. The hourly load factor of communication rates (off-peak and peak hours) has allowed the reduction of costs in relation to pricing according to distance, which allows the access of certain towns to fixed-line telephones at a lower cost. Between 2002 and 2009, on average, the pricing of a local telephone call of three minutes through ONATEL was 133.6 F CFA during off-peak hours compared to 183,5 F CFA during peak hours. A three-minute call in the national territory was billed at 294.6 F CFA in off-peak hours compared to 468 F CFA during peak hours. Internationally, a three-minute call to the USA would cost 624 F CFA on average during off-peak hours compared to 780 F CFA in peak hours (Table 4.6). In addition to post-payment communication rates, ONATEL introduced pre-payment for fixed lines with phone cash and the freedom card. These are systems of prepaid cards that allow users to recharge their communication credit as they wish on a fixed line, for the payment of a monthly instalment of 2,000 F CFA. It allows subscribers to better manage their communication budgets.

Communication rates (for fixed lines) have experienced a remarkable decline over the course of 2006 (the year in which the incumbent operator was privatized) and this tendency continued until now.

Table 4.6: Telephone call rates between 2002 and 2006 in F CFA

		Local call	National call	Call to USA
		of 3 minutes	of 3 minutes	of 3 minutes
2002	Off-peak hours	120	270	1 440
	Peak hours	180	450	1 800
2003	Off-peak hours	120	270	1 440
	Peak hours	180	450	1 440
2004	Off-peak hours	180	330	1 560
	Peak hours	230	525	1 940
2005	Off-peak hours	180	330	1 560
	Peak hours	230	525	1 940
2006	Off-peak hours	68	273	624
	Peak hours	97.5	390	780

Source : ONATEL

On 31/12/2008, ONATEL had a total of 1,343 employees of which 67 were new recruits and 29 left for retirement, which places it among the biggest employment purveyors in Burkina. Its indirect products and services distribution network (private tele-centres, card distributors and retailing) also holds thousands of permanent and temporary jobs. Company excellence, competitiveness and client satisfaction are increasingly linked to the capabilities of people and their ability to innovate and to face challenges. This investment in human capital appears to be a key factor in competitiveness and serves as a response to salaried workers' expectations and to company needs.

ONATEL therefore committed to a competency development process for employees through a plan of commercial and technical training in 2008. The training was especially centred on the marketing techniques arising from the commercial attitude to knowledge of ONATEL's products

On 31/12/2008, ONATEL had a total of 1,343 employees, which places it amongst the largest employment purveyors in Burkina.

and services. They essentially aim to revitalize the sales activity, strengthen the sales force, develop commercial aggressiveness, etc.

In addition, the Office has an École Nationale de Télécommunications (ENT) (National School of Telecommunication), which is in charge of training technicians up to the level of two years of university study (middle management staff) for its own needs, as well as those of private operators. Top management are mostly trained at the École Supérieure Multinationale des Télécommunications (ISMT) (Multinational Advanced School of Telecommunication) in Dakar, Senegal for project engineers and commercial inspectors and in Europe (France) for telecommunication engineers.

Mobile Telephones

Mobile telephones were introduced into Burkina in 1996 and are the most popular telecommunications medium today. The advent of messaging has reduced the costs of communication more and popularized the use of mobile telephones.

It also has to be emphasised that mobile telephones play an important role in the struggle against poverty through the creation of thousands of direct and indirect jobs (salaried workers, seller, distributors, etc.).

Access to Mobile Telephones

The number of mobile telephone users is far greater than that of fixed-line users since most families, including the most humble, can purchase a portable telephone.

Over the 2002–2007 period, the number of mobile telephone subscribers experienced exponential growth with 51.41% more subscribers per year on average.

Globally, telecommunication operators boasted 693,839 cellular mobile telephone subscribers in 2005, or a teledensity of 6.74 mobile phones per 100 inhabitants. In 2002, the number of subscribers was only 202,658, a teledensity of 1.7 mobile phones per 100 inhabitants. Between 2002 and 2007, the number of subscribers experienced a sustainable growth, thus increasing to 1,858,039 in December 2007, which corresponds to a teledensity of 13.53 telephones per 100 inhabitants. This data indicates a certain craze for mobile telephones. This situation can be explained, among others, by the flexibility of subscription procedures to this type of telephone service compared to fixed lines, by the low price of telephone devices and by the relatively low cost of recharge cards. In fact, the price of chips (SIM cards) has decreased considerably in the past few years. Nowadays, SIM cards³ are available at very low prices and are even distributed free of charge in cases where the purchase cost also gives the user the same amount of communication credit. Mobile telephones were thus rapidly integrated into the daily lives of the population.

Analysis per operator shows that Zain Burkina, which was until recently commercialized under the Celtel brand, has the most clients in Burkina, with about 50% of the market in 2007. It is closely followed by Telmob, which holds close to 34% of the market. For these two operators, the number of subscribers and teledensity underwent a remarkable evolution over the period from 2002 to 2007. The Telecel Faso network has remained in the margin in the development of the mobile telephone market with barely 16.53% of the market (Tables 4.7 to 4.10). This network has agreed to a large drop in its communication rates at the end of 2006 (150 F CFA including taxes per minute for national communication to any operator and 250 F CFA including taxes for international communication, whatever the destination), which has probably allowed it to gain market share.

Until 2005, only the Telmob operator offered the two payment systems (prepaid and postpaid). The other two operators only offered the prepaid system.

