



10th World Telecommunication/ICT Indicators Meeting (Bangkok, 2012)

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**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/1-E
31 August 2012**

English

SOURCE: Bangladesh Bureau of Statistics, Bangladesh

TITLE: Revisions to the indicators on household ICT access and individual ICT usage including aspects of youth and gender in Bangladesh

Country Paper Revisions to the Indicators on Household ICT Access and Individual ICT Usage Including Aspects of Youth and Gender in Bangladesh

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Introduction

The ICT sector of Bangladesh is one of the fastest growing sectors of its economy. ICT has been declared as the thrust sector by the Government. A comprehensive ICT Policy has been formulated and a National ICT Task Force has been formed. The Government organization entrusted for the development and promotion of the ICT sector is the Ministry of ICT. The present Government of Bangladesh took office with the vision of creating a digital Bangladesh by 2021.

02. ICT Policy of Bangladesh

For the development of ICT sector within the framework of overall national development, the Government has approved the National ICT Policy in July 2009. The Vision of this Policy aims at building an ICT-driven nation comprising of knowledge-based society. In view of this, a country-wide ICT-infrastructure will be developed to ensure access to information by every citizen to facilitate empowerment of people and enhance democratic values and norms for sustainable economic development by using the infrastructure for human resources development, governance, e-commerce, banking, public utility services and all sorts of on-line ICT-enabled services

03. Law on Information Technology

To create a smooth environment for e-Commerce and to safeguard the dealings over the net and to check the threat to computer communication, the government has drafted the ICT law and is in the process of enactment by the Parliament. The draft has been made based on the Model Law on E-commerce framed in 1996 by the United Nations Commission on International Trade Law (UNCITRAL).

04. Challenges and Prospects of e-Governance

The government is considering aggressively to move into e-governance for providing all needed information to citizens and for efficient and transparent services and to create an information environment and enhance the efficiency, effectiveness, dynamism in public agencies and to ensure their accountability.

05. ICT Infrastructure: Telecommunications

The telecom sector has been liberalized for private investment in early 90s, resulting in appreciable rise in mobile telephone sets in the country. As per the National Telecom Policy, 1998, the telecom sector (fixed line, mobile and the internet) is liberalized for private investment. Following the nation Telecom Policy, the Bangladesh Telecom Act 2009 was enacted. The tele

density is about 45% and internet density is about 7.10% . The following tables shows the status of telecommunication.

06. Telecommunication status

6.1 Mobile Phone Subscribers in Bangladesh

The total number of Mobile Phone subscribers has reached **90.636 million** at the end of **April 2012**

The Mobile Phone subscribers are shown below:

Operators	Active Subscribers
Grameen Phone Ltd. (GP)	37.748
Orascom Telecom Bangladesh Limited (Banglalink)	25.008
Robi Axiata Limited (Robi)	18.243
Airtel Bangladesh Limited (Airtel)	6.538
Pacific Bangladesh Telecom Limited (Citycell)	1.801
Teletalk Bangladesh Ltd. (Teletalk)	1.295
Total	90.636

Source: Bangladesh Telecommunication Regulatory Commission (BTRC)

*Subscribers in Millions

**The above subscribers' numbers are declared by the mobile operators

6.2 Internet Subscribers in Bangladesh

The total number of Internet Subscribers has reached **40182.207 thousand** at the end of **March 2012**.

The Internet subscribers are shown below:

Category	Subscribers
Mobile Internet	38640.779

ISP +  PSTN	1211.00
 WiMAX	330.428
Total	40182.207

Source: Bangladesh Telecommunication Regulatory Commission (BTRC)

**** Subscribers in Thousands**

**** The above subscribers' numbers are declared by the Internet Service Providers**

6.3 PSTN Phone Subscribers in Bangladesh

The total number of  PSTN Phone Subscribers has reached **1028.19 thousand** at the end of **May 2010**.

The PSTN Phone subscribers are shown below:

Operators	Subscribers
 BTCL	872.41
Telebarta Ltd.	56.42
Jalalabad Telecom Ltd.	10.90
Onetel Communication Ltd.	39.57
Westec Ltd.	17.00
Sheba Phone Ltd. (ISL)	11.62
S. A. Telecom System Ltd.	18.03
Banglaphone Ltd.	2.24
Total	1028.19

Source: Bangladesh Telecommunication Regulatory Commission (BTRC)

***Subscribers in Thousands**

****The above subscribers' numbers are declared by the PSTN operators**

07. Fiber-optic Submarine Cable

1800 KM long optic fiber network under Bangladesh Railway is being utilized by the private Cellular Phone Operator. Fiber optic links have already been established in most cities of the country.

08. ICT Incubation Centre

In order to encourage startup companies in software/ITES development and export, the government has set up an ICT Incubation Centre at a rented space of 68,000 sq. ft. in the heart of Dhaka City. At present, about 48 IT/software related companies have set up operations in this facility. The facility has been provided with 24-hour power supply and internet gateway facility from the Development of Infrastructure for IT Applications Project of BCC.

09. Hi-Tech Park

A High Tech Park with all modern infra-structural facilities is being planned at Kaliakoir near Dhaka with an area of 231.685 acres of land at a cost of 2,522.5 million Taka (43.5 million USD), which will house software and ICT-enabled service industries, electronics and PCB related equipment and products, telecommunications, hardware assembly/component/VLSI design (possibly manufacture also), optoelectronic equipment, bio-technology and related linkage industries, including a hi-tech University to provide technical support and for conducting R&D at the park facilities.

10. ICT Education/Training

Computer courses are taught in the secondary and higher secondary school level. All schools and madrasas are to be brought under computer courses.

11. National ICT Internship Programme

National ICT Task Force decided to introduce ICT Internship Award Program in the country. Under this program, graduates/ fresh graduates/post graduates in ICT subjects will be imparted training for 6-months as internees in different IT organizations/companies for acquiring practical experience and hands on training.

12. Bangladesh Bureau of Statistics

Bangladesh Bureau of Statistics (BBS) is the National statistical organization (NSO) of Bangladesh. It was established in August 1974 under the Ministry of Planning and is headed by a Director General. The broad functions of the BBS are to collect, compile, analyze and publish statistics on all sectors of the economy to meet the needs of development planning, policy analysis and decision making. Apart from this, BBS is also playing a vital role in improving the quality of data through conducting research activities, imparting training and organizing seminars, symposiums and workshops. These activities also help disseminate information collected by BBS.

13. Functions of BBS in relation to ICT

The main functions of BBS in relation to ICT are as follows:

- Direct and coordinate all aspects of planning, installation, operation and maintenance of data, server-based applications and computer systems.
- Provide support and planning for network administration.
- Design and development of database and customized software to cope with the requirements of the BBS.
- Provide training to the end-user and build-up ICT sound manpower.
- Troubleshooting of software and hardware.
- Design and development of program to capture, edit & clean, analyze and tabulation of collected data of census and surveys conducted by BBS.
- Backup and recovery of database.
- Assist in designing computer based questionnaire.
- Designing of census questionnaire for OMR and ICR/OCR.
- Implementation of optical data archive and networking system.

BBS has taken an initiative to conduct a survey named “Baseline Survey on ICT Statistics in Bangladesh”. Preliminary Concept paper is submitted for approval to the authority. Objectives of the survey are as follows:

The main objectives of the project are-

- i. To bring out the lessons learnt from different e-government initiatives that have been taken so far;
- ii. To assess the extent of private initiatives taken so far to promote ICT in Bangladesh;
- iii. To identify the prospects and common problems encountered in ICT activities in Bangladesh;
- iv. Human Resource Development through ICT training; and
- v. To assess the extent of digital divide scenario of Bangladesh.

Specific objectives: In order to achieve the overall goal two types of surveys will be conducted:

- i) Survey of ICT Enterprises; and
- ii) Survey of Households.

14. BBS and the Web site: BBS has its own dynamic web site named www.bbs.gov.bd to disseminate information.

15. Status of ICT statistics in Bangladesh

There has not been any attempt in the country to undertake a comprehensive survey to collect information on the use of ICT at the household and individual levels. Bangladesh Bureau of Statistics has a plan to conduct a survey regarding the use of ICT at the household and individual levels to identify the progress of this sector, its potential for future expansion and its contribution to the economy. Due to GOB resource constraint BBS is exploring the possibility of donor support to conduct this survey.

However, BBS has been collecting ICT related information through its regular sample surveys. Bangladesh Literacy Survey 2010 using a separate module in Labor Force Survey (LFS) and

inclusion of ICT questionnaire in HIES 2005 & 2010 are the notable efforts in collecting ICT related data. However, the findings of these surveys differs from each other due to separate sample design.

16. Bangladesh Literacy Survey 2010

Internet is an important media for gaining knowledge from different websites. Internet usage by the population 15 years and over has been presented in the Table-01. Only 1.49% used internet at the national level, and the corresponding figures were 2.00% for males and 0.97% for females. In the rural areas, only 1.13% used internet (1.52% males and 0.73% females) compared to 2.61%, 3.50% and 1.72% for both gender, males and females in the urban areas.

Table 01: Percentage distribution of population aged 15 years and over by gender, place of residence and access to internet in the last 3 months, 2010

Access to internet	National			Rural			Urban		
	Both gender	Male	Female	Both gender	Male	Female	Both gender	Male	Female
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Used internet	1.49	2.00	0.97	1.13	1.52	0.73	2.61	3.50	1.72
Don't use	98.51	98.00	99.03	98.87	98.48	99.27	97.39	96.50	98.28

Source: BBS, Bangladesh Literacy Survey 2010

17. Mode of Using Internet

As regards mode of using internet 63.80% used internet at the national level through mobile phones 33.22% used computers, and 2.99% used both media.

There exists no significant variation in the use of internet by different modes among males and females. Among males, 63.90% used cell phone, 33.30% used computer and 2.80% used both technology for using internet compared to the corresponding figures of 63.57%, 33.05% and 3.38% among females.

There exist significant urban-rural variations in the mode of use of internet in the rural and urban area. More than 80% rural people used internet through mobile phone compared to less than 50% for the urban people.

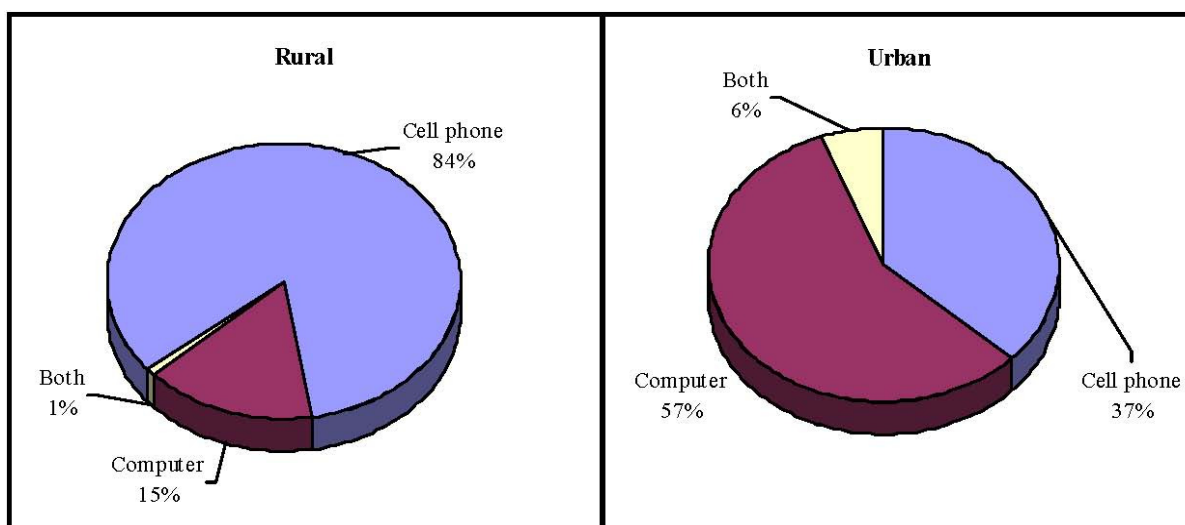
Table 02: Percentage distribution of population aged 15 years and over by gender, place of residence and mode of internet use in the last three months, 2010

Mode of internet use	National			Rural			Urban		
	Both gender	Male	Female	Both gender	Male	Female	Both gender	Male	Female
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Cell phone	63.83	63.90	63.68	83.72	83.05	85.16	36.99	37.75	35.42
Computer	33.19	33.30	32.95	15.41	16.16	13.80	57.19	56.72	58.14
Both	2.98	2.80	3.37	0.87	0.80	1.04	5.83	5.53	6.44

Source: BBS, Bangladesh Literacy Survey 2010

Percentage distribution of population aged 15 years and over by place of residence and mode of internet use in last three months, 2010



18. Use of Internet by Level of Education

Use of internet by level of education has been presented in Table-03. There exists positive correlation between use of internet and level of education. The higher the level of education, the higher is the use of internet facility. While only 0.47% having education level VI-VIII used internet, 18.21% among those having Master's degree and 26.39% having Engineering/Medical degree used internet. There exists gender variation in the use of internet where male used it at higher proportion than females in all educational levels.

Table 03: Percentage distribution of population aged 5 years and over by gender, highest grade passed and access to internet in the last three months, 2010

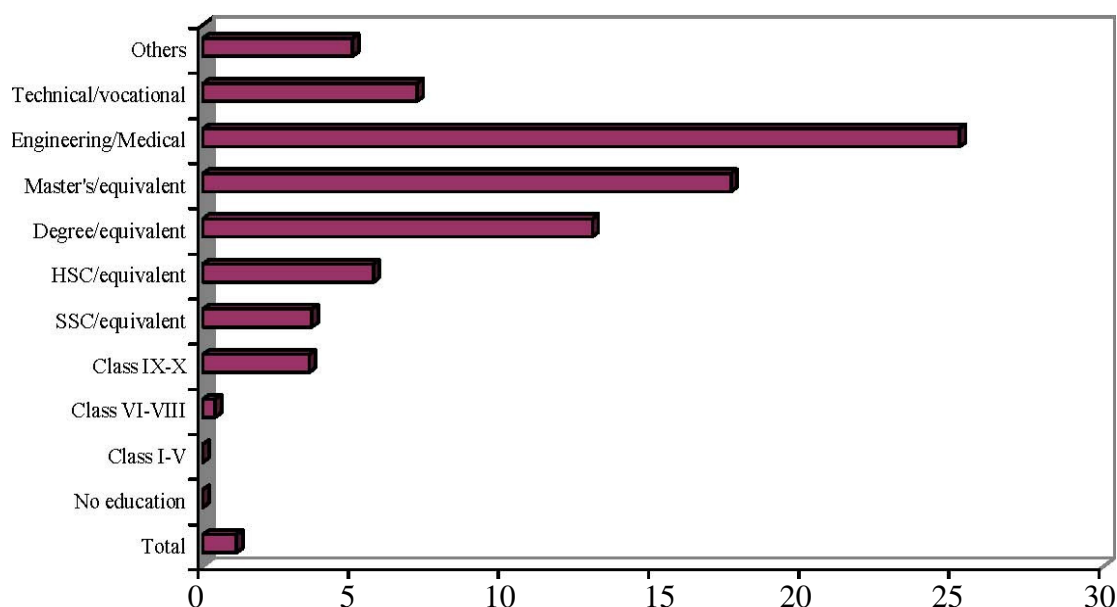
Percentage distribution of population aged 5 years and over by gender, grade passed and access to internet in the last three months, 2010

Highest grade passed	Male			Female			Total		
	Access to internet		Total	Access to internet		Total	Access to internet		Total
	Used internet	Don't use		Used internet	Don't use		Used internet	Don't use	
Total	1.49	98.51	100	0.74	99.26	100	1.12	98.88	100
No education	0.00	100.00	100	0.00	100.00	100	0.00	100.00	100

Class I-V	0.00	100.00	100	0.00	100.00	100	0.00	100.00	100
Class VI-VU.I	0.54	99.46	100	0.43	99.57	100	0.48	99.52	100
Class IX-X	4.25	95.75	100	2.95	97.05	100	3.60	96.40	100
SSC/equivalent	4.27	95.73	100	2.83	97.17	100	3.65	96.35	100
HSC. equivalent	6.74	93.26	100	4.62	95.38	100	5.95	94.05	100
Degree 'equivalent	13.47	86.53	100	12.59	87.41	100	13.21	86.79	1 00
Master's/equivalent	18.19	81.81	100	16.57	83.43	100	17.76	82.24	100
Engineering, "Medical	27.20	72.80	100	27.96	72.04	100	27.35	72.65	100
Technical/vocational*	8.05	91.95	100	7.84	94.16	100	8.00	92.00	100
Others	6.36	93.64	100	0.00	100.00	100	4.28	95.72	100

Notes: Technical/Vocational=Computer training. Motor dn\ ma Motor mechanic. Welding, Electrical, etc.
Source: BBS, Bangladesh Literacy Survey 2010

19. Percentage distribution of population aged 5 years and over by use of internet services and level of education, 2010



20. Use of Electronic Media by the Population for Education Purpose

Use of electronic media such as radio and television for educational purposes has been presented in the Table-04 . Among the males, 21.94% had listened to educational programs of the radio several times in last three months, 6.76% several times a month, 3.06% several times a week, and 2.82% daily. Educational programs of television was viewed by more people than radio, where 22.95% viewed it several times in last three months, 14.24% several times a month, 10.91% several times a week, and 13.87% viewed it daily. Thus, although still low, watching television is more frequent than listening to radio programs on education. The use of radio and television by females is slightly lower than that of males where 20.46% listened to radio and 22.95% viewed television several times in last three months.

It is interesting to note that listening to educational programs of radio or viewing of educational programs on television was higher in rural than urban areas, with few exceptions. In the case of radio, 22.44% rural males listened to it several times in last three months compared to 20.28% for urban areas. For viewing the television several times in last three months, the percentage for rural males was 23.18% as against 22.20% for urban areas.

In the case of females, 20.65% listened to radio and 21.68% viewed television several times during the last three months for the rural areas compared to 19.83% for radio and 22.64% for television in the urban areas.

21. Table 04: Percentage distribution of population aged 5 years and over by gender, place of residence, habit of watching educational programs in the electronic media in the last three months, 2010

Frequency of using different electronic media	National		Rural		Urban	
	Radio	Television	Radio	Television	Radio	Television
Male	100.00	100.00	100.00	100.00	100.00	100.00
Never listen/observe	50.79	27.69	51.74	30.19	47.64	19.40
Several times in last 3 months	21.94	22.95	22.44	23.18	20.28	22.20
Several times in a month	6.76	14.24	6.72	13.48	6.86	16.77
Several times in a week	3.06	10.91	3.01	11.24	3.20	9.83
Daily	2.82	13.87	2.51	11.56	3.87	21.51

Source: BBS, Bangladesh Literacy Survey 2010

Table 05: Percentage distribution of population aged 5 years and over by gender, place of residence, habit of watching educational programs in the electronic media in the last three months, 2010

Frequency of using different electronic media	National		Rural		Urban	
	Radio	Television	Radio	Television	Radio	Television
No scope	13.60	9.43	12.59	9.48	16.96	9.29
Not Reported	1.04	0.91	1.00	0.88	1.19	1.00
Female	100.00	100.00	100.00	100.00	100.00	100.00
Never listen/observe	53.37	32.05	54.75	35.43	48.89	21.06
Several times in last 3 months	20.46	21.90	20.65	21.68	19.83	22.64
Several times in a month	5.73	12.08	5.62	11.18	6.11	15.03
Several times in a week	2.67	9.09	2.58	9.23	2.98	8.65
Daily	2.45	13.01	2.03	10.16	3.82	22.27

No scope	14.17	10.70	13.23	11.13	17.22	9.31
Not Reported	1.15	1.16	1.15	1.20	1.15	1.04

Source: BBS, Bangladesh Literacy Survey 2010

Table 06: Distribution of population aged 5 years and over by gender, place of residence and habit of watching educational program in the electronic media in the last three months, 2010

Frequency of using different electronic media	National		Rural		Urban	
	Radio	Television	Radio	Television	Radio	Television
Thousand Number						
Male	66127	66127	50808	50808	15319	15319
Never listen/observe	33585	1831	26288	15339	7298	2972
Several times	14507	15177	11399	11776	3107	3401
Several times in a month	4467	9417	3416	6848	1051	2569
Several times in a week	2020	7214	1530	5709	490	1505
Daily	1866	9171	1273	5875	592	3295
No scope	8994	6238	6395	4815	2599	1423
Not Reported	688	599	506	446	182	153
Female	64448	64448	49277	49277	15170	15170
Never listen/observe	34397	20655	26980	17460	7417	3195
Several times	13185	14116	10176	10681	3009	3435
Several times in a month	3694	7786	2767	5507	927	2279
Several times in a week	1723	5858	1270	4546	453	1312
Daily	1577	8387	998	5009	579	3379
No scope	9133	6898	6520	5486	2612	1413
Not Reported	739	746	565	589	174	157
Percent						
Male	100	100	100	100	100	100
Never listen/observe	50.79	27.69	51.74	30.19	47.64	19.40
Several times	21.94	22.95	22.44	23.18	20.28	22.20
Several times in a month	6.76	14.24	6.72	13.48	6.86	16.77
Several times in a week	3.06	10.91	3.01	11.24	3.20	9.83
Daily	2.82	13.87	2.51	11.56	3.87	21.51
No scope	13.60	9.43	12.59	9.48	16.96	9.29
Not Reported	1.04	0.91	1.00	0.88	1.19	1.00
Female	100	100	100	100	100	100
Never listen/observe	53.37	32.05	54.75	35.43	48.89	21.06
Several times	20.46	21.90	20.65	21.68	19.83	22.64
Several times in a month	5.73	12.08	5.62	11.18	6.11	15.03
Several times in a week	2.67	9.09	2.58	9.23	2.98	8.65
Daily	2.45	13.01	2.03	10.16	3.82	22.27
No scope	• 14.17	10.70	13.23	11.13	17.22	9.31

Not Reported	1.15	1.16	1.15	1.20	1.15	1.04
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Source: BBS, Bangladesh Literacy Survey 2010

Table 07: Distribution of population aged 5 years and over by gender, place of residence and access to internet during the last 3 month, 2010

Access to internet	National			Rural			Urban		
	Both gender	Male	Female	Both gender	Male	Female	Both gender	Male	Female
Thousand Number									
Total	130574	66127	64448	100085	50808	49277	30490	15319	15170
Used internet	1463	986	477	848	572	276	614	414	201
Don't use	129112	65141	63971	99236	50235	49001	29876	14906	14970
Percent									
Total	100	100	100	100	100	100	100	100	100
Used internet	1.12	1.49	0.74	0.85	1.13	0.56	2.01	2.70	1.32
Don't use	98.88	98.51	99.26	99.15	98.87	99.44	97.99	97.30	98.68

Source: BBS, Bangladesh Literacy Survey 2010

Table 08: Distribution of population aged 15 years and over by gender, place of residence and access to internet during the last 3 months, 2010

Access to internet	National			Rural			Urban		
	Both gender	Male	Female	Both gender	Male	Female	Both gender	Male	Female
Thousand Number									
Total	94526	47534	46992	71611	3604	35563	22915	11486	11429
Used internet	1407	952	455	808	549	259	599	402	197
Don't use	93120	46583	46537	70803	3549	35304	22316	11084	11233
Percent									
Total	100	100	100	100	100	100	100	100	100
Used internet	1.49	2.00	0.97	1.13	1.52	0.73	2.61	3.50	1.72
Don't use	98.51	98.00	99.03	98.87	98.48	99.27	97.39	96.50	98.28

Source: BBS, Bangladesh Literacy Survey 2010

Table 09: Distribution of population aged 15 years and over by gender, place of residence and mode of internet use, 2010

Mode of internet use	National			Rural			Urban		
	Both gender	Male	Female	Both gender	Male	Female	Both gender	Male	Female
Thousand Number									
Total	1407	952	455	808	549	259	599	402	197
Cell phone	898	608	290	677	456	220	221	152	69
Computer	467.	317	150	124	89	36	342	228	114
Both	42	27	15	7	4	3	35	22	13
Percent									
Total	100	100	100	100	100	100	100	100	100
Cell phone	63.83	63.90	63.68	83.72	83.05	85.16	36.99	37.75	35.42
Computer	33.19	33.30	32.95	15.41	16.16	13.80	57.19	56.72	58.14

Both	2.98	2.80	3.37	0.87	0.80	1.04	5.83	5.53	6.44
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Source: BBS, Bangladesh Literacy Survey 2010

Table 10: Distribution of population aged 5 years and over by gender, highest grade passed and mode of internet use, 2010

Highest grade passed	Male				Female				Both gender			
	Mode of internet use			Total	Mode of internet use			Total	Mode of internet use			Total
	Cell phone	Comput	Both		Cell	Comp	Both		Cell	Compu	Both	
Thousand Number												
Total	635	322	30	986	308	152	16	475	942	474	46	1461
Class VI-VIII	32	8	1	41	23	6	2	31	55	14	3	72
Class IX-X	200	24	4	228	145	13	1	159	346	37	5	387
SSC/equivalent	134	26	6	165	67	15	1	82	200	41	7	247
HSC/equivalent	108	46	5	159	40	22	4	66	148	68	9	225
Degree/equivalent	91	96	6	193	20	48	6	74	112	144	12	267
Master's/equivalent	61	89	5	155	11	38	2	50	72	126	7	205
Engineering/Medical	3	30	2	34	2	8	1	11	5	37	3	45
Technical/vocational*	4	4	1	9	0	2	0	2	4	6	1	11
Others	1	1	0	1	0	0	0	0	1	1	0	1
Percent												
Total	2.76	1.40	0.13	4.28	1.56	0.77	0.08	2.41	2.21	1.11	0.11	3.42
Class VI-VIII	0.37	0.09	0.01	0.47	0.26	0.07	0.02	0.35	0.32	0.08	0.02	0.41
Class IX-X	3.65	0.43	0.08	4.16	2.66	0.23	0.02	2.91	3.15	0.33	0.05	3.54
SSC/equivalent	3.43	0.67	0.15	4.25	2.27	0.50	0.03	2.80	2.93	0.60	0.10	3.63
HSC/equivalent	4.36	1.85	0.20	6.41	2.71	1.52	0.25	4.47	3.74	1.72	0.22	5.68
Degree/equivalent	6.29	6.58	0.40	13.27	3.27	7.88	0.95	12.10	5.40	6.97	0.56	12.93
Master's/equivalent	7.20	10.41	0.60	18.21	3.34	11.89	0.63	15.86	6.16	10.81	0.61	17.58
Engineering/Medical	2.13	22.80	1.46	26.39	4.06	15.98	1.98	22.03	2.66	20.92	1.60	25.19
Technical/vocational *	3.49	3.21	0.80	7.50	0.00	5.80	0.00	5.80	2.74	3.76	0.63	7.13
Others	3.30	4.29	0.00	7.59	0.00	0.00	0.00	0.00	2.17	2.82	0.00	4.98

Notes: Technical/Vocational=Computer training, Motor Driving/Motor Mechanics, Welding, electrical, etc.

Source: BBS, Bangladesh Literacy Survey 2010

Table 11: Distribution of population aged 5 years and over by gender, highest grade passed and access to internet, 2010

Highest grade passed	Male			Female			Both gender		
	Access to internet		Total	Access to internet		Total	Access to internet		Total
	Used internet	Don't use		Used internet	Don't use		Used internet	Don't use	
Thousand Number									
Total	986	65141	66127	477	63971	64448	1463	129112	130575

No education	0	23723	23723	0	26177	26177	0	49901	49901
Class I-V	0	19709	19709	0	18885	18885	0	38594	38594
Class VI-VIII	47	8523	8570	38	8745	8783	84	17269	17353
Class IX-X	225	5046	5271	154	5080	5234	378	10127	10505
SSC/equivalent	166	3711	3877	83	2841	2924	248	6553	6801
HSC/equivalent	170	2351	2521	70	1436	1496	240	3787	4027
Degree/equivalent	193	1239	1432	74	516	590	267	1755	2022
Master's/equivalent	149	669	818	48	241	289	196	910	1106
Engineering/Medical	31	83	114	8	22	30	39	105	144
Technical/vocational*	7	75	82	2	23	25	8	98	106
Others	1	10	11	0	5	5	1	14	15
Percent									
Total	1.49	98.51	100.00	0.74	99.26	100.00	1.12	98.88	100.00
No education	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00
Class I-V	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00
Class VI-VIII	0.54	99.46	100.00	0.43	99.57	100.00	0.48	99.52	100.00
Class IX-X	4.25	95.75	100.00	2.95	97.05	100.00	3.60	96.40	100.00
SSC/equivalent	4.27	95.73	100.00	2.83	97.17	100.00	3.65	96.35	100.00
HSC/equivalent	6.74	93.26	100.00	4.62	95.38	100.00	5.95	94.05	100.00
Degree/equivalent	13.47	86.53	100.00	12.59	87.41	100.00	13.21	86.79	100.00
Master's/equivalent	18.19	81.81	100.00	16.57	83.43	100.00	17.76	82.24	100.00
Engineering/Medical	27.20	72.80	100.00	27.96	72.04	100.00	27.35	72.65	100.00
Technical/vocational*	8.05	91.95	100.00	7.84	92.16	100.00	8.00	92.00	100.00
Others	6.36	93.64	100.00	0.00	100.00	100.00	4.28	95.72	100.00

Notes: Technical/Vocational=Computer training, Motor Driving/Motor Mechanics, Welding, electrical, etc.

Source: BBS, Bangladesh Literacy Survey 2010

22. Household Income and Expenditure Survey 2005 and 2010

Bangladesh Bureau of Statistics has conducted another survey Household Income and Expenditure Survey (HIES) 2005 & 2010. The questions focused on the use of fixed telephone, mobile phone, computer and email facilities. As is known HIES is a large survey with a long questionnaire. The inclusion of only four questions marks the beginning of a full effort in the future to conduct a survey especially on ICT.

As mentioned earlier, “Household Income and Expenditure Survey 2010” sought information on the use of ICT (use of computer, email, internet, telephone, mobile phone etc.) at the household and individual levels. The enumerators were provided with Laptop computers to collect and process field level data. The preliminary result of the survey has been published. However preliminary results show the following:

Table 12: Percentage of households having ICT facilities

Type of facilities	National		Rural		Urban	
	2010	2005	2010	2005	2010	2005
Telephone	2.07	2.87	0.70	0.33	5.79	10.36

Mobile Phone	63.74	11.29	56.77	6.05	82.74	26.73
Computer	3.01	1.36	0.97	0.17	8.58	4.88
email	1.39	0.20	0.39	-	4.10	0.81

Source: BBS, Household Income and Expenditure Survey 2005 & 2010

The table shows increasing tendency of use of computer facilities in Bangladesh especially in rural areas. The most notable information from the survey is that though mobile phone has been introduced in the country in early nineties, there has been substantial growth of mobile phone use. The use of Internet has considerably increased both in urban and rural areas as focus by the recent survey. Understandably, the use of the ICT facilities is much higher in urban areas compared to rural areas.

There has been rapid growth of use of Mobile phones between 2005 and 2010. While only 11.29% of households used mobile phones in 2005, more than 63% of households were found to use them in 2010. Graph-1: Percentage of households having ICT facilities.

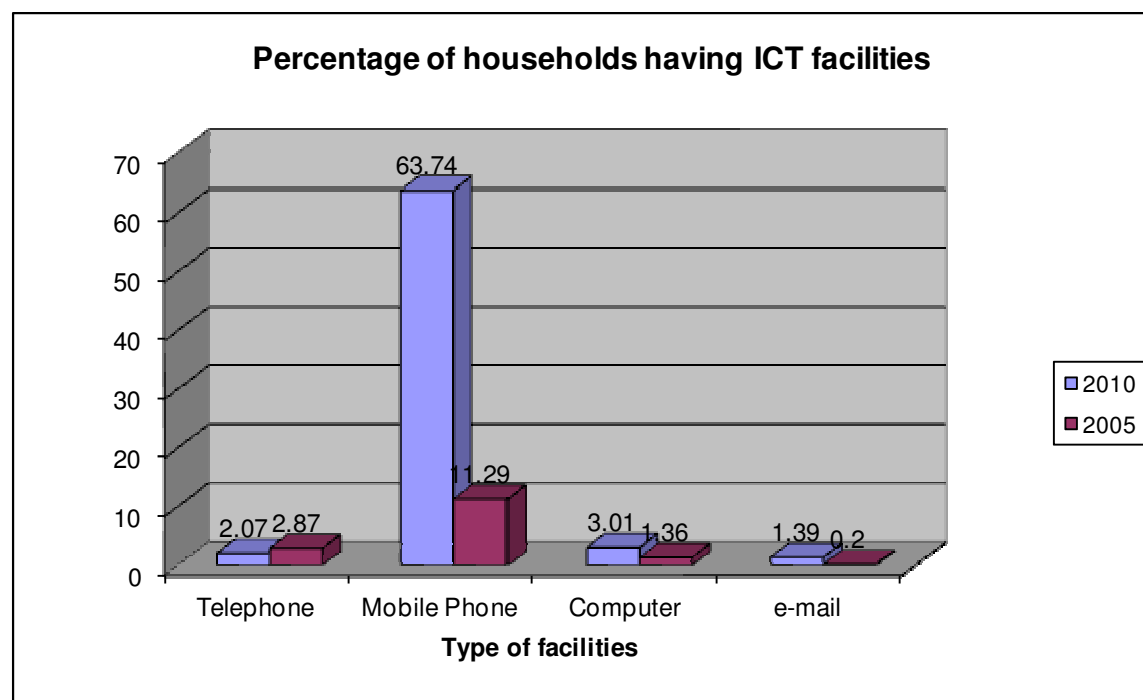


Table 13: Mobile phone used by households

Locality	2000	2005	2010
National	1.50	11.29	63.74
Rural	0.30	6.05	56.77
Urban	6.50	26.73	82.74

Source: BBS, HIES 2000 and HIES 2005 & 2010

It may be mentioned here that the government has been trying to popularize ICT in government offices to improve productivity and promote e-governance. The progress in this front has been captured in a recent survey which is discussed below. Graph: Percentage of Mobile Phone used by households

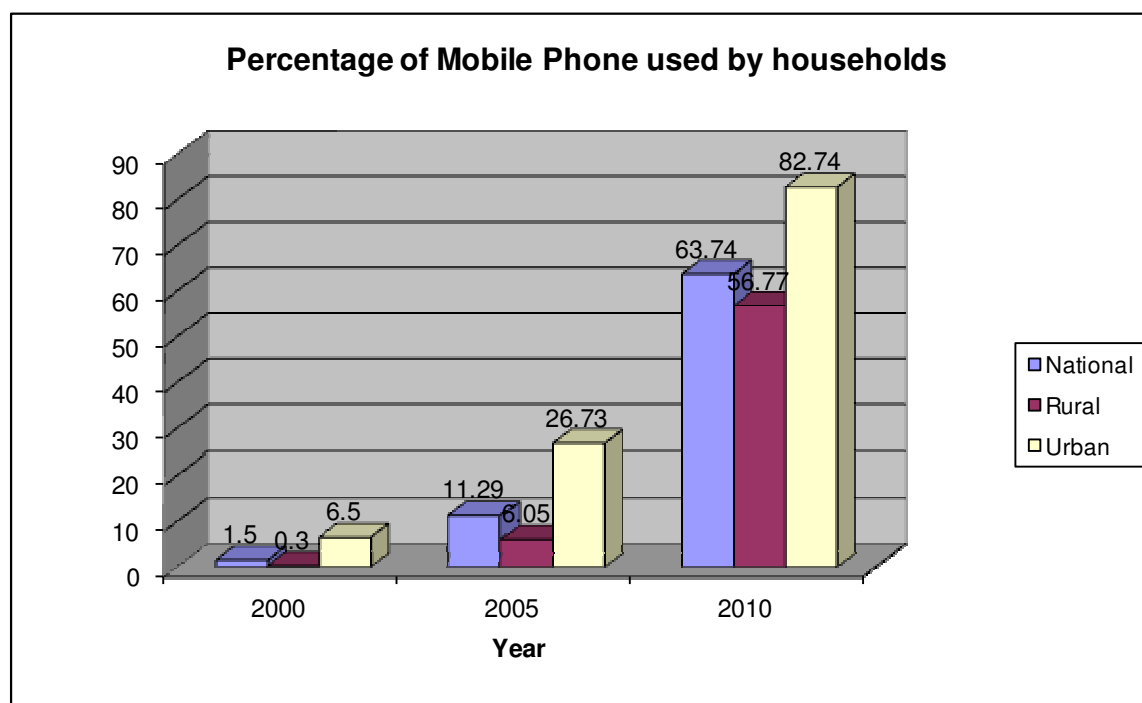


Table 14: Percentage Distribution of household by ownership of Computer and e-mail/Internet facility by locality and monthly income group.

Monthly Household Income(Tk.)	Year 2005		Year 2010	
	%Computer	%E-mail/Internet	%Computer (p)	%E-mail/Internet(P)
National				
<1500	0.00	0.00	0.14	0.00
1500-1999	0.24	0.00	0.00	0.00
2000-2499	0.00	0.00	0.40	0.55
2500-2999	0.51	1.69	0.51	0.00
3000-3999	1.13	1.69	1.58	0.83
4000-4999	0.26	0.00	0.74	0.90
5000-5999	3.09	0.00	0.46	0.50
6000-6999	4.13	0.00	3.25	0.93
7000-7999	2.74	0.00	1.75	0.65
8000-8999	2.64	0.00	3.01	3.08
9000-9999	2.38	3.89	1.66	1.24
10000-12499	9.29	10.18	5.35	5.54
12500-14999	6.48	0.00	3.40	5.87
15000-17499	7.99	0.00	4.78	2.37

17500-19999	7.86	0.00	5.82	4.77
20000+	51.27	82.55	67.16	72.78
Monthly Household Income(Tk.)	Year 2005		Year 2010	
	%Computer	%E-mail/Internet	%Computer(p)	%E-mail/Internet(p)
Urban				
<1500	0.00	0.00	0.18	0.00
1500-1999	0.27	0.00	0.00	0.00
2000-2499	0.00	0.00	0.12	0.00
2500-2999	0.56	1.69	0.17	0.00
3000-3999	0.28	1.69	0.18	0.00
4000-4999	0.28	0.00	0.15	0.32
5000-5999	2.54	0.00	0.60	0.63
6000-6999	2.81	0.00	1.64	1.17
7000-7999	2.06	0.00	1.07	0.00
8000-8999	2.91	0.00	2.16	3.06
9000-9999	2.63	3.89	0.98	0.75
10000-12499	10.25	10.18	3.08	2.05
12500-14999	6.18	0.00	3.09	2.19
15000-17499	8.81	0.00	4.92	2.98
17500-19999	8.67	0.00	6.42	5.19
20000+	51.76	82.55	75.25	81.67
Rural				
<1500	0.00	0.00	0.00	0.00
1500-1999	0.00	0.00	0.00	0.00
2000-2499	0.00	0.00	1.34	2.69
2500-2999	0.00	0.00	1.62	0.00
3000-3999	9.35	0.00	6.13	4.06
4000-4999	0.00	0.00	2.67	3.16
5000-5999	8.47	0.00	0.00	0.00
6000-6999	16.94	0.00	8.50	0.00
7000-7999	9.35	0.00	3.95	3.16
8000-8999	0.00	0.00	5.77	3.14
9000-9999	0.00	0.00	3.85	3.16
10000-12499	0.00	0.00	12.76	19.12
12500-14999	9.35	0.00	4.41	20.19
15000-17499	0.00	0.00	4.32	0.00
17500-19999	0.00	0.00	3.87	3.16
20000+	46.55	0.00	40.8	38.16

Table 06 shows percentage use of computer and Internet/e-mail facilities by locality and monthly income group. In the more than 20000.00TK monthly income group the use of computer 51.27% and use of internet/e-mail is 82.5% in the year 2005. Whereas the percentage use regarding computer in the year 2010 is 67.17% and use of internet/e-mail is 72.78% in the year 2010. In this observation, it is shown that there has been an increment of 15.89% in the year 2010

compare to the year 2005. In case of the use regarding and use of internet/e-mail facilities there has been observed decreasing tendency of 9.77% in the year 2010 compare to the year 2005.

Table 15: Percentage Distribution of household by ownership of Computer and e-mail/Internet facility by locality and level of education of household head.

Monthly Household Income(Tk.)	Year 2005		Year 2010	
	%Computer	%E-mail/Internet	%Computer(p)	%E-mail/Internet(p)
National				
Class I-V	13.82	15.25	4.49	4.01
Class VI-IX	5.78	0.00	21.69	19.97
SSC/HSC or equiv.	19.15	1.75	28.11	25.64
Graduate or equiv.	24.24	35.14	21.96	17.8
Post Graduate or eqi.	25.74	40.40	18.06	24.14
Doctor	1.93	0.00	1.63	2.74
Engineer	9.33	7.46	2.67	4.20
Others	0.00	0.00	1.39	1.51
Urban				
Class I-V	11.49	15.25	2.56	0.98
Class VI-IX	5.50	0.00	11.18	11.73
SSC/HSC or equiv.	17.26	1.75	29.85	24.80
Graduate or equiv.	24.95	35.14	26.52	21.55
Post Graduate or equiv.	28.39	40.40	22.47	30.34
Doctor	2.13	0.00	2.12	3.44
Engineer	10.29	7.46	3.49	5.27
Others	0.00	0.00	1.81	1.90
Rural				
Class I-V	36.51	0.00	10.80	15.82
Class VI-IX	8.47	0.00	55.95	52.08
SSC/HSC or equiv.	37.64	0.00	22.46	28.94
Graduate or equiv.	17.38	0.00	7.11	3.16
Post Graduate or equiv.	0.00	0.00	3.67	0.00
Doctor	0.00	0.00	0.00	0.00
Engineer	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00

23. ICT and Women in Bangladesh

In the past women were only considered for household work and were left outside the mainstream of development. In today's Bangladesh, The scenario has not changed much. But with the advent of ICT, this conservative outlook about women is diminishing gradually. As a result we find more women are employed in various knowledge based industries such as computer-aided designing, graphic designing, composing etc. Village Phones have increased

income and savings accumulation among phone owners, mostly women. The women phone operators are generally poorer than the average villager is. However, the income that they earn is significant, generally accounting for 30-40% of household income and averaging \$300 per year in a country where average per capita income is \$286. The operators are likely to be married (90%), and half of them have no formal education. Another quarter has primary education and the remaining quarter, some secondary education. 36 % identify themselves as housewives, and only 6% have some kind of formal employment (in government or business). The women operate their phone businesses while doing household chores or operating another business. The phones are used primarily for calls relating to financial matters, particularly relating to remittances, which are a significant source of village income. Strikingly among poor villagers, 38% of phone users had one or more family member living abroad. Women phone operators have achieved economic and social empowerment within their households and communities.