Table 4.7: Mobile telephone subscribers in Burkina between 2002 and 2007

	2002	2003	2004	2005	2006	2007
Number of subscribers (mobile)	202 658	321 606	422 917	693 839	1 016 605	1 858 039
Number of prepaid subscribers	-	-	-	-	-	1 841 673
Number of postpaid subscribers	-	-	-	-	-	8 572
Teledensity per 100 inhabitants	1,7	2,6	3,4	5,4	7,4	13,53

Source: Our calculations from operator data

³ Nowadays, chips cost between 500 to 1000 FCFA with the same amount of credit.

Table 4.8: Number of Telmob subscribers

	2002	2003	2004	2005	2006	2007
Number of subscribers (mobile)	79 175	125 202	160 304	267 844	365 682	625 705
Number of prepaid subscribers	70 463	124 075	159 056	266 368	359 408	619 328
Number of postpaid subscribers	8 712	1 127	1 248	1 476	6 272	6 216
Teledensity per 100 inhabitants	0.7	1.0	1.0	2.1	2.66	4.56

Source: Our calculations from Telmob data

Table 4.9: Number of Zain Burkina subscribers

	2002	2003	2004	2005	2006	2007
Number of subscribers (mobile)	80 216	152 680	216 800	376 912	517 550	925 134
Number of prepaid subscribers	-	-	-	-	-	917 210
Number of postpaid subscribers	-	-	-	-	-	576
Teledensity per 100 inhabitants	0.7	1.3	1.7	2.9	3.69	6.74

Source: Our calculations from Zain Burkina data

Table 4.10: Number of Telecel Faso subscribers

	2002	2003	2004	2005	2006	2007
Number of subscribers (mobile)	43 276	43 724	45 813	49 083	127 101	307 200
Number of prepaid subscribers	-	-	-	-	-	305 134
Number of postpaid subscribers	-	-	-	-	-	1 780
Teledensity per 100 inhabitants	0.4	0.4	0.4	0.4	0.91	2.24

Source: Our calculations from Telecel Faso data

Mobile Telephone Pricing

The liberalization of the telecommunications sector has promoted competition in the mobile telephone sector in Burkina Faso. Telephone rates display a downward tendency, which can be explained by the strong competition in the market. The prices differ from one operator to another according to the product or services offered. Mobile telephone users are divided into post-payment subscription holders and prepaid card holders. Depending on living standards and their needs, users can choose one or the other option. In Burkina, the second option is the most widespread. In general, economic role players with strong buying power subscribe to the first option. Communication rate setting is left to the operators' discretion. However, the electronic communication regulation authority verifies the application of these declared rates.

(i) Telmob

Subscription to Telmob can be accomplished by means of post- or pre-payment and through fleet services. Post-payment or subscription with monthly billing has been provided since the advent of cellular mobile telephones. It is characterized by :

- connection fees
- subscription contract
- monthly billing
- a security deposit

Post-payment subscription offers two options :

- The national option, which restricts calls to the national territory. The cost of this subscription is one hundred and twenty seven thousand two hundred (127,200) francs, which includes a connection fee of 41,000 F CFA, a rental charge of 5,900 F CFA and 80,000 F CFA as deposit for the national option with restriction to national networks;
- The international option, which offers the option of national and international communication amounts to two hundred and forty seven thousand two hundred (247,200) francs, which includes a connection fee of 41,300 F CFA, rental charge of 5,900 F CFA and 200,000 F CFA as deposit.

Prepayment is a subscription that makes use of recharge cards. It enables the use of mobile telephones without a rental charge or billing. To take advantage of this service, all that is needed is the subscription payment (currently 3,000 F CFA). This subscription gives the user a prepaid kit, consisting of a SIM card giving him/her access to all TELMOB's free services, and an initial communication credit of 1,500 F CFA.

When the initial credit has been used up, it is possible to use "nanan" recharge cards or one of the different call cards sold by the ONATEL-SA Group, such as Liberte or Dounia.

The Telmob operator provides a varied range of paying services in the mobile telephone industry :

- Incoming restriction allows the post-paying subscriber to receive calls only. It is billed at 3,000 F CFA/month ;
- Communication details offer post-paid clients a statement of their calls. This service costs 6,136 F CFA ;
- Operator restriction (ZAIN and TELECEL) allows the post-paid subscriber to make calls only to TELMOB lines and fixed lines. This restriction is billed at 3,000 F CFA ;
- Anonymity offers the post-paid subscriber the option of keeping his/her number confidential. Anonymity is billed at 5,900 F CFA.
- Interurban and national restrictions offer the post-paid subscriber the option of making only national calls. This service amounts to 3,000 F CFA.
- Lifting the interurban restriction allows the post-paid subscriber to phone internationally. Lifting this restriction is subject to the payment of a deposit of 200,000 F CFA ;
- Number change offers the post-paid client the option of changing his/her call number. This service costs 4,248 F CFA;
- Roaming allows the post-paid subscriber to communication with his/her TELMOB number in all countries where TELMOB has agreements with telecommunication administrators. With roaming, when the subscriber is abroad and he/she receives a call, he/she pays the amount of the international communication while the caller only pays the cost of local communication ;
- SMS allows TELMOB subscribers to write short messages to each other;
- Faxing offers clients the option of sending or receiving fax messages from their portable phones.

Communication billing for prepaid subscription is done according to different time slots during the course of which the calls are made. These time slots do not apply to Short Message System (SMS) communication. The communication rates at Telmob according to these different time slots are the following :

Table 4.11: Telmob communication costs

Type of communication	Rates including taxes (in F CFA per minute)		
	Peak hours	Night rate	Off-peak hours
TELMOB to Ouagadougou fixed line	140	83	112
TELMOB to national fixed line	189	-	151
TELMOB to Zain or Telecel	236	-	189
TELMOB to TELMOB	150	83	120

Source : *Telmob (2010)*

Table 4.12: SMS Communication rates

Year	Rates including taxes
	(in F CFA)
TELMOB to TELMOB	25
TELMOB to other mobile networks	30
TELMOB to international networks	75

Source : *Telmob (2010)*

Table 4.13: The different time slots (Time zone GMT +00)

Day	Peak hours	Reduced hours	
		Off-peak hours	Night hours
Mondays to Fridays	07h00 to 20h00	20h00 to 00h00 and 05h00 to 07h00	00h00 to 05h00
Saturdays	07h00 to 12h00	12h00 to 00h00	
Sundays and public holidays	-	20h00 to 00h00 and 05h00 to 20h00	

(ii) Zain Burkina

The Celtel operator, which became Zain Burkina in 2008, offers a prepaid subscription service to individuals and a post-paid subscription and fleet service to companies. Different rates are proposed for individuals and companies. The pricing⁴ for prepaid services offered to individuals is as follows :

Table 4.15: Price per minute in F CFA including taxes

	Peak	Off-peak
	Hours	Hours
Zain to Zain	170	136
Zain to other mobiles	280	223
Zain to local fixed lines	219	175
Zain to national lines	250	199

Source : Zain Burkina (2009)

Off-peak hours: all working days from 13h30 to 15h00 and from 21h00 to 7h00, weekends and public holidays.

Until December 2009, Zain offered its subscribers the option to phone with per second billing. The costs of this former pricing method are summarized in the following table :

Table 4.16: Price per second in F CFA including taxes

	Single rate
Zain to Zain	4
Zain to fixed line	6
Zain to other mobiles	7

Source : Zain Burkina

The post-paid service allows companies to make calls without recharging with prepaid cards to benefit from a 10% reduction on monthly billing, ten free SMSs per month and personalized customer service.

The fleet service allows companies who have a significant volume of internal communication to take advantage of free communication inside the company's fleet for the payment of a monthly fee. Conditions for fleet subscription are the following :

- Minimum of 20 lines (post-paid and/or prepaid) ;
- Monthly charge of 7,500 F CFA per line ;
- Free subscription for employees who do not yet have a Zain line.

Table 4.17: Tariff scheme of limited Postpaid and Prepaid Services

Destinations	Price per minute in F CFA Single rate, valid 24h/24
Zain to Zain	126 F CFA/min
Other mobiles	171 F CFA/min
SMS	30 F CFA/SMS

Source : Zain Burkina

⁴ Since 2010, Zain Burkina has offered a single rate called 'economic and simple' to prepaid subscribers. The communication cost is 145 F CFA to Zain and 190 F CFA including taxes to other networks.

Table 4.18: Subscription conditions to Zain Burkina postpaid services

	Postpaid	Roaming	Monthly
	Deposit	Deposit	Charge
Large enterprises	150 000	200 000	5 900
Small and medium enterprises	200 000	500 000	5 900

Source : Zain Burkina

The tariff scheme for post-paid and fleet services that Zain offers to companies are :

Table 4.19: Price per minute for post-paid services in F CFA including taxes

	Peak	Off-peak
	Hours	Hours
Zain to Zain	153	123
Zain to other mobiles	251	201
Zain to fixed local lines	197	157
Zain to national lines	225	179

Source : Zain Burkina

Table 4.20: Price per minute for fleet services in F CFA including taxes

Destinations	Price per minute in F CFA	
	Peak hours	Off-peak hours
Communication inside of the fleet services of the enterprise	0	0
Zain to Zain	According to the price plan ⁵	According to the price plan
Zain to other mobiles	According to the price plan	According to the price plan
Zain to fixed local lines	According to the price plan	According to the price plan
Zain to national lines	According to the price plan	According to the price plan

Source : Zain Burkina

Off-peak hours: all working days from 13h30 to 15h00 and from 21h00 to 7h00, weekends and public holidays.

⁵ Until 2010, Zain Burkina offered various pricing plans, including kepi, nafa, cool, yankadi etc.

(iii) Télécel Faso

As with other telephone operators, connection to the Telecel Faso network can be done by post- or pre-payment. The individual post-payment offer is linked to a specific fixed rate, determining consumer credit and the corresponding tariff. This offer is especially suitable for people who have a high telephone usage. The prepaid offer consists of :

- Connection kits with initial credit
- Packs (Device + Subscription + communication credit)
- Recharge cards
- Telecel Faso offers its clients a group of paying services (see table 4.20)

Table 4.20: Price per minute in F CFA including taxes for fleet services

Subscription fees	15,000 F CFA/ post-paid number
Monthly charges	10,000 F CFA exl tax/ post-paid number
Connection fee	10,000 F CFA incl tax/ prepaid number
Roaming	10,000 F CFA/month - deposit 250.000 F CFA
Restoral service charge	5,000 F CFA incl tax
Number change	25,000 F CFA incl tax
SIM card replacement	5,000 F CFA incl tax
Short message sending	30 F CFA incl tax
Fleet	7,000 F CFA incl tax of the monthly charge

Source: Télécel Faso

After staying in the margins in the rapid development of the mobile telephone market, Telecel Faso is today booming with its relatively low rates and is unique in relation to its competitors. At the moment, it is the only Burkinabe operator to offer a singular and very competitive pricing of 140 F CFA including taxes per minute, to any destination on a national level and 250 F CFA per minute to any international destination. In addition, it offers its clients the option of creating a list of 5 "friend numbers". This service lets the user benefit from very attractive telecommunication rates (75 F CFA including taxes per minute to these numbers).