24. Concluding Observations

The use of ICT has experienced a modest growth in Bangladesh with rapid use of mobile phones. BBS, the apex statistical organization is using Hi-Tech sophisticated machineries in data processing. There has also been substantial progress in the use of ICT in government offices. However, lack of comprehensive survey on the use of ICT is preventing us from giving a full picture of ICT statistics in the country. It has been observed that this sector has inadequate infrastructure and insufficient trained manpower. Besides, the quality of training is not satisfactory up to the mark. Despite these shortcomings, an enlightened future of this sector is anticipated. The universities – both public and private, are producing increasing number of graduates in computer related fields who can contribute to the development of this sector.

(Note : Regarding aspect of youth, it may be mentioned that BBS the NSO has no data readily available for the Indicators on household ICT access and individual ICT usage including aspects of youth. Although BBS has collected those information recently which are still under data processing. However, I am trying to collect this youth aspects data from secondary or administrative sources and shall provide later during the meeting.)

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)
Bangkok, Thailand, 25-27 September 2012**



Information document

**Document INF/2-F
31 August 2012**

French

SOURCE: Institut National de la Statistique et de la Démographie, Burkina Faso

TITLE: Information document

10th ITU World Telecommunication/ICT Indicators Meeting

25-27 September 2012

Bangkok, Thailand

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I- Présentation du Burkina Faso

Pays sahélien situé au cœur de l'Afrique de l'Ouest, le Burkina Faso s'étend sur une superficie de 274 900 km². La population, est estimée à 15 730 977 habitants en 2011 avec un taux moyen de croissance démographique annuel de 3,1 %, et une densité moyenne de 51,8 habitants au km². La population est essentiellement rurale seulement un Burkinabé sur cinq habite en ville. Classé parmi les pays les moins avancés (PMA) de la planète, le Burkina Faso a un PIB par tête de 563,5\$ en 2010 et est classé 177^{ème} sur 182 en 2009 par l'indice du développement humain du PNUD. Pays enclavé, limité au plan des ressources naturelles, le Burkina Faso a pris conscience de l'opportunité que lui offrent les technologies de l'information et de la communication pour combler son retard et amorcé un développement durable. De ce fait le pays place les TICs au centre de ses préoccupations avec la mise en place d'un cadre juridique et institutionnelle pour booster ce secteur. A la faveur de la loi N° 051/98 AN du 04 décembre 1998 portant réforme du secteur des télécommunications au Burkina Faso, la Loi N° 061-2008/AN du 27 novembre 2008 portant réglementation générale des réseaux et services de communications électroniques au Burkina Faso et la Loi n° 033-2001/AN portant organisation de la concurrence au Burkina Faso ; le pays s'est doté d'un cadre réglementaire ambitieux et a ouvert le secteur à la concurrence. Dès lors la nécessité d'avoir des indicateurs fiables pour mesurer la performance de ce secteur et d'éclairer les décisions politiques sur les TICs s'impose.

II- Acteurs producteurs de données sur les TICs

Les structures gouvernementaux qui collectent ou produisent des indicateurs sur les TICs sont :

Institut Nationale de la Statistique et de la Démographie (INSD) ;

L'INSD est l'organe chargé de la coordination de l'activité statistique. A ce titre, il constitue l'organe exécutif central du Système Statistique National. Il est chargé notamment de la mise en place d'un Système National Intégré pour la collecte, l'analyse, la publication et la diffusion des statistiques économiques, démographiques, sociales et environnementales, en recourant soit à des recensements exhaustifs ou à des enquêtes par sondage, soit à l'exploitation des données en provenance des sources administratives ou du secteur privé.

Autorité de régulation des communications électroniques et des postes (ARCEP);

L'ARCEP assure la fonction de régulateur des télécommunications au Burkina Faso, elle collecte et centralise également des indicateurs du secteur au niveau national.

Ministère du Transport et de l'Economie Numérique (MTPEN)

Le MTPEN, en tant que représentant de l'Etat du Burkina Faso dispose de ce fait d'une base de données fournis par les autres sources de collecte, qui lui permet de renseigner et de servir les différents questionnaires des indicateurs des télécommunications qui viendrait à lui être adressé.

III- Présentation du Système de globale de collecte.

La présentation se fera par structure et précisera les indicateurs à collecter :

Collecte au sein de l'Institut Nationale de la Statistique et de la Démographie

L'INSD organe nationale des statistiques collecte périodiquement des données socio-économiques et sur cette calcule des indicateurs sur le secteur des TICs : Des enquêtes périodiques en moyenne chaque 3 ans, sur les conditions de vie des ménages qui permet à l'institut de calculer des indicateurs sur l'accès des TICs au ménage. Ces enquêtes (EICVM 2009 ; QUIBB 2005 2003, enquête budget consommation....) se fond sur un échantillon

représentatif sur l'ensemble du territoire et permet d'avoir entre autre les indicateurs sur : la proportion des ménage possédant un téléphone portable ; la proportion des personnes possédant un téléphone fixe, la proportion des ménages qui ont accès a l'internet.

Des enquête au près des entreprise. L'INSD a réalisé en 2009 le Recensement industriel et commercial du Burkina Faso dont la périodicité est de 5 ans. Ce recensement a dénombré 36 169 entreprise industrielle et commerciales au Burkina Faso et permet d'avoir des indicateurs sur l'accès des entreprises aux TICs a savoir le nombre d'entreprise qui sont connectés a internet, la proportion des entreprise possédant une boites postales, la proportion d'entreprise possédant un fax, un téléphone fixe ou mobile, la proportion d'entreprise possédant un email ou un site internet. L'institut réalise également des collectes courantes sur les entreprises permettant d'avoir également des informations relatives aux TICs on peut citer la collecte sur la production industrielle et commerciale, la collecte courante sur les investissements des entreprises qui permettent de calculer les indicateurs sur les investissements dans le secteur des TICs, la valeur ajouté et l'employabilité de ce secteur.

Il faut noter tout ces indicateurs ne sont pas issues d'enquête spécifique sur les TICs, l'Institut avait prévue de réalisé en 2011 une enquête spécifique sur les TICs pour collecter de façon exhaustive tout les indicateurs sur le secteur des TICs.

Collecte au sein de l'Autorité de Régulation des Communications Electronique et des Postes

En ce qui concerne la collecte des données a mis en place une procédure pour la collecte des données statistiques auprès des acteurs du secteur. Un ensemble d'indicateurs a été consigné sur des fiches soumises par l'autorité d'une fréquence mensuelle et annuelle aux différents opérateurs afin qu'ils puissent les renseigner. Ces demandes de données statistiques du secteur des télécommunications/TIC sont en entre autres relatives : au parc d'abonnés, au volume des communications écoulés sur les différents réseaux, aux consommations moyennes/client, aux emplois, aux tarifs et trafics, aux couvertures géographiques des réseaux, aux distributeurs agréés, aux réseaux commerciales, aux télé-centrés et cyber café, et à la contribution fiscale des opérateurs dans le secteur.

IV- Perspective

L'intérêt des Tics pour le développement des pays en voies de développement n'est plus à démontrer. Pour ce faire il faudrait améliorer la capacité, la qualité et du débit des réseaux large bande qui va permettre de développer les possibilités d'utilisation et donner une valeur ajoutée considérable au secteur de la formation, la santé, l'économie (carte de crédit, achat en ligne....). L'amélioration de l'offre en matière de TICs ne peut se faire qu'à travers un investissement conséquent dans ce secteur qui permettra d'améliorer aussi bien, le bien-être des consommateurs mais aussi la valeur ajoutée du secteur et de l'économie nationale. L'enquête que compte réaliser l'INSD se fera sur l'ensemble du territoire national et concernera les trois sous-secteurs des TICs à savoir le sous-secteur de la télécommunication, le sous-secteur de l'information et enfin celui de l'audio visuel. Cette enquête permettra d'avoir des indicateurs sur la capacité et la qualité du service TICs, la cyber-accessibilité, les investissements réalisés, la valeur ajoutée du secteur, l'employabilité du secteur, les chiffres d'affaire des acteurs et bien d'autre.

V- Quelles que indicateurs sur les TICs

Information générale sur le Burkina Faso	
Official name / Nom officiel	BURKINA FASO
Location / Site	AFRIQUE DE L'OUEST
Boundaries / Frontières	GHANA, COTE D'IVOIRE, MALI, NIGER, TOGO et BENIN
Area/Superficie	274.200 Km ²
Population /Population	15 730 977 d'habitants
Official language / Langue officielle	FRANCAIS
Other languages / Autres langues	MOORE, DIOULA, FOULFOUDE

Per Capita GDP/PIB par habitant	285 129 Fcfa (563,5\$)
Capital/Capitale	OUAGADOUGOU
Large cities/Grandes villes	Bobo-Dioulasso, Koudougou, Banfora, Tenkodogo, Ouahigouya. Fada N'Gourma, Yako, Dori et Kaya.
Currency / Monnaie	FRANCS CFA

Indicateurs sur les TICs au le Burkina Faso		
Indicateurs TICs	2009	2010
Telephone lines / Lignes téléphoniques	152 461	143 963
Mobile lines / Lignes de téléphones portables	3 823 625	5 707 850
Parc global (fixe et mobile)	3 976 086	5 851 813
Télédensité fixe	1,00%	0,91%
Télédensité mobile	25,11%	36,28%
Télédensité (fixe + mobile)	26,11%	37,20%
Localité fixe couverte	366	400
Nombre de fournisseur internet	-	36
Connexion bas débit	11 417	14 548
Connexion haut débit	11 947	14 193

**10th World Telecommunication/ICT
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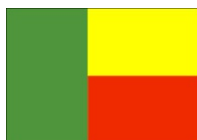
Information document

**Document INF/3-F
31 August 2012**

French

SOURCE: Autorité Transitoire de Régulation des Postes et Télécommunications, Bénin

TITLE: Progrès accomplis par le Bénin sur la voie de la mise en œuvre des résultats du SMSI



République du Bénin

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Autorité Transitoire de Régulation des Postes et Télécommunications

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*Progrès accomplis par le Bénin sur la voie de la
mise en œuvre des résultats du SMSI*

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Août 2012

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INTRODUCTION

Le Plan d'action de Genève, adopté par le Sommet Mondial sur la Société de l'Information (SMSI) en décembre 2003, invitait tous les pays et toutes les régions à élaborer des instruments et des indicateurs fondamentaux permettant de disposer de statistiques sur la société de l'information et d'analyser les principaux aspects de cette nouvelle société, en donnant la priorité à des systèmes d'indicateurs cohérents et comparables à l'échelle internationale, compte tenu des différents niveaux de développement.

Le Partenariat sur la mesure des TIC au service du développement appuie fortement cette initiative par l'amélioration de la disponibilité de statistiques et de données comparables sur les évolutions de la société de l'information, en particulier dans les pays en développement.

Afin de disposer de données fiables sur le secteur des TIC, le Gouvernement du Bénin à travers le Ministère de la Communication et des Technologies de l'Information et de la Communication (MCTIC) vient de réaliser la collecte par enquêtes de données statistiques sur le secteur des télécommunications et des TIC au Bénin.

Cette enquête a permis d'avoir une idée du niveau réel des progrès accomplis par le Bénin sur la voie de la mise en œuvre des résultats du SMSI.

CHAPITRE 1 : ETAT DES LIEUX DES TIC AU BENIN

En 2009, l'Union Internationale des Télécommunications (UIT) a estimé à 4,5 milliards le nombre d'abonnés à la téléphonie mobile dans le monde. Au Bénin, selon les statistiques de l'Autorité Transitoire de Régulation des Postes et Télécommunications (ATRPT), 59,23% de la population béninoise dispose d'au moins une ligne téléphonique mobile. Cet indicateur est passé à 85,64% en 2011. Le présent chapitre traite de l'environnement des télécommunications/TIC au Bénin.

1. Environnement des télécommunications/TIC au Bénin

1.1 Les réformes du secteur des télécommunications

Dans le cadre de la mise en œuvre de la politique de désengagement de l'Etat des secteurs productifs de l'économie, le Bénin a initié un certain nombre de réformes depuis 1994 notamment celle de la libéralisation du secteur des télécommunications. L'objectif principal visé par cette réforme était d'une part, d'ouvrir ce secteur productif à la concurrence et, d'autre part, d'encourager et de favoriser la participation des investisseurs du secteur privé au développement des télécommunications et des TIC.

Par ailleurs, le Bénin s'est doté d'un document de politique sectorielle du secteur des TIC adopté en novembre 1994. Ce document a été révisé et actualisé en décembre 2008. La vision du Gouvernement de ce secteur stratégique repose sur deux piliers essentiels que sont :

- l'e-government
- l'e-business

Pour soutenir cette stratégie, un projet dénommé « e-Bénin » appuyé par la Banque Mondiale a été élaboré et est actuellement en cours d'exécution. Dans le plan d'actions de ce projet figure en bonne place des projets tels que la gouvernance électronique, l'élaboration des textes d'application et des lois spécifiques sur le commerce électronique, la cybersécurité et la cybercriminalité.

1.2 Le cadre juridique, réglementaire et institutionnel des TIC

Le secteur des télécommunications au Bénin est régi par l'ordonnance n°2002-002 du 31 janvier 2002 portant principes fondamentaux du régime des télécommunications en République du Bénin.

Bref, sur le plan juridique et réglementaire, il existe un éventail de lois et décrets portant réglementation de ce secteur.

2. Le marché des TIC au Bénin

Le marché béninois des télécommunications est très concurrentiel. Il est animé par cinq (05) principaux opérateurs de téléphonie à savoir : Bénin Télécoms SA, SPACETEL BENIN SA (MTN), ETISALAT BENIN SA (MOOV), GLO MOBILE BENIN (GLO) et BELL BENIN COMMUNICATIONS (BBCOM).

Les segments de marché qui s'y développent sont : la téléphonie fixe, la téléphonie mobile et l'Internet.

Sur le segment de la téléphonie fixe, Bénin Télécoms SA, opérateur historique exerce un monopole.

Sur le segment mobile, on a cinq (05) opérateurs qui animent le marché. Donc, la concurrence est effective sur ce marché de marché.

2.1 La téléphonie mobile et fixe

En ce qui concerne la téléphonie fixe, le nombre d'abonnés est passé de 77 342 lignes en 2006 à 152 715 lignes en 2011, soit un taux de pénétration allant de 1% à 1,68% sur la période 2006 à 2011 grâce à l'utilisation des technologies semi-mobiles telles que le CDMA.

S'agissant de la téléphonie mobile, le nombre d'abonnés s'est nettement accru passant de 968 164 lignes en 2006 à 7 765 206 lignes en 2011, soit un taux de pénétration mobile de 85,64% en 2011 contre 12,56% en 2006.

2.2 L'Internet

Le Bénin connaît une croissante plus ou moins soutenue du marché de l'Internet depuis quelques années. Les services Internet les plus courants sur le marché sont le Web, l'hébergement des sites, la messagerie, les forums et la téléphonie IP. Les accès des utilisateurs s'effectuent via le Réseau Téléphonique Public Commuté (RTPC) pour le bas débit, et par liaison radioélectrique (CDMA, WIMAX), liaison spécialisée filaire (ADSL, RNIS), fibre optique et par VSAT pour le haut débit. Tous ces services sont offerts au public grâce à une demi-douzaine d'ISP déclarée parmi lesquels l'opérateur historique Bénin Télécoms et les opérateurs mobiles (MTN, MOOV, GLO et LIBERCOM).

La pénétration Internet est passée de 0,08% en 2006 à 3,10% en 2011.

Il est attendu que le service Internet prenne de l'ampleur dans les prochaines années vu les nouvelles décisions de l'Etat à savoir :

- *l'atterrissage au Bénin courant septembre 2012 du second câble sous marin ACE ;*
- *l'octroi de licence 3G aux opérateurs mobiles ;*
- *l'autorisation de cinq fournisseurs d'accès Internet.*

CHAPITRE 2 : PRESENTATION DES INDICATEURS DE LA SOCIETE DE L'INFORMATION AU BENIN

Ce chapitre présente la méthodologie adoptée pour la collecte des données ayant servi au calcul des indicateurs et les résultats de la collecte par enquête des données du secteur des télécommunications/TIC au Bénin.

1. Méthodologie de l'enquête

La réalisation de l'enquête a suivi un processus comprenant sept (07) étapes : (i) conception des variables et grilles de données par axe de l'étude, (ii) la délimitation de la population à enquêter, (iii) l'échantillonnage, (iv) la conception et test des outils et procédures de collecte, (v) l'exploitation des données, (vi) l'analyse des résultats et (vii) la rédaction des rapports d'étapes et du rapport final.

Les données collectées ont permis de :

- calculer le nombre de lignes téléphoniques fixes pour 100 habitants ;
- calculer le nombre d'abonnés à la téléphonie mobile cellulaire pour 100 habitants ;
- calculer le nombre d'abonnés à l'Internet pour 100 habitants ;
- calculer le nombre d'abonnés à l'Internet large bande pour 100 habitants ;
- déterminer la valeur de la Bande passante Internet internationale par habitant ;
- calculer le taux de couverture théorique de la population par réseau de téléphonie cellulaire ;
- calculer les tarifs moyen d'accès à l'Internet (20 heures par mois), en CFA et en pourcentage du revenu par habitant ;
- calculer les tarifs moyen de la téléphonie mobile cellulaire (100 minutes d'utilisation par mois), en CFA et en pourcentage du revenu par habitant ;
- calculer le pourcentage de localités disposant de centres d'accès public à l'Internet par nombre d'habitants (zones rurales /urbaines) ;
- calculer la proportion des individus utilisant un téléphone mobile ;
- calculer la fréquence d'accès personnel à l'Internet au cours des 12 derniers mois ;
- calculer la valeur ajoutée dans le secteur des TIC (en pourcentage de la valeur ajoutée du total des entreprises).

2. Délimitation du champ de l'étude

En se basant sur le constat selon lequel le développement des TIC est beaucoup marqué en milieu urbain, et que cette extension ne concerne que certains pôles de concentration qui bénéficient d'une infrastructure télécoms non négligeable, l'étude a couvert les principales

villes du Bénin et leurs environs : Cotonou, Porto-Novo, Pobè, Abomey-Calavi, Ouidah, Abomey, Bohicon et, Lokossa, Parakou, Dogbo, Kandi, Natitingou et Djougou.

3. Population cible

La présente étude est consacrée aux données des **entreprises de télécommunications** : sont considérées comme telles, les entreprises prestataires de services et produits Internet, les FAI/FSI, les fournisseurs de services d'accès (Bénin Télécoms SA, OTI, EIT, ISOCEL Télécom etc.) et les opérateurs GSM (MTN, MOOV, GLO, BBCOM et LIBERCOM) et les prestataires utilisateurs (cybercafé, Netphones, cybercentres, ...). De même, toutes les unités économiques (formelles ou informelles) offrant des prestations dans le domaine des télécommunications ont été recensées et enquêtées. Il s'agit, outre celles qui ont été citées précédemment, des chaînes de radio, de télévision, des équipementiers et autres fournisseurs de matériels et services de télécommunications.

L'enquête par sondage a permis de toucher les entreprises qui n'offrent pas des services TIC mais qui font ou non usage des TIC dans leurs différentes prestations.

4. Collecte des données

Quatre (04) outils ont été utilisés : un bordereau de dénombrement des entreprises éligibles; une fiche de recensement; un guide de collecte d'opinion et un questionnaire pour recueillir les informations auprès des unités économiques prestataires et utilisatrices des produits et services TIC.

Le questionnaire est structuré en six(6) sections : les généralités, le profil de l'entreprise, les matériels disponibles et usage des télécoms, les activités et services télécoms développés, les caractéristiques de l'enquête et les aspects économiques.

La fiche de recensement présente une section Identification et une série de données spécifiques relatives aux chiffres d'affaires, aux nombres d'abonnés, à la connexion Internet, etc.

Le guide comporte deux sections : une section identification et une autre qui présente une série de questions spécifiques à l'entreprise Télécom. Le guide s'adresse essentiellement aux principaux responsables des entreprises Télécoms afin de recueillir leurs opinions sur le secteur des télécoms au Bénin.

Le bordereau permet de dresser la liste des entreprises identifiées. Il est rempli pendant le ratissage de la zone d'enquête. Le bordereau comprend une page de garde et des fiches d'identification. Chacune des lignes d'une fiche permet d'enregistrer les informations relatives à chaque entreprise identifiée sur le terrain.

5. Présentation des résultats de l'enquête

5.1. Indicateurs fondamentaux sur l'infrastructure et l'accès aux TIC

Code	Indicateurs	Valeur 2011
A1	Nombre de lignes téléphoniques fixes par 100 habitants	1,6%
A2	Nombre d'abonnés à des services de téléphonie mobile cellulaire pour 100 habitants (Valeur Globale)	85,64%
	Nombre d'abonnés à des services de téléphonie mobile cellulaire pour 100 habitants (valeur des abonnés actifs)	72,62%
A3	Nombre d'abonnés à l'Internet pour 100 habitants – lignes fixes	3,10%
A4	Nombre d'abonnés à la large bande fixe pour 100 habitants	0,42%
A5	Nombre d'abonnés à la large bande mobile pour 100 habitants	2,68%
A6	Débit Internet International par habitant (bits/secones/habitants)	1085 Mbit/s
A7	Pourcentage de la population couvert par un réseau de téléphonie mobile cellulaire :	
	Par le réseau de téléphonie mobile cellulaire MTN	88,7%
	Par le réseau de téléphonie mobile cellulaire MOOV	95,5%
	Par le réseau de téléphonie mobile cellulaire LIBERCOM	65,7%
	Par le réseau de téléphonie mobile cellulaire BBCOM	73,3%
	Par le réseau de téléphonie mobile cellulaire GLO	50,3%
A8.	Tarifs d'accès à l'Internet (20 heures par mois), en FCFA, en pourcentage du revenu par personne	17,6%
A9.	Tarifs de la téléphonie mobile cellulaire (100 min d'utilisation par mois), en FCFA, en pourcentage du revenu par personne	13,2%
A10.	Pourcentage de localités (rurales/ urbaines) disposant de centres publics d'accès à l'Internet, rapporté à la population	58,44%

Source : (Extrait rapport d'enquête TIC_MCTIC, 2011)

5.2 Indicateurs fondamentaux relatifs à l'utilisation des TIC par les entreprises Télécoms/TIC au Bénin en 2011

Code	Indicateurs		Taille de l'entreprise (nombre de personnes employées)				Ensemble
			0 à 9	10 à 49	50 à 249	250 et plus	
	Nombre total d'entreprises		2300	127	10	3	2440
	Nombre total de personnes employées		5943	2160	1124	1724	10951
B1	Proportion d'entreprises utilisant des ordinateurs		68,3	96,9	90,0	100,0	69,9
B2	Proportion de personnes employées utilisant régulièrement des ordinateurs		-	-	-	-	-
B3	Proportion d'entreprises utilisant Internet		18,9	58,3	80,0	100,0	21,3
B4	Proportion de personnes employées utilisant régulièrement Internet		-	-	-	-	-
B5	Proportion d'entreprises ayant une présence sur le web		3,7	26,0	60,0	100,0	5,2
B6	Proportion d'entreprises ayant un Intranet		1,91	3,94	,00	33,33	2,05
B7	Proportion d'entreprises recevant des commandes par Internet		-	-	-	-	-
B8	Proportion d'entreprises passant des commandes par Internet		-	-	-	-	-
B9	Proportion d'entreprises ayant un accès à Internet par mode d'accès	Bas débit	7,7	34,6	,0	33,3	9,1
		Haut débit fixe	8,9	18,9	70,0	100,0	9,8
		Haut débit Mobile					
B10	Proportion d'entreprises ayant un réseau local (LAN)		11,6	34,6	80,0	66,7	13,2
B11	Proportion d'entreprise ayant un Extranet		-	-	-	-	-
ICT2	Part de la valeur ajoutée brute du secteur des TIC				7 336 299 084 francs CFA		

Source : (Extrait rapport d'enquête TIC_MCTIC, 2011)

5.3 Profil BENIN

Profil : BENIN

Géographie/démographie : Superficie : 112 622 Km²

Population : (Source : Estimation INSAE, 2011) : 9 067 075 habitants

Homme : 49,04% Femme : 50,96%

IDH (PNUD, 2011) : 0,427

Economie :

PIB (2010) : 1178,5 Mds FCFA

Part du secteur tertiaire (dont TIC) dans le PIB (2010) : 35,8%

Secteurs économiques : Primaire Secondaire Tertiaire :

Structure du secteur :

- Régulateur Indépendante : Oui, mais encore transitoire en attendant le vote de la nouvelle sur le secteur par l'Assemblée Nationale
- Privatisation de l'opérateur historique : Non, la société est la propriété de l'Etat. Le projet de réforme de la société est en cours
- Concurrence permise :
 - ✓ Sur le fixe : Non
 - ✓ Sur le mobile : Oui
 - ✓ Sur l'Internet : Oui

Quelques Indicateurs des télécommunications

Code	Indicateurs	2000	2006	2011
A1	Nombre de lignes téléphoniques fixe pour 100 habitants	0,3	1,00	1,68
A2	Nombre d'abonnés à des services de téléphonie cellulaire mobile pour 100 habitants	0,9	12,57	85,64
A3	Nombre d'abonnés à Internet pour 100 habitants	-	0,08	3,10
A4	Nombre d'abonnés au large bande fixe pour 100 habitants	-	0,007	0,424
A5	Nombre d'abonnés au large bande mobile pour 100 habitants	-	-	-
A6	Débit Internet International pour 100 habitants	-	0,002	0,012
A8	Tarifs d'accès à Internet (20 heures par mois), en USD, en pourcentage du revenu par personne	-	20	16
A9	Tarifs de la téléphonie mobile cellulaire (100 min d'utilisation par mois) en USD, en pourcentage du revenu par personne	-	16	12
B1	Proportion d'entreprises utilisant des ordinateurs	-	-	69,9
B3	Pourcentage d'entreprise utilisant Internet	-	-	21,3
B5	Pourcentage d'entreprise ayant une présence sur le web	-	-	5,2
B6	Pourcentage d'entreprise disposant d'un intranet	-	-	2,05
B9	Pourcentage d'entreprises ayant un accès à Internet - Bas débit	-	-	9,1
	Pourcentage d'entreprises ayant un accès à Internet haut débit	-	-	9,8
	Indice de Développement des TIC	-	1,28*	1,54*

* les données de l'IDI disponibles sont celles de 2007 et 2010

CONCLUSION

Nul n'est aujourd'hui pleinement capable de mesurer la profondeur des mutations que le développement des TIC engendre à travers le monde, dans les relations entre les individus, les entreprises et les Etats. Seules des données statistiques bien élaborées et comparables au niveau international peuvent permettre de mesurer les progrès accomplis par les Etats sur la voie de la société de l'information.

Le Bénin bien qu'ayant accusé de retard dans la prise en main de cet outil indispensable a réussi à collecter des données statistiques du secteur. Ces données serviront de base à la mise en place d'un système d'information et de gestion des télécommunications au Bénin.

ANNEXE

Tableau 1 : Evolution du parc d'abonnés à la téléphonie au Bénin

	2006	2007	2008	2009	2010	2011
Abonnés Tél. Fixe	77 342	110 765	115 289	127 149	133 427	152 715
Abonnés Tél. Mob	968 164	2 051 777	3 625 366	5 033 349	7 074 914	7 765 206
Parc Global	1 045 506	2 162 542	3 740 655	5 106 498	7 208 341	7 917 921
Taux de progression	-	106,8%	73,0%	36,5%	39,7%	9,84%

Source : (Opérateurs télécoms, 2011)

Tableau 2 : Chiffre d'affaires des télécommunications au Bénin de 2006 à 2011 (en Mds de FCFA)

	2006	2007	2008	2009	2010	2011
CA Tél. Fixe	33,982	40,618	34,687	29,372	30,521	30,743
CA Tél. Mobiles	62,262	72,540	118,081	148,982	167,894	187,115
CA Global	96,244	113,158	152,768	178,354	198,415	217,858
Taux de progression	-	17,57%	35%	16,75%	11,25%	9,8%

Source : (Opérateurs télécoms, 2011)

Tableau 3 : Evolution des investissements dans les réseaux télécoms au Bénin (en milliards de FCFA)

Désignations	2006	2007	2008	2009	2010	2011
Investissements Tél. Fixe	1,854	3,358	4,150	0,362	0	0,272
Investissements Tél. Mobiles	21,483	84,639	208,715	158,618	46,281	34,015
Investissement Global	23,34	87,997	212,87	158,98	46,281	34,287

Source : (ATRPT, 2011)

Tableau 4 : Evolution des emplois directs dans les réseaux télécoms au Bénin

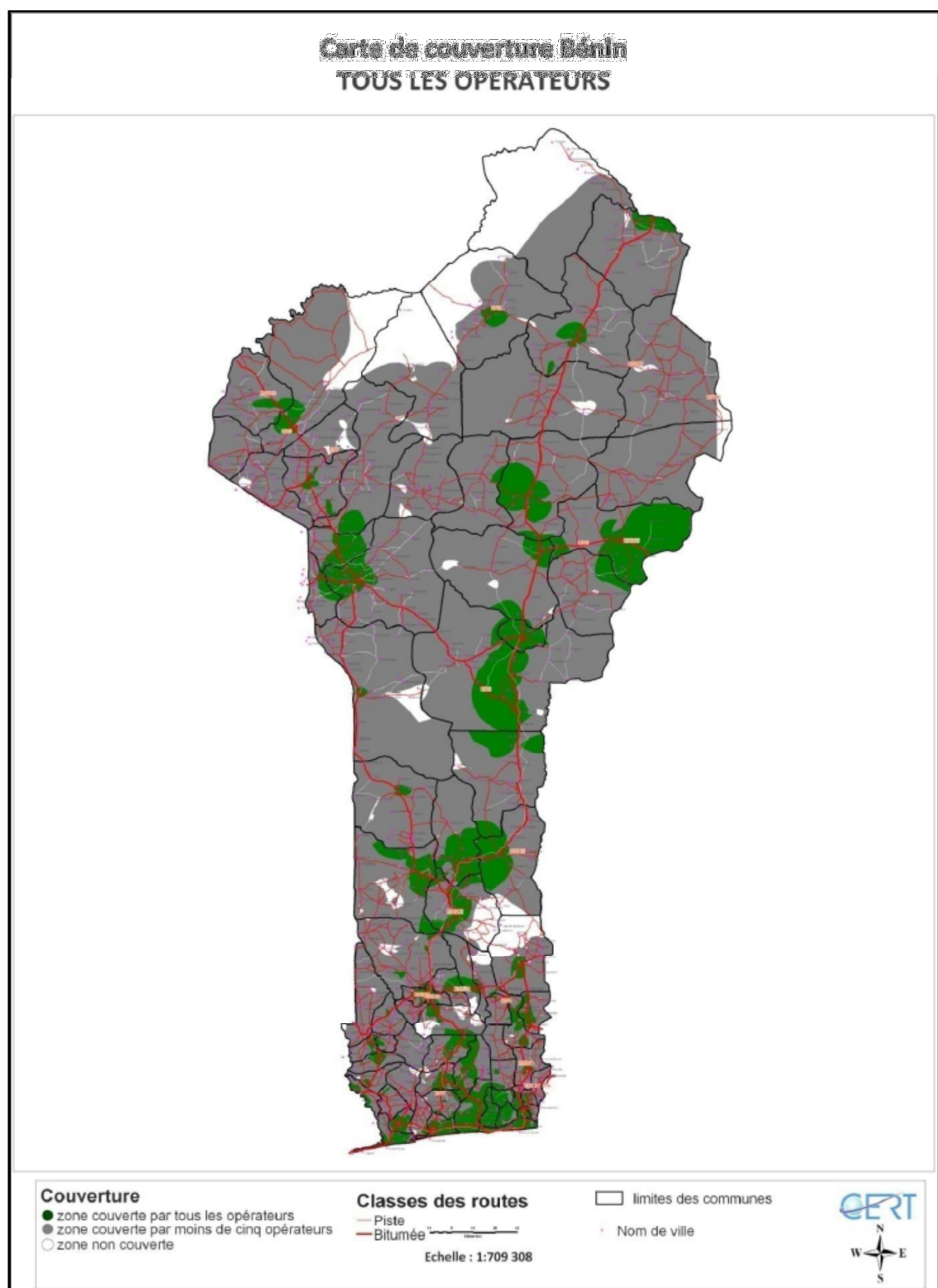
Désignations	2006	2007	2008	2009	2010	2011
Effectif Réseau Fixe	1 319	1 231	1 114	766	1 024	847
Effectif Réseaux GSM	552	875	1 119	1 211	1 267	1 344
Effectif Total	1871	2 106	2 233	1 977	2 291	2 191
Taux de progression	-	12,56%	6,03%	-11,5%	15,9%	-4,36%

Source : (ATRPT, 2011)

Tableau 5: Evolution du parc Internet au Bénin de 2006 à 2011

Désignations	2006	2007	2008	2009	2010	2011
Parc Internet_Fixe	6 009	6 000	9 355	19 679	27 036	37 949
Parc Internet_Mobile	-	-	35 335	118 160	97 564	242 690
Total	6 009	6000	44 690	138 839	124 600	280 639

Source : (Bénin Télécoms, 2011)



**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/4-E
31 August 2012**

English

SOURCE: Ministry of Information and Communications, Bhutan

TITLE: Information document: Bhutan

10th ITU World Telecommunication/ICT Indicators Meeting (WTIM)

Bangkok, Thailand, 25-27th September, 2012

1. Measuring Broadband capacity, quality and speed

Ministry of Information and Communication in Bhutan is solely responsible for helping the two telecom operators to increase their broadband capacity, quality and speed. To this extend, MoIC is in the process of establishing a II International gateway in the country as well as laying down fiber optic cable across the country to increase broadband capacity, quality and speed.

Bhutan being a small market has only two telecom operators and among which only one telecom operator i.e. Bhutan Telecom provides broadband connectivity. In order to measure the broadband capacity, quality and speed, MoIC collects quarterly / bi-annual information/data's from the telecom operators.

Information such as:

- a. Broadband (fixed/mobile) subscribers
- b. Broadband (fixed/mobile) internet connection charges
- c. Broadband (fixed/mobile) broadband speed (Mbits)
- d. Broadband (fixed/mobile) capacity
- e. Data on broadband price per additional downloaded (Gigabytes) once the monthly allotted limit of broadband subscription is over.

2. Measuring progress towards the achievement of the WSIS outcomes, including in the areas of education, business and security.

Bhutan for the past years has always been measuring the WSIS outcomes. With high priorities given to WSIS target by the Royal Government of Bhutan, the Ministry has been continuously trying its best to achieve it and also measure its achievements.

WSIS Target 1: By December 2011, Bhutan has connected almost 99% of area under its jurisdiction with mobile services with the other 1 % to be connected by mid 2012. The Ministry has collected information regarding the places connected, number of subscriber by type & operator. The Ministry also collected data on fixed telephone connections. The Ministry is also in the process of collecting information regarding internet access and usage with the help of National Statistical Bureau via their survey (Bhutan Living Standard Survey). The survey will be released by December 2012.

WSIS Target 2: Being an IT and Media Ministry, this ministry has been supporting the Education Ministry in bring IT and Media to different schools in the country. The Ministry has collected data related to schools with IT and internet facilities used for their educational purposes. With

the Media Impact Study due next year, the Ministry intends to collect data related to use of radio and television in schools.

WSIS Target 3: All the research institutes in Bhutan is connected with internet. The Ministry has all the required data.

WSIS Target 4,5 and 6: The Ministry has supported in providing internet connections to all the post offices via Community Centers, museums, public libraries, health centers and hospitals. The ministry collects all the data on it.

WSIS Target 7 and 9: With the development of ICTs sector in the Country, the Ministry in collaboration with Ministry of Education is in the process of developing curriculum in ICTs in all schools including tertiary institutes. The Media Department and the Research Division within the Ministry is currently looking into the content issues. Some work on Media local content has been developed as of now. Therefore, this meeting would be very beneficial for us in knowing how it could be measured.

WSIS Target 8 and 10: The Ministry has been annually collecting data with regard to target no. 10 and the information is available. As for target no. 8, the Ministry has been collecting the information every five year with our own Media Impact study and through National Statistics Bureau's Bhutan Living Standard survey.

3. Revisions to the indicators on household ICT access and individual ICT usage, including aspects of youth and gender

Ministry of Information and Communications is mandated to collect information/data with regard to ICT/Telecom sector in the country. With this mandate, MoIC is actively involved in forming indicators for various household ICT access and individual ICT usage. In 2009, MoIC calculated the ICT Development Index via a table survey using the formulae used by ITU. The Index was calculated especially to measure ICT access and ICT. Result for it can be found in MoIC's website i.e. www.moic.gov.bt. MoIC via a local consultant is also trying to measure it for 2010.

Taking into account the new development in the world of ICT, MoIC is in the process of revising its ICT indicators. We are also organizing workshop and meetings for local stakeholders on ICT statistics and its indicators in November, 2011. MoIC will further collaborate with National Statistical Bureau to discuss on the same topic.

4. Emerging issues such as measuring digital broadcasting and internet content.

Currently Bhutan is in a introductory stage with regard to digital broadcasting. Being a member of the committee looking into the digital broadcasting area, therefore I think this workshop will be of great benefit.

With regards to internet content, Bhutan through its amendments to the ICM Act intends to study and regulate it. Same like the digital broadcasting, this area is also new to Bhutan and the meeting would be highly useful.

5. Results of the work carried out by the Expert Group on Telecommunications/ICT Indicators (EGTI) and launch of the ITU Handbook on infrastructure indicators.

I am an member of the Expert Group on Telecommunications/ICT Indicators(EGTI) online forum.

**10th World Telecommunication/ICT
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Bangkok, Thailand, 25-27 September 2012**



Information document

**Document INF/5-F
31 August 2012**

French

SOURCE: Ministère des Postes et Télécommunications, Cameroun

TITLE: Indicateurs de l'accès aux TIC

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Introduction

I – Indicateurs de mesure à l'accès aux réseaux

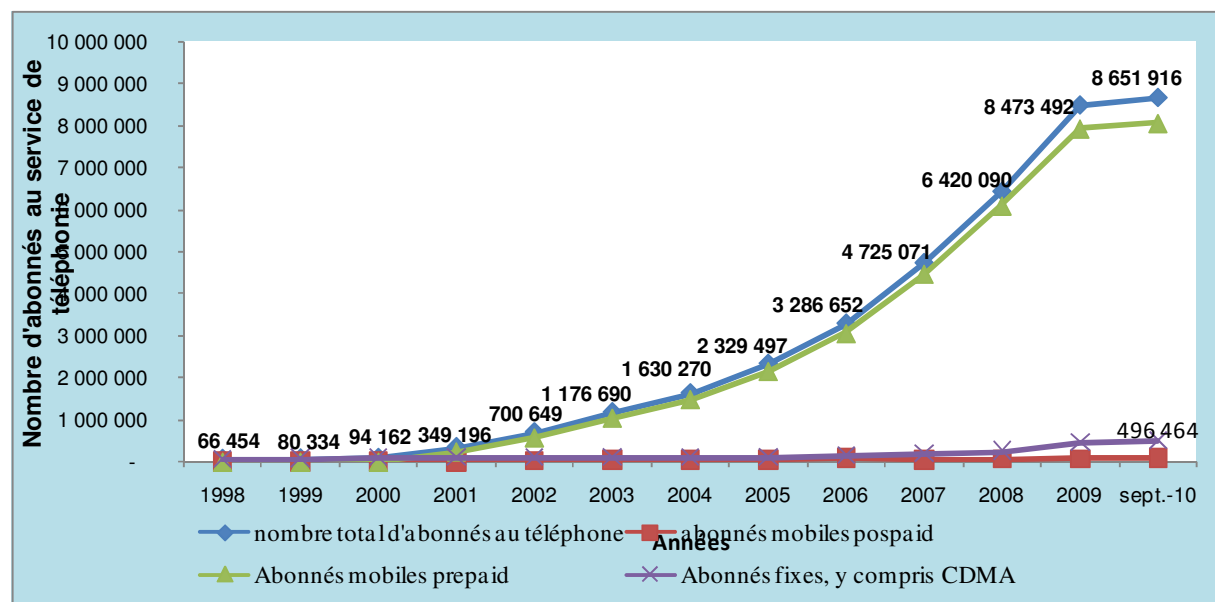
I – 1 Parc d'abonnés et télédensité

- **Parc d'abonnés au téléphone fixe et mobile**

L'on dénombre au Cameroun trois (03) opérateurs de la téléphonie donc un (01) opérateur du fixe et deux (02) opérateurs mobile. Comme le montre le graphique ci-après, l'on observe une croissance exponentielle du marché des télécommunications mobiles, et une tendance à la baisse du marché des télécommunications fixe entre 2003 et 2004, puis à une reprise en 2005. Cette évolution s'inscrit dans la logique de l'évolution du marché mondial des télécommunications.

En effet, selon l'UIT, en 2006, les opportunités d'appels mettant en jeu au moins un téléphone portable représente plus de 66%¹ du total des appels. Il est intéressant de remarquer que le marché de téléphonie mobile n'aurait pas connu le même essor, sans l'introduction de la formule marketing de prépaiement des consommations téléphoniques.