Despite their strong growth, telephone operators still offer relatively limited territorial coverage.

Despite their strong growth, telephone operators still offer relatively limited territorial coverage. In fact, after an audit, the electronic communication regulation authority pointed out that the operators Telmob, Zain Burkina and Telecel have a total coverage rate of 56%, 53% and 37% respectively. The majority of these operators' consumers are found in big urban centres such as Bobo Dioulasso and Ouagadougou.

Investments, Income and Human Resources in the Mobile Telephone Industry

The contribution of mobile telephone networks to the national economy is substantial through the investments carried out, taxes paid, job creation opportunities and revenue provided. A global analysis indicates that mobile telephone operators have invested an average of 47,087,144,139 F CFA in 2007 (MPTIC 2008) against 6 thousand million F CFA in 2002 and 2,9 thousand million F CFA in 2004. Over the 2002–2005 period, operators decreased their contribution to investments while their revenue grew in parallel.

In 2007, mobile telephone operators employed 525 people in terms of direct employment. This includes the creation of 32 new direct jobs compared to 2006.

Small businesses have developed around mobile telephones these past few years. To add to these direct jobs, thousands of indirect jobs are created through the sale of cellular devices, cell phone repair services and the distribution of recharge cards in which small and large distributors are involved.

Analysis per operator shows that with an average annual income of 1,812,500,000 F CFA over the 2002–2007 period, Telecel Faso dragged behind in relation to the other operators (Telmob and Zain

Burkina) which each generated income of around 5 thousand million francs CFA. Telecel Faso and Zain Burkina have made the biggest investments over the period. This is due to the fact that these two operators were in the installation phase in the mobile telephone market. Data shows that Zain Burkina is the biggest job provider (Tables 4.15 to 4.18).

The three mobile telephone networks have injected more than 22 thousand million Francs CFA into the national economy in the form of tax contributions (VAT collected, Payroll Processing Tax and Insurance Premium Tax, Customs duty, Tax withholding, Industrial and Commercial Profit) over the course of 2007. Zain Burkina contributed the most to these tax receipts with 11,858,108,799 F CFA, followed by Telmob (8,695,527,416 F CFA) and finally by Telecel Faso (2,110,718,387 F CFA).

All these results maintain that the mobile telephone market is booming in Burkina and could play a determining role in the struggle against poverty (Table 4.21). Besides, it would be interesting to carry out a study to measure the impact of mobile telephones on the living conditions of households (MPTIC, 2008).

Table 4.21: Investments, income and human resources in the mobile telephone industry

	2000/2001	2002	2003	2004	2005	2006	2007
Investments *	38	2	6	50	16	35	47
Jobs (units)	171	168	188	255	368	493	525
Total payroll *	1.040	1.011	1.217	1.929	2.040	3.022	-
Tax contribution *	1.305	2.942	4.830	8.203	102.255	19.359	22.664
Contribution to GDP (%)	0.2	0.7	1.1	1.5	1.8	2.3	0.7

Source: 2006 ARTEL Report and MPTIC (2008)

*in thousand million F CFA.

Public Telephones

Local public telephone access points have undergone an uneven development. While the number of private tele-centres experienced considerable development, the number of public telephone booths has been drastically reduced. In 2007, there were 20.150 private tele-centres compared to only 377 public phone booths. The decrease in the number of public telephones is due to the combined effects of a lack of maintenance, ONATEL's willingness to disengage itself from this market segment, and the promotion of private tele-centres that offer better quality services. In the framework of its telephone popularization policy, ONATEL has decentralized the set-up of public phone booths to the benefit of private tele-centres.

Communication rates for fixed lines (public booths and private tele-centres) experienced a considerable decline for local as well as international communication over the past few years. The current rates for 2010 are presented in Tables 4.22 to 4.26.

Table 4. 22: Local communication

Rates (in F CFA)		
Service	Peak hours	Off-peak hours
Post-paid	50 F excl tax/1mn 20s	50 F excl tax/2mn 13s
Phone Cash	65 F incl tax/1mn 20s	65 F incl tax/2mn 13s
Liberte (from a fixed line)		

Source: ONATEL

Table 4.23: Interurban communications

Rates (in F CFA)		
Service	Peak hours	Off-peak hours
Post-paid	90 F excl tax/mn	54 F excl tax/mn
Phone Cash	117 F excl tax/mn	70 F excl tax/mn
Liberte (from a fixed line)		

Source: ONATEL

Table 4.24: Communications to Mobiles

Rates (in F CFA)		
Service	Peak hours	Off-peak hours
Post-paid	170 F excl tax/ mn	102 F excl tax/ mn
Phone Cash	117 F excl tax/ mn	106 F excl tax/ mn
Liberte (from a fixed line)		

Source: ONATEL

Table 4.25: Communications in telephone booths

Service	Rates (in F CFA per unit)	
Card booths	70	
Coin booths	75	
Fax	Sending	75
	Receiving (per page)	250
Private tele-centres	75 (maximum price)	

Source: ONATEL

Table 4.26: International communications

Regions concerned		Peak hours	Off-peak hours
Zone 1	Post-paid: Rates excl tax	50 F / 15s	50 F / 19s
Benin, Côte d'Ivoire, Mali, Nigeria, Senegal, Togo, Ghana, France, Italy, USA, Canada, Cameroon, Central Africa, Gabon, Guinea, Libya, Morocco, Mauritania, Chad, Belgium, Germany, Switzerland, Lebanon, United Arab Emirates, Saudi Arabia, India, China, Taiwan.	Phone Cash & Liberte: rates incl tax	65 F / 15s	65 F / 19s
Zone 2	Post-paid: Rates excl tax	50 F / 15s	50 F / 19s
Austria, Denmark, Spain, Finland, Greece, Ireland, Netherlands, Portugal, United Kingdom, Sweden.	Phone Cash & Liberte: rates incl tax	65 F / 12s	65 F / 15s
Zone 3	Post-paid: Rates excl tax	50 F / 15s	50 F / 19s
Other countries	Phone Cash & Liberte: rates incl tax	65 F / 3s	65 F / 4s

Source: ONATEL

Time slots		
Peak hours	Mondays, Tuesday, Wednesdays, Thursdays, Fridays: from 7h00 to 20h00	Saturdays: from 7h00 to 12h00
Off-peak hours	Mondays, Tuesday, Wednesdays, Thursdays, Fridays: from 20h00 to 7h00	Saturdays: from 12h00, Sundays and public holidays: 24h/24

Source: ONATEL

The Information Technology and Internet Sector

Information Technology

With the advent of micro-technology, which is less costly and easier to implement, IT has attained a dazzling size in Burkina. One of the consequences has been the development of IT service companies. Today there are more than 125 IT companies compared to only about ten in 1990. The number of IT service providers has tripled between 2002 and 2005. These companies operate in :

- sale and maintenance of IT equipment
- software sales
- studies and development
- networking
- user training

From 1,000 micro-computers in 1990, the national IT total is estimated at 35,000 micro-computers in 2005, or 0.3 computers per 100 inhabitants. The average growth rate of the total number per year between 2002 and 2005 was about 7%. Over the same period, the number of IT training establishments and centres has more than doubled, increasing from 12 to 30 establishments (Table 4.27).

Table 4.27 : Statistics on micro-information technology

	2002	2003	2004	2005
Number of computers	28 000	30 000	32 000	35 000
Number of registered IT service providers	40	77	98	125
Number of IT training establishments	12	15	20	30
Number of training centres with certification	48	48	78	78

Source: DELGI

Internet

Since the advent of the Internet, ONATEL's Internet division, FASONET, has benefitted from an exclusive right to the link between Burkina and the international Internet "backbone" until 31 December 2005. This Full IP connection was inaugurated in December 1996 during the 19th France-Africa Summit, but was only used for commercial purposes from March 1997. The initial speed, which was 64 Kb/s, was increased to 256 Kb/s on the eve of the Africa Nations Cup of 1998, which was organized by Burkina. Before FASONET, the only Internet service available in Burkina Faso was e-mail. This service was offered by structures such as ORSTOM by means of a type X.25 data transmission link, which allowed the exchange of messages via UUCP (Unix to Unix Copy Programme) two or three times a day between the messaging servers of the ORSTOM representation in Ouagadougou and that of ORSTOM in Montpellier, France.

FASONET's first task was to build a national backbone and to supply specialized lines for access to this backbone, either to private Internet service access providers or directly to administrations or companies. The proposed IP Specialised Links (SL) offer speeds from 32 Kb/s to 128 Kb/s. Internet links via radio antenna (RAL) have been available since 2004. In 2005, the national territory hosted more than 100 websites and the Internet network covered 45 cities (Table 4.28).

In 2005, about ten Internet access providers were linked to the FASONET node via SL. They offered business services via RTC telephone lines. Since 31 December 2005, all international access providers have had the right to link themselves directly to the International Internet Backbone without going through FASONET. Nowadays, there are 15 active Internet providers out of a total of 31 listed providers.

Internet cafés and some private tele-centres equipped with computers offer the public Internet access via the RTC telephone network and Wi-Fi connections at affordable prices. Depending on the area, the cost varies between 200 and 300 F CFA including taxes for one hour of connection⁶. Public and private administrations also offer Internet access services to their staff.

However, a great majority of households residing in rural areas do not have permanent and high speed access to FASONET's connection via ADSL. Also, mobile telephone operators are increasingly interested in providing internet service access.

However, a great majority of households residing in rural areas do not have permanent and high-speed access to FASONET's connection via ADSL. Also, mobile telephone operators are increasingly interested in providing Internet service access. One of the advantages of this innovation is the fact that Internet access is now possible thanks to connection keys across all the network's coverage areas. Since 1998, the Commune of Ouagadougou has also been offering Internet access services at low cost through its multimedia centres. They are open to the general public at the cost of 500 F CFA per year for junior secondary pupils, 1,000 F CFA per year for senior secondary pupils, 2,500 F CFA per year for tertiary students and 5,000 FCFA per year for workers.