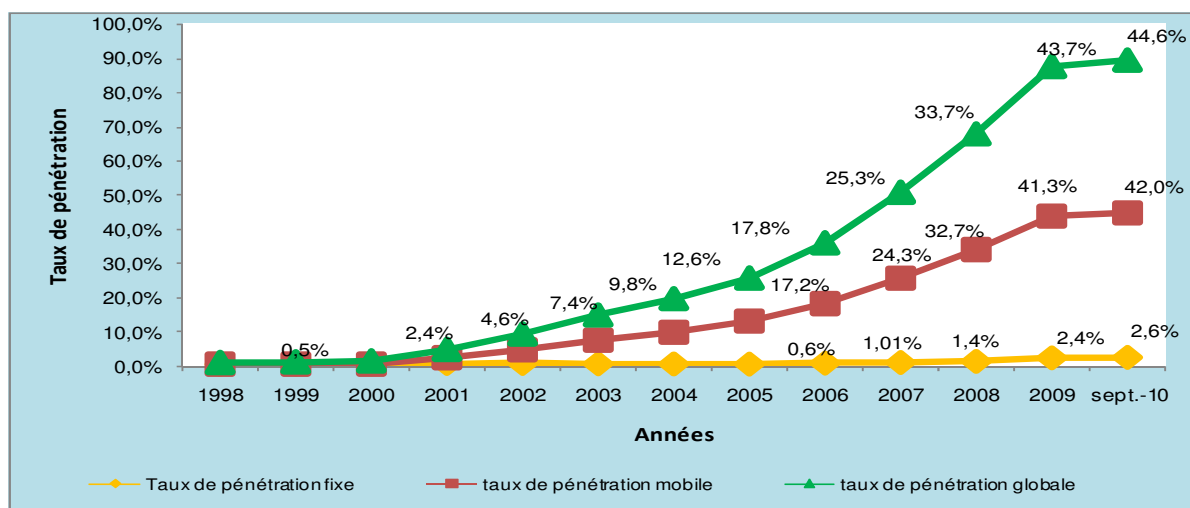
Evolution du parc des abonnés fixes et mobiles



Source : MINPOSTEL

¹ 1- UIT, 2003

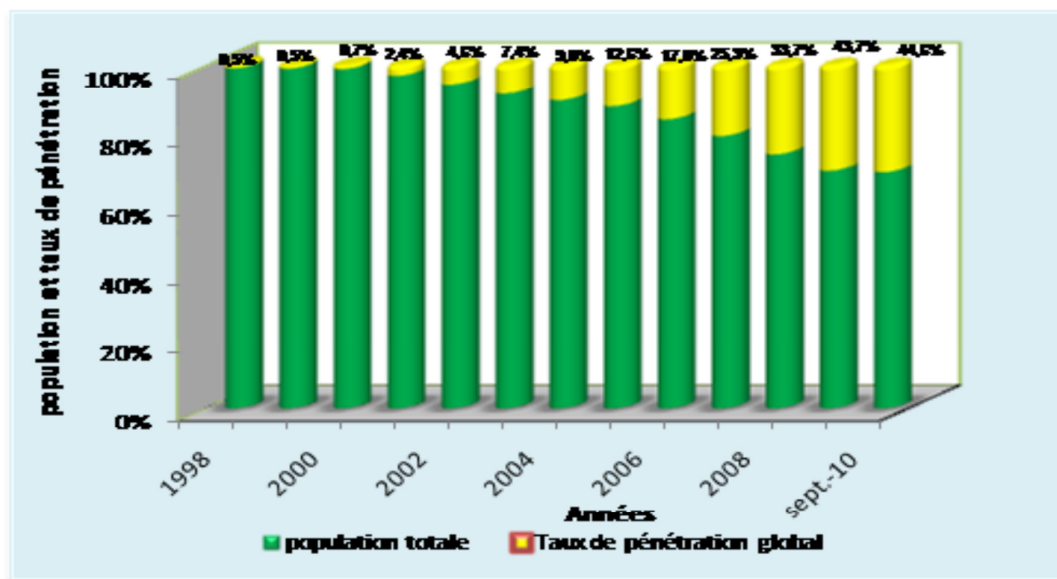
Télédensité, Taux de pénétration du téléphone mobile



Source : MINPOSTEL

Le taux de pénétration a connu une forte croissance après l'introduction en 2002 par les opérateurs des réseaux mobiles de la formule d'abonnement prépayée. Le taux de pénétration téléphonique est passé de 5,25% en 2002 à 43,7% en décembre 2009.

Evolution du taux de pénétration téléphonique au Cameroun



Source : Observatoire de marché MINPOSTEL ; ART

I – 2 Part de marché de l'accès au large bande

• Accès au large bande et service Internet

Il existe sur le marché une cinquantaine de fournisseurs d'accès et de service Internet agréés en décembre 2008, dont les plus influents sont : Ringo, MTN Network solutions (filiale de MTN Cameroon), Orange Multimédia services (filiale d'Orange Cameroun), Saconets SA, Matrix Telecom, Creolink, Avilyos, Alink Telecom. CAMTEL opère sur ce segment de marché à travers son département CAMNET.

Le tableau ci-dessous présente quelques données macro-économiques et indicateurs de ce segment de marché.

Evolution de quelques indicateurs liés au segment des ISP²

Indicateurs	2006	2007	2008	2009
Abonnés Internet	3547	7394	15258	43714
Effectif employés	33	72	184	300
Chiffres d'affaires en milliards FCFA	2,38	4,09	6,8	11,1
Investissements		2,3	4,07	6,26

Source : ART, Créolink, Matrix, Saconets, CAMNET, MTN-NS, Orange Multimédia Services, Ringo

La technologie d'accès à l'internet, limitée au RTC et au VSAT en 1999, s'est aujourd'hui diversifiée aux options suivantes: ADSL, CDMA, GSM, fibre optique, WIMAX.

Frais d'accès Internet pratiqués par certains FAI au grand public

FAI	Technologie d'accès	Coût du matériel en Fcfa (conditions d'accès)	Frais de mise en service	débit	Redevance ⁽³⁾ en Fcfa
CAMTEL	Dial Up	Ligne téléphonique	15000FCFA pour les nouveaux abonnés	56kbps	15 000 FCFA
		Ordinateur personnel			
		Un modem	Gratuits pour les anciens abonnés		
	ADSL ⁽⁴⁾	une ligne téléphonique	29 350 FCA	128/64kbs 256/64kbs	20 694 FCFA 29 350 FCFA
		Un ordinateur			
		Un modem			
	Wireless (Ctphone)	Une ligne téléphonique	2000FCFA (pour 7 jours de connexion)	115 kbps (terminaux fixes simples) 230 kbps (baladeurs)	23 850 FCFA
		Un ordinateur	Gratuit (plus de 7 jours)		
		Un modem ADSL			

² Données statistiques agrégées de : Créolink, Matrix, Saconets, CAMNET, MTN-NS, Orange Multimédia Services, Ringo

³ Pour une connexion mensuelle illimitée

⁴ Etre dans une zone d'éligibilité

	RENIS	une ligne téléphonique	50 000FCFA		150 000FCFA
		un ordinateur			
		un modem approprié			
Orange "Multimédia"	Wimax	modem wimax outdoor	275 000FCFA	128/64kbs 256/128kbs 512/128kbs	25 000FCFA 40 000FCFA 75 000FCFA
		modem wimax outdoor			
		livebox			
"MTN "Networks"	Wimax,				
	GPRS/EDGE	clé USB	24 000FCFA		25 000FCFA
		carte SIM			
Ringo	SCDMA (3G)	modem	15000-100 000FCFA	256kbs 512kbs 1024kbs	25 000FCFA 50 000FCFA 100 000FCFA
		bindibox			
Saconets	Wimax	Le Kit VSAT reste la propriété du client	1 600 000 FCFA	256 kbs	Entre 24 000FCFA et 75 000FCFA par mois (en fonction du taux de cotention)
		Le client paie la bande passante au moins mensuellement			
Matrix	Boucle radio wimax		98 000FCFA	128/128kbs 256/256kbs 512/512 kbs	25 000FCA 49 000FCFA 75 000FCFA

NB : les tarifs aux entreprises sont plus élevés, même à débit égal

- **Accès au segment spatial**

L'on dénombre par ailleurs à la même date trente sept (37) licences d'exploitation des réseaux VSAT de première catégorie et 83 licences d'exploitation des réseaux VSAT de troisième catégorie.

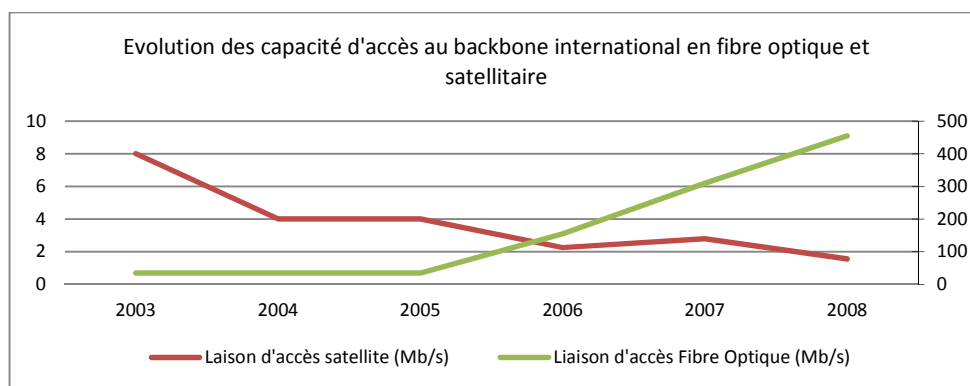
Le coût moyen mensuel d'abonnement chez un fournisseur d'accès est estimé à 5,7 millions de FCFA par l'ART.

Le coût moyen mensuel de location de la bande passante est estimé à plus de 3600FCFA/Kbps.

- **Accès au câble sous marins**

Depuis 2002, le Cameroun a accès au câble sous-marin SAT-3 à travers le point d'atterrissage de ce câble installé à Bonabéri, une banlieue de la veille portuaire de Douala et géré par CAMTEL.

Capacité d'accès Internet au backbone International exploité par la CAMTEL



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 Numéro de téléphone: M. +237 79 18 55 60 ; +237 22 50 31 35 ; +237 22 23 83 68
 Courriel: bertrand.nga@minpostel.gov.cm

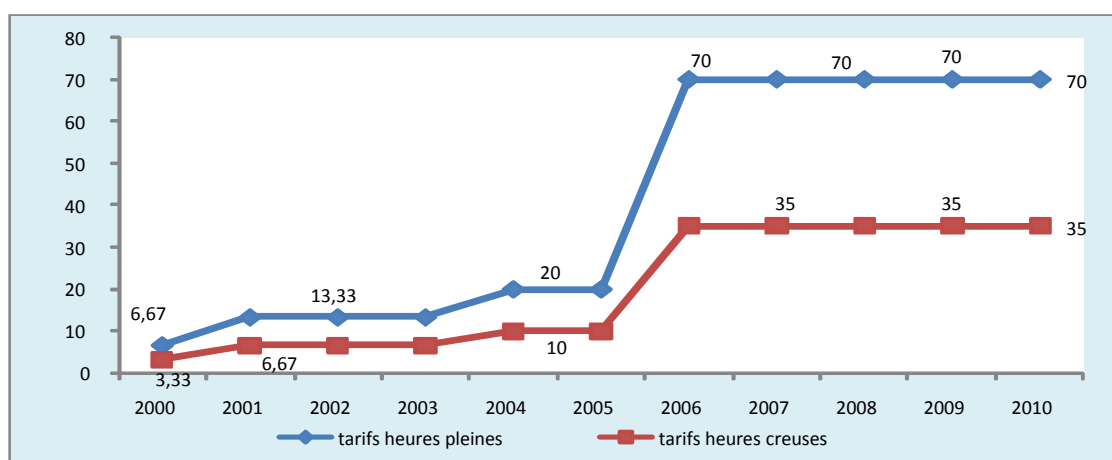
Source : ANTIC

II Tendances tarifaires

II – 1 Tarifs des communications locales du téléphone fixe (TTC)

Le graphique ci-dessous montre une tendance à la hausse du tarif des communications locales qui est passé de 6,67 FCFA en 2000 à 50 FCFA en 2008 soit une hausse de 650% en moins d'une décennie. Cette hausse peut s'expliquer par la fin des subventions croisées dont bénéficiait le service des appels locaux avant la réforme de 1998. En effet, avant cette réforme, les tarifs des communications longues distances subventionnaient les tarifs des communications locales. Le rééquilibrage tarifaire et l'application des tarifs orientés vers les coûts ont entraîné la hausse des tarifs de communications locales. Cette hausse s'explique également par la stratégie adoptée par l'opérateur CAMTEL pour éviter le contournement des réseaux dans l'acheminement du trafic international par les opérateurs concurrents.

Evolution du tarif des communications fixes locales du téléphone fixe



Source : MINPOSTEL

II – 2 Tarifs des communications interurbaines du téléphone fixe et nationales du téléphone mobile (TTC)

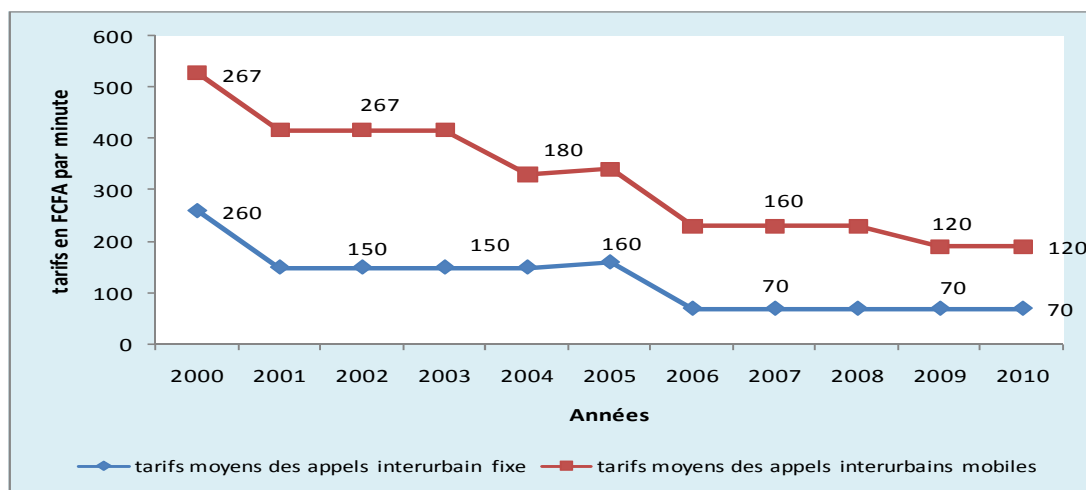
Les tarifs des communications interurbaines ont une tendance à la baisse. Ces tarifs sont passés de 260 FCFA en moyenne la minute en 2000 à 70 FCFA en moyenne la minute depuis le 1^{er} décembre 2005 à nos jours, soit une baisse de 73% en 5ans.

Les tarifs des appels vers les réseaux de téléphonie mobile ont également une tendance à la baisse. En effet, ces tarifs sont passés de 267 CFA la minute en 2001 à 120 FCFA la minute depuis le 1^{er} décembre 2009, soit une baisse de 55% sur la période.

Par ailleurs, l'on note que les tarifs des appels interurbains de l'opérateur CAMTEL sont toujours inférieurs au tarif du réseau de téléphonie fixe vers les réseaux de téléphonie mobile.

En effet, en 2008, le tarif d'un appel interurbain représente 58% du tarif des appels vers les mobiles.

Evolution du tarif des communications nationales de téléphonie mobile et de téléphonie fixe longue distance



Source : MINPOSTEL

II – 3 Tarifs des communications de téléphonie mobile

Le tarif de détail comprend en général les frais d'abonnement qui sont fixes et qui représentent les charges d'accès au réseau et une partie variable liée au volume du trafic écoulé.

▪ Le tarif d'accès au réseau de MTN Cameroon

Pour les abonnés en formule prépayé, les frais d'abonnement étaient de 5000FCFA entre 2003 et 2005. Depuis 2006, les frais de connexion au réseau sont nuls.

S'agissant des abonnés en formule post-payée, les frais de connexion minimum étaient de 5000FCFA avant la baisse des tarifs du 1^{er} juin 2008. Cette baisse situe désormais les frais minima de connexion au réseau autour de 2500FCFA.

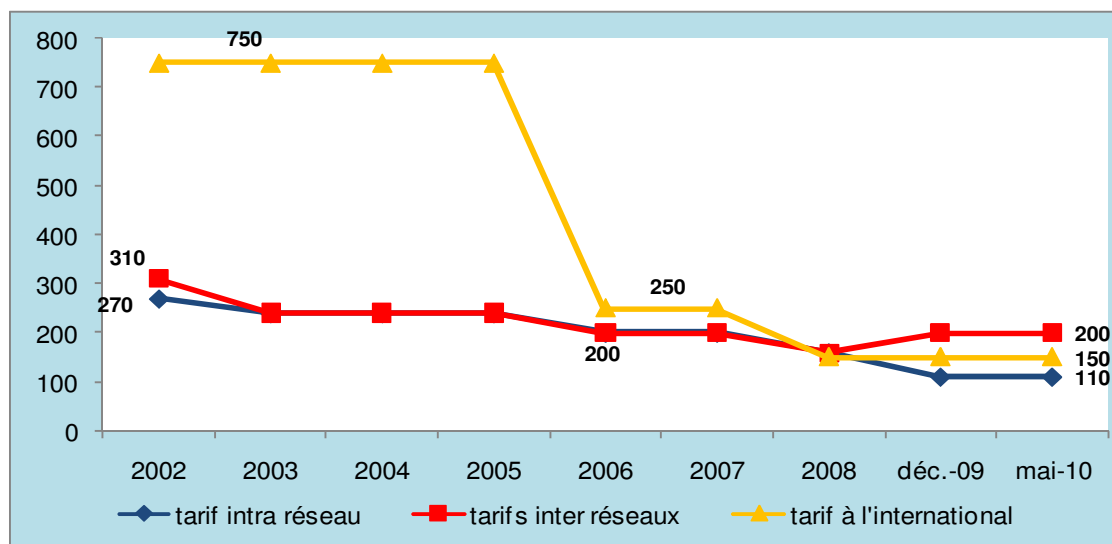
Les tarifs des communications intra réseau sont passés de 270 FCFA la minute en 2002 à 110 FCFA en moyenne la minute en fin 2009, soit une baisse de plus 59%.

Les tarifs des communications inter réseau sont passés de 310 FCFA en moyenne la minute en 2002 à 200 FCFA la minute en moyenne en fin 2009, soit une baisse globale de près de 34% sur la période.

Le tarif des appels internationaux ont connu une chute drastique. Ces tarifs sont passés de 750 FCFA en moyenne la minute en 2000 à 150 FCFA la minute en décembre 2009, soit une baisse de près de 80% sur la période. Ils sont inférieurs à la moyenne par minute du tarif des communications nationales.

Cependant, les tarifs des appels nationaux sont restés statiques entre 2003 et 2007. Or, pendant cette période, les tarifs d'interconnexion a connu une baisse de 35%. La baisse des tarifs d'interconnexion n'a pas influencé les tarifs de détail.

Evolution des tarifs moyens grand public de MTN Cameroon



Source : MINPOSTEL

Le tarif des appels inter réseau de MTN est passé de 310 FCFA en 2001 à 200 FCFA en 2009, soit une baisse moyenne de 35,4%. Pendant la même période, le tarif d'interconnexion au réseau de MTN a baissé de 65,2%, passant de 144FCFA à 59FCFA. La régulation du marché d'interconnexion s'est avérée efficace. L'expérience accumulée par le régulateur dans cet exercice de régulation de l'interconnexion devra lui permettre également de réguler efficacement le marché de détail.

• Le tarif d'accès au réseau d'Orange Cameroun

Pour les clients en formule prépayée, les charges d'abonnement sont passées de 20 000 FCFA à 10 000 FCFA, puis à 5000 FCFA. A ce jour, ces charges sont nulles pour cette catégorie d'abonnés.

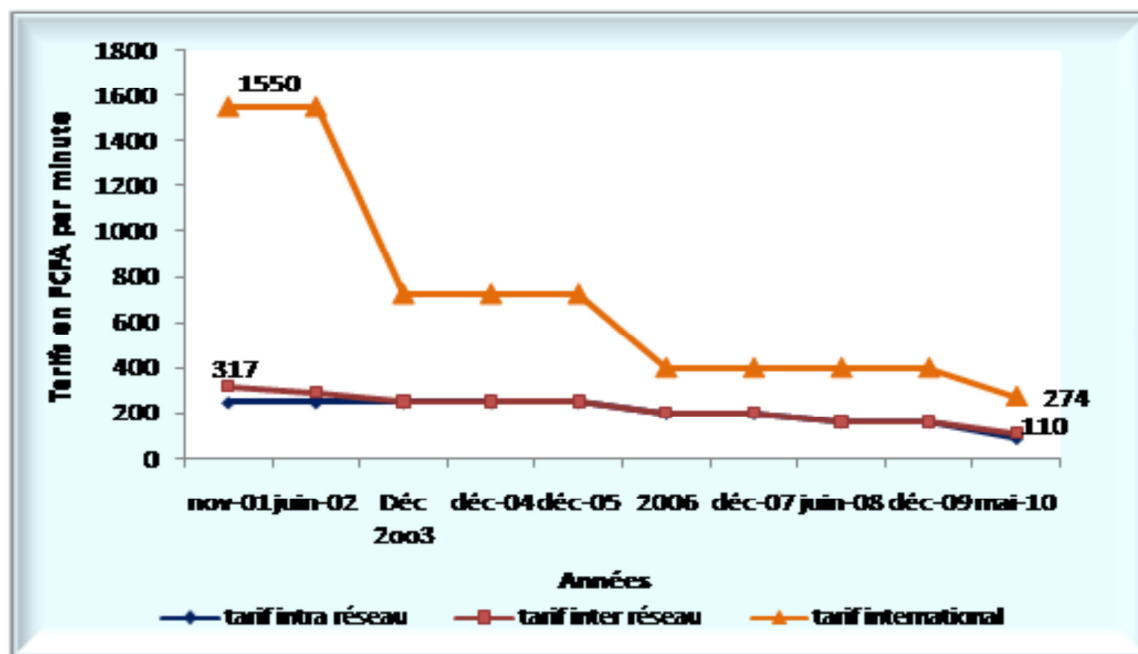
Seuls les abonnés en formule post-payée payent les frais d'accès suivants :

- les frais de mise en service qui sont de l'ordre de 15 000FCFA ;
- les frais d'abonnement qui sont de l'ordre de 5000FCFA par mois ;
- le cautionnement pour le roaming qui se situe autour de 250 000 FCFA et pour les appels internationaux autour de 200 000FCFA par mois.

- **Les tarifs des communications téléphoniques et des SMS**

Le tableau ci-dessous présente l'évolution des tarifs moyens en FCFA par minute.

Evolution comparée des tarifs nationaux et internationaux d'Orange Cameroun



Source : Observatoire de marché MINPOSTEL

Alors que les tarifs des communications internationales connaissent une forte baisse, l'on note une forte rigidité à la baisse des tarifs nationaux. Même la baisse des tarifs d'interconnexion ne semble pas avoir eu une incidence sur son évolution.

Le tarif d'interconnexion au réseau d'Orange Cameroun en heure pleine est passé de 145FCFA la minute en 2001, à 58,5FCFA en 2008, soit une baisse moyenne de 59,65% sur la période. Or le tarif moyen des appels intra réseau n'a connu qu'une baisse moyenne de 35,48% au cours de la même période, passant de 310 FCFA la minute à 200FCFA la minute.

S'agissant du tarif moyen des communications internationales, on note une tendance à la baisse.

SIGLES ET ABBREVIATIONS

ACE	Africa Coast to Europe (cable sous marin à fibre optique allant des côtes africaines aux côtes européennes)
ADSL	Ligne numérique d'abonné asynchrone (Asynchronous Digital Subscriber Line)
ARPU	Revenu moyen par utilisateur (Average Revenue Per User)
ART	Agence de Régulation des Télécommunications du Cameroun
ARTAC	Association des Régulateurs de Télécommunications d'Afrique Centrale
BDT	Bureau de Développement des Télécommunications
CAMNET	Cameroon Network
CAMTEL	Cameroon Télécommunications
CDMA	Code Division Multiple Access
CEEAC	Commission Economique des Etats de l'Afrique Centrale
CEMAC	Communauté Economique et Monétaire de l'Afrique Centrale
CMT	Cameroon Mobile Télécommunication
CTO	
FCFA	Franc de la Coopération Financière d'Afrique Centrale
FST	Fonds Spécial des Télécommunications
HC	Heures Creuses
HIPSSA	
HP	Heures Pleines
HT	Hors Taxe
IMMARSAT	Organisation des télécommunications Internationales Maritimes par Satellite
INTELCAM	Société des Télécommunications Internationales du Cameroun
INTELSAT	Organisation des télécommunications internationales par satellite
IP	Internet Protocol
ISP	Internet Service Provider
LIR	Registre Local d'Internet
MINPOSTEL	Ministère des Postes et Télécommunications
MSC	Mobile Switch Center
MTN	Mobile Telephone Network
PANAMSAT	Pan American Satellite

PIB	Produit Intérieur Brut
PPTE	Pays Pauvre Très Endetté
PoP	Point of Presence
RASCOM	Regional African Satellite communication Organization (Organisation africaine des télécommunications par satellite)
RTC	Réseau Téléphonique Commuté
SAT3	South Africa Telecommunications 3
SMS	Short Message Service
SNI	Société Nationale des Investissements
TIC	Technologie de l'Information et de la Communication
TTC	Toutes Taxes Comprises
UIT	Union Internationale des Télécommunications
URAD	Unité de Raccordement des Abonnés Distants
VSAT	Very Small Arpeture Terminal (Très petite station terrienne)
WASC	West African Submarine Cable
WIFI	Standard de l'Ethernet Sans Fil (Wireless fidelity)
WIMAX	Worldwide Interoperability for microwave access

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/6-F
31 August 2012**

French

SOURCE: Agence de Régulation des Télécommunications, République Centrafricaine

TITLE: Mesure de l'accès aux réseaux large bande en République Centrafricaine

AGENCE DE REGULATION DES TELECOMMUNICATIONS



MESURE DE L'ACCES AUX RESEAUX LARGE BANDE EN REPUBLIQUE CENTRAFRICAINE

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La démocratisation de l'accès aux services de télécommunications et des technologies de l'Information et de la Communications (TIC) est l'une des raisons fondamentales qui motivent la libéralisation du secteur des télécommunications en République Centrafricaine. La volonté du gouvernement centrafricain étant d'ouvrir le secteur aux capitaux privés afin de le rendre plus compétitif et donc en faire un levier de croissance pour l'économie nationale.

L'ouverture du marché de télécommunications est marquée par la création de l'Agence de Régulation des Télécommunications (ART) et l'entrée de plusieurs opérateurs notamment sur le marché de téléphonie mobile et de l'Internet, ouvrant la voie à la mise sur les marchés finaux des offres aussi variées que concurrentielles.

Le suivi de l'évolution du secteur des télécommunications/TIC exige à l'ART, la mise en place d'un outil approprié devant permettre de collecter, traiter et publier les indicateurs dans le but de donner une visibilité à ce secteur. Toutefois, l'harmonisation des indicateurs à travers l'utilisation des terminologies adéquates permettra de faire des mesures comparables à celles des autres pays au niveau mondial.

1. Présentation de l'ART

L'Agence de Régulation des Télécommunications (ART) est un Office public, placé sous la tutelle principale du Ministère en charge des Télécommunications et des Nouvelles Technologies. Créée par la loi 96.008 du 13 Janvier 1996, l'ART n'est devenue opérationnelle qu'en 2004, après la mise en place de ses différents organes (Conseil d'Administration et Direction Générale), conformément aux dispositions du décret N°96.241 du 27 Août 1996, portant approbation de son statut.

Les missions de l'ART sont regroupées au sein de trois pôles d'activités notamment : juridique, économique et technique.

2. Présentation du secteur des télécommunications

Le secteur des télécommunications et des Nouvelles Technologies de l'Information de la Communication est segmenté en trois marchés :

- **Le marché de la téléphonie fixe** : institutionnellement, c'est un marché ouvert à la concurrence mais qui est encore sous contrôle de l'opérateur historique. il peine à se faire de la place du fait de la concurrence des opérateurs mobiles;
- **Le marché de la téléphonie mobile** : ouvert depuis 1996, ce marché a enregistré la présence de quatre opérateurs qui ont tous une licence globale

leur permettant de faire de la voix, données et images. C'est un marché dynamique qui occupe une place importante dans le secteur ;

- **Le marché de l'Internet** : très peu développé, ce marché n'est pas suffisamment exploité à cause d'un facteur exogène important (coût d'accès à la bande passante sur satellite). Quatre FAI composés essentiellement des opérateurs de téléphonie (l'opérateur fixe et 3 opérateurs mobiles) sont présents sur ce marché.

Pour le moment, le secteur de télécommunications en République Centrafricaine compte 1 opérateur fixe et quatre opérateurs mobiles.

3. Le suivi de l'évolution des marchés du secteur

3.1 Présentation de l'Observatoire trimestriel

L'observatoire des marchés de télécommunications est un outil de suivi trimestriel des activités des opérateurs du secteur. Il établit la situation consolidée des entreprises à la fin de chaque trimestre. Les données collectées ne font l'objet d'aucune publication par opérateur.

Les données publiées proviennent des réponses aux enquêtes trimestrielles des opérateurs. La nature des informations collectées sont les suivantes :

- Parcs ;
- Trafics ;
- Revenus.

Les données publiées concernent aussi bien les marchés de téléphonie fixe, mobile que celui de l'Internet.

3.2 La mise en place d'une enquête

L'une des missions de l'ART consiste en la publication périodique des indicateurs du secteur des télécommunications. C'est dans ce cadre que la Direction Générale de l'ART a mis en place une enquête trimestrielle des marchés de télécommunications (mobile fixe et Internet). Cette activité est encadrée par la Note de Service N°004/10/ART/DG du 1^{er} avril 2004 qui fixe les conditions de collecte, de traitement et de la publication des indicateurs.

La collecte, le traitement et la publication de l'observatoire des marchés de télécommunications fait partie des attributions dévolues au Service Marketing et des Relations Extérieures dont j'en suis le Chef de Service.

3.3 La publication de l'Observatoire

L'observatoire des marchés de télécommunications en Centrafrique est le seul document que l'Agence de Régulation des Télécommunications (ART) publie dans le but de donner une visibilité sur l'évolution de ces marchés.

Cette publication vise les objectifs suivants :

- Suivre la conjoncture des marchés de télécommunications au niveau du client final ;
- Mesurer l'évolution d'accès aux réseaux et aux services de télécommunications ;
- Assurer la transparence du marché pour :
 - les opérateurs ;
 - les pouvoirs publics ;
 - les analystes ;
 - les consommateurs.
- Mesurer les effets des décisions de l'ART.

Par ailleurs, la mise en place d'un observatoire des marchés de télécommunications répond à plusieurs facteurs:

- vide institutionnel en matière de statistiques sectorielles ;
- forte demande des acteurs tant au plan national qu'à l'international sur l'état des marchés ;
- données pertinentes permettant une orientation de la politique réglementaire et/ou des décisions de régulation.

4. Mesure de l'accès internet en Centrafrique

Le marché de la Fourniture d'Accès à l'Internet n'est pas assez développé. Depuis la revalorisation des licences en 2008, les opérateurs mobiles ont tous obtenu des licences dites « globales » pour les services « Mobile, Internet et images ».

Pour le moment, quatre opérateurs (dont trois opérateurs mobiles) offrent l'accès à l'Internet qui se limite à la seule ville de Bangui (Capitale), renforçant très fortement la concurrence sur ce marché.

Cependant, malgré la concurrence, la croissance de ce marché est faible et les tarifs restent très élevés.

La fourniture de l'Accès à l'Internet, en République Centrafricaine, se fait par la voie des technologies suivantes :

- la technologie filaire : utilisée par l'opérateur de la téléphonie fixe qui fournit l'accès à l'Internet via le RTC, l'accès ADSL (bas débit) et des Liaisons spécialisées. Précisons que les offres de cet opérateur en accès Internet varient entre 128 et 256 Kbit/s théoriquement. Enfin, soulignons qu'en la matière, l'opérateur historique qui éprouve d'énormes difficultés de fonctionnement ne vend pas de capacité aux FAI tiers ;
- la technologie filaire sans-fil : c'est un marché sur lequel trois opérateurs mobiles proposent des offres les plus compétitives via Wimax, BLR et V-SAT. Les offres Internet filaire sans-fil vont jusqu'à 1 Mbit/s en théorie.
- la technologie GPRS/EDGE : pour l'accès à l'Internet mobile via les réseaux des opérateurs mobiles. Trois opérateurs mobiles sur quatre fournissent ce service au travers des clés internet, les cartes SIM data ou encore les cartes SIM voies qui donnent accès aux services de l'internet.

Faute d'avoir une connexion qui relie la RCA aux câbles optiques internationaux, les FAI payent la bande passante sur satellite. Ce qui renchérit les offres sur le marché de détail.

4.1 Mesure d'accès à l'Internet

Tout comme les services des téléphonies mobile et fixe, la mesure d'accès à l'Internet fait objet, de la part de l'ART, d'une publication récurrente.

a. La collecte des données

Un questionnaire est envoyé à la fin de chaque trimestre aux opérateurs et les FAI. Les indicateurs renseignés sont les suivants :

- Parc d'Abonnés ;
- Frais d'accès aux services (en TTC FCFA) ;
- Tarifs de connexion (en TTC FCFA);
- Volume de trafic (en Mo) ;
- Revenu (en millions de FCFA).

Ces indicateurs sont ventilés selon:

- *le profil du client* : Résidentiel ou Entreprise
- *Le débit* : le bas débit (64 kbit/s, 128 kbits/s et 256 kbits/s) et le haut débit (512 kbit/s, 1 Mbits/s et plus de 1 Mbits/s)

Le questionnaire de collecte des données Internet se présente selon le tableau en annexe.

b. L'implication des ménages dans la collecte des données

La collecte des données auprès des ménages nécessite des enquêtes régulières. Faute de moyen, l'ART n'a pas encore lancé un projet d'enquête visant à connaître le niveau d'intégration des services de l'Internet dans les usages et le revenu des ménages ainsi que tous les aspects y relatifs.

c. La publication

Les données collectées auprès des FAI font l'objet de traitement en vue d'une publication.

Les données publiées par l'ART sont agrégées. Aucun indicateur n'est publié par opérateur. Néanmoins, compte tenu de la qualité des informations transmises par les FAI, nous ne trouvons pas pertinent de faire des publications qui puissent fournir des informations plus fines sur le marché de l'Internet.

C'est pourquoi, la publication des indicateurs de l'Internet par l'ART est limitée et ne présente que les données suivantes :

- parc des abonnés ;
- taux de pénétration ;
- revenus du marché ;
- revenu moyen.

d. Les perspectives du marché de l'Internet

Le marché Centrafricain de l'Internet tend à se développer. Dans un futur proche, deux grandes infrastructures internet vont se déployer :

- Primo, le lancement, avant la fin de cette année, d'un nouveau FAI qui va certainement dynamiser ce marché. En effet, ce dernier envisage mettre à la disposition du public des offres Internet 4G via la technologie Wimax (Internet

Large Bande). Ces offres vont concurrencer fortement celles existantes tant en termes de qualité de service que de couverture.

- Secundo, le déploiement d'un réseau à fibre optique qui, en plus de nombreuses opportunités offertes, apportera des véritables solutions aux problèmes d'accès, de capacité, de qualité de service,...

5. Les raisons d'accepter notre demande de bourse

Les perspectives d'évolution de marché de l'Internet se présentent comme des nouveaux défis pour l'ART. En effet, en dépit de ce qu'il faut réaménager le cadre réglementaire pour mieux faciliter le développement de l'Internet large bande en République Centrafricaine, l'ART se doit également de se doter d'outils efficaces permettant de mesurer non seulement le niveau de la concurrence entre les fournisseurs, mais aussi l'appropriation de ces nouveaux usages par les consommateurs.

Or, l'observatoire publié par l'ART dans ce domaine est limitée et ne permet pas réellement de mesurer de manière efficiente l'utilisation des TIC et, encore moins, l'entrée de la République Centrafricaine dans la société de l'information.

Par ailleurs, faute d'utiliser les indicateurs appropriés, la République Centrafricaine ne figure pas dans le classement de l'UIT pour ce qui concerne la Mesure de la Société de l'Information en 2011.

C'est pourquoi, pour la participation à la 10^e réunion organisée par l'UIT en partenariat avec le Ministère des technologies de l'information et de la communication (MICT) de la Thaïlande du 25 au 27 Septembre 2012 à Bangkok, nous sollicitons l'appui de l'UIT pour la prise en charge de notre participation à cette importante réunion.

5.1 Les avantages pour l'ART et la République centrafricaine

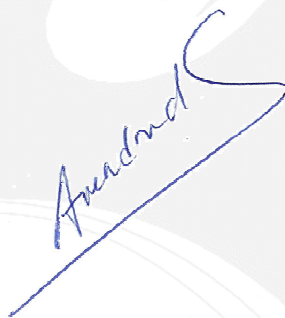
La thématique de cette réunion correspond bien à l'une des plus importantes activités réalisées au sein de mon Service, à savoir : *la collecte, le traitement et la publication des indicateurs statistiques (Observatoire) des marchés de télécommunications en République Centrafricaine.*

Ma participation à cette réunion permettra à mon service et à l'ART de :

- connaître les indicateurs utilisés pour les réseaux large bande ;
- avoir les outils permettant de mesurer l'accès aux réseaux large bande et la société de l'information en République Centrafricaine;
- faciliter une meilleure visibilité du secteur des télécommunications et TIC de la République Centrafricaine au plan international au travers des publications de l'UIT.

Telles sont, Mesdames/Messieurs, les raisons pour lesquelles nous sollicitons l'appui de l'UIT pour que l'ART à travers ma modeste personne puisse participer activement à la 10^e réunion sur les indicateurs des télécommunications/TIC dans le monde, du 25 au 27 Septembre 2012 à Bangkok en Thaïlande.

Fait à Bangui, le 10 Juillet 2012



Djallo AMADOU

ANNEXE

Questionnaire de collecte des données Internet

1- Parc Abonnés Internet
Résidentiel
<u>Bas débit</u>
64 kbits/s
128 kbits/s
256 kbits/s
<u>Haut débit</u>
512 kbits/s
1 Mbits/s
Plus de 1 Mbits/s
Entreprise (14)
<u>Bas débit</u>
64 kbits/s
128 kbits/s
256 kbits/s
<u>Haut débit</u>
512 kbits/s
1 Mbits/s
Plus de 1 Mbits/s

2- Abonnement Internet (en FCFA) (15)
Résidentiel
<u>Bas débit</u>
64 kbits/s
128 kbits/s
256 kbits/s
<u>Haut débit</u>
512 kbits/s
1 Mbits/s
Plus de 1 Mbits/s
Entreprise
<u>Bas débit</u>
64 kbits/s
128 kbits/s
256 kbits/s
<u>Haut débit</u>
512 kbits/s
1 Mbits/s
Plus de 1 Mbits/s

3- Tarifs de connexion (en FCFA mensuel)	
Résidentiel	
<u>Bas débit</u>	
	64 kbits/s
	128 kbits/s
	256 kbits/s
<u>Haut débit</u>	
	512 kbits/s
	1 Mbits/s
	Plus de 1 Mbits/s
Entreprise	
<u>Bas débit</u>	
	64 kbits/s
	128 kbits/s
	256 kbits/s
<u>Haut débit</u>	
	512 kbits/s
	1 Mbits/s
	Plus de 1 Mbits/s

4- Volume trafic Internet (en Mo)	
Résidentiel	
<u>Bas débit</u>	
	64 kbits/s
	128 kbits/s
	256 kbits/s
<u>Haut débit</u>	
	512 kbits/s
	1 Mbits/s
	Plus de 1 Mbits/s
Entreprise	
<u>Bas débit</u>	
	64 kbits/s
	128 kbits/s
	256 kbits/s
<u>Haut débit</u>	
	512 kbits/s
	1 Mbits/s
	Plus de 1 Mbits/s

5- Revenu d'accès à l'Internet (en millions de FCFA)
Résidentiel
<u>Bas débit</u>
64 kbits/s
128 kbits/s
256 kbits/s
<u>Haut débit</u>
512 kbits/s
1 Mbits/s
Plus de 1 Mbits/s
Entreprise
<u>Bas débit</u>
64 kbits/s
128 kbits/s
256 kbits/s
<u>Haut débit</u>
512 kbits/s
1 Mbits/s
Plus de 1 Mbits/s
Revenus annexes

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/7-E
31 August 2012
English**

SOURCE: Ministry of Information and Communication Technologies, Colombia

TITLE: Measuring technological factors on the formation of new firms



Measuring Technological Factors on the Formation of New Firms

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ABSTRACT

The purpose of this paper is to identify the factors that affect the creation of new firms. We take into consideration economic, political, social and technological factors which should also help governments realize the areas that we found to have the greatest impact.

The study relies on data from international organizations from which we construct an ordered probit statistical analysis. The results indicate that investments in both ICT and education enhance the probability of generating new business.

Keywords

New business, ICTs, Statistical Analysis.

INTRODUCTION

Economic activity in the private sector is the lifeblood of a nation. It is through companies' efforts that employment is created, capital investment happens and innovation improves the socioeconomic circumstances of a country. In the past, governments have relied on large corporations to generate growth and employment. However, it is often smaller companies that create greater employment opportunities and contribute to economic growth.

The scholarly community is in disagreement regarding the benefits of new business to an economy. Research in the 1970s found that small firms contribute a disproportionate amount of new jobs (Evans et al. 1989c). Similarly, Haltiwanger, Jarmin and Miranda (Haltiwanger et al. 2008) found that start-ups and young businesses were critical for job creation and contributed significantly to a country's net growth. In contrast, authors like Shane (Shane 2009) have argued that start-ups are not innovative, create few jobs and generate little wealth. He believes that governments should focus instead on businesses with high growth potential. Likewise, a World Bank report (Ayyagari et al. 2011), while recognizing the economic benefits of new firms and indicating that young firms contributed to employment, noted that they were not as productive as their larger counterparts. The same report, nonetheless, found that small, young firms contributed a greater amount of jobs than larger and more established firms.

In spite of the contradictory evidence, governments have put forth significant efforts to support small and medium businesses (SMEs). In the United States, for example, the Small Business Act of 1953 mandated the establishment of government-sponsored programs to take care of SMEs' concerns and improve managerial skills (Lowrey 2004). For other nations, SMEs in general, and new businesses in particular, are relatively new policy priorities.

It is well known among the general public that new businesses have a high failure rate; however, a fraction of them will succeed and grow into companies that will positively affect an economy. We thus believe that establishing conditions that foster the entry of new business can benefit a country. In addition, as we will argue in this paper, the introduction of ICTs has reduced the barriers to entry, making it possible for more people to become entrepreneurs.



Starting a new business is not easy. Companies need to overcome many challenges, such as access to credit, access to skills, logistical issues, and governmental hurdles, in addition to making sure that there is enough demand for their products or services.

DEFINING NEW BUSINESSES

Baumol (Baumol 1990) argues that different types of businesses emerge, depending on the institutional constraints facing would-be entrepreneurs. He believes that new business can be productive, unproductive or even destructive.

Productive businesses include those that engage in innovation; unproductive businesses are those that engage, through lobbying, in rent-seeking activities aimed to attract benefits to them at the expense of others; and destructive businesses are those that engage in organized crime. In his categorization of companies, Baumol fails to include the informal sector as an unproductive business type. Given the limited benefits that the informal sector brings to an economy, we, too, do not take it into consideration. This sector does not contribute to the tax or knowledge base, employs a minimal number of people, and negatively impacts the formal sector because, by having lower operational expenses, it competes unfairly with formally established businesses.

We set out to determine the extent to which countries are able to generate new firms. Given the purpose of this study, we use as our dependent variable the new business registered variable, adjusted by population size. This is what is normally known in the literature as business density.

FACTORS THAT AFFECT NEW BUSINESS CREATION

The way new firms affect an economy depends on the socioeconomic and political circumstances they face. These, which altogether we call institutions, determine where individuals put their resources. These can be productive, unproductive or destructive activities, depending on the incentives they face (North 1990).

The term institutional risks, for the purpose of this paper, refers to the “rules of the game,” the laws and regulations that govern economic activity, along with political and social relationships (North 1990; Scott 2001). These regulations provide incentives as well as constraints to investment. They affect transactions costs and information flows (Chan et al. 2008). There is evidence of the positive and negative impacts that differences in attributes such as access to inputs of production, competitive advantage, technology and the country’s institutions can have on the private sector (Chan et al. 2008).

There are four factors that can affect the capabilities of entrepreneurs to engage in innovation. These are a country’s political institutions, its economic circumstances, its social fabric and its technological infrastructure.

The following section presents factors that scholars have identified as having an effect on the creation of new businesses.