Table 4.28: Internet Statistics

	2002	2003	2004	2005
International internet network speed	256 Kb/s	256 Kb/s	256 Kb/s	256 Kb/s
Bandwidth size	2 ⁶	2 ⁶	2 ⁸	2 ⁸
Number of towns served by the internet network	25	30	45	45
Number of internet access providers	6	8	8	10
Number of internet cafés	216	398	437	678
Number of internet users	2 160	5 970	7 555	13 560
Number of websites hosted in the national territory	60	70	80	110
Rental lines	RTC	RTC/SL	RTC/SL/RAL	RTC/SL/RAL
Number of households connected to the internet	200	200	250	300

Source : ONATEL and DELGI

The Media Sector

The audio-visual and written national press scene is characterized by great diversity. The number of radio and television stations and newspaper titles has increased greatly in the past few years. Since 2003, the opening of television and sound radio broadcasting companies has operated in terms of calls for candidature. Publishing, printing, bookselling and messaging are unrestricted in Burkina. The creation of any publication is subject to a simple declaration made to the Prosecutor of Faso. He issues the receipt within two weeks of the declaration file being handed in. When the first issue appears, the publication director must follow the copyright procedures at the national library, which in addition allocates ISSN numbers.

On 31 December, the Burkinabe radio scene consisted of 72 radio stations. Today there are about 80 radio stations that broadcast across the territory, with 20 of these stations only broadcasting in the capital. The Conseil Supérieur de la Communication is the organ responsible for awarding broadcasting rights. Among these stations we find the following :

- 19 private commercial radio stations ;
- 20 private associative or community radio stations ;

⁶The connection speed varies between 10 Mbt/s and 100 Mbt/s bandwidth

- 18 private denominational radio stations ;
- 11 public radio stations ;
- 4 international radio stations.

The television scene consists of the national state television channel (Télévision Nationale de Burkina), a private denominational television channel (Tele Viim Koèga) and four private commercial television channels (Sport & Music TV (SMTV), TVZ Africa, Canal 3 Burkina and BF1). In addition to these channels established in the national territory, there is the open Pan African channel, Africable, which is accessible in Ouagadougou, as well as a rebroadcasting bouquet of more than 52 international channels in MMDS.

In the national television scene, Télévision Nationale de Burkina, with the support of the National Office of Telecommunications, is the only channel which manages to cover the national territory, the sub-region and certain regions of the world by means of satellite. The other channels essentially broadcast in the capital, Ouagadougou and Bobo Dioulasso. Access to audio-visual media is available through radio receivers or television sets. The population's low level of access to receivers goes hand in hand with the poverty level. Burkina has about one receiver per three inhabitants and only one television set per twenty inhabitants (Table 4.29).

The written press shows great effervescence both in the number of newspaper titles and in its diversity. It is abundant, rich and plural but nevertheless remains marked by a lack of professionalism in a large number of titles. Across the territory, there are more than 100 newspaper titles appearing regularly written in the French language or the national language. On average, these newspapers cost 150 F CFA for a daily and 200 F CFA for a weekly. The titles that appear regularly include :

- 4 dailies ;
- 8 weeklies ;
- 1 bi-weekly ;
- 7 monthlies ;
- 1 bi-monthly .

As for the written press, the abundance of institutional communication through specialized newspapers is remarkable. Numerous ministerial departments and public and semi-public structures bring out titles that better explain their tasks to the public. All these newspapers, according to their sensitivity and distribution circuit, cover all or part of the national territory.

Public media (radio, television and the national newspaper in Burkina) provide efforts to bridge the social divide through information dissemination. However, public media remain in the background when it comes to democratic debates. Attempts to broach the subject through "Mediascopie" and "Press Dimanche" on the national television level have been thwarted. These debate platforms, where all matters of national interest are discussed, have been taken over by private radio and television stations such as Canal 3 with the programmes "Le Débat" and "Appel sur info", which thus manage to secure the loyalty of a certain audience to the detriment of public audio-visual media. But the coverage of these private audio-visual organs do not allow a large audience to follow these debates directly and, thus, contribute to the democratic debate. Public media with a public information task must also be modernized and broadcast programmes must conform to public demand to face the competition of the private media.

Vocational training in the communications industry remains a crucial problem in the media. The status of journalists is greatly discussed and presents the problem of professionalism. Burkina has five structures of professional training for degrees in communication, yet the recruitment system still remains very selective (Table 4.29).

Public media with a public information task must also be modernized and broadcast programmes conforming to public demand to face the competition of the private media

Table 4.29 : Total media receivers and communication training structures

	2002	2003	2004	2005
Radio stations regularly broadcasting in the country	66	-	-	72
Radio receivers	3 000 000	3 000 000	3 500 000	4 000 000
Television channels broadcasting in the country	2	4	5	5
Television channels received and broadcasted by local operators	42	42	52	52
Television sets	-	-	662 000	662 000
Newspapers appearing regularly	21	21	21	20
Professional training structures for degrees in communication	5	5	5	5
Households with radios (in %)	-	67.7	-	66.3

Source : CSC and INSD

The Government and Information and Communication Technologies

The government of Burkina makes huge financial investments every year to render information and communication technologies accessible to public administration. Between 2004 and 2005, the government invested about 780,000 F CFA in ICT yearly per staff member. During the same period, the monthly charge per staff member for ICT use amounted to 377,000 F CFA (Table 6.1). The multiple consciousness raising and IT initiation actions have allowed a large proportion of the Public Administration workforce to be reached. To promote the introduction and the control of development of the IT tool at administration, the Government adopted a special status for IT staff in 1997.

These investments have led to significant results. The achievement of the investment growth rate in IT equipment over the past few years has enlarged the State IT industry. Nowadays, public administration has about one computer for three people and one fixed-line phone for two people (Table 5.1). In almost all administration services the appropriation of office tools has enabled significant increases in productivity. For the Minister of Economy and Finance, the time required to produce indicators on the situation of State income and expenses has been reduced considerably and the management of the expense chain has been mastered. The same goes for the Ministry of Civil Service and Institutional Development. Significant efforts have been made to streamline the State's personnel management procedures to reach perfect control of the management of the workforce.