Governance Factors

Political institutions include laws and regulations, the processes that governments adopt to regulate economic activity and the enforcement of these laws. Kaufmann, Kraay and Mastruzzi (Kaufmann et al. 2010) define governance as “the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them” (p. 4).

Political institutions are deemed to be weak when they lack transparency and predictability, when they are perceived be unfair and when their laws are poorly enforced (Kaufmann et al. 2010).

Government actions can positively or negatively affect the creation of new businesses. In many countries, governments have recognized the benefits of entrepreneurship and have set up programs that will support the creation of new enterprises. These programs include what we would term “getting out of the way” policies; these include industry privatization and liberalization, as well as simplification of regulatory requirements (Audretsch 2001), but there are also “helping hand” policies that include more targeted efforts to support entrepreneurial activity. These include, for example, favorable lending, favorable taxation, subsidies, and training. In this paper, we focus only on general governance factors—as opposed to targeted initiatives—that can affect companies’ incentives to enter the market.



According to Puia (Puia et al. 2007) and Jacobides (Jacobides et al. 2006), the policies that have had more favorable effects on entrepreneurship are general policies that reduce barriers to entry for both national and international players and policies that dedicate significant expenditures to research and development, as well as to education and ties with universities.

For the purpose of this paper, we focus on two functions of government identified by the World Bank: (a) the capacity of a government to effectively formulate and implement sound policies, and (b) the respect of citizens and the state for the institutions that govern economic and social interactions among them.

When governments have convoluted or contradictory laws and regulations, these negatively affect the entry of new companies because of the time and effort required to register a business. Complexity in government processes delays licenses, registrations, and permissions that the private sector needs, and poor implementation of these regulations can lead to arbitrary decisions that further contribute to uncertainty. Moreover, when policies are translated into laws and regulations, they need to be enforced. Without adequate enforcement, a law is ineffectual, which also contributes to uncertainty.

To capture these governance factors and their effect on new businesses, we used the World Bank's governance indicators, specifically Regulatory Quality, Government Effectiveness, and Rule of Law. We also tried to capture general governance factors through metrics that give some indication of the level of bureaucracy that exists in the country. For this, we introduced proxies with data from the World Bank on the number of procedures and the time required to build a warehouse or register property. Specifically, the relevant data that are available on this issue are: the number of procedures needed to build a warehouse, the time (in days) it takes to build one, the number of procedures needed to register property, and the time (in days) it takes to register property. We also included the World Bank's "ease-of-doing-business index," which rates countries from 1 (easiest) to 183 (most difficult).

Sometimes procedures set up by governments are created to serve a particular need, to solve a problem or to achieve a particular economic objective. However, as time passes, some of these procedures become obsolete but are never eliminated. This can result in a series of complex forms, permits, approvals, and so forth, which can take time and jeopardize the capital that a company may have secured to set up a business. It is because of the negative impact of these slow, and often unpredictable, bureaucratic procedures that new business and innovation fail to happen in some countries (Garcia-Murillo 2011).

Economic Factors

Companies operate in the market, and factors like income can affect demand. Access to credit can facilitate the entry of new businesses, and competition can motivate the private sector to be more innovative. In this section, we focus on these three factors, which affect the economic environment in which companies may wish to start a new business.

Income

Whether or not wealth affects entrepreneurship is still an issue of scholarly debate. Conventional wisdom indicates that wealthier economies should generate more new businesses than poor ones, but the economic literature provides arguments to the contrary.

Generally, when wages increase as a result of economic growth, the opportunity costs of setting up a business also increase because of the income that an individual has to forgo to set up a business (Carree et al. 2002). The decision to become an entrepreneur, scholars argue, depends on wages. If wages are low, individuals would be more inclined to start their own businesses, with the hope of earning a higher wage than what prevails in the market.

Lucas (Lucas 2003), in his theory of the firm, further justifies the rationale to be employed, depending on the prevailing wage. He hypothesizes that an entrepreneur has to recognize the fact that his or her self-earned wages would be uncertain, and thus it would be less desirable to set up a company when wages are high (Kihlstrom et al. 1979). Given the impact of wages on individuals' decisions to set up a company, we should find an equilibrium wage, where the number of individuals who become entrepreneurs equals the number of individuals who enter the labor market. This, however, cannot be categorically established because individuals' attitudes towards risk differ, which means that the wage at which people are willing to start a business differs from person to person (Kihlstrom et al. 1979). It is additional factors like this one that make the relationship between income and entrepreneurship unclear (Elston et al. 2011).

At a more granular level, (Hurst et al. 2004), found a significant relationship between wealth and entrepreneurship only in the top quintile of wealth distribution (Parker 2005). Evans and Jovanovic (Evans et al. 1989a) also found that wealthier



individuals are able to start businesses with more efficient capital levels than poorer individuals. They argue that individuals will decide whether or not to become entrepreneurs based not only on their wealth, but also on their ability.

Sufficient personal income can allow an individual to finance a start-up company. According to Elston and Audretsch (Elston et al. 2011), government grants, credit cards and personal wages are the main sources of income for starting a company. In a country with underdeveloped financial markets, only wealthier individuals will be able to set up businesses, because they have the resources to pay for the higher collaterals normally found in these more uncertain economies (Evans et al. 1989b). Likewise, in the presence of imperfections in financial markets, individuals can borrow only a limited amount of capital, which may limit them from becoming self-employed and oblige them to work for a wage (Banerjee et al. 1993b).

A country's level of development affects individuals' occupational decisions because it affects the demand and supply of labor (Banerjee et al. 1993a). Since wealth has an impact on one's decision to become an entrepreneur, the distribution of wealth has an impact on entrepreneurship. According to Banerjee and Newman (Banerjee et al. 1993a), in countries that have high income inequality, "[t]he process of development runs out of steam," leading to little employment and low wages. The opposite is also true—when income inequality is low, the economy will grow, leading to high wages and a high employment rate (Banerjee et al. 1993b).

There is an interesting phenomenon related to the notion of risk aversion. According to Kan and Tsai (2006, as cited in Elston & Audretsch, 2011) people who are less risk-averse are more likely to start a company. This is consistent with the findings of Carree (2002), who argues that higher income leads to less entrepreneurship. The issue here is whether less developed countries are more or less risk-averse, and whether the fact that they have nothing to lose and the fact that they have less income lead them to take more risks and set up businesses.

Given the evidence we have so far, it is difficult to determine which of the two forces has a greater impact on the creation of new businesses. Some scholars would argue that with low wages, which is a characteristic during a recession, there will be a greater motivation to initiate a business. However, during recessions there are also fewer sources of capital to finance these entrepreneurs. Korosteleva and Mickiewicz (2011) argue against growth during recessions. They expect less business creation in times of economic contraction and an expansion of newly established businesses in times of growth.

Given the lack of consensus regarding income, we include in this study the GDP per capita, to establish, albeit imperfectly, the average income of the population. Similarly, given the impact that income inequality can have on the growth of newly established firms, we include the GINI index, which measures the extent to which the distribution of income within an economy deviates from a perfectly equal distribution. A GINI index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Access to credit

Well-developed financial institutions and access to credit enhance entrepreneurial activity in a country (Aidis et al. 2008). Consequently, several studies have found that a lack of credit is one of the major constraints to those wishing to start a new business (Beck et al. 2008; Beck et al. 2005; Storey 1994). This problem is particularly severe for small firms (De Mel et al. 2011), due to several significant impediments: They experience higher risks because of their lack of a credit history, have a high failure rate, and require greater monitoring costs (Korosteleva & Mickiewicz, 2011; Elston & Audretsch, 2011). These factors are exacerbated when a country also has a weak legal and financial system that has not developed the means to provide credit to these smaller entities.

Scholars have offered explanations of why new companies experience difficulties obtaining financing. In 1981, for example, Stiglitz and Weiss (Stiglitz et al.) asked, Why is credit rationed? This and subsequent work by them, by de Meza and Webb (De Meza et al.) and by Evans and Jovanovic (Evans et al.) argue that this happens because it is impossible for banks, due to asymmetric information, to identify risky versus relatively safe projects to fund. This forces financial institutions to reduce interest rates and ration capital, instead of opting for a much higher interest rate that would attract only risky entrepreneurs who might not intend to, or be able to, pay back. This credit rationing results in under-investment relative to the social optimum (Parker 2005) p. 10). However, in an oft-quoted study, Berger and Udell (Berger et al.) found contrary evidence regarding credit rationing in the United States. Like Meza and Webb (De Meza et al.), they argue that the US does not actually have an under-investment, but an over-investment, problem because there are too many projects being funded that should not be (Parker 2005), p. 11). Because of this, they argue, credit should be made more expensive, so that it is accessible to only the ablest of entrepreneurs. We suspect, nonetheless, that these findings are based on studies of developed nations. Impediments to access to credit can be a real and severe problem in less developed countries (LDCs), where the economic



and political circumstances, added to underdeveloped financial markets, require higher collateral requests in obtaining loans (Bianchi 2010), making it difficult for entrepreneurs to get access to capital.

Developed nations have greater access to credit not only from banks, but also from other sources, such as venture capital, loan guarantee schemes, direct loans to small businesses from government, and financial assistance programs for unemployed individuals who want to start a business (Bendick et al. 1987). These types of programs are not normally available to entrepreneurs in LDCs.

Financial institutions protect themselves against the higher risks of new firms not only by reducing the amount of capital available to entrepreneurs, but also by charging a risk premium. An increase in the risk premium negatively affects investment, as projects that could have been feasible before are no longer possible, given the increased cost of capital (Fuerst 2006). This was confirmed by Lamont (Lamont) and Lettau and Ludvigson (Lettau et al.), who found that investments increase when risky discount rates fall.

Capital from financial institutions is not always available in LDCs. In light of various constraints, scholars have found that entrepreneurs' alternative sources of funding are government programs or family and friends (Beck et al. 2008). Given that initial capital may have not come from a bank, we wondered whether there are an equally robust number of companies entering the market in countries with weak financial institutions versus those with strong ones. This was an important insight as we constructed and analyzed the data on the strength of the financial sector and the manner in which it does or does not affect entrepreneurial activity. If we were to find, for example, that poor financial institutions do not affect the rate at which companies are being formed, this would give an indication of the strength of alternative sources of capital in countries where businesses are able to fill the void caused by the behavior of formal financial companies.

The literature finds that there are close interactions among the strength of a country's financial institutions, the risk premium that results from those markets and the amount of credit available to the private sector. For the purpose of this study, we included the amount of domestic credit available to the private sector, which helped us determine the amount of capital available to small companies.

Competition from abroad

National boundaries separate countries' economic policies and institutions. Within these boundaries, governments tend to implement policies to protect their economies (Olson, 1996). It is therefore not unusual to find policies restricting trade across markets (Busenitz et al., 2000) or bureaucratic procedures that erect barriers to foreign investors (Banga). Through trade agreements, governments can regulate commerce and find new opportunities for entrepreneurs beyond their borders (Olson Jr 1996). Trade policies open overseas markets for local companies, while also opening the national market to entrepreneurs from other regions (Von Barga et al., 2003). Trade thus has the potential to foster cooperation and problem solving among entrepreneurs from different countries (Casson 1990). Trade agreements can be negotiated at the regional level, sometimes through the creation of free-trade areas (Alhor et al. 2008).

Governments may find themselves in need of finding new markets for their new or growing businesses (Olson Jr 1996). When negotiating trade agreements, the policies of host countries are very important because they influence entrepreneurial activity (Minniti 2008). A country's institutions and policies determine the level of uncertainty in markets and affect entrepreneurs' motivation during their decision-making process (Minniti 2008). Other factors that affect a person's desire to start a business are taxation, regulation, the size of the trade sector, differences between official exchange rates and black market exchange rates, and international capital market controls (Nystrom 2008).

The literature on trade finds two opposing consequences from a trade agreement. Trade agreements facilitate the movement of people and goods, and increase the volume of business and the hiring of qualified workers, which is easier than when trade agreements do not exist (Galindo Martin et al. 2010). The opposite is the potentially negative effect on small local businesses that need to compete with businesses and products from abroad (Galindo Martin et al. 2010).

Trade leads to domestic adjustments that may negatively affect employment. That is why governments often implement policies that may prevent trade flow, in an attempt to smooth the adjustment process (McGuire 2006). Trade agreements open opportunities for foreign entrepreneurs to enter new markets, but these opportunities are available to local business firms as well (Globerman & Shapiro, 1999).

Another consideration is that trade exposes the local economy to new technologies from many regions and promotes international competition, driving local firms to increase ICT investment (Seo et al. 2009). The most successful firms will be

those that can offer competitive products and that can change or create strategies, depending on the environment they face (Globerman & Shapiro, 1999).

Policy makers believe that trade agreements increase foreign direct investment (FDI), promote the creation of new business and have a positive impact on the economy (O’Ryan et al., 2011). They also believe that countries that sign trade agreements are perceived as safe places to start new businesses (O’Ryan et al., 2011).

Trade agreements increase competition, which also generates incentives for entrepreneurs to develop new technologies to more adequately face such competition (McGuire, 2006), and trade generally facilitates technology transfer across countries and the diffusion of new products and processes.

Since 1995, the World Trade Organization has been notified of 125 new regional trading arrangements (RTAs). Notifications have risen from less than three per year during the period from 1950 to 1995 to more than 15 notifications per year between 1995 and 2002 (WTO, 2002).

Despite the general belief that trade agreements increase competition and provide incentives to entrepreneurs to develop new technology, the case of Chile demonstrated that the desired efficiency from trade agreements was not as significant as expected, because of the low participation of critical sectors (O’Ryan et al., 2011). To assess the impact better, an equilibrium analysis will be needed to identify the direct and indirect effects of trade agreements, something that can be done only after they have been in effect for several years (O’Ryan et al., 2011).

The freedom to trade internationally is subject to diverse factors, such as taxation on international trade, regulatory trade barriers, the size of the trade sector, official exchange rates, black market exchange rates, and international capital market controls (Nystrom, 2008). Nystrom considers that “the opportunities to engage in international trade influence an entrepreneur’s market potential,” because entrepreneurs make decisions to participate or not in international trade, based on the estimated maximum total sales revenue of a product in a specific market during a specific period of time (Nystrom, 2008). On the other hand, Sobel et al. (2007) found a negative correlation between barriers to international competition, measured by tariff barriers, and entrepreneurship. Finally, registering a third viewpoint, Bjornskov and Foss (Bjornskov et al.) did not find any significant relationship between international trade and entrepreneurship.

For the purpose of this paper, we will measure the exposure of an economy to trade, based on three variables: The weighted mean of the tariff rate for all products (%); the time in days it takes to import products; and the number of documents one has to complete to import merchandise.

Social Factors: Education

There are many elements that make up the social fabric of a nation; however, in this section, we focus only on education, one of the factors that the literature has found to have an impact on the creation of new business. Schultz conceives of entrepreneurial ability as a form of human capital (Schultz et al. 1982).

Therefore, the human infrastructure of a country refers to the pool of skills available in the population that can be hired for productive activities (Chan et al. 2008). Schooling is acknowledged not only for its productive effect on the quality or quantity of labor supplied, as is assumed by Mincer, but also for its role as a signal of productive ability in labor markets without complete information (Spence 1973).

Scholars have provided several ways to measure the quantity and quality of education (Barro et al. 1996; Engerman et al. 1997) and its impact on investment. Acemoglu et al. (Acemoglu et al.) (Acemoglu et al.), and Easterly and Levine (Easterly et al.) offer primary school attainment, the attainment level of females, ratings from international examinations and measures of health status—another dimension of human capital—as determinants of growth and investment.

Empirical evidence shows that education was the most important factor for new firm creation in the period 1976-1989 (Christensen 1993). Le (Le) similarly argues that there are several channels through which one’s level of education might influence the propensity to become self-employed. Calvo and Wellisz (Calvo et al.), inspired by Lucas’ general equilibrium model (1978), explain the impact of one’s educational attainment on the probability of selecting an entrepreneurial position, given managerial ability. This means that education can enhance managerial ability, which in turn increases the probability of entrepreneurship.

By analyzing the effect of education on entrepreneurship, we are trying to capture the extent to which an educated population, as well as the amount of resources that the government dedicates to this activity, affects the level of entrepreneurship in a country. We want to determine the percentage of the labor force that is educated (how many workers have secondary and



tertiary educations), the amount of resources allocated to educate the population, and the impact these have on new business creation.

Technological Factors: ICT

Many factors can affect the technological sophistication of a nation. In regard to the technological base, we focus exclusively on information and communication technologies (ICTs) that are available to the population and that facilitate the exchange of information.

Today, the barriers to entry for certain business have been reduced by the capabilities that information and communication technologies (ICTs) have made possible. There are opportunities for creative individuals to take advantage of a global market opened up through these technologies. It shouldn't be surprising, therefore, to find that the information technology revolution would have an effect similar to that of the Industrial Revolution. As suggested by a number of researchers (see, e.g., Cohen 1981; Millward 1981; North 1981), In the long run, the Industrial Revolution and the new forms of production that resulted led to major innovations.

The ICT infrastructure of a nation is a key variable in this study, because we wish to determine if access to these technologies can help to overcome weaknesses in other areas. We selected the variables that are most likely to have an impact on the creation of new businesses. Scholars have identified several technologies that have had a positive effect on businesses: mobile phones (measured as mobile cellular subscriptions per 100 people), computers (measured as the percentage of individuals and households with PCs) and the infrastructure to connect them, specifically broadband (measured as the number of fixed broadband Internet subscribers per 100 people).

Based on Schumpeter's (Schumpeter) concept of technological change, we can consider ICTs as tools for strengthening multi-factor productivity (i.e., productivity that is not added by capital and labor). In the neoclassical tradition of economic theory, technological progress is associated with total factor productivity (TFP) or multifactor productivity and its relationship with economic growth (Harrod 1949; Solow 1956; Swan 1956). Technological progress has also been associated with the so-called theory of endogenous technical change (Grossman et al. 1991; Mankiw et al. 1992; Romer 1986; Romer 1990).

Authors such as Tebaldi and Elmslie (Tebaldi et al.), Acemoglu et al. (Acemoglu et al. 2001; Acemoglu et al. 2004), and Easterly and Levine (Easterly et al. 2003) have developed formalized models of economic growth which evaluate the influence of institutions on economic performance, taking into consideration the impact of investment in ICT technologies.

Research by Katz (Katz 2009a) has also shown that the productivity of information workers, and therefore of economic growth, depends directly on ICT investment. Studies from Latin American (Katz, 2009a) and industrialized countries (Katz 2009b) show that a higher percentage of the workforce dedicated to information processing or generation leads to a higher proportion of investment devoted to the acquisition of capital goods.

ICTs, and particularly broadband, have been identified as a factor in job creation. A regional comparative analysis on job creation and broadband penetration indicates that this technology has the capacity to stimulate economic growth, promote the creation of innovative businesses and create sources of employment. (Fornfeld et al. 2008; Gillett et al. 2005; Katz 2009b)claim there is a direct relationship between the diffusion of broadband and the generation of employment.

Scientific and technological activity is a major driver of productivity and economic growth. Global exports of ICTs goods represented 12% of the world merchandise trade in 2009, and they are increasingly dominated by Asia. In fact, seven of the top ten exporters are Asian economies, with China clearly in leading position.

In part, due to the effects mentioned above, ICTs can be a catalyst in overcoming the economic crisis that is affecting both emerging and industrialized countries. Their contribution materializes at two levels relating to the creation of jobs: from investment in the deployment of infrastructure and from the positive externalities derived from new businesses and economic growth.

The effects of ICT infrastructure deployment can be divided into three categories related to job creation: direct, indirect, and induced effects.

Direct effects involve employment creation (construction, telecommunications and engineering) generated, in the short term, from the construction and installation of networks.



Indirect effects involve employment creation as a result of the operation of other industries (e.g., metallurgy, electric equipment, and professional services) that do not come directly from ICTs, but from industries that use ICTs in their operations.

Induced effects involve employment generated from household consumption, based on income generated by companies in the sectors that generate direct and indirect effects.

For this paper, we used data from the International Telecommunications Union to capture the level of ICTs in any given country. Specifically, the variables we chose are the number of fixed Internet subscriptions per 100 inhabitants, the number of fixed broadband subscribers per 100 inhabitants, the number of mobile subscriptions per 100 inhabitants and the percentage of individuals with a personal computer. Our objective is, as stated before, to determine if investment in ICTs can facilitate the entry of new businesses and overcome weaknesses in other areas of the economy and government.

REGRESSION MODEL

The dependent variable new business density (DNBRDENS) is heterogeneous across countries. Thus, we can observe that the sample contains some countries with a low density of start-ups; another part of the sample has an average density; and yet another set of countries experiences a high number of new businesses registered. Intuitively, we can think of the business density as a latent variable ordered into three different types of countries: those with low, medium and high-density business creation.

More formally, consider the observed categorical variable new business density with a latent density status by country DNBRDENS_(i,t). Let DNBRDENS be the ordered categories, DNBRDENS $\in J = \{1,2,3\}$ where each number in J denotes one of the categories for the business creation variable. For independent and identically distributed (iid), let DNBRDENS for $i = 1, \dots, N$ observations (i denotes cross-sectional units, and t the time dimension of the data panel) be a nominal variable representing the ordered categories $k = 1, \dots, K$.

The latent variable is tied to the (observed) ordered variable DNBRDENS_{i,t} by the observation rule:

$$\text{DNBRDENS}_{i,t} = \kappa \text{ if } \tau_{i\kappa} < \text{DNBRDENS}_{i,t} \leq \tau_{i\kappa+1}, \kappa = 1, \dots, K$$

where thresholds τ_i are strictly increasing $\tau_{i\kappa} < \tau_{i\kappa+1}$ for all κ .

The structure of our data set allows us to use an ordered probit panel data methodology. This type of analysis can control for heterogeneity across countries and reduce collinearity among the selected variables (Arellano et al. 1990). Our ordered probit panel data model may be represented as follows:

$$\text{DNBRDENS}_{i,t} = x'_{it}\beta + \varepsilon_{i,t}; \quad t = 1 \dots T; \quad i = 1 \dots N \quad (1)$$

The cumulative probabilities for the DNBRDENS_(i,t) are then related to a set of explanatory variables, x, which is affected by political, social, economic and ICT infrastructures; these are determined by the following equation:

$$\Pr[\text{DNBRDENS}_{i,t} \leq j | x] = F(\kappa_j - x'\beta) \quad j = 1,2,3$$

The function F represents a accumulative standard normal distribution, resulting in an ordered probit model. Including the latent variable in this model, we have



$$\text{DNBRDENS} = j \text{ if and only if } \kappa_{j-1} \leq \text{DNBRDENS} = x' \beta + \varepsilon_{i,t} < \kappa_j \quad j = 1, \dots, 3$$

This equation means that the thresholds divide the linear slope DNBRDENS into J categories. Moreover, different factors (observable and unobservable) influence the latent variables density of business creation, where ε_{it} , $t = 1 \dots T$ represents the composite errors. For each t , ε_{it} is the sum of unobserved effects and an idiosyncratic error. This error term, ε_{it} , is iid across countries and over time, where $(\varepsilon_{it}|x) = 0$, for $i = +100$ countries, and $T = 11$ years. For this error, we assume a zero mean and a constant variance, e.g., $\sigma^2 = 1$.

The probability that a country will report a business density status to be in $J = \{1, 2, 3\}$ is expressed in the next equation:

$$\Pr[\text{DNBRDENS}_{i,t} = j|x] = F(\kappa_j - x' \beta) - F(\kappa_{j-1} - x' \beta) \quad (2)$$

Note that we have a vector β , which is presumed to be the same for all categories (one obstacle to the appropriate implementation of an ordered probit is the parallel lines assumption). This means that with the increase of an independent variable, the accumulated distribution shifts to the right or left, but there is no shift in the slope of the distribution. Greene et al. (2008) suggest that in a set of thresholds, individual variation that appears in the data is an indicator for heterogeneity. Thus, allowing the indices to differ across the outcomes leads to a generalized ordered probit model.

$$\kappa_j = \tilde{\kappa}_j + x'_i \gamma_j \quad (3)$$

where γ_j are the influence parameter of the covariates on the thresholds. Entering (3) in (2), we have the generalized ordered probit model (4):

$$\Pr[\text{DNBRDENS}_{i,t} \leq j|x] = F(\tilde{\kappa}_j + x'_i \gamma_j - x' \beta) = F(\tilde{\kappa}_j - x' \beta_j) \quad (4)$$

In (3), the threshold coefficients cannot be identified separately for this system of vectors x . Note that in (4), $\beta_j = \beta - \gamma_j$, $x' \beta_j$ identifies one index for each category j of the outcome variable. Thus, we have a generalized ordered probit model with $J-1$ binary probit models. The last equation allows heterogeneity across the categories of the business density variable.

We will define a nonlinear model

$$F(\Pr(\text{DNBRDENS}_{i,t} | x_{i1}, x_{i2}, \dots, x_{iT})) = g(\text{DNBRDENS}_{i,t}, \beta' x_{it} + \kappa_j + \theta) \quad (5)$$

where θ is a vector of ancillary parameters and captures an overdispersion in the threshold parameters in an ordered probit model.

A random-effects ordered probit relaxes this assumption and allows the effects of the explanatory variables to vary with each of the ordinal dependent variables.

For panel data, individual heterogeneity is accounted for by using a random-effects generalized ordered probit approach (Arellano et al. 1995). In this case, we find that the outcome probabilities are conditional on the individual effect α_i .

$$\Pr[\text{DNBRDENS}_{i,t} = 1 | x_{it}, \alpha_i] = F - x'_{it} \beta_1 - \alpha_i$$



$$\Pr \text{DNBRDENS}_{i,t} = 2 | x_{it}, \alpha_i = F - x'_{it}\beta_2 - \alpha_i - F - x'_{it}\beta_1 - \alpha_i \quad (6)$$

$$\Pr \text{DNBRDENS}_{i,t} = 3 | x_{it}, \alpha_i = F - x'_{it}\beta_3 - \alpha_i - F - x'_{it}\beta_2 - \alpha_i$$

The random-effects generalized ordered probit model uses the standard normal as the accumulative distribution. The individual effects are presumed to be normally distributed, with zero mean and variance σ^2 .

Using panel data allows the inclusion of two kinds of heterogeneity. The first is unobserved individual heterogeneity, which is captured by a random-effects specification. The second results from differences in the beta coefficients represent the observed heterogeneity in the reporting of the categories for DNBRDENS.

In this system, we do not have explicit solutions for the parameter estimates, and they must, therefore, be solved iteratively. To find the solution of the model, we need to construct a maximum likelihood the estimator, a parametric approach to modeling. First, the density is presumed to be fully defined. In equation (7), we have a likelihood function for a sample of N observations:

$$L = \prod_{i=1}^N \prod_{t=1}^{T(i)} g(\text{DNBRDENS}_{it}, \beta' x_{it} + \alpha_i, \theta). \quad (7)$$

The likelihood equations are

$$\frac{\partial \log L}{\partial \beta} = 0, \quad \frac{\partial \log L}{\partial \alpha_i} = 0, i = 1, \dots, N, \quad \frac{\partial \log L}{\partial \theta} = 0,$$

The likelihood contribution for each cross-sectional unit was approximated using a Gauss-Hermite quadrature.

DATA ANALYSIS

For our data, we relied on two databases from the World Bank (WB) and one from the International Telecommunications Union (ITU). From the WB, we collected data from the World Development Indicators (WDI) and the Worldwide Governance Indicators (WWGI); from the ITU, we consulted the ICT indicators. For each of the variables, which come from the World Bank, Table 1 presents an abbreviation, a description, the source, the data and the unit of measurement.

VN: Variable name A: Abbreviation M: Measure S: Source	DESCRIPTION
VM: New businesses registered density A: nbrdens M: number per 10,000 people S: World Bank	This is the number of new limited liability corporations registered in a calendar year, divided by the population size and then multiplied by 10,000.
GOVERNANCE VARIABLES	



VN: Rule of law: Estimate A: rol M: index (-2.5 to 2.5) S: WB Worldwide Governance Indicators	This variable captures perceptions of the extent to which agents have confidence in, and abide by, the rules of society, and in particular estimates the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. The estimate gives the country's score as an aggregate indicator, in units of a standard normal distribution, i.e., ranging from approximately -2.5 to 2.5.
VN: Government effectiveness A: ge M: index (-2.5 to 2.5) S: WB Worldwide Governance Indicators	This variable captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressure, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The estimate gives the country's score as an aggregate indicator, in units of a standard normal distribution, i.e., ranging from approximately -2.5 to 2.5.
VN: Ease of doing business A: eob M: 1 = easiest, 183 = most difficult S: WB Doing Business	Economies are ranked on their ease of doing business, from 1 (easiest) to 183 (most difficult). A good (low) score on the ease of doing business index means the regulatory environment is conducive to the operation of business. This index averages the country's percentile rankings on 10 topics, made up of a variety of indicators, giving equal weight to each topic. The 2009 rankings are from <i>Doing Business 2010: Reforming through Difficult Times</i> , covering the period June 2008 through May 2009.
VN: (Credit) Strength of legal rights index A: slr M: index (1-10) S: WB Doing Business	The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and, thus, facilitate lending. The index ranges from 0 to 10, with higher scores indicating that these laws are better designed to expand access to credit.
VN: Procedures to build a warehouse A: pbw M: number World Bank	This variable consists of the number of interactions of a company's employees or managers with external parties, including government agency staff, public inspectors, notaries, land registry and cadastre staff, and technical experts apart from architects and engineers.
VN: Time required to build a warehouse A: trbw M: days S: WB World Development Indicators	This variable consists of the number of calendar days needed to complete the required procedures for building a warehouse. If a procedure can be speeded up at additional cost, the fastest procedure, independent of cost, is chosen.
VN: Procedures to register property A: prp M: number S: WB World Development Indicators	This is the number of procedures required for a business to secure rights to property.



VN: Time required to register property A: trrp M: days S: WB World Development Indicators	This is the number of calendar days needed for a business to secure rights to property.
VN: Time to import A: tim M: days S: WB World Development Indicators	The time calculation for a procedure (recorded in calendar days) starts from the moment it is initiated and extends until it is completed. If a procedure can be accelerated for an additional cost, the fastest legal procedure is chosen. It is assumed that neither the exporter nor the importer wastes time and that each commits to completing every procedure without delay. Procedures that can be completed in parallel are measured as simultaneous. The waiting time between procedures—for example, the unloading of the cargo—is included in the measure.
VN: Documents to import A: dim M: number S: WB World Development Indicators	All documents required per shipment to export goods are recorded. It is presumed that the contract has already been agreed upon and signed by both parties. Documents required for clearance by government ministries, customs authorities, port and container terminal authorities, health and technical control agencies and banks are taken into account. Since payment is by letter of credit, all documents required by banks for the issuance or securing of a letter of credit are also taken into account. Documents that are renewed annually and that do not require renewal per shipment (for example, an annual tax clearance certificate) are not included.
ECONOMIC VARIABLES	
VN: GDP Per capita A: gdppe M: dollars S: WB World Development Indicators	This is the GDP per capita based on purchasing power parity (PPP). PPP GDP is the gross domestic product converted to international dollars, using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. The GDP at purchasers' prices is the sum of the gross value added for all resident producers in the economy, plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for the depreciation of fabricated assets or for the depletion and degradation of natural resources. Data are in constant 2005 international dollars.
VN: GINI Index A: gini M: index (1-100) S: WB World Development Indicators	The GINI index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The GINI index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a GINI index of 0 represents perfect equality, while an index of 100 implies perfect inequality.
VN: Tariff rate, applied, simple mean, all products A: trap M: percentage S: WB World Development Indicators	The simple mean applied tariff is the unweighted average of effectively applied rates for all products subject to tariffs, calculated for all traded goods. Data are classified using the Harmonized System of Trade at the six- or eight-digit level. Tariff line data were matched to Standard International Trade Classification (SITC) Revision 3 codes to define commodity groups. Effectively applied tariff rates at the six- and eight-digit product level were averaged for products in each commodity group. When the effectively applied rate was unavailable, the most favored nation rate was used instead. To the



	extent possible, specific rates have been converted to their <i>ad valorem</i> equivalent rates and have been included in the calculation of simple mean tariffs.
SOCIAL VARIABLES	
VN: Labor force with secondary education A: lfse M: % of total S: WB World Development Indicators	This is the proportion of the labor force that has a secondary education, expressed as a percentage of the total labor force.
VN: Labor force with tertiary education A: lfte M: % of total S: WB World Development Indicators	This is the proportion of the labor force that has a tertiary education, expressed as a percentage of the total labor force.
VN: Expenditure per student, secondary A: epss M: % of GDP per capita S: WB World Development Indicators	Public expenditure per student is the amount of current public spending on education, divided by the total number of students at each level, and expressed as a percentage of GDP per capita. Public expenditures (current and capital) include government spending on educational institutions (both public and private) and on education administration, as well as subsidies for private entities (students/households and other private entities).
TECHNOLOGICAL VARIABLES	
VN: Fixed broadband Internet A: fbisphp M: subscribers per 100 people S: ITU ICT Indicators	This is the percentage of fixed broadband Internet subscribers possessing a digital subscriber line, cable modem, or other high-speed technology.
VN: Mobile cellular A: mcspshp M: subscribers per 100 people S: ITU ICT Indicators	This is the percentage of the population subscribing to a public mobile telephone service using cellular technology, which provide access to the public switched telephone network. Post-paid and prepaid subscriptions are included.

Table 1. Data descriptions

One of the main challenges when doing empirical international research is coping with missing data. This study is no exception. It has been well documented that analyzing only cases for which there is complete data can lead to biased results. In this study, the initial number of countries in the sample was 213. This was reduced to [[#]] because many of them were



not countries and more countries were eliminated because they had data available for only two or three of the variables chosen for the analysis. The elimination of these countries should not bias the results, because they either had very small economies or were going through major transitions.

Examples of countries that were eliminated include Afghanistan, Andorra, Bahamas, Barbados, Korea, Dem. Rep. Kosovo, Libya among others. This should not imply that we had complete data for all the remaining countries; for some variables, many data points were missing. Table 2 presents the list of variables and the number of observations that were available. Data were collected for 11 years for each of the 167 countries, resulting in a total of 1,837 observations.

Variable	Number of missing variables	Percentage of missing variables
New businesses registered	1,428	71%
GOVERNANCE FACTORS		
Rule of law	349	17%
Government effectiveness	349	17%
Ease of doing business	1,670	83%
(Credit) Strength of legal rights index	700	35%
Procedures to build a warehouse	847	42%
Time required to build a warehouse	847	42%
Procedures to register property	707	35%
Time required to register property	707	35%
Time to import	846	42%
Documents to import	846	42%
ECONOMIC FACTORS		
GDP per capita	400	20%
Population	168	8%
SOCIAL FACTORS		
Labor force with secondary education	1,608	80%
Labor force with tertiary education	1,601	80%
Expenditure per student, secondary education	1,330	66%
TECHNOLOGICAL FACTORS		
Mobile cellular	179	9%
Fixed broadband Internet	337	17%

Table 2. Missing data statistics



Because missing data are a common problem, scholars have devised techniques to calculate fill in for them by working from existing variables. Some methods of this sort include the ad hoc techniques of using the mean from the observed values and extrapolating from the latest value available (also known as last-observation-carried-forward [LOCF])—which some researchers see as inadequate (Graham et al. 1994; Little et al. 1987)—and using regression analysis to estimate values. For this study, these methods were particularly problematic because, for some variables, data were missing for two or three consecutive years. This meant that in the case of any of the ad hoc or regression methods, the same value would have been given for three years. Thus, we used a multiple imputation method, by which missing data were generated simultaneously from all the available variables for all the observations and years. The mathematical algorithms that are needed for multiple imputation are now easier to use, thanks to a new routine available in statistics software such as Stata.

Table 3 present the descriptive statistics for all the variables by threshold. It should be noted that countries that have a higher business density entry also have higher incomes, higher access to credit, lower trade tariffs, simpler bureaucratic procedures and a higher proportion of highly educated people. Data affected by these considerations are highlighted in gray.

	New business density, first percentile		New business density, second percentile		New business density, third percentile	
Variable	Mean	Std.	Mean	Std.	Mean	Std.
gdppc	4900.58	5537.481	12068.24	12179.73	18582.2	15670.52
gini	40.63806	8.394794	41.69406	10.69476	41.08757	8.717709
slr	4.176056	2.307248	5.958333	2.311041	6.686833	2.269708
dcps	24.43504	14.43407	54.68013	45.84608	91.93271	60.25784
trap	8.7727	3.826463	5.103217	3.60234	3.17375	3.683712
din	9.299145	2.640092	7.736	2.469635	6.257261	2.177584
tid	38.77778	20.00867	29.152	20.76872	16.53527	11.65403
lfpe	43.52143	20.46713	31.85814	18.74916	24.40234	15.64143
lfse	24.09286	15.7701	43.805	19.92424	45.83594	16.75409
lfte	17.22143	8.012028	21.71628	10.37047	27.72891	13.78812
epss	20.88967	13.01787	18.52771	6.808856	22.81011	7.333138
fbis	241038.4	757710.9	2435920	5772173	2175644	3769618
fbiphp	0.4256019	1.374823	4.465919	6.743718	12.60597	10.58319
mcs	19,000,000	44200000	25,000,000	28300000	17,000,000	31800000
rol	0.5407326	0.4523323	0.1392674	0.8331934	0.7560968	0.8857771
pbw	18.22222	7.127062	17.496	6.967232	16.76763	9.470346
trbw	248.906	117.7026	200.416	104.2585	195.3154	115.7711
prp	7.091549	2.9461	6.222222	2.540427	5.454545	2.234584
trrp	100.669	80.4697	45.73611	42.84449	66.48364	104.8641

Table 3. Descriptive statistics

Table 4. shows the correlation coefficients for the governance indicators; several inferences can be drawn from these. A number of the governance variables (government effectiveness and rule of law, strength of legal rights) are highly correlated (>.5). This is not surprising, given that they all reflect, to a certain extent, different elements of government. For the final



model, we decided to use the ease of doing business, because it more accurately captures the investment climate, as opposed to the general environment of governance.

There are also high correlations ($>.6$) among the trade-related variables (trade tariff, days to import and documents to import). For the model, we included only the tariffs variable.

	ge	rol	slr	pbw	trbw	prp	trrp	rdegdp	trap	tid	Din
ge	1										
rol	0.9492	1									
slr	0.5356	0.5055	1								
pbw	-0.1264	-0.1579	-0.1024	1							
trbw	-0.3222	-0.3695	-0.1829	0.1779	1						
prp	-0.3009	-0.3218	-0.1209	0.0745	0.1181	1					
trrp	-0.2143	-0.2025	-0.1282	0.0046	0.3335	0.1819	1				
Eob	-0.8325	-0.8071	-0.5366	0.1713	0.3816	0.3912	0.3821	1			
Trap	-0.5843	-0.5376	-0.3862	-0.0789	0.1623	0.1863	0.1945	0.7018	1		
Tid	-0.663	-0.6644	-0.3577	0.1258	0.2529	0.1905	0.1561	0.6206	0.49	1	
Din	-0.6217	-0.6093	-0.4075	0.2633	0.2715	0.1412	0.1343	0.6493	0.4253	0.6599	1

Table 4 Correlation coefficients for governance variables

Table 5 shows the correlations among the economic variables. Here, the GPD per capita and the domestic credit available to the private sector show a high correlation, while there is little correlation between income and income inequality.

	gdppc	gini	dcps
gdppc	1		
gini	-0.2963	1	
dcps	0.5303	0.0457	1

Table 5 Correlation coefficients for economic variables

Table 6 presents the correlations among the social variables. Regarding the variable “labor force by education level,” only “labor force with primary education” is highly correlated with “labor force with secondary education.” This indicates to a certain extent that in many countries, the number of workers with primary and secondary educations are similar. The correlation of primary and secondary education with tertiary education is small, which points to a great difference in numbers between workers with a primary or secondary, and those with a tertiary education. In most countries, there are a significant number of individuals who either drop out of high school or do not continue to college.

	lfpe	lfse	lfte	epss
lfpe	1			
lfse	-0.6657	1		
lfte	-0.4536	-0.1435	1	
epss	-0.1857	0.1199	0.114	1



Table 6. Correlation coefficients for social variables

Table 7 shows correlations among technological factors. Among these data, we see a high correlation between the two ICT variables, “broadband” and “mobile subscriptions.”

	fbiphp	mcsphp
fbiphp	1	
mcsphp	0.647	1

Table 6. Correlation coefficients for technological variables

REGRESSION RESULTS

As was indicated before, we estimated the model using a random-effects generalized ordered probit. The ordered dependent categorical variables are associated with business density, a three-level variable where 1 represents very low-density business creation (countries that fall within the lowest 25th percentile) and 3 represents high-density business creation (countries above the 75th percentile). As explanatory variables, we included a set of social, economic, political and technological capabilities. For each of these four factors, we collected more data than appear in the model, because in constructing it we found significant correlations among variables that measure similar factors.

Table 8 shows the marginal effects which quantify the variation in the estimated probability to a marginal change in the independent variable. In this case, the marginal effects measures the changes in the probability that a country experiences when the independent variable changes for each of the three country types.

	Variables	dbrdens==1	dbrdens==2	dbrdens==3
Technological	Fbiphp	-.0106026*** (.002398)	.0098323*** (.0019839)	.0007703 (.0016318)
Technological	Mcsphp	-.0018105*** (.0003703)	.0018609*** (.0003162)	-.0000503 (.000284)
Economic	Dcps	-.000859 *** (.000359)	.0002889*** (.0001226)	.00057*** (0.018)
Social	Lfte	-.0028174*** (.0007468)	.0009477*** (.0002632)	.0018697*** (.0005043)
Economic	Gini	-.0014235 (.0010766)	.0004788 (.0003643)	.0009446 (.000716)
Institutional	Eob	-.001171*** (.0002937)	.0003939*** (.0001045)	.0007771*** (.0001983)



Institutional	Tbrw			
		-.000106 (.0000829)	.0000357 (.000028)	.0000703 (.0000552)

NOTES; dy/dx is for discrete change of dummy variable from 0 to 1. Standard errors are in parentheses (Delta Method)
***p<0.01, **p<0.05, *p<0.1

Cells in grey show the factors that have the highest probabilities.

Table 8: Average marginal effects after the random-effects ordered probit

Regarding technological variables, “broadband” and “mobile subscriptions” are significant for only the first two country categories. We find that increases in mobile and broadband infrastructure reduce the likelihood of a country’s ending up in the low “new business density” category and increases the likelihood of having an average density of business creation. More concretely, an increase of one percent in the number of broadband subscribers per one hundred inhabitants reduces by 1.06 percent the probability of being in the low-density, new business creation category.

Infrastructure improvements have not had much impact in countries with a high level of new business creation. If we look at the summary statistics table, we find that countries with a high business creation density are also high in ICT infrastructure. This could mean that in countries where there is already a substantial infrastructure, a percentage increase in infrastructure will have no impact on the number of businesses created.

The model includes two economic variables: the “domestic credit available to the private sector” and the GINI, which was not significant for any of the thresholds. Understanding this will require further research by the academic community because it contradicts previous studies’ suggestions regarding the inability of an economy with high income inequality to sustain an engine of new business creation.

The other economic variable, “domestic credit available to the private sector,” was significant for all thresholds. This means that the availability of domestic private sector credit decreases the probability of having a low density of business creation and increases the probability of having a medium and high new business density. A 1% increase in the amount of domestic credit available reduces the likelihood of a country’s having a low density by 0.08 percentage points, and it increases the likelihood of having a medium to high density to 0.08 and 0.06 percentage points, respectively.

Of the social variables, we included only the labor force with tertiary education. The rationale for this is consistent with the existing literature, which indicates that more educated individuals are more likely to start a business. Thus, we assume that countries where the labor force is more educated (i.e., having more individuals with a college degree) will be more entrepreneurial. The results support this hypothesis for all three thresholds and suggest that the probability of experiencing a higher rate of business creation increases with education. An increase of one worker with a tertiary education reduces the probability of having low business creation (per 10,000 population) by 0.03 percentage points, while it increases the probability by 0.009 percentage points for countries with an average business density, and by 0.03 percentage points for those with a high density.

Of all the governance variables, we included only two: “ease of doing business” and “the time required to build a warehouse.” Of these two, only “ease of doing business” was significant. Even though we wanted to capture the complexity of bureaucracies with these and similar variables, we suspect that new companies are not yet large enough to register property or warehouses. So even if the number of procedures or the length of time that it may take to register them it does not affect new businesses, this does not mean it will likewise have no effect on established and larger companies, which may need to buy and register property.

The ease of doing business is statistically significant for all three density thresholds of entrepreneurship. Thus, increases in this index reduce the likelihood of having a low density of business creation and increase the likelihood of having a medium or high density.

Figure 1 shows the results of the differences in probability for the different thresholds, for each of the variables in the model.

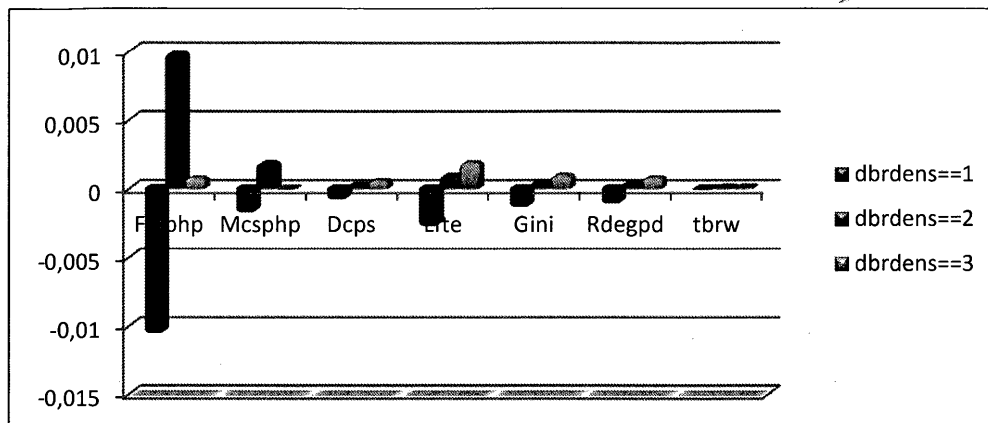


Figure 1: Probability differences for each of the three types of countries regarding new business creation

ANALYSIS

At the beginning of the paper, we asked, Where should governments invest? As could be expected, different countries have different governance, economic, political, social and technological circumstances. In our case, we only make a distinction among three different types of countries: those that have low, medium and high business entry. Countries that experience low business entry can reduce the probability of being in this situation by investing in broadband infrastructure and education. For countries that experience a medium level of business entry, investment in ICT infrastructure increases the probability of maintaining that standing, and for countries in the high business entry group, investment in education generates the highest probability of remaining there.

CONCLUSIONS

Businesses are the economic engine of a nation. It is through these enterprises that jobs get created, capital investment happens and innovation improves the welfare of the population. In this paper, we wanted to determine two things: first, to identify the factors that have the greatest influence on the creation of new business, and second, to determine if ICTs had a significant role in promoting business entry.

In the academic literature, we find that political, economic, social and technological factors can affect the level of business entry in a country. Of the political factors, or more accurately, the governance factors, general policies for business creation can be more helpful than targeted ones. Because of this, in this study we focus only on general governance factors. Of these, the literature, and empirical analysis, suggest that bureaucratic processes are more likely to impair business, especially in terms of "ease of doing business" and "tariffs." It should be noted that all the other governance variables that we contemplated were highly correlated, and were thus eliminated from the final model. For countries that experience low business entry, improvements in the ease of doing business will improve the probability of generating more businesses.

In regard to the economic factors, we found no conclusive effect of income on business creation; but while the results indicate that income does not play a role, access to credit matters. This shows that even if we have a low-income country, we can still see business being created if there is access to credit.

The academic literature has accurately predicted the positive impact that education (human capital) can have on entrepreneurial activity. We find that this is particularly true for countries that experience either low or high business entry. It is not clear why the probability is higher for these two types of countries; explaining this will entail a more detailed exploration. It is nonetheless clear that investment in education can generate economic activity.

Finally, as has been predicted by the academic literature, both of our technological variables, "broadband" and "cellular subscriptions," were highly significant. It appears that these technologies now play an important role in business. Perhaps the most surprising result is how large these are with respect to the other factors. It appears that governments would be wise to



invest in their information infrastructures, because of all the other places where they could invest, ICTs have the greatest impact on business creation.

Further research will be necessary to analyze these data at a higher level of granularity. For example, they could be explored by income level and by region.

We hope that this research provides some guidelines for governments regarding their decision to invest in the country when the desire is to generate economic activity.

REFERENCES

1. Acemoglu, D., Johnson, S., and Robinson, J. A. "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* (91:5) 2001, pp 1369-1401.
2. Acemoglu, D., Johnson, S., and Robinson, J. A. "Instituciones as the fundamental cause of long-run growth," *Discussion paper* /4458) 2004, p ALL.
3. Aidis, R., Estrin, S., and Mickiewicz, T. "Institutions and entrepreneurship development in Russia: a comparative perspective," *Journal of Business Venturing* (23:6) 2008, pp 656-672.
4. Alhor, H. S., Moore, C. B., and Payne, G. T. "The Impact of Economic Integration on Cross-Border Venture Capital Investments: Evidence From the European Union," *Entrepreneurship: Theory & Practice* (32:5) 2008, pp 897-917.
5. Arellano, M., and Bover, O. "Another look at the instrumental variable estimation of error-components models," London, 1990, p. 29.
6. Arellano, M., and Bover, O. "Another look at the instrumental variable estimation of error-components models," *Journal of econometrics*. (68:1) 1995, p 29.
7. Audretsch, D. B. "Research issues relating to structure, competition, and performance of small technology-based firms," *Small Business Economics* (16:1) 2001, pp 37-51.
8. Ayyagari, M., Demirguc-Kunt, A., and Maksimovic, V. "Small vs. young firms across the world: contribution to employment, job creation, and growth," in: *Policy Research Working Paper 5631*, World Bank, 2011.
9. Banerjee, A. V., and Newman, A. F. "Occupational Choice and the Process of Development," *Journal of Political Economy* (101:2) 1993a, pp 274-298.
10. Banerjee, A. V., and Newman, A. F. "Occupational choice and the process of development," *Journal of Political Economy* 1993b, pp 274-298.
11. Banga, R. "Impact of government policies and investment agreements on FDI inflows," Indian council for research on international economic relations, pp. 1-43.
12. Barro, R. J., and Lee, J. W. "International Measures of Schooling Years and Schooling Quality," *The American Economic Review* (86:2) 1996, pp 218-223.
13. Baumol, W. J. "Entrepreneurship: Productive, Unproductive, and Destructive," *Journal of political Economy* (98:5) 1990, pp 893-921.
14. Beck, T., Demirgüç-Kunt, A., and Maksimovic, V. "Financing patterns around the world: Are small firms different?," *Journal of Financial Economics* (89:3) 2008, pp 467-487.
15. Beck, T., DEMIRGÜÇ-KUNT, A., and Maksimovic, V. "Financial and legal constraints to growth: does firm size matter?," *The Journal of Finance* (60:1) 2005, pp 137-177.
16. Bendick, M. J., and Egan, M. L. "Transfer Payment Diversion for Small Business Development: British and French Experience," *Indus. and Labor Relations Rev* (40) 1987, pp 528-542.
17. Berger, A. N., and Udell, G. F. "Some evidence on the empirical significance of credit rationing," *Journal of Political Economy* 1992, pp 1047-1077.
18. Bianchi, M. "Credit constraints, entrepreneurial talent, and economic development," *Small business economics* (34:1) 2010, pp 93-104.
19. Bjornskov, C., and Foss, N. J. "Economic freedom and entrepreneurial activity: Some cross-country evidence," *Public Choice Public Choice* (134:3-4) 2008, pp 307-328.
20. Calvo, G. A., and Wellisz, S. "Technology, Entrepreneurs, and Firm Size," *The Quarterly Journal of Economics* (95:4) 1980, pp 663-677.
21. Carree, M., van Stel, A., Thurik, R., and Wennekers, S. "Economic Development and Business Ownership: An Analysis Using Data of 23 OECD Countries in the Period 1976-1996," *Small business economics* (19:3) 2002, pp 271-290.



22. Casson, M. *Enterprise and competitiveness : a systems view of international business* Clarendon Press ; Oxford University Press, Oxford [England]; New York, 1990.
23. Chan, C. M., Isobe, T., and Makino, S. "Which country matters? Institutional development and foreign affiliate performance," *Strategic Management Journal* (29:11) 2008, pp 1179-1205.
24. Christensen, C. M. "The rigid disk drive industry: A history of commercial and technological turbulence," *The Business History Review* 1993, pp 531-588.
25. De Mel, S., McKenzie, D., and Woodruff, C. "Getting Credit to High Return Microentrepreneurs: The Results of an Information Intervention," *The World Bank Economic Review* (25:3) 2011, pp 456-485.
26. De Meza, D., and Webb, D. C. "Too much investment: a problem of asymmetric information," *The Quarterly Journal of Economics* (102:2) 1987, pp 281-292.
27. Easterly, W., Levine, R., and Roodman, D. "New data, new doubts: A comment on Burnside and Dollar's" aid, policies, and growth"(2000)," National Bureau of Economic Research.
28. Elston, J., and Audretsch, D. "Financing the entrepreneurial decision: an empirical approach using experimental data on risk attitudes," *Small business economics* (36:2) 2011, pp 209-222.
29. Engerman, S., and Sokoloff *Factor Endowments, Institutions, and Differential* 1997.
30. Evans, D. S., and Jovanovic, B. "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints," *Journal of Political Economy* (97:4) 1989a, pp pp. 808-827.
31. Evans, D. S., and Jovanovic, B. "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints," *Journal of Political Economy* (97:4) 1989b, pp 808-827.
32. Evans, D. S., and Leighton, L. S. "Some Empirical Aspects of Entrepreneurship," *The American Economic Review* (79:3) 1989c, pp pp. 519-535.
33. Fornefeld, M., Delaunay, G., and Elixmann, D. "The impact of broadband on growth and productivity," *A study on behalf of the European Commission* 2008.
34. Fuerst, M. E. "Investor risk premia and real macroeconomic fluctuations," *Journal of Macroeconomics* (28:3), Sep 2006, pp 540-563.
35. Galindo Martin, M.-A., Méndez Picazo, M. T., and Alfaro Navarro, J. L. "Entrepreneurship, income distribution and economic growth," *Int Entrep Manag J International Entrepreneurship and Management Journal* (6:2) 2010, pp 131-141.
36. Garcia-Murillo, M. "Regulation Resources and Innovation:The Argentinean Telecommunications Case," *Journal of Information Policy* (1) 2011, pp 260-286.
37. Gillett, S. E. S. E., Lehr, W. H. W. H., and Osorio, C. "Local government broadband initiatives," *Telecommunications Policy* (28:7-8) 2005, pp 537-558.
38. Graham, J. W., Hofer, S. M., and Piccinin, A. M. "Analysis with missing data in drug prevention research," *NIDA research monograph* (142:Journal Article) 1994, pp 13-63.
39. Grossman, G. M., and Helpman, E. "Quality Ladders in the Theory of Growth," *The Review of Economic Studies* (58:1) 1991, pp 43-61.
40. Haltiwanger, J., Jarmin, R., and Miranda, J. "Business formation and dynamics by business age: Results from the new business dynamics statistics," CAED, Budapest, Hungary, 2008.
41. Harrod, R. "Wesley Mitchell in Oxford," *Economic Journal* (59) 1949, pp 459-460.
42. Hurst, E., and Lusardi, A. "Liquidity constraints, household wealth, and entrepreneurship," *Journal of political Economy* (112:2) 2004, pp 319-347.
43. Jacobides, M. G., Knudsen, T., and Augier, M. "Benefiting from innovation: Value creation, value appropriation and the role of industry architectures," *Research Policy* (35:8) 2006, pp 1200-1221.
44. Katz, R. L. "The economic and social impact of telecommunications output," *Intereconomics* (44:1) 2009a, pp 41-48.
45. Katz, R. L. "Estimating broadband demand and its economic impact in Latin America," 2009b.
46. Kaufmann, D., Kraay, A., and Mastruzzi, M. "The Worldwide Governance Indicators: Methodology and Analytical Issues," *SSRN eLibrary:Journal Article* 2010.
47. Kihlstrom, R. E., and Laffont, J. J. "A general equilibrium entrepreneurial theory of firm formation based on risk aversion," *The Journal of Political Economy* 1979, pp 719-748.
48. Lamont, O. A. "Investment plans and stock returns," *The Journal of Finance* (55:6) 2000, pp 2719-2745.
49. Le, A. T. "Empirical Studies of Self-Employment," *Journal of Economic Surveys* (13:4) 1999.
50. Lettau, M., and Ludvigson, S. "Time-varying risk premia and the cost of capital: An alternative implication of the Q theory of investment," *Journal of Monetary Economics* (49:1) 2002, pp 31-66.
51. Little, R. J. A., and Rubin, D. B. *Statistical analysis with missing data* Wiley, New York, 1987.
52. Lowrey, Y. "Business density, entrepreneurship and economic well-being," 2004.



53. Lucas, M. R. "Pricing decisions and the neoclassical theory of the firm," *Management Accounting Research* (14:3) 2003, pp 201-217.
54. Mankiw, N. G., Romer, D., and Weil, D. N. "A contribution to the empirics of economic growth," *The Quarterly Journal of Economics* (107:2) 1992, pp 407-437.
55. McGuire, S. "No more euro-champions? The interaction of EU industrial and trade policies," *Journal of European Public Policy* (13:6) 2006, pp 887-905.
56. Minniti, M. "The role of government policy on entrepreneurial activity: Productive, unproductive, or destructive?," *Entrepreneurship Theory and Practice* (32:5) 2008, pp 779-790.
57. North, D. C. *Institutions, institutional change, and economic performance* Cambridge University Press, Cambridge, NA, 1990.
58. Nystrom, K. "The institutions of economic freedom and entrepreneurship: evidence from panel data," *Public Choice* (136:3-4) 2008, pp 269-282.
59. Olson Jr, M. "Distinguished Lecture on Economics in Government," *Journal of Economic Perspectives* (10:2) 1996, pp 3-24.
60. Parker, S. C. "The economics of entrepreneurship: what we know and what we don't," in: *Discussion papers on entrepreneurship, growth, and public policy #1805*, The Max Planck Institute for Research into Economic Systems., 2005.
61. Puia, G. M., and Minnis, W. C. "The Effects of Policy Frameworks and Culture On the Regulation of Entrepreneurial Entry," *Journal of Applied Management and Entrepreneurship* (12:4) 2007, pp 36-50.
62. Romer, P. M. "Increasing Returns and Long-Run Growth," *The Journal of Political Economy* (94:5) 1986, pp 1002-1037.
63. Romer, P. M. "Endogenous technological change," *Journal of Political Economy* (98:5) 1990, pp 71-78.
64. Schultz, T. W., and Schultz, T. W. *Investing in people: The economics of population quality* Univ of California Pr, 1982.
65. Schumpeter, J. A. "Theoretical Problems: Theoretical Problems of Economic Growth," *The Journal of Economic History* (7) 1947, pp 1-9.
66. Scott, W. R. *Institutions and organizations* Sage Publications, Inc, 2001.
67. Seo, H. J., Lee, Y. S., and Oh, J. H. "Does ICT investment widen the growth gap?," *Telecommunications Policy* (33:8), Sep 2009, pp 422-431.
68. Shane, S. "Why encouraging more people to become entrepreneurs is bad public policy," *Small business economics* (33:2) 2009, pp 141-149.
69. Solow, R. M. "A contribution to the theory of economic growth," *The Quarterly Journal of Economics* (70:1) 1956, pp 65-94.
70. Spence, M. "Job market signaling," *The Quarterly Journal of Economics* (87:3) 1973, pp 355-374.
71. Stiglitz, J. E., and Weiss, A. "Credit Rationing in Markets with Imperfect Information," *The American Economic Review* (71:3) 1981, pp 393-410.
72. Storey, D. J. *Understanding the small business sector* Thomson Learning Emea, 1994.
73. Swan, T. W. "Economic growth and capital accumulation," *Economic record* (32:2) 1956, pp 334-361.
74. Tebaldi, E., and Elmslie, B. *Institutions, innovation and growth* Economics Seminar Series at the University of New Hampshire., 2007.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/8-F
31 August 2012**

French

SOURCE: Centre National de la Statistique et des Etudes Economiques, Rép. du Congo

TITLE: Situation des statistiques des TIC en République du Congo



Réunion mondiale sur les indicateurs
statistiques des TIC,
Bangkok, Thailand, 25-27 Septembre 2012

SITUATION DES STATISTIQUES DES TIC EN REPUBLIQUE DU CONGO

Exposé fait par M. Théophile BASSISSILA



Réunion mondiale sur les indicateurs
statistiques des TIC,
Bangkok, Thailand, 25-27 Septembre 2012

Plan de l'exposé

1. Contexte et justification
2. Situation des activités statistiques des TIC auprès des:
 - a. ménages;
 - b. administrations publiques et privées (entreprises).
3. Evolution de quelques indicateurs des TIC
4. Contraintes, défis à relever et prochaines activités de collecte des données sur les TIC
5. Conclusion



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Bangkok, Thailand, 25-27 Septembre 2012

1. Contexte et justification (1)

- e. Adoption du DCESRP en 2012 et mise en œuvre sur la période 2013-2016;
- f. Mise en œuvre de la Politique nationale de développement des technologies de l'information et de la communication en République du Congo (Cyber stratégie, 2009-2015);
- g. Adoption du cadre stratégique sur les TIC;
- h. **Difficultés de rédaction des rapports nationaux et internationaux à cause de l'insuffisance des données statistiques;**



Réunion mondiale sur les indicateurs statistiques des TIC,

Bangkok, Thailand, 25-27 Septembre 2012

1. Contexte et justification (2)

- e. Persistance des difficultés de suivi des indicateurs des OMD, du DCESRP liés aux TIC et ceux de la cyber stratégie;
- f. Mise en place au CNSEE du **Service des méthodes et mécanismes de suivi du développement humain, chargé des statistiques des TIC en fin 2009;**
- g. **Réalisation des enquêtes sur les TIC et de l'impact de la téléphonie mobile sur les conditions des ménages sur la période 2012-2016.**



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2. Situation des activités statistiques des TIC auprès des ménages (1)

- a. Existence de quelques enquêtes qui traitent à des degrés divers des points liés aux TIC (ECOM 2005 & 2010, EDS 2005 & 2010, RGPH 2007, ESISC 2009, Enquête 1 & 2, 2010, 2012...) mais elles ne sont pas intégrées;
- b. Ces enquêtes collectent particulièrement des données d'accès des ménages et des particuliers aux TIC (HH1, HH2, HHR1,...);
- c. Les données peuvent être désagréger selon le sexe du chef de ménage ou des individus, le milieu de résidence (urbain et rural) et selon l'espace géographique.
- d. Mais les comparaisons géographiques sont parfois difficiles ainsi qu'au plan national, la stratification des échantillons de ces enquêtes n'étant pas toujours la même.



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2. Situation des activités statistiques des TIC auprès des administrations (2)

- d. La modernisation et l'ouverture au monde des administrations publiques et privées par les TIC est un domaine inexploité dans tous les secteurs (la santé, l'éducation,...);
- e. La mesure de la pénétration des TIC au sein des administrations publiques et privées pose de sérieux problèmes. Par exemple,
 - ✓ Où faut-il s'arrêter lorsqu'on traite de l'administration publique : à l'administration centrale, décentralisée ou déconcentrée ?
 - ✓ Doit-t-on prendre en compte les ONG, les associations, les entreprises du secteur informel?
- f. Actuellement, il faut utiliser des sources alternatives telles que les interviews des inspections des enseignements pour suivre la pénétration des TIC dans le secteur de l'éducation.



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2. Situation des activités statistiques sur le marché des TIC (3)

- Le marché des TIC au Congo est placé sous le contrôle d'une autorité de régulation=Agence de régulation des postes et des communications électroniques (ARPCE);
- ARPCE joue le rôle de l'Observatoire du marché des télécommunications au Congo;
- Elaboration des outils et des indicateurs du suivi du marché des TIC au Congo;
- Réalisation d'une enquête sur la pénétration des TIC sur le marché congolais par le groupe OTF;
- Publication de l'Etat des lieux du secteur des TIC a été faite en avril 2009.



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3. Evolution de quelques indicateurs des TIC (2)

- Accès et infrastructures (2)



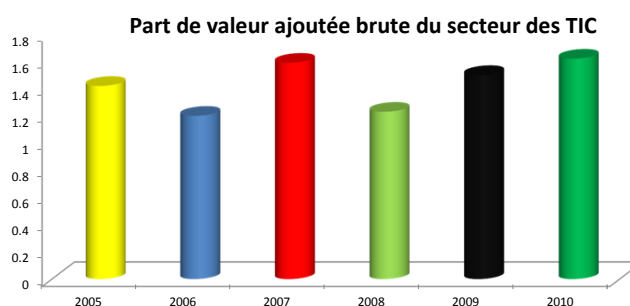


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3. Evolution de quelques indicateurs des TIC (3)

b. Secteur des TIC (1)

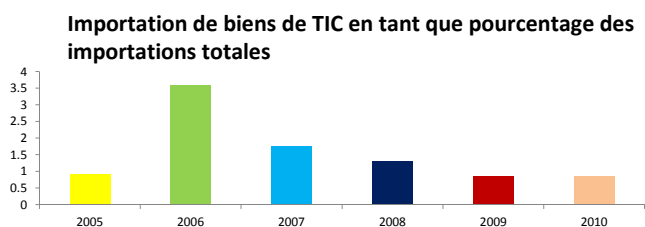


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3. Evolution de quelques indicateurs des TIC (4)

b. Secteur des TIC (2)





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Bangkok, Thailand, 25-27 Septembre 2012

3. Evolution de quelques indicateurs des TIC (5)

c. Accès aux TIC et leur utilisation par les ménages et particuliers

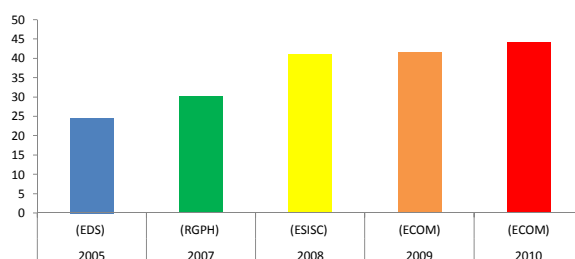
Années et sources	2005 (EDS)	2006	2007 (RGPH)	2008	2009 (ESISC)	2010 (ECOM)
Proportion de ménages disposant d'un poste de radio	57,3		51,1		61,8	54,3
Proportion de ménages disposant d'un poste de télévision	25,1		31,9		38,2	46,2
Proportion de ménages disposant du téléphone	34,3		50,6		77,3	83,7
N'importe lequel (Fixe ou portable)	34,3		50,6		77,3	83,7
Fixe seulement	1,2		0,2		1	1,4
Portable seulement	33,7		49,7		76,7	81,0
Fixe et Portable	0,6		0,6		0,5	1,4
Proportion de ménages disposant d'un ordinateur	1,4		1,5		3,1	3,6
Proportion de ménages disposant de l'électricité	33,8		35,7		37,1	41,2



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3. Evolution de quelques indicateurs des TIC (5)

Accès aux TIC et leur utilisation par les ménages et particuliers





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4. Contraintes, défis à relever et prochaines activités de collecte des données sur les TIC (1)

- a. Faible prise en compte des préoccupations TIC dans les politiques sectorielles;
- b. Méconnaissance des statistiques des TIC par les acteurs sectoriels ;
- c. Existence d'autres partenaires techniques intervenant dans le domaine des TIC et manque de concertation entre ces différents acteurs ;
- d. Insuffisante formation des cadres du CNSEE en matière des statistiques des TIC;
- e. Planification d'au moins trois enquêtes auprès des ménages au CNSEE entre 2011 et 2012



Réunion mondiale sur les indicateurs statistiques des TIC,

Bangkok, Thailand, 25-27 Septembre 2012

4. Contraintes, défis à relever et prochaines activités de collecte des données sur les TIC (2)

- f. Enrichir les questionnaires d'autres enquêtes par des préoccupations liées aux TIC (possibilité de s'endosser aux enquêtes trimestrielles de conjoncture)
- g. Difficultés de mobilisation des ressources nécessaires et d'assistance technique pour la réalisation des enquêtes liées aux TIC.
- h. Manque de collaboration entre le CNSEE et autorité de régulation=Agence de régulation des postes et des communications électroniques (ARPC);



Réunion mondiale sur les indicateurs
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Merci pour votre aimable attention!

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Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/9-F
31 August 2012**

French

SOURCE: Autorité de régulation de la poste et des télécommunications, Rép. dém. du Congo

TITLE: Mesure de l'accès aux réseaux large bande, fixes et mobiles, y compris sous l'angle du prix, du débit et de la capacité

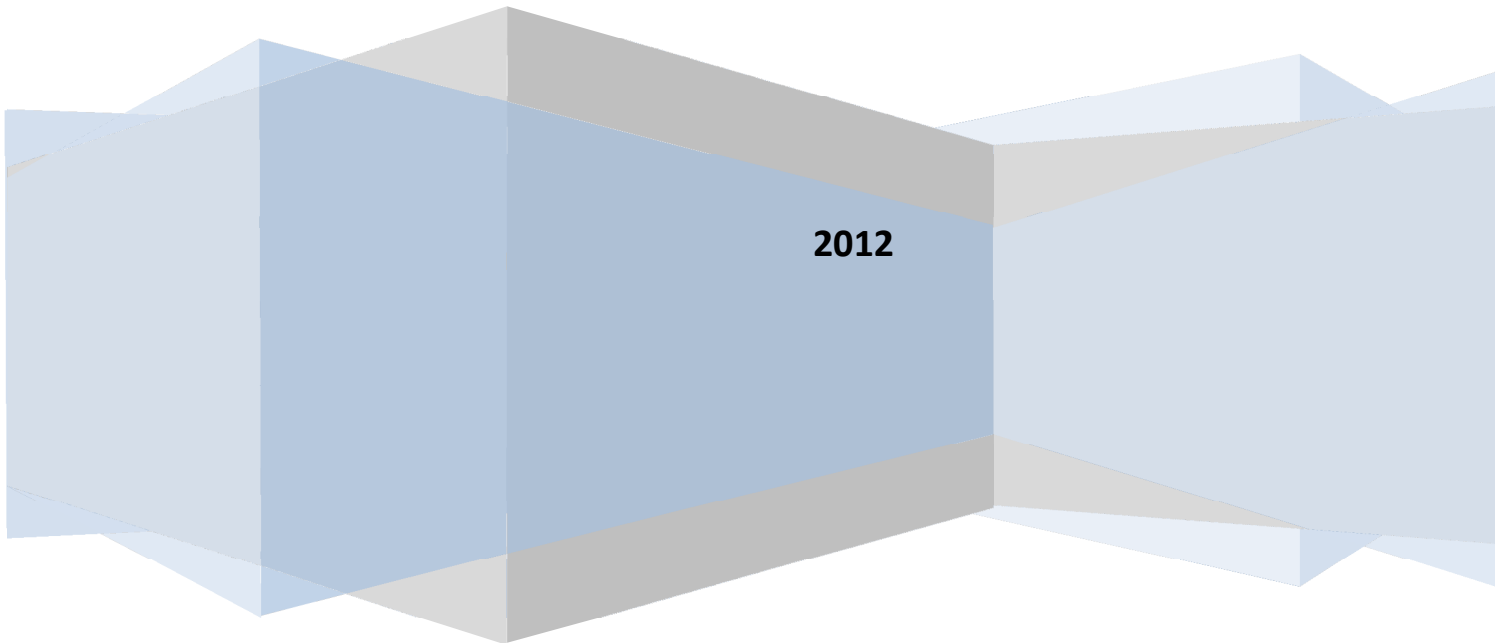


ARPTC

REPUBLIQUE DEMOCRATIQUE DU CONGO
DE LA POSTE ET DES TELECOMMUNICATIONS
CONGO

AUTORITE DE REGULATION
DU

Mesure de l'accès aux réseaux large bande, fixes et mobiles, y compris sous l'angle du prix, du débit et de la capacité



2012

Mesure de l'accès aux réseaux large bande, fixes et mobiles, y compris sous l'angle du prix, du débit et de la capacité

La contribution à la 10^{ème} réunion sur les indicateurs de télécommunications/TIC dans le monde sera axé autour du thème " Mesure de l'accès aux réseaux large bande, fixes et mobiles, y compris sous l'angle du prix, du débit et de la capacité".

Trois principaux points feront l'objet de notre contribution, il s'agit de :

- L'accès aux réseaux large bande mobile
- L'accès aux réseaux large bande fixe
- Conclusion.

1. Accès aux réseaux large bande mobile

En république Démocratique du Congo, les réseaux de troisième génération (3G) sont encore inexistants.

Tous les opérateurs de téléphonie mobile opérationnels sur le marché possèdent des architectures de réseaux de deuxième génération GSM.

Cependant, l'Etat Congolais, vient d'octroyer quatre licences de troisième génération aux quatre principaux opérateurs mobile GSM en compétition sur le marché de télécommunication en RDC.

C'est là, une opportunité pour les opérateurs de pouvoir offrir de nouveaux services aux usagers de la téléphonie mobile et de permettre ainsi l'accès aux réseaux large bande mobile.

Actuellement, l'offre du service Internet mobile par les opérateurs GSM via une connexion par modem/clé USB, attire de plus en plus un grand nombre d'utilisateurs. Les opérateurs utilisent la technologie EDGE pour pouvoir offrir ce nouveau service dans leurs gammes des services à valeur ajouté.

En prévision de l'entrée sur le marché de nouveaux services liés aux réseaux mobiles large bande 3G, il serait intéressant d'observer l'évolution de quelques indicateurs en rapport avec l'Internet mobile GSM sur une période de dix ans (2008-2017).

La vente des modems a débuté au cours de l'année 2008, ainsi donc, les données présentées à partir de 2012 ont été estimées sur base d'un taux moyen annuel d'accroissement de 64% l'an pour les abonnements à l'Internet mobile et 26% l'an, pour les abonnements à la téléphonie mobile GSM en général.

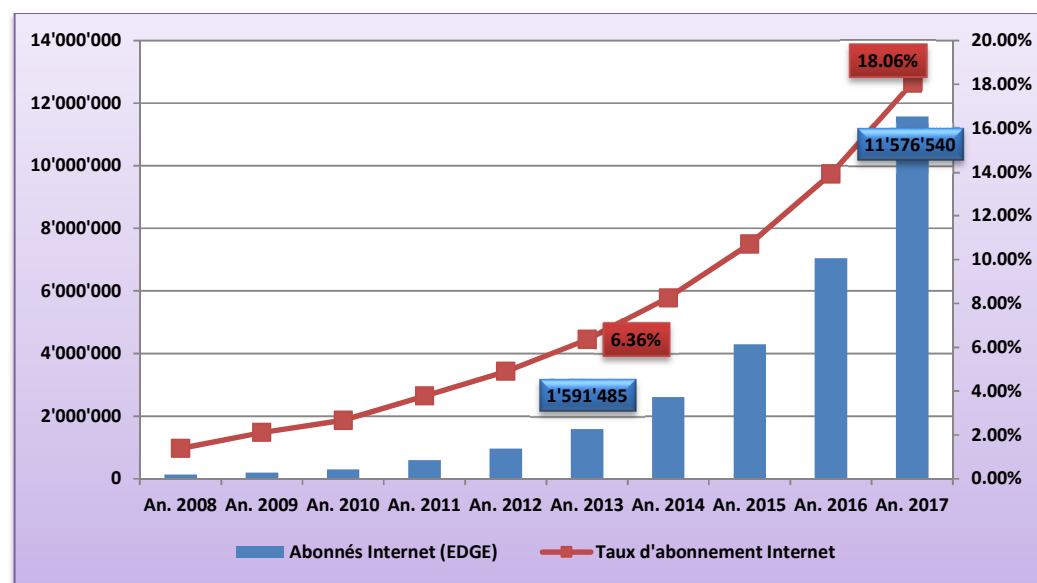
I. Evolution du nombre d'abonnements par an

Indicateurs	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abonnés GSM	9 886 768	9 458 557	11 249 122	15 644 877	19 791 259	25 036 563	31 672 035	40 066 116	50 684 892	64 117 975
GPRS/EDGE	137 000	200 000	300 000	590 085	969 078	1 591 485	2 613 645	4 292 306	7 049 117	11 576 540
Taux d'abonnement Internet	1,39%	2,11%	2,67%	3,77%	4,90%	6,36%	8,25%	10,71%	13,91%	18,06%

Source : opérateurs, ARPTC

Le tableau ci-dessus présente la tendance annuelle du nombre d'abonnements au réseau mobile GSM et le nombre de souscription parmi ces abonnements au service Internet mobile (EDGE).

C'est à partir de l'année 2008, que les opérateurs mobiles GSM ont lancé la vente des modems USB pour l'accès au service Internet après paiement d'un abonnement selon la période choisi par l'utilisateur (jour, semaine, mois...).

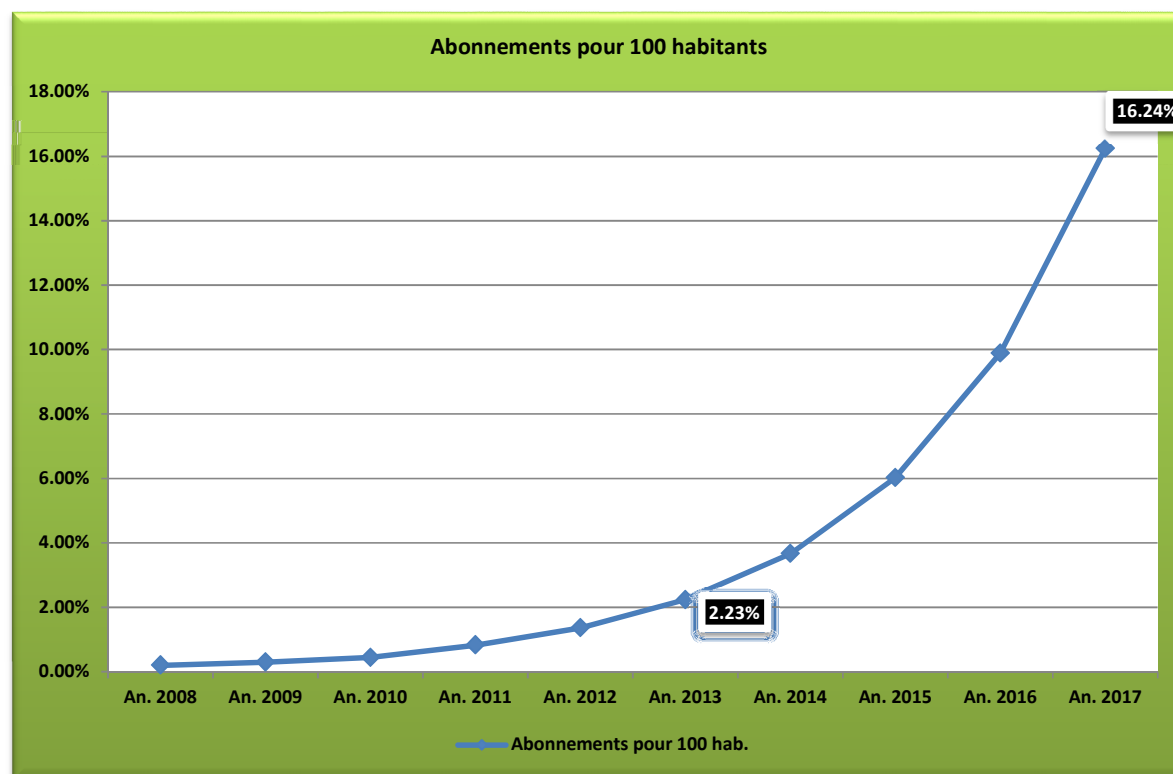


L'année 2013 pourra être considérée comme année de lancement des réseaux mobiles de troisième génération (3G), par les quatre opérateurs GSM opérant déjà sur le marché en RDC. Vu l'intérêt que manifeste déjà les usagers du GSM par rapport à l'Internet mobile via un modem, les projections du taux d'abonnement à l'internet mobile à partir de 2013, si toute chose reste égale par ailleurs, pourra passer de 6,36% à 18% cinq ans après, avec une bonne politique tarifaire de la 3G.

II. Abonnements pour 100 habitants

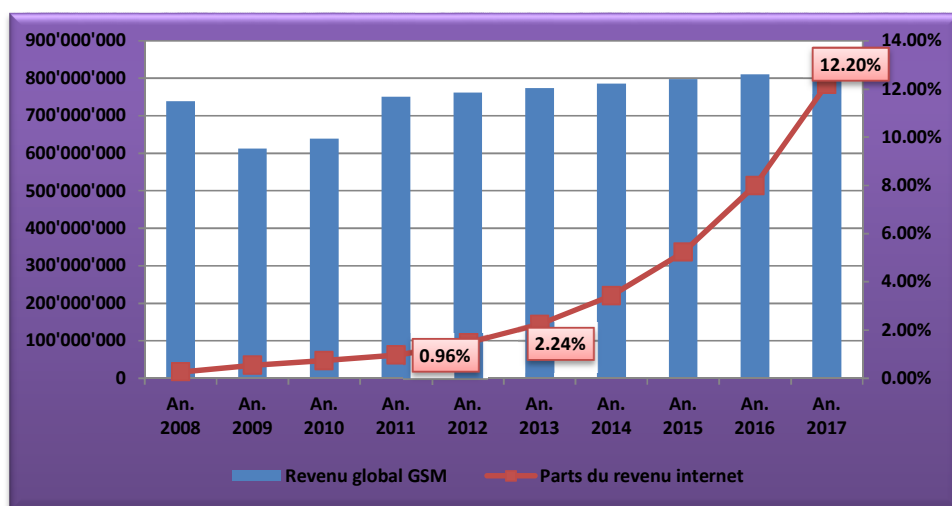
Indicateurs	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Abonnements pour 100 hab.	0,20%	0,29%	0,44%	0,83%	1,36%	2,23%	3,67%	6,02%	9,89%	16,24%

Source : opérateurs, ARPTC



Suivant la même logique, la prévision du taux de pénétration à partir de 2013 pourra passer de 2% à 16% en 2017 pour les services des réseaux large bande mobiles en RDC.

III. Revenu



Jusqu'en 2011, les revenus de l'Internet mobile via modem USB, représente 0,96% du revenu global des réseaux GSM.

En espérant une consommation de l'Internet mobile via modem, dans les mêmes proportions, la part de du revenu pourra s'améliorer à partir de 2013 de 2% à 12% en 2017.

IV. Tarifications

Indicateur	Acquisition modem	Abonnement mensuel
Tarifs en USD	50	50

Source : opérateurs, ARPTC

Actuellement le prix d'acquisition d'un modem est de 50 USD et le prix moyen d'abonnement illimité en capacité ou pour une capacité maximale de 2 Giga par mois est de 50 USD.

Ce tarif reste encore élevé pour la plupart des utilisateurs qui ont actuellement un revenu moyen par abonné par mois (ARPU) sur le service de la voix de moins de 5\$ en 2011.

V. Débit et capacité

Indicateurs	
Capacité offerte	2 G/mois et/ou illimité
Débit	85 à 100 kbp/s

Source : opérateurs, ARPTC

Le débit maximal offert à un abonné varie entre 85 et 100 kbps pour une connexion normale sans perturbation du réseau.

2. Accès aux réseaux large bande fixe

Le réseau large bande fixe est presque inexistant en RDC, actuellement un seul opérateur Standard Telecom, localisé uniquement dans la capitale Kinshasa, fournit ses services de télécommunications fixe au public, à partir d'une boucle locale en fibre optique complétée par un signal radio jusqu'au terminal.

Cependant, un grand projet est en cours de réalisation concernant la construction d'un backbone national en fibre optique allant de l'océan Atlantique à l'Est du pays en passant par le Sud et dont la première phase a été réalisée entre la ville côtière de Moanda et la capitale Kinshasa où il existe déjà une dorsale non encore en service.

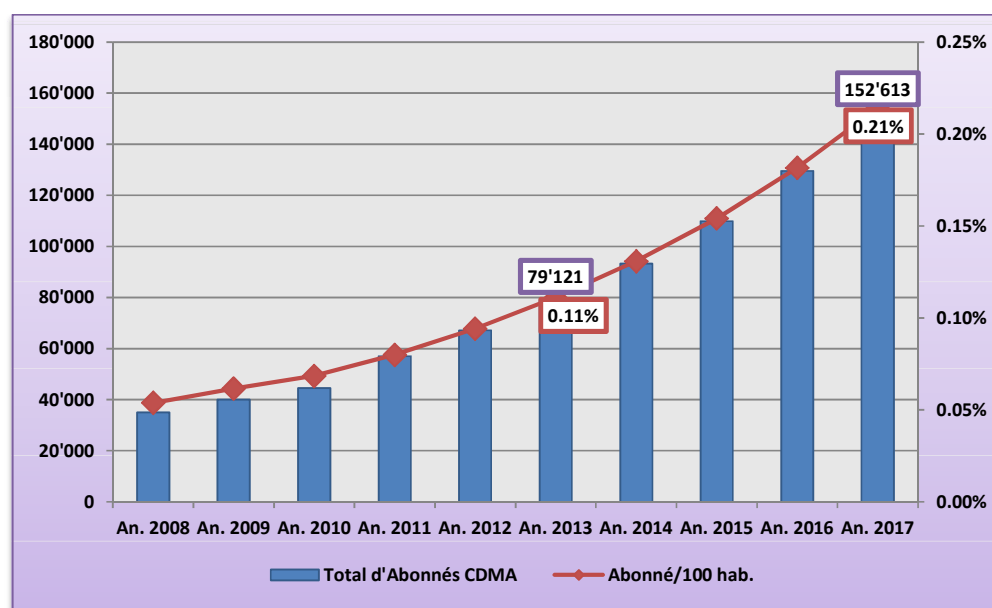
Le gouvernement congolais a pris des engagements pour une connexion internationale à partir du câble sous-marin WACS.