In almost all administration services the appropriation of office tools has enabled significant increases in productivity

The Internet is also experiencing a remarkable boost in public administration. Nowadays, the government has made more than 100 portals⁷. The main achievements concerning public administration are :

- (i) The RESINA network (fibre optic interconnection of 30 buildings in the capital, interconnection of 12 cities via specialized link);
- (ii) Computerization of the expense chain, SIGASPE for administration and salary management of State personnel, SYDONIA for customs, CIE for integrate State accounting;
- (iii) Computerization of financial management and the Civil State in communes, electronic management of files in the penal systems, wireless local loop in the capital for the connection of Ministries to the Internet; and
- (iv) The RENER (national network for education and research), which groups the majority of teaching and research institutions.

Public administration also uses audio-visual and written press in its activities. The government widely uses national television and/or national radio to raise awareness and inform the public. Numerous ministerial departments and public structures issue titles to better explain their tasks to the public.

Table 5.1 : e- government

	2002	2003	2004	2005
Computer per government staff member	-	0,3	0,3	0,3
Fixed lines per government staff member	-	0,5	0,5	0,5
Monthly ICT usage cost per government staff member	-	-	377 000	377 000
Annual ICT investment per government staff member	-	-	780 000	780 000

Source : DELGI

⁷ Each ministerial department has a website.

Evaluation of ICT Regulation Framework in Burkina Faso

Control of the regulatory environment is an essential factor in the development of the ICT sector and in order to better determine the level of investment required. The authorities have to know the opinions of the main role players on the ICT development process. It is thus important to evaluate the regulation environment of telecommunications and ICT in Burkina Faso from the perceptions of key role players. This evaluation is based on the methodology developed for this purpose by Rohan Samarajiva and adopted by the RIA.

An ERT (Technological Research Team) questionnaire was submitted to a sample of 55 people, from whom 45 completed questionnaires were received. The respondents are divided into the following three categories :

- **Category 1** : stakeholders who are directly affected by the regulation of the telecommunications sector, such as operators, professional associations linked to the sector, equipment suppliers and resellers. In this category twenty (20) individuals actually took part in the survey.
- **Category 2** : stakeholders who analyse the sector with a larger interest such as financial institutions, telecommunication consultants and law firms. Thirteen (13) people from this category participated in the survey.
- **Category 3** : stakeholders who are interested in the improvement of the sector to help the public such as universities, research organisms, journalists, telecommunication user groups, civil societies, former members of regulatory organs and other governmental organisms and financial backers. A total of twelve (12) individuals belonging to this category participated in completing the questionnaire.

Each respondent gave a score on the basis of his/her knowledge of the sector and events that took place in the sector over the period from June 2007 to August 2009. On the basis of the Likert scale, scores were given on a scale from 1 to 5 where 1 means "highly inefficient" and 5 "highly efficient". The analysis was made according to the following dimensions: market entry, access to rare resources, interconnection and facilities, rate regulation, regulation of anti-competition practices and the universal service obligation.

Market Entry

Market entry efficiency is measured differently according to the product concerned. The results are recorded in Table 6.1.

For fixed-line telephones, more than 95% of people interviewed think that market entry is very inefficient. This response was not surprising given that the market is characterized by a monopoly help by ONATEL. However, as far as mobile telephones are concerned, market entry is judged to be relatively more efficient than that of fixed lines. More than 50% of people surveyed think that access to the mobile telephone market is fairly efficient and more than 30% find it efficient. More than 80% of people contacted reckon that a certain transparency exists in the issuing of licenses, the conditions required and the time necessary to obtain a decision concerning applications sent in this framework. As far as paging is concerned, market access is judged to be effective by 78% of respondents (Table 6.1).

Table 6.1. Market entry perceptions in Burkina between 2007 and 2009 (in % by type of service)

	Very inefficient	Inefficient	Fairly efficient	Efficient	Very efficient
Fixed line telephones	95,8	4,2	0,0	0,0	0,0
Mobile telephones	0,0	3,4	52,4	33,2	12,0
Internet	0,0	0,0	3,4	14,3	82,3
Paging	0,0	0,0	17,6	78,1	4,3

Source : Survey results

Access to Rare Resources

The perceptions of access to rare resources are summarized in table 6.2.

Analysis of the results contained in this table indicates that scarce resources are not accessible for fixed lines. In fact, all the people questioned think that there is inefficiency in access to rare resources in this telephone category. However, access is perceived as very good at the level of Internet and good at the level of mobile telephones and paging. (Table 6.2) It is observed that the sectors where competition is rather weak are experiencing poor access to scarce resources.

Table 6.2. Access to rare resources in Burkina between 2007 and 2009 (in % by type of service)

	Very inefficient	Inefficient	Fairly efficient	Efficient	Very efficient
Fixed line telephones	85,4	14,6	0,0	0,0	0,0
Mobile telephones	0,0	3,3	26,7	56,7	13,3
Internet	0,0	0,0	3,3	16,5	80,2
Paging	0,0	0,0	9,0	35,7	55,3

Source : Survey results

Interconnection and Facilities

Judgements concerning interconnection and facilities are recorded in table 6.3. The results indicate that the majority of respondents think that the provision of services is efficient except for fixed lines where most of the people questioned found it inefficient (46.7%). As regards the Internet, the majority of respondents find that interconnection is very efficient and that there are reasonable delivery times for facility provision and at comparable costs between companies.