I. Evolution du nombre d'abonnements par an

Année	An. 2008	An. 2009	An. 2010	An. 2011	An. 2012	An. 2013	An. 2014	An. 2015	An. 2016	An. 2017
Total d'Abonnés CDMA	35 000	40 000	44 534	56 970	67 138	79 121	93 243	109 886	129 499	152 613
Abonné/100 hab.	0,05%	0,06%	0,07%	0,08%	0,09%	0,11%	0,13%	0,15%	0,18%	0,21%

Source : opérateurs, ARPTC

L'opérateur de la téléphonie fixe a débuté son exploitation en 2008 avec 35 000 abonnés. Offrant un service de qualité tant pour la voix que pour l'Internet, les projections jusqu'en 2017, donne un nombre d'abonné de 152 613.



Entre 2013 et 2017, le nombre d'abonné pour 100 habitants pourra passer de 11 à 21. Toute fois, si l'opérateur se déploie dans d'autres villes à part la capitale, ce seuil pourra être dépassé.

II. Bande internationale et débit par utilisateur

Largeur de la bande passante internationale	Débit	
	144 kbps	288 kbps
80 Mbps/réception	144 kbps	288 kbps

Source : opérateurs, ARPTC

L'opérateur loue une bande passante internationale de 80 Mbps, et le débit offert aux usagers du service Internet varie entre 144 et 288 kbps.

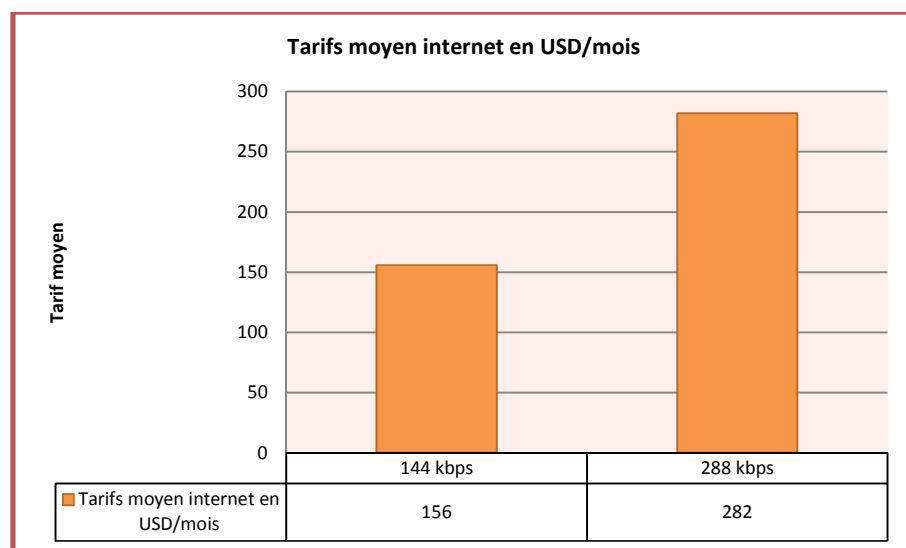
III. Tarifs par débit

1. Internet

	144 kbps	288 kbps
Tarifs moyen internet en USD/mois	156	282

Source : opérateurs, ARPTC

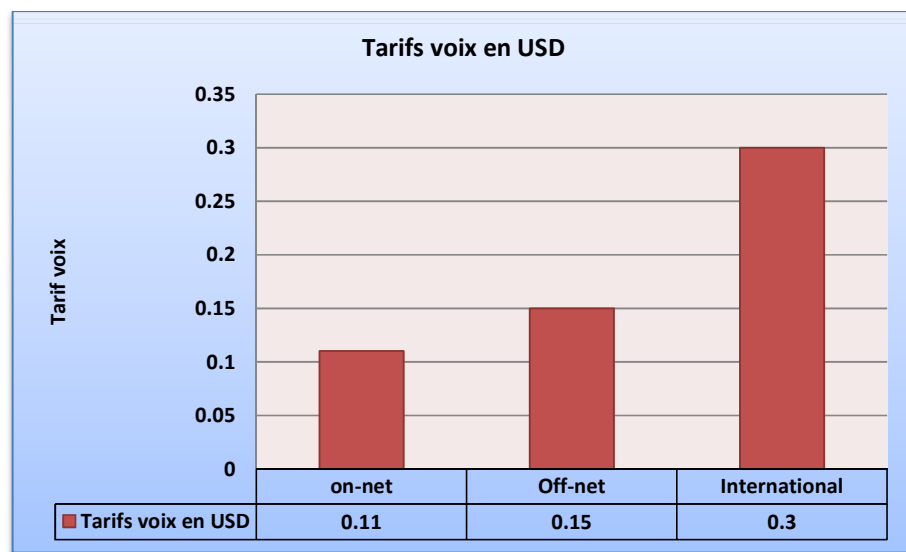
En moyenne, le tarif pour un débit de 144 kbps est 156 USD, et 282 USD pour 288 kbps. Par conséquent, la majorité des clients pour le service Internet est constituée plus d'entreprises que des particuliers à cause du coût élevé.



2. Voix

	on-net	Off-net	International
Tarifs voix en USD	0,11	0,15	0,30

Source : opérateurs, ARPTC



Les tarifs du service voix sont abordables et compétitifs sur le marché de la téléphonie fixe en RDC.

Ce qui permet à l'opérateur d'accroître le nombre d'abonnés d'année en année.

Il sied de signaler qu'après intervention du régulateur sur le tarif d'interconnexion par la modélisation du coût d'interconnexion, la tarification a été alignée de manière objective même pour les appels fixe vers mobiles.

3. Conclusion

L'accès aux larges bandes fixe et mobile en RDC, présente un avenir prometteur au vu de cette analyse.

L'option prise par le gouvernement notamment, par la vente et l'octroi des licences de troisième génération à tous les opérateurs GSM opérationnels en RDC, et la construction d'un backbone national en fibre optique est une opportunité pour le pays de pouvoir enfin accroître la connectivité et l'accès aux réseaux large bande de manière significative à partir de 2013.

Actuellement les opérateurs mobiles GSM sont en phase d'installation de leurs réseaux de troisième génération, tout en offrant de nouveaux services à valeurs ajoutées à leurs clients respectifs, les préparant ainsi aux nouvelles offres qui seront proposées lors de la mise en service des réseaux large bande.

Les opérateurs de téléphonie fixe pourront avoir la possibilité d'étendre leurs réseaux grâce aux travaux de construction du backbone national en fibre optique et la connexion internationale au câble sous-marin.

Le gouvernement et les institutions spécialisées du secteur des TIC en RDC préparent la nouvelle réglementation qui devra encadrer les nouvelles offres de service en rapport avec les réseaux large bande à venir.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/10-E
31 August 2012**

English

SOURCE: Ghana Statistical Service, Ghana

TITLE: ICT household statistics

ICT HOUSEHOLD STATISTICS

(GHANA)

THE GLOBAL VISION OF GHANA

- ◆ To improve the quality of life of the people of Ghana by enriching their social, economic and cultural well-being through the modernization of the economy and society” and out of it was carved the ICT vision.
- ◆ To improve the quality of life of the people of Ghana by significantly enriching their social, economic and cultural well-being through the rapid development and modernization of the economy and society using information and communication technologies as the main engine for accelerated and sustainable economic and social development

GOVERNMENT AGENCY RESPONSIBLE FOR TELECOMMUNICATION/ICT

- ◆ In Ghana, the Ministry of Communication is the government institution which is mainly responsible for ICT policy formulation and implementation at all levels. However, the sector ministry collaborates with key providers of ICT in ensuring that desirable results are achieved.
- ◆ Under the Ministry, a National Communications Authority (NCA) has been established and mandated to authorize or license any ICT operator in the country. Subsequently no service provider in this country can operate without NCA's permission. As part of its mandate, it provides guidelines for ICT providers and institutions conform to all its rules and regulations. The NCA keeps records on all institutions working with them and gets regular updates.

DATA COLLECTION

- ◆ In terms of data collection, the sector ministry and other providers collect routine administrative data to facilitate their work. However, when it comes to official statistics, the Ghana Statistical Service is the only institution which has been mandated by law to conduct census and surveys relating to social, economic, demographic, transport and other issues in the country. In compliance with its mandate, the Service has a special section called the Transport and Communication Statistics which is mainly responsible for the collection of data on transport and ICT.

Ghana Living Standards Survey (round 5)
2005 - 2006

◆ Questions asked:

- ◆ Does the household have access to
- ◆ Does the household use
- ◆ Items include:
 - ◆ Fixed line phone
 - ◆ Mobile phone network
 - ◆ Personal computers
 - ◆ Internet (other use)
 - ◆ E-commerce
 - ◆ Paid cable network

ICT Indicators Being Analysed
Under GLSS 5 Survey

- ◆ percentage of households owning tv
- ◆ percentage of households owning telephone (fixed line)
- ◆ percentage of households owning mobile phones
- ◆ percentage of households owning computers
- ◆ percentage of households with internet access
- ◆ percentage of households owning radio

CWIQ Survey 2003

◆ Question asked:

- ◆ Does the household own any of the following?
 - (Include items only if they are in working condition)
 - ◆ TV
 - ◆ Video deck
 - ◆ Cassette player/radio
 - ◆ Stereo system
 - ◆ Personal Computer
 - ◆ GT fixed line
 - ◆ Westel phone
 - ◆ Capital Telecom
 - ◆ Mobile
 - ◆ One touch
 - ◆ Spacefon
 - ◆ Mobitel
 - ◆ Celltel
 - ◆ Fan

Percentage distribution of households who subscribe to or own ICT related items – CWIQ 2003

Region	Sample size(n)	GT fixed line	GT onetouch	Spacefon	Mobitel	TV	Personal computer
Western	5,265	2.4	0.4	2.2	0.2	24.4	0.7
Central	4,860	1.7	0.7	2.0	0.3	22.2	0.4
Greater Accra	4,455	9.8	3.7	13.1	2.4	56.1	2.8
Volta	4,859	1.0	0.3	0.3	0.0	13.6	0.3
Eastern	6,075	1.0	0.6	1.0	0.2	19.4	0.3
Ashanti	8,505	1.8	0.8	4.8	1.2	33.8	0.5
B/A	5,265	0.9	0.4	0.6	0.1	16.5	0.2
Northern	5,265	1.1	1.4	0.7	0.4	14.9	0.2
Upper East	2,430	1.6	0.2	0.9	0.3	8.7	0.5
Upper West	2,024	0.6	0.1	1.0	0.2	9.6	0.5

ICT Capacity Building

- ◆ Training of personnel in the ICT specific field

2010 CENSUS Special module are created to compile ICT data

- ◆ Business
 - Percentage of businesses with computers
 - Percentage of businesses with internet access
 - Percentage of businesses with a web site
- ◆ Education
 - Percentage of students enrolled in tertiary education having internet access for students for study purposes
 - Enrolled student-to-personal computer ratio (in primary and secondary schools and tertiary education)
 - Percentage of ICT qualified teachers in primary and secondary schools (of total number of teachers)

Indicators continued

◆ Government

- Ratio of availability of personal computers to number of staff
- Percentage of government offices internet access
- Percentage of government offices and agencies with a web site

◆ Agriculture

- Percentage of agricultural population and extension workers involved in the exploitation and deployment of ICTs to the sector
- Number of local web sites and databases with agricultural information and content

Indicators continued

◆ Health

- Percentage of health institutions using ICTs (by type of health institution: e.g. private clinic, government etc)
- Regional distribution of health institution with computers, telephones and internet connectivity
- Percentage of health professional that use ICTs for medical purposes

Challenges Associated with collection and collation

- ◆ Non-response
- ◆ Equipment
- ◆ Training

Way forward for stakeholders

- ◆ Publicity and sensitisation of the public
- ◆ Procurement of the needed equipment
- ◆ Training of personnel in the ICT specific field
- ◆ Nacpus -Teaming up with other institutions like NCA to get regular data supply
- ◆ To involve management
- ◆ Need for Enterprise-based survey

Thank you

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/11-E
31 August 2012**

English

SOURCE: Ministry of Communication and Information Technology, Indonesia

TITLE: The usage of ICT by households and individual in Indonesia

THE USAGE OF ICT BY HOUSEHOLDS AND INDIVIDUAL IN INDONESIA

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I. INTRODUCTION

This paper presents an overview of patterns of access and use of ICT by households and individuals in Indonesia based on the main indicator developed by International Telecommunication Union (ITU). To measure access and usage of ICT by households and individuals ITU ditermine 12 indicators consists of 6 indicators of ICT access by households and 6 indicators of ICT usage by individuals. Fundamental differences in terms of access and the user is referring to the availability of access to ICT in the home while the user is an individual one or more household members is access at home or anywhere. (ITU, 2010).

Patterns of access and usage of ICT sector and individual households are presented based on the results of a survey in 2011 conducted by Research and Development of Human Resources Agency - Ministry of Communications and Information Technology Republic of Indonesia. Individual samples were selected based on a stratified random method, a random sampling method, but a representative representing the entire population.

Information identified in this survey is about (1) radio ownership, (2) ownership of television, (3) phone ownership, (4) computer ownership, (5) an individual user's computer, (6) ownership of internet access, (7) individual internet users; (8) the location of individuals accessing the Internet; (9) internet access activity, (10) individual cell phone users; (11) type of internet access, and (12) the frequency of accessing the internet.

Access and Usage of ICT Survey by Households and Individuals in 2011

Based on the results of population census 2010 the Central Statistics Agency (BPS), has been determined 10,000 sample households based on population density in each province. The sample was selected proportionally based on population density in each province, city / county, and districts are selected, taking into account the sampling error of one percent. Of the 10,000 questionnaires distributed directly through an interview a number of 89.95% or 8995 are valid. The survey showed that about 98.60% of households have access to ICT at home

Determination of the sample using four clusters in each province, the cluster north, south, west and east. Each cluster consists of a collection of some cities and counties located in the north, south, west, and east of the province. Then from each cluster were selected a city / county as a representative of each cluster, with the provision if the cluster is found capital of the province, the provincial capital to be chosen as a representative of one cluster. While the other three clusters, may be selected city/county anywhere. Then, from each city/county selected two districts, each of which is close to the city/county and away from the city/county. This is done so that the sample distribution is quite evenly spread across Indonesia. Comparison between sample surveys with a population of Indonesia population censuses of 2010 BPS can be seen in the image below.

Most respondents were 60.32% in Java, respondent in Sumatra as much 21.28%, etc. as shown in Figure 1. Proportion of households is comparable to the population in each island. Java and Sumatra are an island that have the largest population compared to other islands.

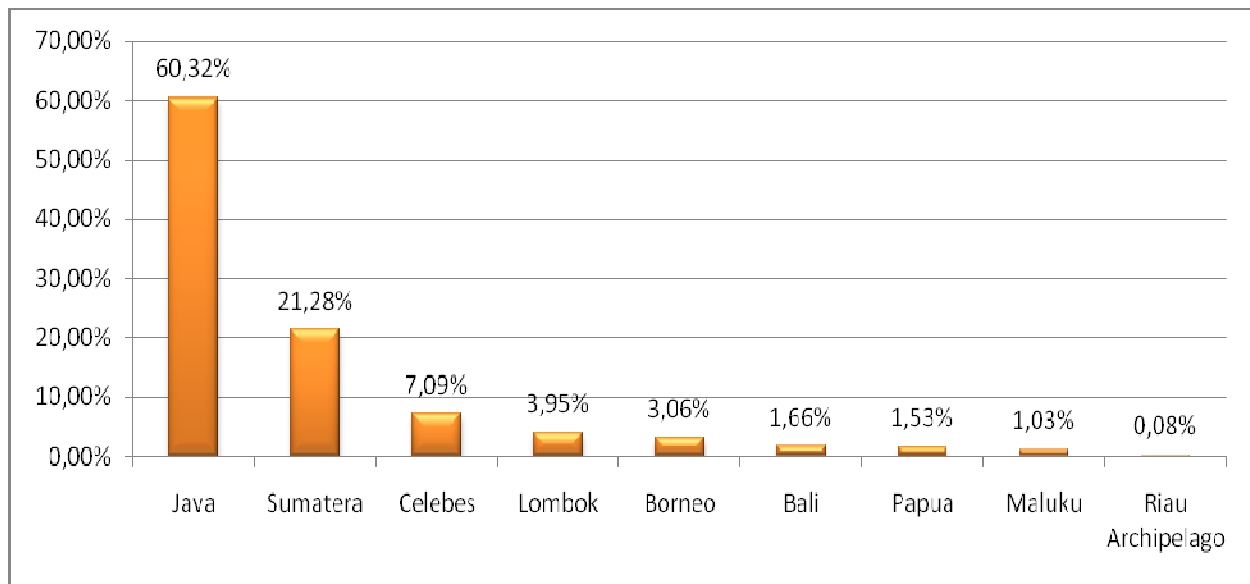


Figure 1.
Distribution of Respondents Based on the Island

II. RESULT OF SURVEY

2.1. Proportion of Households Who Have Radio and Television

Figure 2.1 shows the two main indicators (HH-1 and HH-2) are used to measure access to ICT by households and individuals is the proportion of households owning a radio and television. Proportion of households with a radio is calculated by dividing the number of households with radio and the total number of sample households. While the proportion of households with television is calculated by dividing the number of households with television and the total number of sample households. In the picture can be seen that the level of radio ownership is lower than the rates of television ownership. The proportion of households with radio is only about 55.52%, while the TV is owned by 95.56% of respondents.

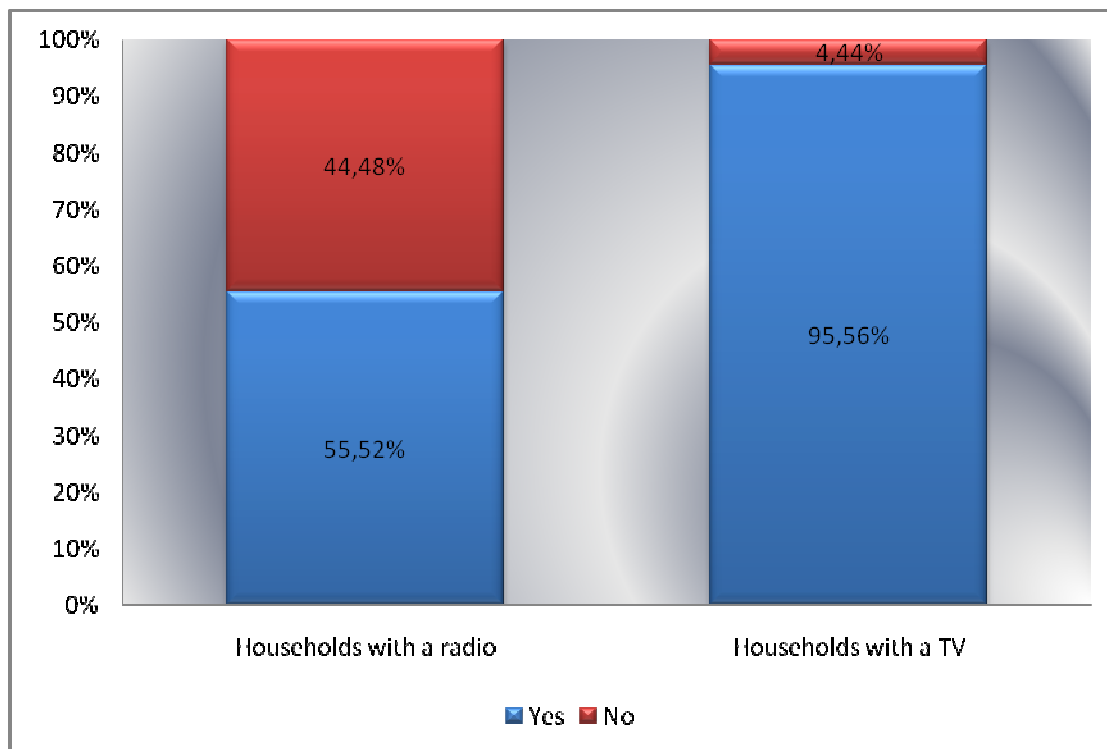


Figure 2.1.
Proportion of Households Having Radio and Television

2.2. Proportion of Households Who Have Phone

The main indicators of access to and use of ICT by households and individuals following is the proportion of households with telephone (HH-3). Proportion of households with a telephone is calculated by dividing the number of households owning any type of phone / phone only cable / mobile phone only / both wired and mobile phone and the total sample of households. As with television, telephone ownership rate in Indonesia is also very high. Most (90%) of respondents claimed to have a phone and only 10% who do not have a phone. If traced further about the type of phone is used, then the majority of respondents chose a cell phone (HP) as a medium of communication, namely 87.64%. While the telephone cable owned by only 25.19% of respondents.

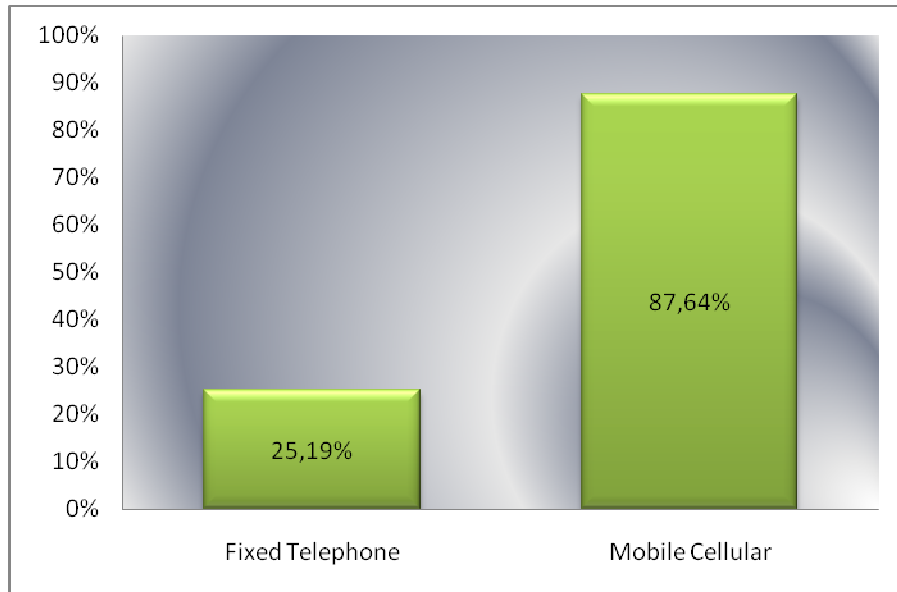


Figure 2.2.
Proportion of Households Who Have Phone

2.3. Rate Ownership and Use of Computers and Internet

Described in this section will describe the four indicators of computer ownership and Internet access by households and the use of computers and the Internet by individual household members. Proportion of households with computers (HH-4) is calculated by dividing the number of households that have computers with the total sample, whereas individuals in the household who use computers (HH-5) is calculated by dividing the number of individuals who use computers in the last 12 months with a total samples. Furthermore the proportion of households with internet access (HH-6) is calculated by dividing the number of households with internet access and the total sample, then the proportion of individuals in households that use the internet (HH-7) is calculated by dividing the number of individuals who use the internet in the last 12 months last and the total sample.

Figure 3.6 shows a comparison between the level of ownership and use of computers and internet access. In the picture can be seen that the level of computer ownership and internet is smaller than the level of use. Based on the level of ownership, the proportion of households owning a computer was greater than that which has internet access. In contrast, the proportion of computer

use actually smaller than the use of the internet. Based on survey results, levels of internet usage is still quite low, around 37.51%, while the remaining 62.49% by not using the internet. This picture seemed to support the low level of internet penetration in Indonesia is only around 16.1% in 2011.

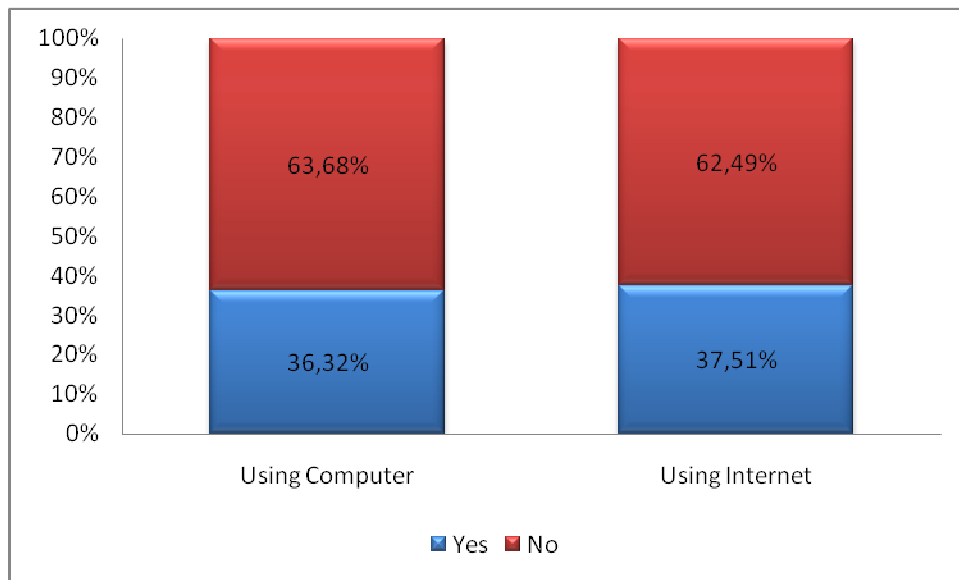


Figure 2.3.
Ownership level and applicability of the Computers and Internet

2.4. Location of Internet use by individuals in 12 Months

Location of individuals using the Internet is the main indicator (HH-8) are calculated based on the proportion of individuals in households that use the internet in the last 12 months. The location was chosen by the respondents to access the internet at home (59%), anywhere via HP (57.88%), and in the cafe (57.62%). The rest, they rely on internet connection at work (29.76%), school / college (28.33%), and connect with a friend / brother (22:32%), as shown in Figure 3.6.

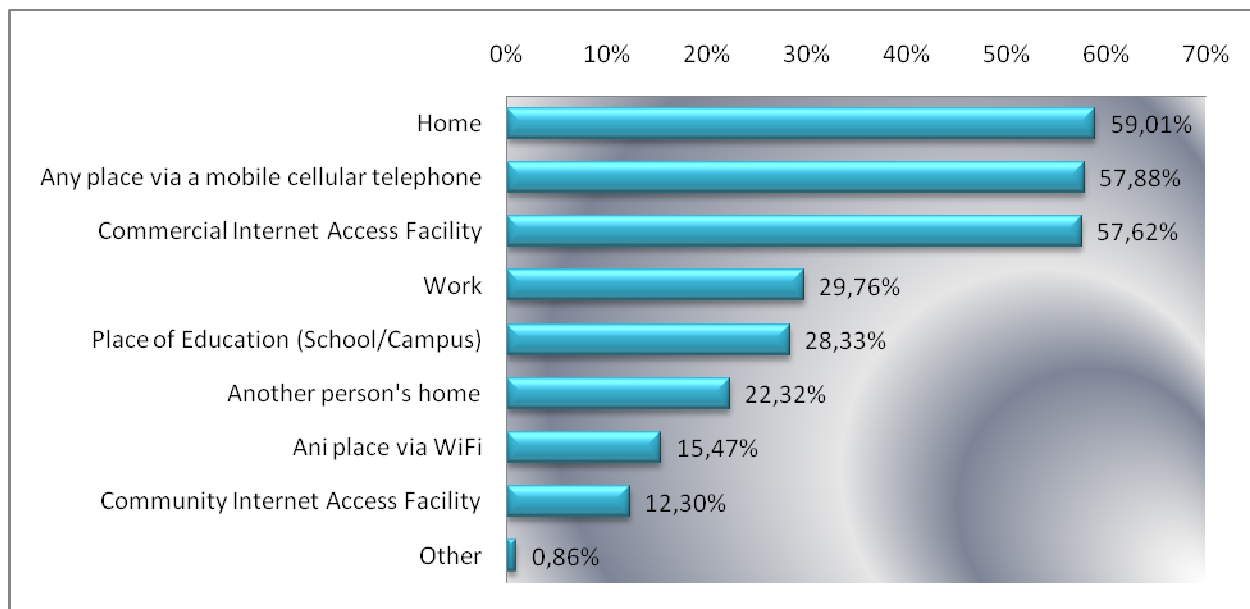


figure 2.4.
Internet Access Locations

2.5. Internet activities by individuals in 12 Months

Activities of individuals in using the Internet is the main indicator (HH-9) are calculated based on the proportion of individuals in households that use the internet in the last 12 months of the total sample. The survey results showed that the activity is most often done when surfing the internet is open social networking site, which is recognized by the 64.43% of respondents. In accordance with the ratings that appear on www.alexacom, a site that features indicator of a website's popularity, social networking sites are the sites most frequently accessed by Internet users from Indonesia. Proved in the last three months, Face-book ranks first as the most visited sites, while twitter was in position 9.

As seen in Figure 2.5, in addition to opening the social networking site, many other activities that are performed by using the internet to find information about goods / services (48.55%), send and receive email (47.33%), download movies / images (46.98%) , and send messages via Instant messaging by 46.74% of respondents.

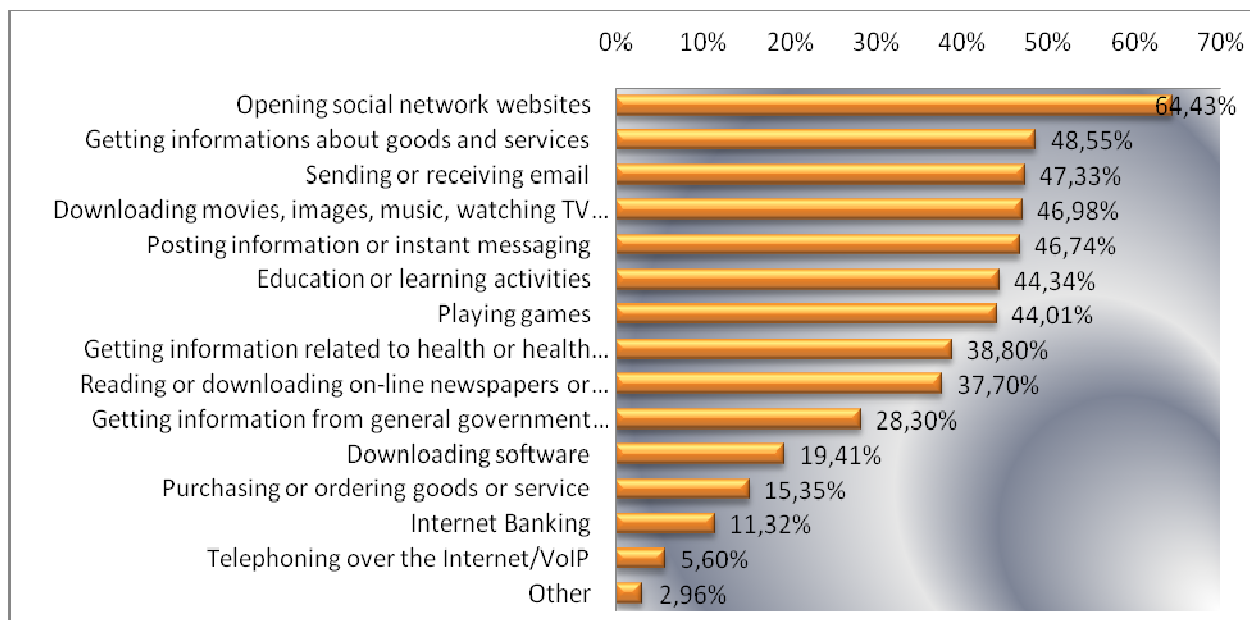


Figure 2.5.
Activities of Internet Access

2.6. Individuals in households Using Mobile Phones

Mobile phone or cellular (mobile phone) when this is not the stuff is expensive and relatively affordable by most people of Indonesia. This fact is supported by data that in 2010, there were 220 million mobile phones are used or 92 phones per 100 inhabitants (ITU, 2011). Given the multiple owners of ITU indicate that as many as 85% of the adult population or 65% of the total population had access to phones. The survey results showed the use of cell phones (HH-10) in individuals is also quite high, around 86%, although this figure is actually slightly smaller than the level of mobile phone ownership in the household. The proportion of mobile phone users is calculated based on the proportion of individuals in households that use cell phones in the last 12 months to the total sample.

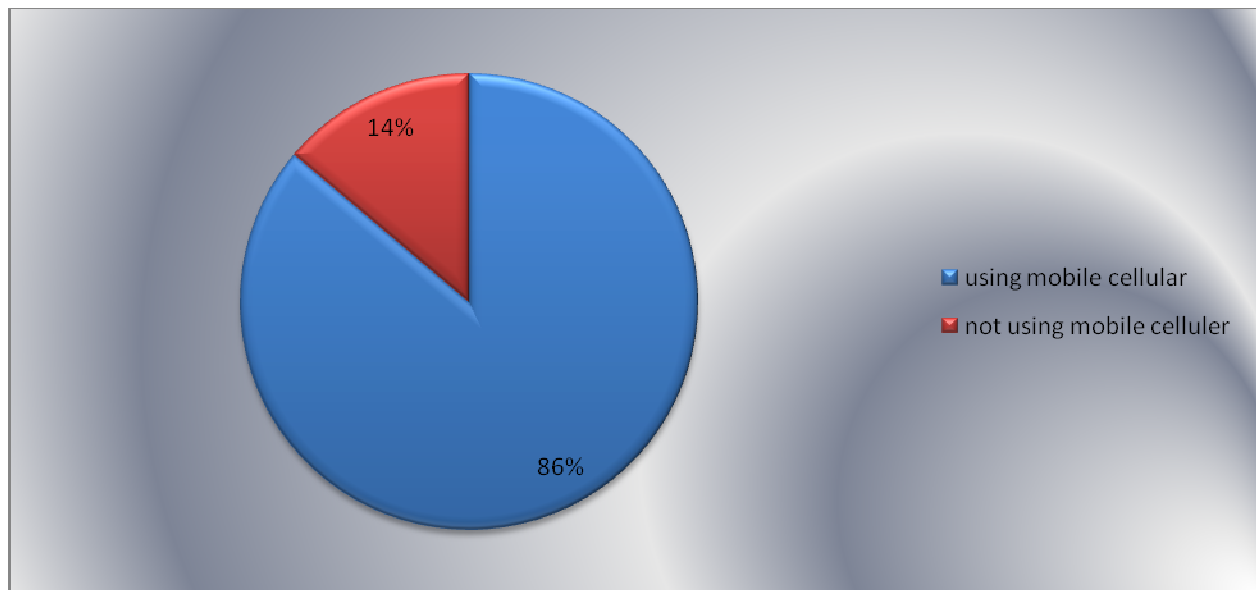


Figure 2.6.
Proportion of Individuals Who Use Cell Phones

2.7. Used type of Internet connection

Proportion of households with internet access by type of access (HH-11) refers to the access service being used. This type of Internet connection used internet users look at the picture 2.7. Connection type is divided into three, namely narrowband, fixed broadband and mobile broadband. Narrowband internet is a network that has a low transfer rate for a channel that is used quite narrow. The term is usually associated with the dial-up connections, such as instant Telkomnet connection. Fixed broadband Internet is a network that uses technology xDSL (Digital Subscriber Lines) / copper cable, FTTH (Fiber To The Home) / fiber optics, leased line, satellite, Wireless Local Area Network and WiMAX. This network has a higher transfer speed for large data path width. While mobile broadband is a high-speed Internet network that uses CDMA technology, HSDPA, EVDO. Generally accessed through portable devices (portable), such as laptops, HP, and so forth. The survey showed most respondents choosing a mobile broadband connection, which amounted to 49.32%. While the narrowband connection to the connection of at least selected respondents, which is only about 25.1%.

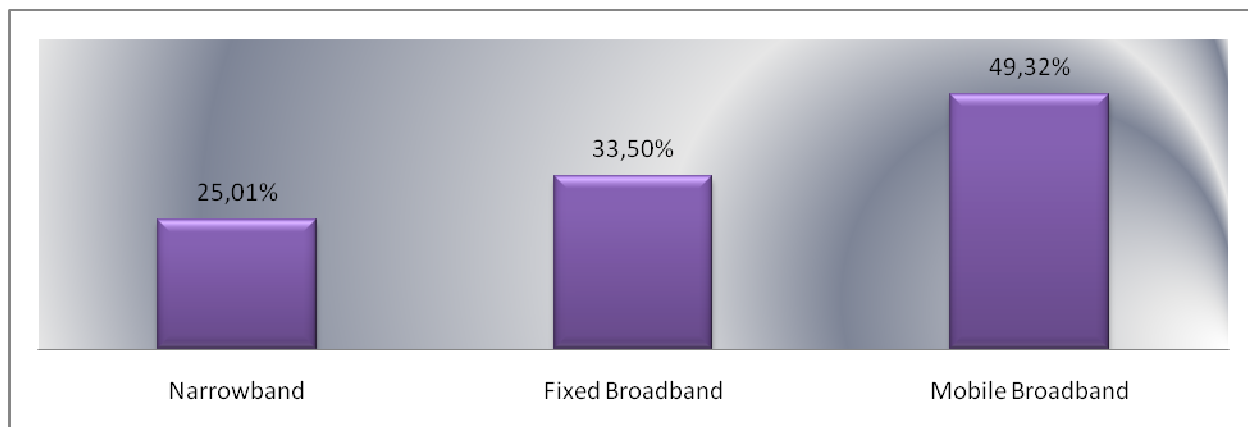


Figure 2.7.
This type of technology the Internet Access

2.8. Frequency of Accessing Internet

Frequency of internet use by individuals in the household is a key indicator of access and use of ICT (HH-12) are calculated based on how often a person uses the internet in a day or a period of one week. Behavior of Internet users regarding the frequency or how often they access the Internet is shown in Figure 2.8. The picture shows that most respondents (68%) only occasional Internet access, which is at least 1 time a week. The rest of 32% of respondents claimed to access the internet every day.

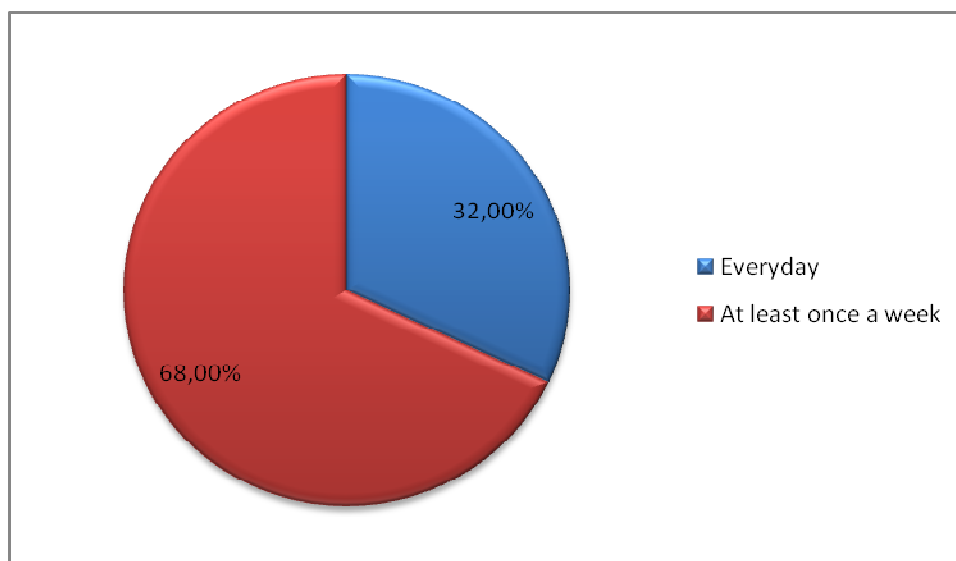


Figure 2.8.
Frequency of Accessing Internet

III. DISCUSSION

1. Based on survey results, obtained some important points regarding access to and use of Information and Communications Technology (ICT) in the household sector in Indonesia: The survey results showed a high of households with access to ICT, that is a number 99% of households surveyed had access to ICT to support their households. Height of households with access to ICT will also occur if the household is classified based on the island.
2. In terms of access to ICT clustering in households, households with radios tend to be too high, which is only about 56%. As with the television, households with televisions far more than the households had radios. The survey results indicate that households with televisions up to 96%. Meanwhile, households with phones also showed a high yield, which is about 90% of households have telephone access. Mobile phone ownership reached 88%, while the telephone cable only reaches 25%. Meanwhile households have telephone access both wired and cellular phones only 23%. Computer ownership rate for households in Indonesia also showed lower results, which is only about 33% of households have computers. Something similar occurred in households with internet access. In Indonesia, households with Internet access amounted to only about 26%.
3. Identification of internet connectivity in households shows that about 49.32% of all households were surveyed using mobile broadband technology. Meanwhile narrowband technology is a technology that at least used by households in Indonesia.
4. Level of use of mobile phones in Indonesia also showed fairly high. The survey shows mobile phone users in Indonesia reached 86%. The high use of mobile phones will also occur if respondents are grouped according to their characteristics, such as gender, age, and occupation.
5. Although computer ownership is still quite low, but the use of computers was slightly higher than its ownership, which is about 36% of respondents use a computer. Something similar occurs in Internet usage, Internet users are slightly higher than the ownership of internet access, that is about 38% of respondents use the internet access.
6. The survey results also show that Indonesia is still lacking optimize the internet. It can be seen from the activity most often performed when accessing the internet is open social networking sites (64.43%) and the frequency of accessing the internet which is very rare.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/12-E
31 August 2012**

English

SOURCE: Department of Statistics, Jordan

TITLE: Information and communications technology in Jordan

Information and Communications Technology in Jordan

Shaher Al-shawabkeh

Director of Economic Directorate Surveys

Department of Statistics

Jordan

July, 2012

Introduction

The Information and Communications Technology Sector has witnessed immense improvement in recent years in terms of high prevalence and diversity

of services provided, in addition to increasing the volume of investment and employment in this sector. Flow of investment from the private sector has increased to replace the public sector. The rapid technological development in Information Technology has led to significant impact in various economic and social fields, which are clearly reflected in the performance of economic establishments through increased productivity, improvement of work, promoting competition and provision of better services to consumers.

The survey, conducted by the Department of Statistics in accordance with the Memorandum of Understanding concluded between the DoS and the Ministry of Communications and Information Technology in order to provide the necessary data on the use of Information and Communications Technology in economic establishments for decision makers and policy makers in both public and private sectors. And this paper will include a discussion about the available indicators at the DOS and the experience of the DOS in collection, releasing, and preparation of the ICT statistics.

1 – Information society in the households sector.

- The Department of Statistics carried out a series of household surveys on the use of information technology once a year to get information about the use of information technology at the household level.
- The first survey has been implemented in 2007, the second survey in 2008, and the third survey in 2009. The fourth survey in 2010 and the last survey in 2011.

2 – Information society in the Economic Enterprises sector.

To provide data on the Information Society in Jordan, the Department of Statistics carried out two surveys on the information society in the economic establishments in Jordan. The first survey has been carried out in 2006, and second survey was carried out in 2008. A last survey was carried out in 2011.

Present paper will discuss the contents of the surveys. Which include the following?

- Objectives of the Survey
- Comprehensive survey
- Design of the sample
- Method of data collection
- Summary of the most important indicators that can be extracted from each survey.

A-Information and Communications Technology Use in Economic Enterprises

Survey:-

◆ Objectives of the Survey:

The Main objectives of the survey:

- Provision of data on the use of information technology and Communications in the economic establishments.
- Provision of data on postal service used by the economic establishments.
- Provision of data on the use of the Internet in the economic establishments.
- Provision of data on the use of e-commerce in the economic establishments.
- Provision of data on how these establishments deal with e-government.

◆ Comprehensiveness of the survey :-

This survey covered all establishments operating in the public sector (except for security and military establishments) and a sample of economic establishments in the private sector. The total sample that drawn from the framework of the 2006 Establishment Census. Which was implemented reached 3700 enterprises.

◆ Sample Design:-

The sample of the 2010 survey was designed to include the following:

- All public establishments (except security and military establishments).
- Selecting a random sample from the private sector establishments, including the non-profit establishments.

◆ **Method of data collection:–**

The Data on the economic establishments was collected through personal interview. In the case of some large establishments, a date was set to obtain the data, so that the concerned person is given the chance to prepare the requested data.

◆ **Summary of Main Results:–**

This table presents some of the most important indicators that can be calculated from the information and communications technology use in the Economic Enterprises Survey 2010.

Summary of Main Results

1	Percentage of government establishments that deal with Jordanian post companies	99
2	Percentage of government establishments that deal with private sector companies	39
3	Percentage of private enterprises that deal with Jordanian post companies	96
4	Percentage of private enterprises that deal with private sector companies	69
5	Percentage of government establishments that approach post offices on a daily basis	74
6	Percentage of private enterprises that approach post offices on a daily basis	16
7	Average monthly expenses incurred on local postal services by government establishments (JD)	356

8	Average monthly expenses incurred on local postal services by private enterprises (JD)	49
9	Average number of land telephone sets in government establishments (set)	228
10	Average number of cellular telephone sets in government establishments (set)	47
11	Average number of personal computers in government establishments (set)	229
12	Average number of land telephone lines in government establishments (line)	47
13	Average number of cellular telephone lines in government establishments (line)	49
14	Percentage of government establishments that use computers	100
15	Percentage of private sector enterprises that use computers	83
16	Percentage of government establishments which believe that an initiative to provide them with computers will encourage use of PC and Internet inside enterprise.	95
17	Percentage of private sector enterprises which believe that an initiative to provide them with computers will encourage use of PC and Internet inside enterprise	85
18	Percentage of staff that use computers within the government establishments	57
19	Percentage of staff that use computers within the private sector enterprises	28
20	Percentage of government establishments which train their staff on computer software continuously	88
21	Percentage of private sector enterprises which train their staff on computer software continuously	47
22	Average annual expenses incurred by the government establishments on hardware, software and maintenance services (JD)	94182
23	Average annual expenses incurred by the private sector enterprises on hardware, software and maintenance services (JD)	9729
24	Percentage of government establishments which believe the possession of computer skills by job seekers is pre-requisite	64

25	Percentage of private sector enterprises which believe the possession of computer skills by job seekers is pre-requisite	50
26	Percentage of government establishments that has positive impact on their work by using PC	100
27	Percentage of private sector enterprises that has positive impact on their work by using PC	90
28	Percentage of government establishments that grant incentive benefits to their employees who have computer skills	40
29	Percentage of private sector enterprises that grant incentive benefits to their employees who have computer skills	23
30	Percentage of government establishments that own Internet lines	98
31	Percentage of private sector enterprises that own Internet lines	74
32	Percentage of computers connected to the Internet in government establishments	73
33	Percentage of computers connected to the Internet in private sector enterprises	74
34	Percentage of government establishments that use VOIP	10
35	Percentage of private sector enterprises that use VOIP	15
36	Percentage of government establishments that have a Web site on the internet	98
37	Percentage of private sector enterprises that have a Web site on the internet	67
38	Percentage of government establishments that host their Web site in Jordan	88
39	Percentage of private sector enterprises that host their Web site in Jordan	62
40	Percentage of government establishments that promote their website	67
41	Percentage of private sector enterprises that promote their website	61

42	Percentage of government establishments that provide services through their website	81
43	Percentage of private sector enterprises that provide services through their website	56
44	Percentage of government establishments that obtain the e-mail service through the Internet	97
45	Percentage of private sector enterprises that obtain the e-mail service through the Internet	94
46	Percentage of government establishments that obtain government services through the Internet	80
47	Percentage of private sector enterprises that obtain government services through the Internet	38
48	Percentage of government establishments whose their stuff use the internet for working from outside their place of work	19
49	Percentage of private sector enterprises whose their stuff use the internet for working from outside their place of work	21
50	Percentage of government establishments that install anti-virus software	98
51	Percentage of private sector enterprises that install anti-virus software	87
52	Percentage of government establishments that own programs for monitoring Internet use by their staff	81
53	Percentage of private sector enterprises that own programs for monitoring Internet use by their staff	41
54	Average monthly expenses incurred on Internet services by government establishments (JD)	1900
55	Average monthly expenses incurred on Internet services by private sector enterprises (JD)	240
56	Percentage of private sector enterprises that use electronic commerce	16
57	Percentage of government establishments that dealt with the e-government	89
58	Percentage of private sector enterprises that dealt with the e-government	31

59	Percentage of government establishments that encourage research and devolvment	83
60	Percentage of private sector enterprises that encourage research and devolvment	53
61	Percentage of government establishments that has allocate research and devolvment budget	47
62	Percentage of private sector enterprises that that has allocate research and devolvment budget	14
63	Percentage of government establishments that believe that spread of PC and Internet encourage research and devolvment	68
64	Percentage of private sector enterprises that believe that spread of PC and Internet encourage research and devolvment	52
65	Percentage of government establishments that employee people of special needs	47
66	Percentage of private sector enterprises that employee people of special needs	8
67	Percentage of government establishments where the employee of special needs use technology	85
68	Percentage of private sector enterprises where the employee of special needs use technology	30
69	Percentage of government establishments which believe that use of technology has created job opportunities of people of special needs	79
70	Percentage of private sector enterprises which believe that use of technology has created job opportunities of people of special needs	53

◆ **B– Information Technology Use at households Survey:–**

◆ **Objectives of the Survey**

The main objectives of the survey:

- Provide up-dated statistical data on information technology use at homes;
- Identify the characteristics of the information technology users;
- Identify the reasons for not using information technology.
- Identify the availability of the IT and communications equipment used by households.

◆ **Comprehensiveness of the survey:-**

Based on the household frame available from the Population and Housing Census 2004. A sample of HHs has been selected and amounted to 3340 households distributed among the different regions in the Kingdom.

◆ **Sample Design :-**

The sample of this survey was designed; using the cluster stratified sampling method. It is representative on the Kingdom, rural, urban, and regions levels. The total sample size was 334 PSUs (clusters). These units were distributed among governorates, urban, and rural.

The sample was selected on two stages, in the first stage; the Primary Sampling Units (PSUs) were selected, using the Probability Proportionate to Size with systematic selection procedure. The number of households, in each primary sampling unit (cluster) served as its weight or size. In the second stage, the blocks of the primary sampling units (cluster) which were selected in the first stage have been updated. Then a constant number of households (10 households) were selected, using the random systematic sampling method as final PSUs from each PSU (cluster).

◆ **Method of data collection :-**

Data was collected from the field by interviewers who visited the selected household in the sample and fill out the questioners in a special interview with the respondent.

◆ **Annual Indicators:-**

These indicators are produced by the Telecommunications Regulatory Commission (TRC) are indicators of quarterly and annual indicators in collaboration with telecommunications companies and Internet providers and others interested in the telecom sector and information technology. Those indicators are: -

- Fixed phone subscribers and penetration rate.
- Mobile phone and Radio Trucking subscribers and penetration rate.
- Internet Users and penetration rate.
- Telecommunications Investment.
- Telecommunications employment.

Abstract:-

1. Due to the limited data available at the Department of Statistics on the information society, the following concluding points are shown below:
2. Limited dissemination of indicators at the national and regional level, due to the small sample size.
3. The produced Indicators for the household sector are comparable internationally and can be compared with indicators for other countries to identify the position of Jordan in the field of information technology.
4. Indicators of enterprises sector need to be developed to be comparable with indicators adopted by international bodies.
5. There is a need to implement separate surveys to measure the information society, and to provide more accurate statistics on the Information Society.

◆ **Recommendations:-**

1. Continue the implementation of household surveys and surveys of economic establishments on information technology and communications on a regular basis, according to international recommendations and standards in order to create time series indicators.
2. Develop and update the indicators on an ongoing basis to match the rapid growth of the information and communications technology sector, in a

manner consistent with indicators being developed by international institutions and organizations in the field of statistics.

- 3.** Raise the level and efficiency of manpower in the field of statistics, information and communication technology in the department in order to obtain data and indicators of high quality.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/13-E
31 August 2012**

English

SOURCE: Kenya National Bureau of Statistics, Kenya

TITLE: Information document

ICT PENETRATION RATES

In researching ICT penetration rates of a country, it is necessary to look at the target population demographic characteristics that facilitate use, access and ownership of the ICT facilities and equipments. As such, ICT surveys should seek information on the general characteristics of the sampled population, including composition by age and sex, household size, education, employment, literacy, disability and source of electricity to households.

Employment and household size in many cases determine the household disposable income which in turn determines whether individuals in households can afford radios, TVs, computers, the internet and other ICTs equipments and facilities. Education contributes to the development of human capacity building for effective use of the ICT facilities, especially the internet. For the development and maintenance of ICT infrastructure it is important to have other infrastructure like electricity, water, road, rail, and air transport systems in place. In particular, electricity is a key driver of ICTs and therefore the survey sought to establish to what extent it affects penetration rates of ICT in the country. Other characteristics like age, sex and disability are important in informing if certain sections of the society are disadvantaged and therefore putting the necessary policies in place to alleviate any social inequalities.

ACCESS, USAGE AND OWNERSHIP OF ICT FACILITIES BY HOUSEHOLDS AND INDIVIDUALS

For many years, ICT has been at the centre stage of economic development, notably through rapid technological advancement, facilitating speedy access of ideas and experiences, and prompt exchange of information. In today's world, access, usage and ownership of ICT are fundamental in linking communities, facilitating businesses and empowering communities socially and economically. Enhancement of access to information and communications services in rural, remote and underserved areas is therefore crucial to accelerating development.

The results of the survey conducted in Kenya recently show that in most cases there is correlation between access and usage on one hand and sex, education, and age on the other.

Among the salient features of the findings is that use and access of ICT equipments and facilities was more widespread among the youth (20 – 34 years).

ICT in Education

Information and Communication technologies (ICTs) - which include radio and television as well as newer digital technologies such as computers and the internet – have been touted as potentially powerful enabling tools for educational change and reform. The positive impact of education on use of electricity is more visible at the attainment of secondary or higher education levels. This leads to better use of the ICT services.

Rogers Mumo Munywoki

Kenya National Bureau of Statistics

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/14-F
31 August 2012**

French

SOURCE: Office Malagasy d'Etudes et de Régulation des Télécommunications, Madagascar

TITLE: Les indicateurs sur le secteur des télécommunications à Madagascar

Les indicateurs sur le secteur des Télécommunications **à Madagascar**

SOURCE : Office Malagasy d'Etudes et de Régulation des Télécommunications

Pour information

I. Introduction :

Les indicateurs sont essentiels à l'efficacité de tout processus de décision. Ce sont des outils d'évaluation et d'aide à la décision grâce auxquels on va pouvoir mesurer une situation. Ils offrent la possibilité à des acteurs différents de dialoguer entre eux. Ils permettent également :

- d'informer ;
- de favoriser l'évolution de l'efficacité des décisions prises en réponse à une question ;
- de mesurer les activités d'une société.

II. Objectifs :

Par la mise en œuvre des dispositions mentionnées dans la réglementation en vigueur, l'Autorité de Régulation se fixe comme objectifs de :

- recueillir les données sur le secteur des télécommunications à Madagascar ;
- analyser les données reçues ;
- évaluer l'impact de l'application des textes réglementaires en vigueur ;
- publier les données ainsi recueillies et traitées par des moyens à large diffusion.

1. Collecte :

A Madagascar, comme dans de nombreux pays, l'Autorité de Régulation des Télécommunications est chargée de la collecte, de la compilation et de la publication des données statistiques sur le secteur des télécommunications. Le traitement de ces données fait partie également de ses missions.

Conformément aux dispositions de la réglementation en vigueur, chaque opérateur de télécommunications doit remettre à l'Autorité de Régulation un rapport annuel sur ses activités à chaque fin d'année d'exercice. Ce rapport annuel doit inclure :

- les données statistiques techniques (nombre d'abonnés ; nombre de localités desservies ; volume de trafic de communication ; etc..... ;

- les états financiers incluant les chiffres d'affaires.

Ces chiffres d'affaires sont hors taxes, comptabilisés et arrêtés au 31 décembre de chaque année d'exercice.

2. Analyse et Compilation :

Après réception de ce rapport annuel, l'Autorité de Régulation compile et traite ces données afin de permettre de :

- savoir l'évolution des indicateurs sur le secteur des télécommunications ;
- déterminer d'autres indicateurs tels que le taux de pénétration et la part du marché de chaque opérateur.
- d'alimenter les bases de données de l'UIT.

L'Autorité de Régulation peut demander des données complémentaires auprès des opérateurs en cas de besoins.

3. Publication :

Pour mener des actions d'informations sur le secteur des télécommunications à Madagascar, l'Autorité de Régulation publie les données ainsi traitées afin de répondre aux besoins d'informations des agents économiques et du grand public. Ces données sont publiées sur son site web et dans son rapport annuel.

III. Conclusion :

Les indicateurs des télécommunications constituent des précieux outils d'informations destinés à informer et à guider les décideurs, les investisseurs, les analystes et les observateurs du paysage des télécommunications. Il faut assurer la disponibilité des informations de l'ensemble du secteur par la publication de ces indicateurs.

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**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/15-E
31 August 2012**

English

SOURCE: Communications Authority, Maldives

TITLE: Measuring fixed & mobile broadband in the Maldives

Measuring Fixed & Mobile Broadband in the Maldives

Zulaikha Ibrahim
Communications Authority of Maldives
August 2012

Measuring Fixed and Mobile Broadband in the Maldives

Introduction

Fixed broadband services are provided by Dhiraagu, (a part Government (48%) , part Cable & Wireless (52%) company, established in 1988) which has a license to provide all telecommunications services in the country and Focus Infocom (a 100% Maldivian company, established in 2003) which provides only internet services. Mobile broadband services is provided by the two mobile operators, Dhiraagu with the Universal license and Wataniya (whose parent company is Qatar Telecom) who is licenced to provide mobile services and more recently international Gateway services.

Maldives with a population of 314,000 scattered on 200 islands spread over 90 sqkm in the Indian Ocean poses an immense challenge to rolling out fixed broadband services in the country. As such, a wireless broadband infrastructure becomes the natural technology choice for broadband roll out to the islands. Although fixed broadband services, primarily ADSL has been available in the capital Male' and other populous islands, the infrastructure cost imposed by the geography of the country has prevented roll out to the majority of islands. Fixed internet service was launched in Maldives in initially through dial-up over the PSTN network later over ISDN lines. This was later upgraded to ADSL services with gradual increase of available speeds from 256kbps to the currently available 10Mbps service. Unfortunately after the most populous 10-15 islands were covered, the economic cost burden of providing fixed services to islands with low populations has prevented the roll out to other islands. This has always been the challenge; provision of broadband services to the less populated islands. Since early 2006 Maldives boasts of two redundant mobile network that run across the country with 99% coverage of all islands, thereby making the the mobile broadband network, as the option of choice for the roll out of broadband services to the islands. Thus the two mobile operators began the task of upgrading their networks to support 3G with the culmination of the introduction of 3G mobile services in January 2008.

Currently Maldives uses the ITU-D definition of 256 kbps to demark the beginning of broadband. But with availability of many broadband products by both operators with much much higher speeds, we need to question whether this truly reflects the broadband service of today in Maldives as well as in other parts of the world.

Current Situation

At the end of 2011, the number of fixed telephone lines in the Maldives stood at 24,084. Although the target to provide access to telephone services by all islands were reached in 1999, on demand residential telephone service is only available on 13 islands including the capital Male'. While the growth of fixed telephones has reduced as in most countries globally, cellular mobile services has increased rapidly with Maldives reaching a mobile penetration of 163% by the end of 2011 and continuing to grow. The number of mobile subscriptions stood at 530,449 of which about 80% are prepaid subscriptions. Mobile broadband subscriptions overtook the number of Fixed broadband

subscriptions in just over an year of introduction with 20,677 fixed broadband subscribers and 55,320 mobile broadband subscribers at end 2011.

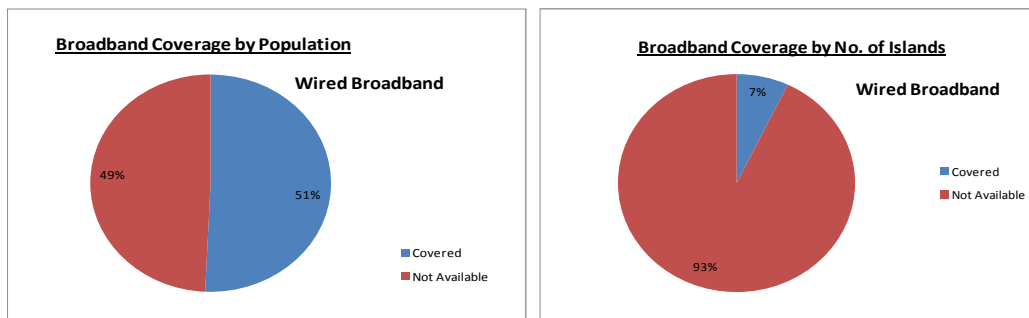
In Maldives, operators do not have to obtain a separate 3G licence to provide 3G services. All mobile operators can provide 3G services as part of their licence. In the same token, users do not have to subscribe to 3G service separately. The availability of 3G depends on the coverage area and the hand set. i.e by default any mobile user has access to 3G services if he/she is in a 3G covered location and is using a 3G enabled device.

When we look at the current situation of broadband coverage across the country, the picture is quite different from a geographic perspective when compared to the population covered by broadband.

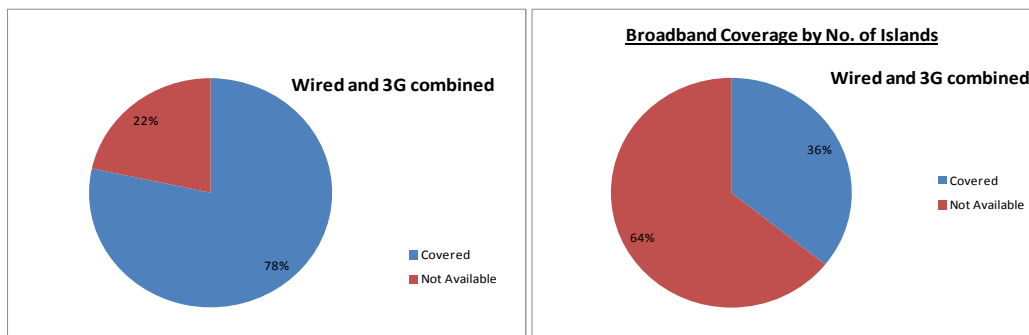
While the access technology for fixed broadband is mostly ADSL with few islands served via cable modems, the majority of wireless broadband uses 3G with few islands served by WiMax Technology. (WiMax roll-out started by Dhiraagu has been discontinued and is being replaced by 3G).

The current Broadband Availability Situation

Wired Broadband



Wireless Broadband



Measuring Broadband

Measuring broadband is an area of great concern to the Communications Authority of Maldives, the telecom regulator. Today it is harder than ever to measure due to the many dimensions concerned. Before deciding how to measure broadband, many questions need to be addressed. How do we compare Fixed and Mobile broadband? Can they be substitutes for each other? How can we compare the various different broadband packages with different speeds and different download capacities? What about unlimited packages. Mobile broadband products available on voice SIMs offer lower capacity at less price in comparison to the dedicated data SIMs for use with dongles and other devices with 3G capabilities such as ipads and other tablets.

Then again, our primary concern is how closely do the available packages deliver the promised speeds. We also do get a lot of customer allegations saying that the quality of service varies depending on the type of use by the customer. For example online voice and video communication services such as skype and viber.

While fixed broadband is more similar across the different packages available, the mobile broadband experience depend more heavily upon the type of access device as well as the package used. There are three types of mobile broadband users. Those who subscribe to mobile broadband on their voice SIM, those who subscribe to dedicated data packages to use with dongles on mobile devices and those who access broadband on their mobile phones at standard rates without subscribing to a particular product. Those packages targeted to be used on mobile phones with the user's regular voice SIM are usually packages of limited speed with 1Mbps being the most common.

Today, with ITU assistance CAM is embarking on a project to measure the Quality of Broadband services in the country. With the many different tools ranging from the commonly available speed testing tools to the more sophisticated tools being used by developed countries CAM is studying what will be most suitable to measure broadband services in the Maldives. We are currently looking at the methodologies used in other regional countries where we have found very successful outcomes of broadband testing as well as other tools provided by regional think tanks. At the least, we will be testing the speeds which is the only substantial parameter that is advertised to customers. The methodologies usually involve downloading a file on servers located locally and globally. The difficult part would be to ensure the consistent server environments as well as size of the files that will be used for downloading... Here again another question arises. What is the right size for the file that will be downloaded for the testing process? Here again different tools use different sizes together with different methodologies...

Conclusion

CAM recognizes that measuring broadband service is very important to the providing a quality user experience to the citizens of Maldives. While we do measure the take-up of services and the growth in 3G and fixed broadband coverage, we are still at an early stage in establishing a framework for the proper measurement of Broadband services. CAM's aim is to establish a broadband monitoring framework and implement a monitoring mechanism by 2013.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

Document INF/16-F
31 August 2012

French

SOURCE: Autorité Malienne de régulation des télécommunications/TIC et des postes, Mali

TITLE: Observatoire des Marchés des Télécommunications et des TIC



Observatoire des Marchés des Télécommunications et des TIC

PRESENTATION

L'observatoire des marchés des télécommunications et des TIC, mis en place par l'Autorité Malienne de Régulation des Télécommunications/TIC et des Postes (AMRTP) ex CRT avec le soutien de la société IDATE, présente les données annuelles (et pour partie trimestrielles) d'évolution détaillée des parcs de clients/abonnés, des trafics, des tarifs, de l'économie des opérateurs de réseaux et services de communications au Mali.

Cet observatoire est constitué :

- d'une base de données consultable sur le site du régulateur,
- de tableaux de bord des marchés de la téléphonie fixe, du mobile, de l'Internet, individuellement et dans leur ensemble, également accessibles et téléchargeables via le site du régulateur.

Base de données

La base de données est organisée en sept (7) thèmes principaux pour la partie "Indicateurs"¹ :

- Développement des réseaux
- Trafic et bande passante
- Tarification
- Diffusion des TIC dans la population
- Economie des TIC
- Benchmark international
- Secteur postal

Cinq (5) thèmes ont pour le moment été renseignés à partir des données collectées par l'AMRTP auprès des opérateurs et de sources externes (pour le sous-ensemble "données macro-économiques" et les données du benchmark international).

Les deux (2) thèmes non renseignés le seront progressivement, à partir d'enquêtes à lancer (diffusion des TIC dans la population) et de données à collecter par l'AMRTP (secteur postal).

Chaque thème est subdivisé en catégories, elles-mêmes matérialisées par un ou plusieurs indicateurs. Pour le développement des réseaux par exemple, chaque catégorie correspond à un type d'accès : téléphonie fixe, mobile, satellite et Internet. La catégorie "téléphonie fixe" est repérée à travers 6 groupes d'indicateurs (voir détail en annexe), certains d'entre eux étant à leur tour scindés

selon différents critères. Ainsi, le nombre d'abonnés au réseau téléphonique fixe est détaillé par opérateur, par technologie d'accès et par type de clientèle.

Les séries commencent en 2001 pour celles qui sont renseignées le plus complètement. Pour les années les plus récentes (à partir de 2009), certains indicateurs sont suivis trimestriellement. C'est le cas par exemple des parcs de clients mobiles.

L'utilisateur est guidé dans sa navigation à travers un menu déroulant, à gauche de l'écran, qui permet de sélectionner le ou les indicateurs recherchés. Une fois la sélection opérée, le tableau de résultat apparaît dans la partie droite de l'écran, sous forme de série(s) annuelle(s). Dès lors que le libellé de l'indicateur dans le tableau est suivi du pictogramme, en cliquant sur un endroit quelconque dans la série, titre ou donnée, on accède à une fenêtre précisant la source de l'information et, le cas échéant, les données trimestrielles.

Au-dessus du tableau de résultat, qui s'affiche immédiatement après chaque requête à partir du menu de gauche, plusieurs modes de restitution ou d'extraction sont proposés. Le mode "Graphiques" affiche toutes les séries demandées sous forme d'histogrammes. Deux modes d'extraction "CSV" et "XML" permettent d'exporter les données dans des tableaux afin de les exploiter ensuite pour des calculs complémentaires, des copies ou des représentations graphiques élaborées. Le mode "Tableau" permet de revenir à la restitution d'origine.

L'ensemble des indicateurs retenus dans l'observatoire est présenté en annexe.

Tableaux de bord

L'observatoire, présenté sous forme d'une base de données, est accompagné de tableaux de bord sur la situation des secteurs télécoms au Mali en général et de chacun des segments téléphonie fixe, mobile et Internet.

Le tableau de bord général est accompagné de commentaires sur les tendances du marché au cours de la période récente. Les tableaux de bord par segment présentent une série de graphiques détaillés sur le parc, la structure concurrentielle et les tarifs le cas échéant.

Quelques exemples de tableaux de bord sont présentés en Annexe 2.

Annexe 1- Liste des indicateurs retenus dans la base "marchés"

Développement des réseaux
Développement du réseau fixe
Nombre d'abonnés au réseau téléphonique fixe
Nombre d'abonnés au réseau téléphonique fixe par opérateur
Nombre d'abonnés au réseau téléphonique fixe de Sotelma (T)
Nombre d'abonnés au réseau téléphonique fixe d'Orange Mali (T)
Nombre d'abonnés au réseau téléphonique fixe par technologie d'accès
Nombre d'abonnés au réseau téléphonique fixe en accès cuivre (T)
Nombre d'abonnés au réseau téléphonique en accès BLR (T)
Nombre d'abonnés au réseau téléphonique fixe en accès fibre (T)
Nombre d'abonnés au réseau téléphonique fixe par clientèle
Nombre d'abonnés résidentiels au réseau téléphonique fixe (T)
Nombre d'abonnés entreprises au réseau téléphonique fixe (T)
Nombre de points publics de téléphonie fixe (T)
Densité téléphonique fixe
Nombre de localités couvertes par le réseau fixe (T)
Nombre d'opérateurs de téléphonie fixe
Nombre de lignes portées
Nombre de lignes portées "entrant"
Nombre de lignes portées "sortant"
Développement du réseau mobile
Nombre de clients à un réseau de téléphonie mobile
Nombre de clients à un réseau de téléphonie mobile par opérateur
Nombre de clients au réseau de téléphonie mobile de Malitel (T)
Nombre de clients au réseau de téléphonie mobile d'Orange Mali (T)
Nombre de clients à un réseau mobile par type de contrat
Nombre de clients prépayés à un réseau mobile
Nombre de clients prépayés de Malitel (T)
Nombre de clients prépayés d'Orange Mali (T)
Nombre de clients postpayés à un réseau mobile
Nombre de clients postpayés de Malitel (T)
Nombre de clients postpayés d'Orange Mali (T)
Nombre de clients à un réseau mobile haut débit
Densité téléphonique mobile
Nombre de localités couvertes par le réseau mobile
Nombre de localités couvertes par le réseau mobile par opérateur
Nombre de localités couvertes par le réseau mobile de Malitel (T)
Nombre de localités couvertes par le réseau mobile d'Orange Mali (T)
Développement des réseaux fixe et mobile
Densité téléphonique fixe et mobile
Développement des réseaux d'accès par satellite
Nombre d'utilisateurs d'accès satellite par opérateur
Nombre d'utilisateurs VSAT
Nombre d'utilisateurs ARABSAT
Nombre d'utilisateurs INTELSAT
Nombre d'utilisateurs INMARSAT
Développement des réseaux d'accès internet
Nombre de FAI actifs au Mali
Nombre d'abonnés internet
Nombre d'abonnés internet bas débit
Nombre d'abonnés internet haut débit
Nombre d'abonnés internet haut débit par accès ADSL

Nombre d'abonnés internet haut débit par accès BLR
Nombre d'abonnés internet haut débit par accès fibre
Densité d'abonnés internet
Densité d'abonnés internet bas débit
Densité d'abonnés internet haut débit
Nombre de points d'accès publics et privés à internet
Nombre de noms de domaines .ml
Nombre de localités connectées à internet
Nombre de localités connectées à internet bas débit
Nombre de localités connectées à internet haut débit
Nombre de localités connectées à internet haut débit par ADSL
Nombre de localités connectées à internet haut débit par BLR
Nombre de localités connectées à internet haut débit par fibre
Nombre de lignes ADSL dégroupées
Trafic et bande passante
Trafic à partir d'un réseau fixe
Trafic par destination
Trafic vers un numéro fixe domestique
Trafic vers un numéro mobile domestique
Trafic vers un numéro international
Trafic fixe moyen par abonné
Trafic à partir d'un réseau mobile
Trafic de voix à partir d'un réseau mobile
Trafic de voix à partir d'un réseau mobile par destination
Trafic voix mobile on-net
Trafic voix mobile on-net de Malitel
Trafic voix mobile on-net d'Orange Mali
Trafic voix mobile off-net
Trafic voix mobile off-net de Malitel
Trafic voix mobile off-net d'Orange Mali
Trafic voix mobile vers un numéro fixe domestique
Trafic voix mobile vers un numéro fixe domestique de Malitel
Trafic voix mobile vers un numéro fixe domestique d'Orange Mali
Trafic voix mobile vers un numéro international
Trafic voix mobile vers un numéro international de Malitel
Trafic voix mobile vers un numéro international d'Orange Mali
Trafic voix mobile moyen par client
Trafic SMS/MMS
Trafic SMS/MMS par destination
Trafic SMS/MMS on-net
Trafic SMS/MMS on-net de Malitel
Trafic SMS/MMS on-net d'Orange Mali
Trafic SMS/MMS off-net
Trafic SMS/MMS off-net de Malitel
Trafic SMS/MMS off-net d'Orange Mali
Trafic SMS/MMS international
Trafic SMS/MMS international de Malitel
Trafic SMS/MMS international d'Orange Mali
Trafic SMS/MMS moyen par client
Trafic de données sur réseau mobile
Bande passante internet
Bande passante internet par opérateur
Bande passante internet de Sotelma
Bande passante internet d'Orange Mali
Bande passante internet moyenne par abonné

Tarification	
Tarification fixe	
Prix communication fixe à fixe domestique	
Prix communication fixe à fixe locale de Sotelma	
Prix communication fixe à fixe locale d'Orange Mali	
Prix communication fixe à fixe interurbaine domestique de Sotelma	
Prix communication fixe à fixe interurbaine domestique d'Orange Mali	
Prix communication fixe à mobile domestique	
Prix communication fixe à mobile domestique de Sotelma	
Prix communication fixe Orange Mali vers mobile Orange Mali	
Prix communication fixe Orange Mali vers mobile tiers	
Prix communication fixe vers international	
Prix communication fixe vers pays CEDEAO de Sotelma	
Prix communication fixe vers pays CEDEAO d'Orange Mali	
Prix communication fixe vers Europe de Sotelma	
Prix communication fixe vers Europe d'Orange Mali	
Tarification mobile	
Prix communication mobile à fixe domestique	
Prix communication mobile à fixe domestique de Malitel vers Sotelma	
Prix communication mobile à fixe domestique d'Orange Mali vers Orange Mali	
Prix communication mobile à fixe domestique de Malitel vers Orange Mali	
Prix communication mobile à fixe domestique d'Orange Mali vers Malitel	
Prix communication mobile à mobile domestique	
Prix communication on-net de Malitel	
Prix communication on-net d'Orange Mali	
Prix communication off-net de Malitel	
Prix communication off-net d'Orange Mali	
Prix communication mobile vers international	
Prix communication mobile vers pays CEDEAO de Malitel	
Prix communication mobile vers pays CEDEAO d'Orange Mali	
Prix communication mobile vers Europe de Malitel	
Prix communication mobile vers Europe d'Orange Mali	
Prix SMS	
Prix du SMS on-net de Malitel	
Prix du SMS on-net d'Orange Mali	
Prix du SMS off-net de Malitel	
Prix du SMS off-net d'Orange Mali	
Prix du SMS international de Malitel	
Prix du SMS international d'Orange Mali	
Tarification internet	
Prix internet bas débit	
Prix internet bas débit de Sotelma	
Prix internet bas débit d'Orange Mali	
Prix internet haut débit	
Prix internet haut débit de Sotelma	
Prix internet haut débit d'Orange Mali	
Prix internet haut débit d'Afribone	
Prix internet haut débit de CEFID Internet Mali	
Prix d'interconnexion (marché de gros)	
Terminaison d'appel sur réseau fixe local	
Terminaison d'appel sur réseau fixe national	
Terminaison d'appel sur réseau mobile	

D	Secteur postal
D.a	Nombre de bureaux de poste
D.b	Trafic national
D.b.1	Nombre de lettres ou paquets acheminés
D.b.2	Nombre de colis postaux acheminés
D.b.3	Nombre de courriers express acheminés
D.b.4	Nombre de mandats (locaux papier)
D.b.5	Nombre de mandats électroniques
D.b.6	Nombre de boîtes postales occupées
D.c	Trafic international (export-import)
D.c.1	Nombre de lettres ou paquets acheminés
D.c.2	Nombre de colis postaux acheminés
D.c.3	Nombre de courriers express acheminés
D.c.4	Nombre de mandats (locaux papier)
D.c.5	Nombre de mandats électroniques
D.d	Tarifification
D.d.1	Tarifs des boîtes postales
D.d.2	Tarifs des lettres ou paquets (ordinaires ou recommandés)
D.d.3	Tarifs des courriers express (nationaux ou internationaux)
D.d.4	Tarifs des mandats (papier)
D.d.5	Tarifs des mandats électroniques
E	Diffusion des TIC dans la population N
E.a	Radio-télévision
E.a.1	Proportion des ménages disposant d'un poste radio
E.a.2	Proportion des ménages disposant d'un poste de télévision
E.a.3	Proportion des ménages disposant d'une parabole de réception TV par satellite
E.a.4	Proportion des ménages pouvant recevoir la télévision numérique
E.b	Téléphone fixe
E.b.1	Proportion des ménages disposant d'une ligne de téléphonie fixe
E.b.2	Qualité de service perçue du réseau fixe
E.c	Téléphonie mobile
E.c.1	Proportion des ménages disposant d'un téléphone mobile
E.c.2	Proportion des individus disposant d'un téléphone mobile
E.c.3	Usages du téléphone mobile
E.c.3.1	Proportion des utilisateurs mobiles pour un usage voix
E.c.3.2	Proportion des utilisateurs mobiles pour un usage SMS/MMS
E.c.3.3	Proportion des utilisateurs mobiles pour un usage accès internet
E.c.4	Qualité de service perçue du réseau mobile
E.d	Informatique
E.d.1	Proportion des ménages disposant d'un ordinateur
E.d.2	Proportion des individus utilisant un ordinateur
E.e	Internet
E.e.1	Proportion des ménages disposant d'un accès internet à domicile
E.e.2	Proportion des ménages disposant d'un accès internet haut débit à domicile
E.e.3	Proportion des individus utilisant internet
E.e.4	Lieux de connexion à internet
E.e.4.1	Proportion des internautes utilisant internet à domicile
E.e.4.2	Proportion des internautes utilisant internet au travail
E.e.4.3	Proportion des internautes utilisant internet dans un lieu public (cybercafé...)
E.e.4.4	Proportion des internautes utilisant internet chez des amis, voisins...
E.e.5	Fréquence d'utilisation d'internet
E.e.5.1	Proportion des internautes utilisant internet plusieurs fois par jour
E.e.5.2	Proportion des internautes utilisant internet une fois par jour
E.e.5.3	Proportion des internautes utilisant internet une fois par semaine
E.e.5.4	Proportion des internautes utilisant internet une fois par mois

E.e.6	Usages d'internet
E.e.6.1	Proportion des internautes utilisant internet pour rechercher des informations
E.e.6.2	Proportion des internautes utilisant internet pour envoyer et recevoir des messages
E.e.6.3	Proportion des internautes utilisant internet pour échanger en messagerie instantanée
E.e.6.4	Proportion des internautes utilisant internet pour acheter en ligne
E.e.6.5	Proportion des internautes utilisant internet pour gérer ses opérations bancaires
E.e.6.6	Proportion des internautes utilisant internet pour suivre des cours à distance
E.e.6.7	Proportion des internautes utilisant internet pour gérer ses opérations administratives
F	Economie des TIC
F.a	Données macro-économiques
F.a.1	Population
F.a.2	Foyers
F.a.3	PIB
F.b	Revenus des services de télécommunications
F.b.1	Revenus par service
F.b.1.1	Revenus des services de télécommunications de gros
F.b.1.1.1	Revenus des accès d'interconnexion (T)
F.b.1.1.2	Revenus du trafic d'interconnexion
F.b.1.1.2.1	Revenus du trafic d'interconnexion sortant (T)
F.b.1.1.2.2	Revenus du trafic d'interconnexion entrant (T)
F.b.1.1.3	Revenus d'accès et de location de capacité pour les FAI (T)
F.b.1.2	Revenus des services de télécommunications de détail
F.b.1.2.1	Revenus des services de téléphonie fixe
F.b.1.2.1.1	Revenus des abonnements à la téléphonie fixe (T)
F.b.1.2.1.2	Revenus du trafic téléphonique fixe
F.b.1.2.1.2.1	Revenus abonnés du trafic téléphonique fixe local (T)
F.b.1.2.1.2.2	Revenus abonnés du trafic téléphonique fixe interurbain domestique (T)
F.b.1.2.1.2.3	Revenus abonnés du trafic téléphonique fixe vers mobile (T)
F.b.1.2.1.2.4	Revenus abonnés du trafic téléphonique fixe international (T)
F.b.1.2.1.2.5	Revenus des taxiphones (T)
F.b.1.2.2	Revenus des services mobiles
F.b.1.2.2.1	Revenus des services sur réseaux cellulaires
F.b.1.2.2.1.1	Revenus du trafic voix mobile (T)
F.b.1.2.2.1.2	Revenus des SMS/MMS (T)
F.b.1.2.2.1.3	Revenus des services données mobiles (T)
F.b.1.2.2.2	Autres revenus des services mobiles
F.b.1.2.3	Revenus des services d'accès internet
F.b.1.2.3.1	Revenus des services d'accès internet bas débit (T)
F.b.1.2.3.2	Revenus des services d'accès internet haut débit (T)
F.b.1.2.4	Revenus des services à valeur ajoutée
F.b.1.2.4.1	Revenus des appels vers des numéros spéciaux fixes (T)
F.b.1.2.4.2	Revenus des appels vers des numéros spéciaux mobiles (T)
F.b.1.2.5	Revenus du transport de données
F.b.1.2.5.1	Revenus des liaisons louées entreprises (T)
F.b.1.2.5.2	Revenus des services dédiés de transport données entreprises (T)
F.b.1.2.6	Autres revenus
F.b.1.2.6.1	Revenus de vente et location de terminaux (T)
F.b.1.2.6.2	Revenus de l'hébergement et des centres d'appels (T)
F.b.2	Revenus par réseau
F.b.2.1	Revenus du réseau fixe
F.b.2.2	Revenus du réseau mobile

F.b.3	Revenus par opérateur
F.b.3.1	Revenus de Sotelma
F.b.3.2	Revenus d'Orange Mali
F.c	Investissements des opérateurs
F.c.1	Investissements de Sotelma (T)
F.c.2	Investissements d'Orange Mali (T)
F.c.3	Investissements des autres opérateurs (T)
F.d	Effectifs des opérateurs
F.d.1	Effectifs de Sotelma (T)
F.d.2	Effectifs d'Orange Mali (T)
F.d.3	Effectifs des autres opérateurs (T)
G	Benchmark international
G.a	Densité téléphonique fixe
G.a.1	Pays de la sous-région
G.a.1.1	Densité téléphonique fixe au Mali
G.a.1.2	Densité téléphonique fixe au Burkina Faso
G.a.1.3	Densité téléphonique fixe en Côte d'Ivoire
G.a.1.4	Densité téléphonique fixe au Niger
G.a.1.5	Densité téléphonique fixe au Sénégal
G.a.2	Autres pays d'Afrique
G.a.2.1	Densité téléphonique fixe en Afrique du Sud
G.a.2.2	Densité téléphonique fixe en Egypte
G.a.2.3	Densité téléphonique fixe au Maroc
G.a.2.4	Densité téléphonique fixe en Tunisie
G.a.3	Economies avancées
G.a.3.1	Densité téléphonique fixe en France
G.a.3.2	Densité téléphonique fixe au Royaume-Uni
G.a.3.3	Densité téléphonique fixe aux Etats-Unis
G.a.3.4	Densité téléphonique fixe au Japon
G.b	Densité téléphonique mobile
G.b.1	Pays de la sous-région
G.b.1.1	Densité téléphonique mobile au Mali
G.b.1.2	Densité téléphonique mobile au Burkina Faso
G.b.1.3	Densité téléphonique mobile en Côte d'Ivoire
G.b.1.4	Densité téléphonique mobile au Niger
G.b.1.5	Densité téléphonique mobile au Sénégal
G.b.2	Autres pays d'Afrique
G.b.2.1	Densité téléphonique mobile en Afrique du Sud
G.b.2.2	Densité téléphonique mobile en Egypte
G.b.2.3	Densité téléphonique mobile au Maroc
G.b.2.4	Densité téléphonique mobile en Tunisie
G.b.3	Economies avancées
G.b.3.1	Densité téléphonique mobile en France
G.b.3.2	Densité téléphonique mobile au Royaume-Uni
G.b.3.3	Densité téléphonique mobile aux Etats-Unis
G.b.3.4	Densité téléphonique mobile au Japon
G.c	Densité internet haut débit
G.c.1	Pays de la sous-région
G.c.1.1	Densité internet haut débit au Mali
G.c.1.2	Densité internet haut débit au Burkina Faso
G.c.1.3	Densité internet haut débit en Côte d'Ivoire
G.c.1.4	Densité internet haut débit au Niger
G.c.1.5	Densité internet haut débit au Sénégal