Table 6.3. Interconnection and facilities in Burkina between 2007 and 2009 (in % by type of service)

	Very inefficient	Inefficient	Fairly efficient	Efficient	Very efficient
Fixed line telephones	5,3	46,7	33,3	8,0	6,7
Mobile telephones	0,0	0,0	10,2	53,3	36,5
Internet	0,0	0,0	0,0	6,7	93,3
Paging	0,0	0,0	10,3	63,2	26,5

Source : Survey results

Pricing Regulation

Pricing regulation applicable to consumers is considered efficient for most services. In fact, the results of the survey indicate that more than 80% of people questioned think that rates applied for the Internet are very well regulated compared to 65% for mobile telephones and 56% for paging. However, as regards fixed lines, pricing regulation is judged inefficient by more than 38% of respondents (Table 6.4).

Table 6.4. Pricing regulation in Burkina between 2007 and 2009 (in % by type of service)

	Very inefficient	Inefficient	Fairly efficient	Efficient	Very efficient
Fixed line telephones	14,7	38,3	22,0	16,6	8,4
Mobile telephones	0,0	0,0	0,0	35,0	65,0
Internet	0,0	0,0	0,0	14,4	85,6
Paging	0,0	0,0	16,6	26,8	56,6

Source : Survey results

Regulation of Anti-Competition Practices

The results summarized in table 6.5 show that the regulation of anti-competition practices is very inefficient for fixed lines. This is a logical result considering the fact that this segment of telecommunications remains a monopoly. As for the other segments, regulation is more of less efficient. In the mobile telephone segment, 65% of respondents think that the regulation of anti-competition practices is efficient. 40% find that the regulation of the Internet is efficient and 26% think that it is fairly efficient. As regards paging, more than 60% think that the efficiency of anti-competition regulation is fairly efficient (Table 6.5).

Table 6.5. Regulation of anti-competition practices in Burkina between 2007 and 2009

	Very inefficient	Inefficient	Fairly efficient	Efficient	Very efficient
Fixed line telephones	100,0	0,0	0,0	0,0	0,0
Mobile telephones	0,0	0,0	35,0	65,0	0,0
Internet	0,0	0,0	26,7	40,0	33,3
Paging	0,0	0,0	66,5	20,3	13,2

Source : Survey results

Conclusion

Burkina has recorded satisfactory economic performances over the course of the post-devaluation period of January 1994, whatever the macro-economic indicators. However, a drop in prices for cotton producers, which was detected over the past few years led to a drop of 3,3% in farmers' cash crop income (MEF, 2009). Despite these results, the country is classified among the poorest countries in the world. In fact, according to the latest classification of countries by the HDI, Burkina occupies the 177th place out of 182 countries classified in total. Studies have indicated that for sustained economic growth, emphasis must be placed on the promotion of competitive economic infrastructures, notably telecommunications. Studies have also shown that Burkina incurs the highest communication costs in the sub-region. A reform in this sector should increase the competitiveness of companies and that of the economy in general. Taking note of these analyses, the government has undertaken reforms in the telecommunications sector by making new communication technologies an obligatory passage in economic development. It has, in this framework, adopted a statement on the sectoral telecommunications policy and a national communication policy for the development of master plans for national IT. Laws have also been passed at the National Assembly to sustain these telecommunication sector reforms. The positive effects of these reforms are visible, notably on the development of telecommunication. An increase in teledensity and in other communication media can be noticed.

Two telephone systems are offered. These are fixed lines and mobile telephones. There is a monopoly in the fixed-line market, held in majority by the private operator Maroc Telecom. The teledensity of fixed lines has increased over the past few years, at the same time improving the access of households to this service. The total number of fixed subscribers reached 116,746 on 31 December 2007, a growth of 21.20% compared to 31 December 2006.

The mobile telephone market is an oligopoly with three operators: Telmob, Zain Burkina and Telecel Faso. Telmob was the state operator until 29 December 2006. It was then bought over by Maroc Telecom. Mobile telephones were introduced into Burkina in 1996 and have today become the most popular means of communication. In 2005, the mobile teledensity was 5.4 telephones per 100 inhabitants. It was 13 telephones per 100 inhabitants by 2007. In terms of clients, Zain Burkina is the leading mobile network in Burkina with more than 50% of market share. The development of the telephone industry has had a positive effect in terms of employment and generated income. This market could, thus, play a determining role in the living conditions of households and contribute to the reduction of poverty.

The current IT infrastructure is estimated at about 500,000⁸ computers, which corresponds to a ratio of 3.54 computers per 100 people. This rate remains weak; however, with the ancillary measures of the ICT sector, certain optimism can be detected. On a public administration level, we record an upsurge of interest in the computing tool, from 0.3 computers per government staff member in 2005 to about 1 computer per government staff member in 2009.

The Internet has experienced exceptional development with more than a dozen Internet access providers, the development of Internet cafés and the growing interest that mobile telephone operators have in Internet service offerings. In the long term, this latest innovation should increase the access of rural households to the internet on a large scale if network coverage increases.

Burkina experienced remarkable progress in the audio-visual field. The national audio-visual scene is characterized by a great diversity in titles. The number of private radio and television stations and newspaper titles grew considerably in 2010. In spite of the progress made, the audio-visual sector remains, more than ever, confronted with the same economic, financial and technical difficulties at the verge of the digital crossover.

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⁸ Estimated on the basis of the average growth rate of the total number, which is about 7%.

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ISSN: 2073-0845