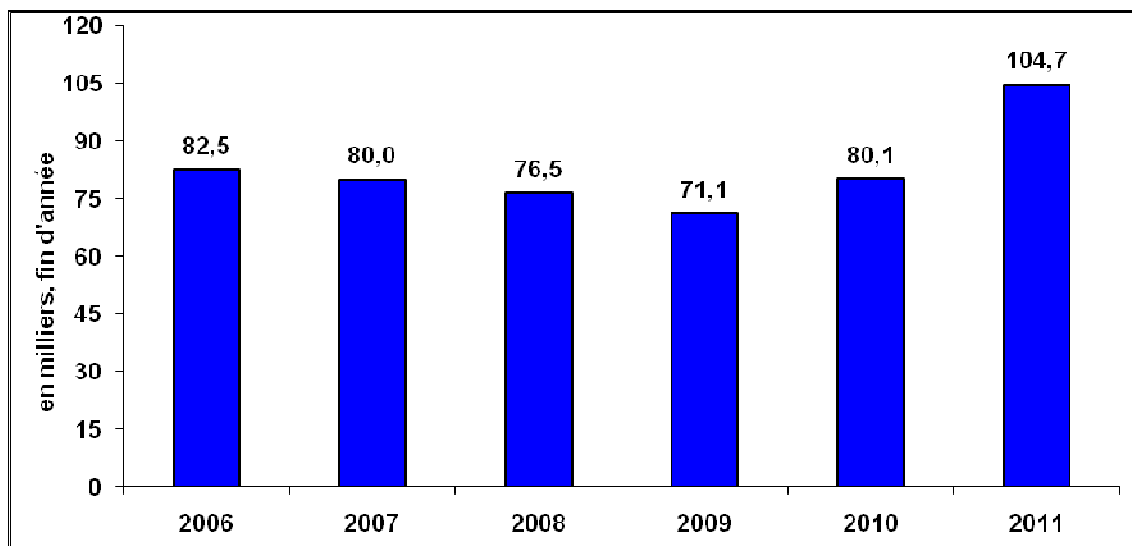
G.c.2	Autres pays d'Afrique
G.c.2.1	Densité internet haut débit en Afrique du Sud
G.c.2.2	Densité internet haut débit en Egypte
G.c.2.3	Densité internet haut débit au Maroc
G.c.2.4	Densité internet haut débit en Tunisie
G.c.3	Economies avancées
G.c.3.1	Densité internet haut débit en France
G.c.3.2	Densité internet haut débit au Royaume-Uni
G.c.3.3	Densité internet haut débit aux Etats-Unis
G.c.3.4	Densité internet haut débit au Japon

Note : le symbole T accolé entre parenthèses après l'intitulé d'un indicateur signifie que celui-ci est prévu d'être décliné par trimestre

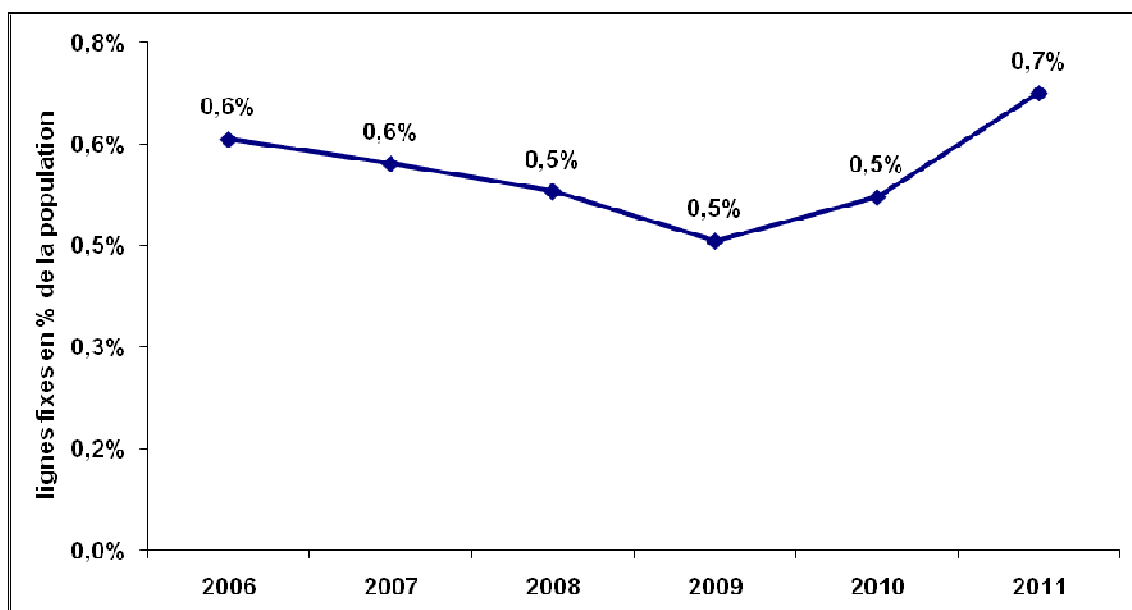
Annexe 2- Quelques tableaux de bord

A. TABLEAU DE BORD DE LA TELEPHONIE FIXE AU MALI A FIN 2011

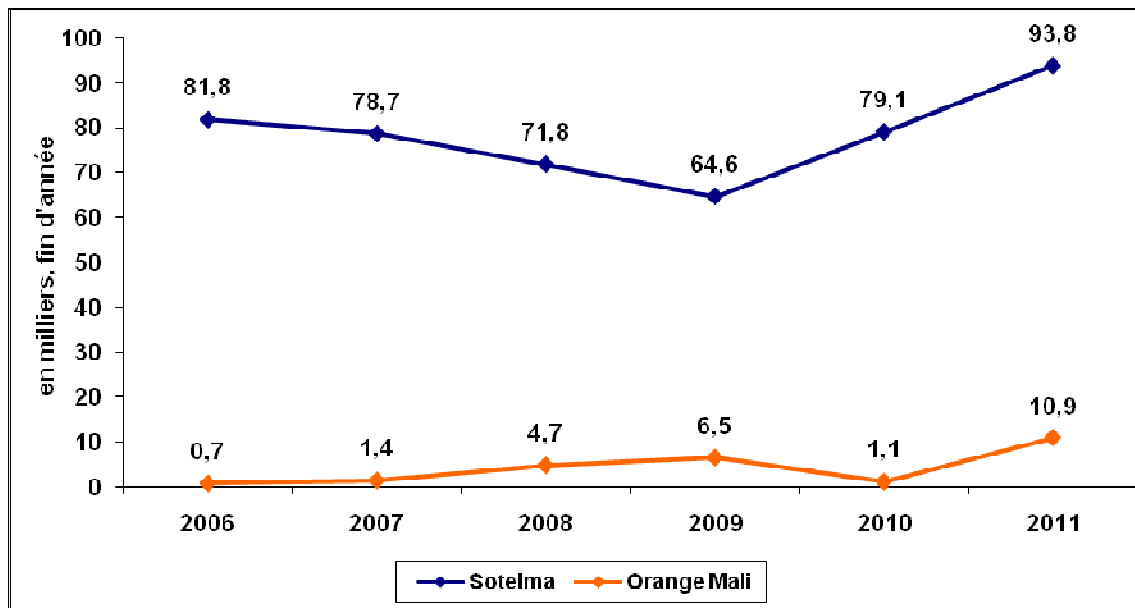
Evolution du parc global de la téléphonie fixe



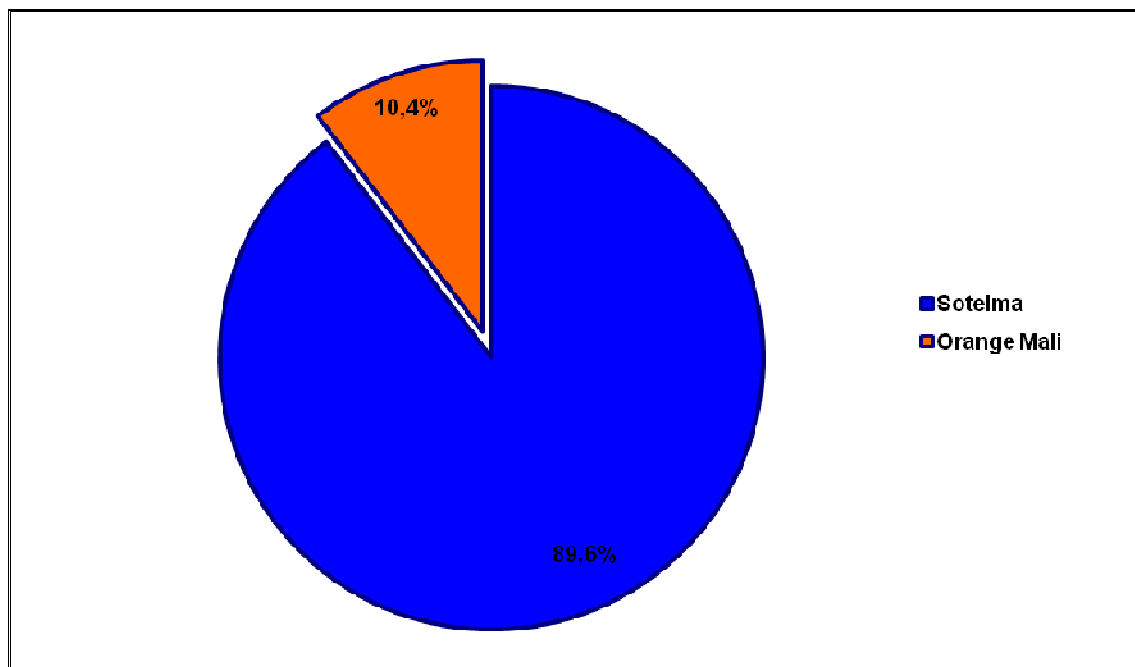
Evolution du taux de pénétration



Evolution du parc de la téléphonie fixe par opérateur



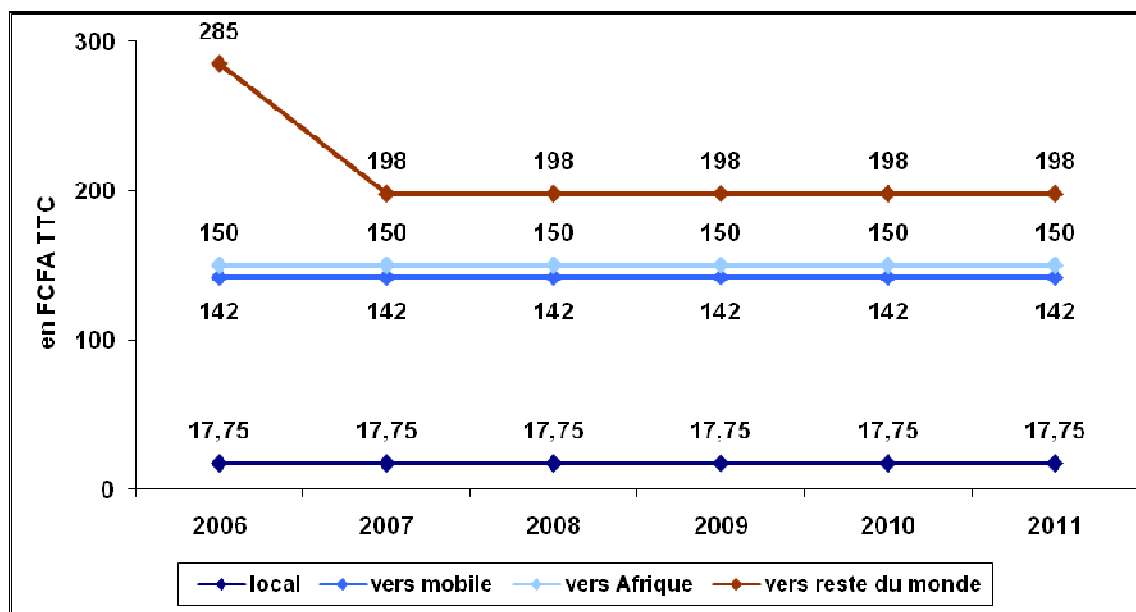
Parts de marché à fin 2010



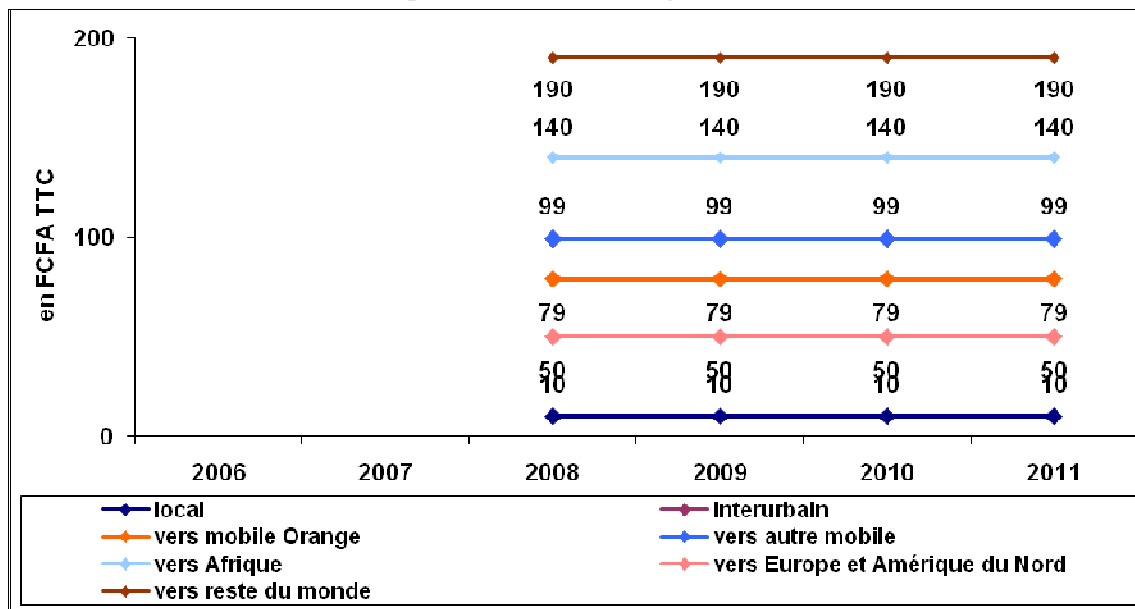
Evolution de la croissance annuelle

Marché du téléphone fixe (en milliers d'abonnés)	2006	2007	2008	2009	2010	2011
Croissance nette	6,6	-2,5	-3,5	-5,5	9,1	24,548
Croissance en %	+8,7%	-3,0%	-4,3%	-7,2%	+12,8%	30,6%

Evolution des tarifs de la téléphonie fixe de la Sotelma



Evolution des tarifs de la téléphonie fixe d'Orange Mali

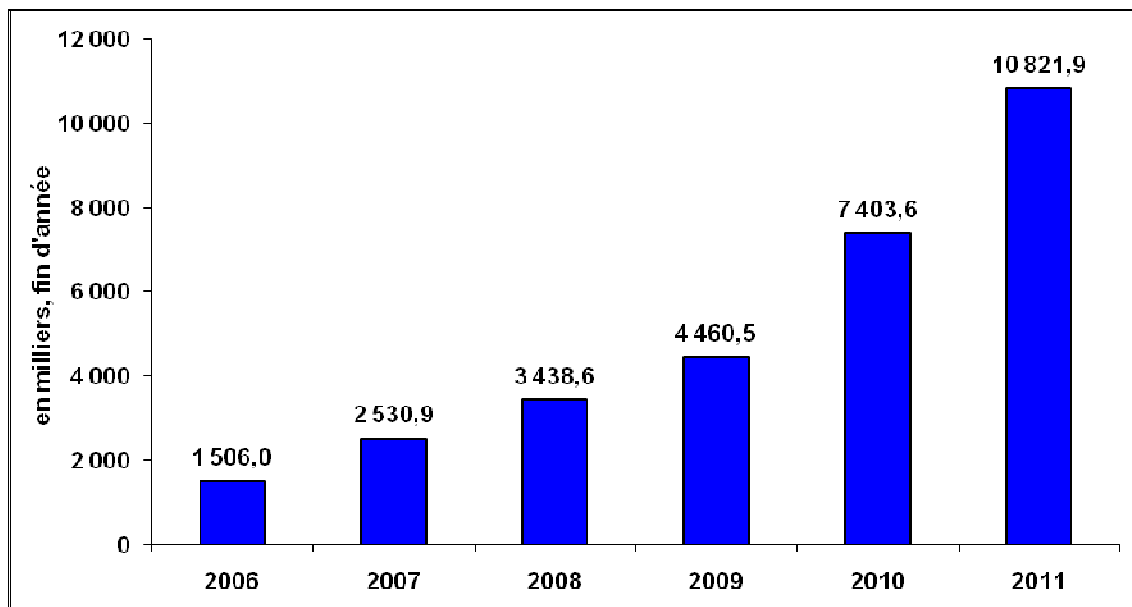


Notes :

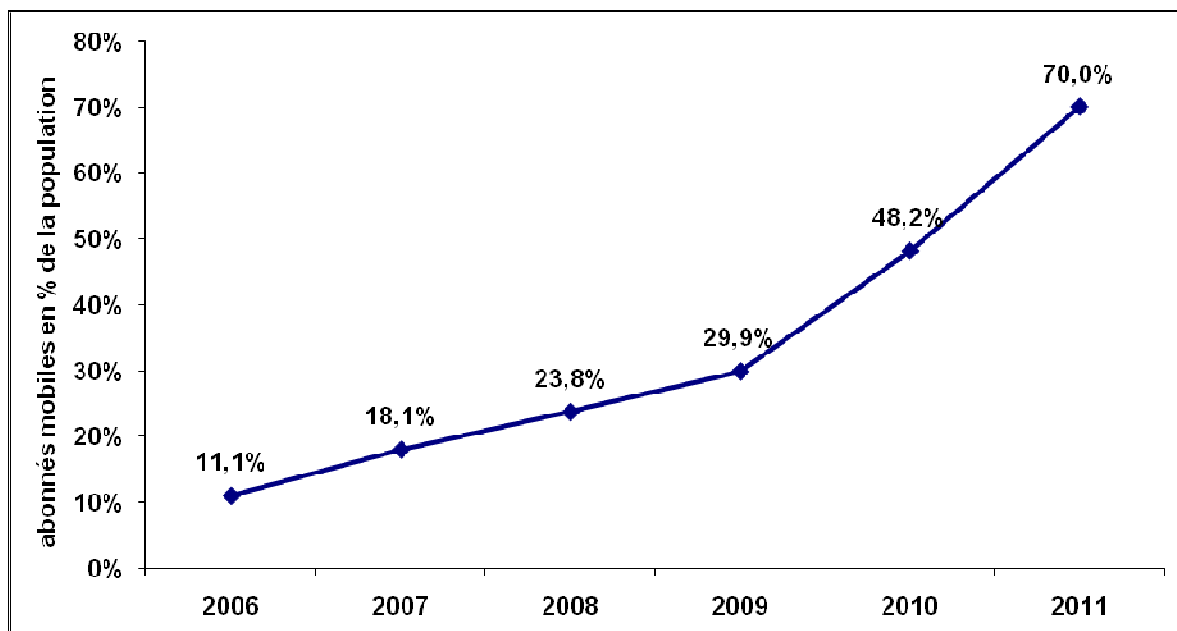
- les tarifs des appels fixes interurbains et vers les mobiles Malitel (autre mobile) sont identiques

B. TABLEAU DE BORD DU MOBILE AU MALI A FIN 2011

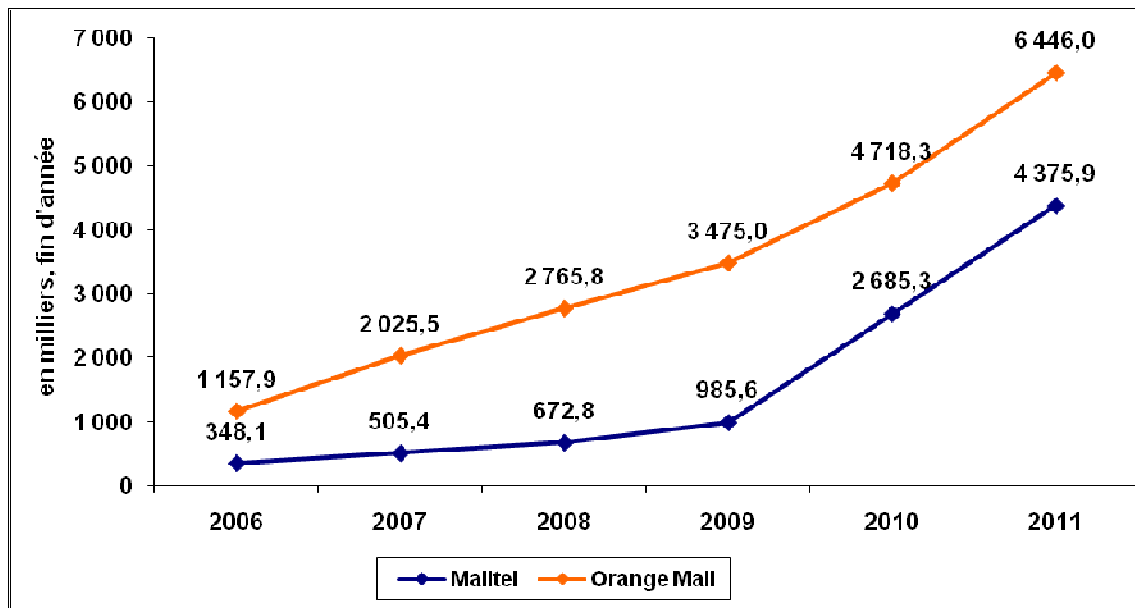
Evolution du parc global de la téléphonie mobile



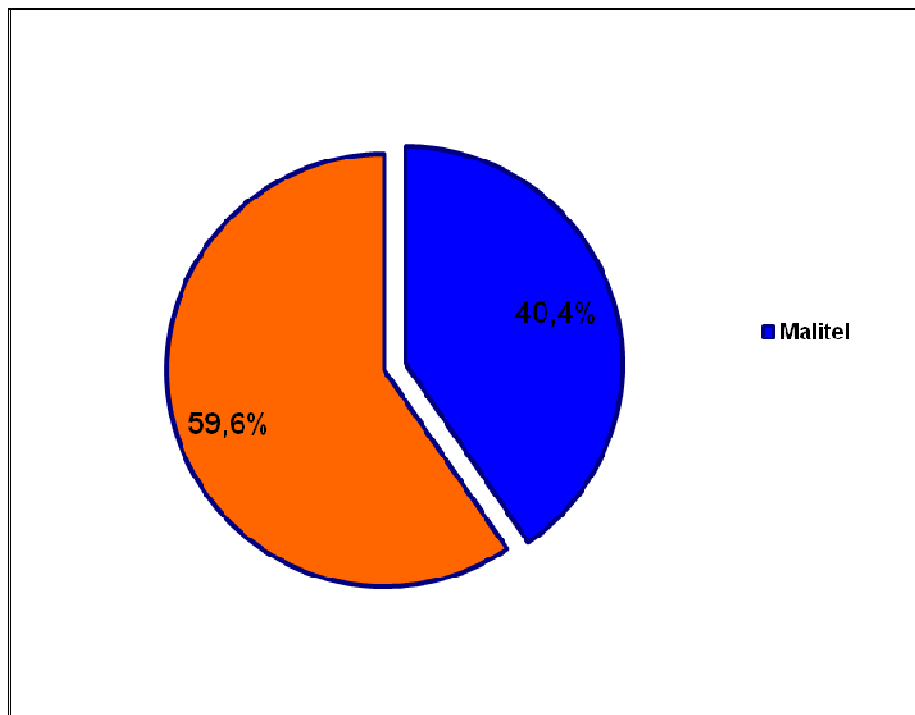
Evolution du taux de pénétration



Evolution du parc de la téléphonie mobile par opérateur



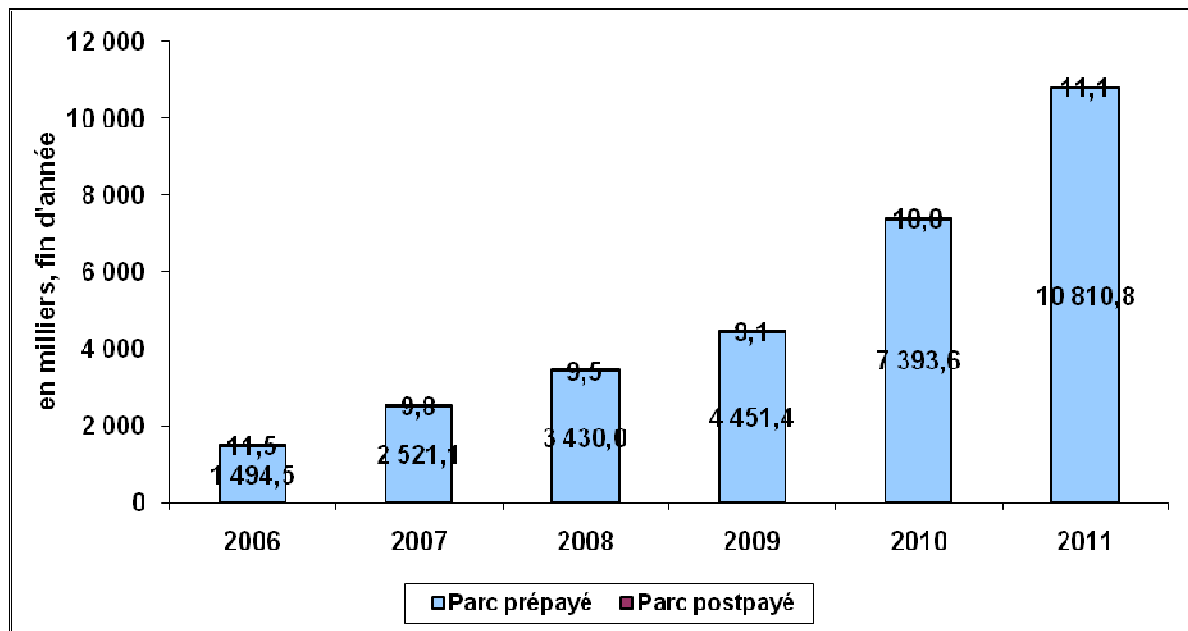
Parts de marché à fin 2011



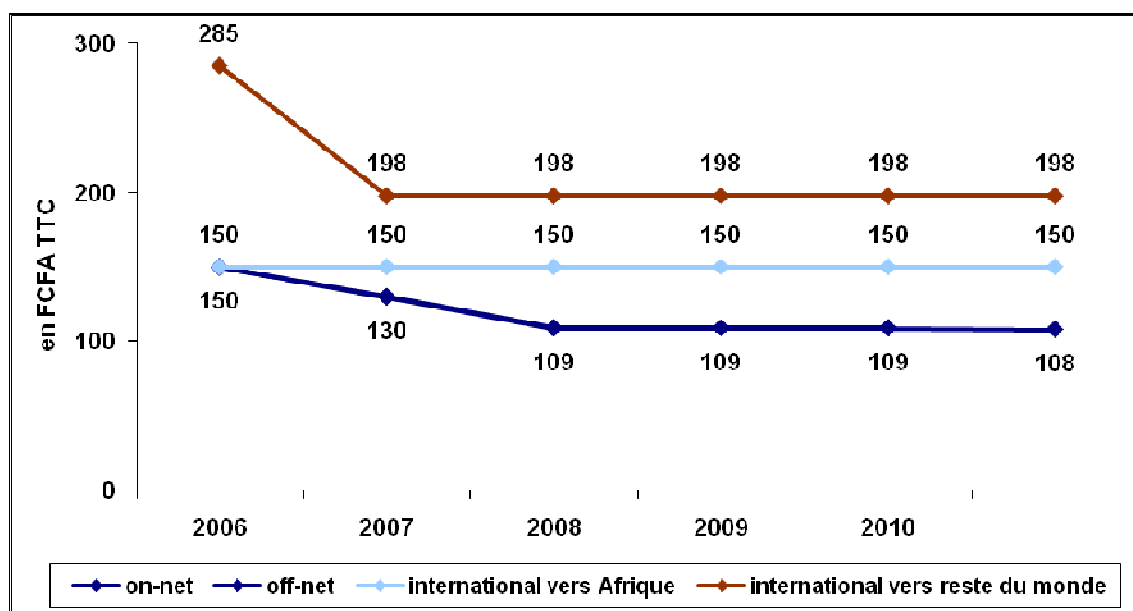
Evolution de la croissance annuelle

Marché du mobile (en milliers d'abonnés)	2006	2007	2008	2009	2010	2011
Croissance nette	744,009	1024,89	907,683	1021,975	2943,033	3418,354
Croissance en %	97,6%	68,1%	35,9%	29,7%	66,0%	46,2%

Répartition prépayé/postpayé



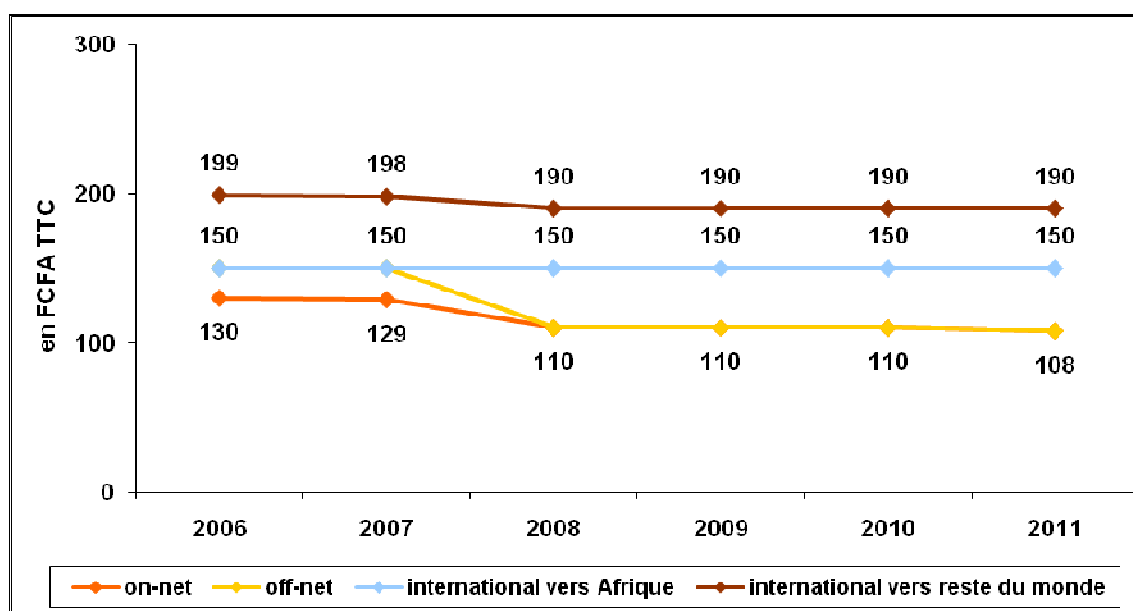
Evolution des tarifs de la téléphonie mobile de la Sotelma



Notes :

- les tarifs sont ceux de l'offre prépayée Waatibè
- les tarifs on-net et off-net sont identiques

Evolution des tarifs de la téléphonie mobile d'Orange Mali



**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/17-F
31 August 2012**

French

SOURCE: Autorité Malienne de régulation des télécommunications/TIC et des postes, Mali

TITLE: Mesure de l'accès aux réseaux large bande, fixes et mobiles, y compris sous l'angle du prix, du débit et de la capacité

Mesure de l'accès aux réseaux large bande, fixes et mobiles, y compris sous l'angle du prix, du débit et de la capacité

I. Internet fixe

29 360 abonnés à l'Internet fixe à plus de 90% en accès WLL à fin 2011

Le parc Internet fixe (connexions à 256 kbps et au-delà) a été évalué en 2011 à **29 360** clients contre **24 353** en 2010. Le parc est en progression de 21% à fin 2011 et concentré aux deux tiers sur le marché professionnel. C'est un marché en émergence qui repose principalement sur la technologie d'accès WLL.

La technologie ADSL au cours de l'année 2011 a augmenté de 2% seulement (2 367 clients contre 2 314 en 2010).

I.1. Réseau ADSL : Souscription et abonnement

Souscription (256 Kbits/s à 4 Mbits/s)

- Pour un client existant : 14 900 FCFA
- Pour un client nouveau : 24 900 FCFA

Abonnement mensuel

- 256 Kbits/s : 19 000 FCFA
- 512 Kbits/s : 35 000 FCFA
- 1 Mbits/s : 90 000 FCFA
- 2 Mbits/ : 160 000 FCFA
- 4 Mbits/s : 280 000 FCFA

I.2. Réseau Wireless Local Loop

Le réseau WLL donne la possibilité aux clients d'être facturer de deux manière : en pospaid ou en prépaid.

1. Client pospaid

Souscription (256 Kbits/s)

- Client (souscription de 1 ou 3 mois) : 49 000 FCFA
- Client avec souscription de 12 mois : gratuit

Abonnement mensuel (256 Kbits/s)

- 1 mois : 33 000 FCFA
- 3 mois : 30 000 FCFA/mois
- 6 mois : 25 000 FCFA/mois
- 12 mois : 22 500 FCFA/mois

Souscription (384 Kbits/s)

- Client (souscription de 1 ou 3 mois) : 49 000 FCFA
- Client avec souscription de 12 mois : gratuit

Abonnement mensuel (384 Kbits/s)

- 1 mois : 36 000 FCFA
- 3 mois : 33 000 FCFA/mois
- 6 mois : 30 000 FCFA/mois
- 12 mois : 27 000 FCFA/mois

-

2. Client prépayé

Débit : 256 Kbits/s

Quantité de données

- 5 Mégaoctet : 200 FCFA
- 20 Mégaoctet : 500 FCFA
- 50 Mégaoctet : 1 000 FCFA
- 500 Mégaoctet : 4 700 FCFA
- 1 Gigaoctet : 7 500 FCFA
- 2 Gigaoctet : 13 500 FCFA
- 3 Gigaoctet : 20 000 FCFA

II. Internet Mobile

1. Clés Internet mobile

30 217 clés Internet à fin 2011

L'accès Internet par clé se développe également sur le réseau malien, avec 30 217 clés actives en 2011 contre **11 601** clés internet en 2010.

Le débit proposé par les opérateurs est de 256 Kbits/s.

La clé se vend à partir de 15 000 FCFA environ. Chaque opérateur dispose de cartes de recharge allant de 1000 FCFA à 20 000 FCFA. Pour se connecter il suffit juste de recharger son compte de données en suivant la procédure.

Débit : 256 Kbits/s

Quantité de données

- 5 Mégaoctet : 200 FCFA
- 20 Mégaoctet : 500 FCFA
- 50 Mégaoctet : 1 000 FCFA
- 500 Mégaoctet : 4 700 FCFA
- 1 Gigaoctet : 7 500 FCFA
- 2 Gigaoctet : 13 500 FCFA
- 3 Gigaoctet : 20 000 FCFA

2. Internet sur téléphone mobile

27 087 clients 3G et 668 160 clients GPRS/EDGE en fin 2011

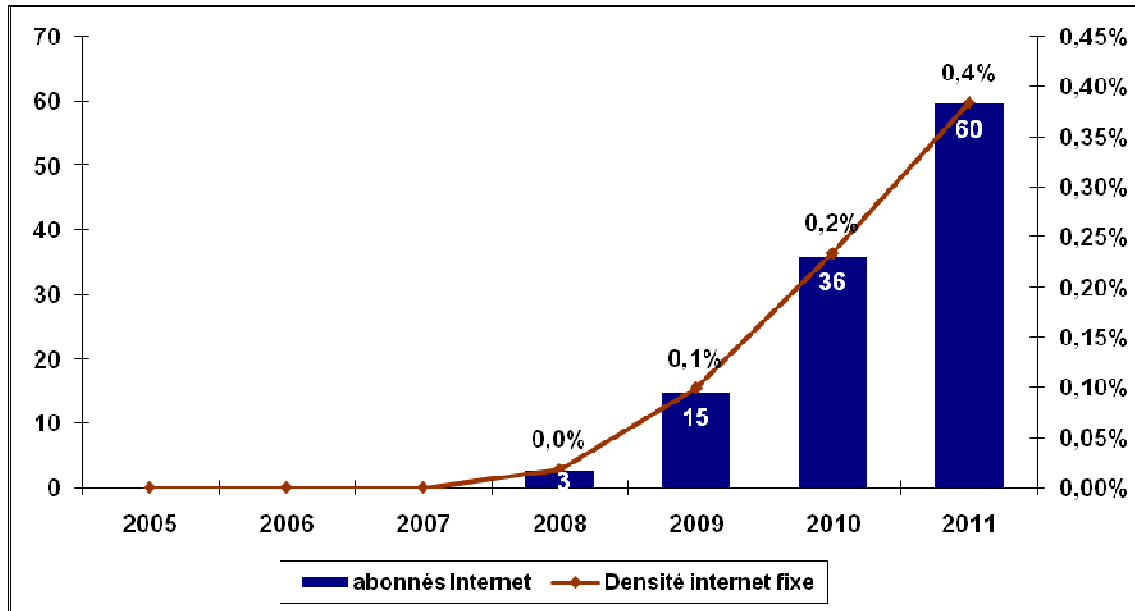
Le parc internet téléphonie mobile du Mali comprend : 27 087 clients 3G et 668 160 clients GPRS/EDGE en 2011. Jusqu'en fin 2011 ce parc internet téléphonie mobile est exclusivement détenu par un seul opérateur.

Débit : 256 Kbits/s

Quantité de données

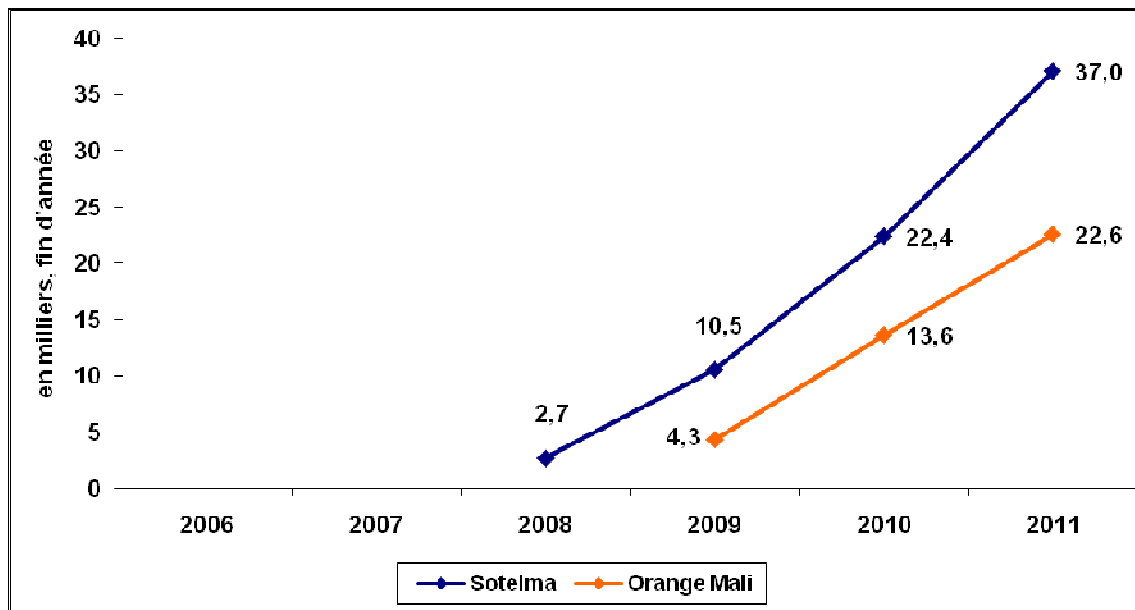
- 5 Mégaoctet : 200 FCFA
- 20 Mégaoctet : 500 FCFA
- 50 Mégaoctet : 1 000 FCFA
- 500 Mégaoctet : 4 700 FCFA
- 1 Gigaoctet : 7 500 FCFA
- 2 Gigaoctet : 13 500 FCFA
- 3 Gigaoctet : 20 000 FCFA

Evolution du parc Internet et du taux de pénétration



Note : - inclut les accès ADSL, WLL et clés Internet (hors accès commutés et liaisons louées)

Evolution des parcs d'abonnés Internet de la SOTELMA SA et d'Orange Mali SA



**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/18-S
31 August 2012**

Spanish

SOURCE: Instituto Nacional de Estadística y Geografía, México

TITLE: Alcances y limitaciones de la medición del acceso y uso de las TIC en los hogares y por los individuos en México

Alcances y limitaciones de la medición del acceso y uso de las TIC en los hogares y por los individuos en México

Bangkok
septiembre, 2012

Índice

- **Objetivo**
- **Introducción**
- **Aspectos metodológicos del MODUTIH**
- **Definiciones conceptuales básicas**
- **Algunos resultados**
- **Logros y limitaciones**
- **Conclusiones**
- **Propuestas**

Objetivo

Presentar la caracterización de la medición del acceso de los hogares a las TIC y de su uso por los individuos en México, así como los alcances, limitaciones y retos de esta medición.

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Introducción

- En los últimos años, la población en México ha experimentado un aumento en el uso e incorporación de las tecnologías de la información y comunicaciones (TIC) en sus actividades. Para cuantificar este fenómeno, el INEGI ha realizado levantamientos anuales de información durante los últimos 10 años, a través de un módulo anexo a una encuesta en hogares denominado Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH).
- Los indicadores básicos que genera el MODUTIH concuerdan de manera básica con los propuestos por la Asociación para la Medición de TIC para el Desarrollo (Partnership), respondiendo así al llamado de unificar a nivel mundial la medición de la penetración y usos de estas tecnologías en los hogares y por los individuos.

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MODUTIH

Aspectos metodológicos

- **Objetivo:** Obtener información básica sobre la disponibilidad de TIC en los hogares, así como de su uso por los individuos, que permita generar los indicadores clave de acceso a las TIC en los hogares y de su uso por los individuos atendiendo a las mejores prácticas señaladas de manera internacional

**Fecha del
último
levantamiento**

- Abril-mayo del 2012

Periodicidad

- Anual desde 2001, con excepción del 2003

MODUTIH

Aspectos metodológicos

**Población
Objetivo**

- Hogares a nivel nacional
- Individuos de seis o más años de edad

**Cobertura
temporal**

- Del 2001 al 2012, excluye 2003

**Cobertura
geográfica**

- Nacional, del 2001 al 2012.
- Estatal, 2010 y 2011.

MODUTIH

Aspectos metodológicos

Cobertura conceptual para hogares

- Equipamiento de hogares (computadora, línea telefónica, televisor, radio)
- Acceso a Internet (modo de acceso)
- Costo y financiamiento de una computadora

Cobertura conceptual para personas

- Usuarios de Internet, teléfono celular y computadora
- Características del uso de computadoras, Internet y telefonía celular
- Compras y pagos por Internet

MODUTIH

Aspectos metodológicos

ESQUEMA MUESTRAL

- Hereda las características de la encuesta probabilística en hogares sobre empleo (ENOE): bietápica, estratificada y por conglomerados.
- Con financiamiento y de manera conjunta con la CSIC, fue posible extender la cobertura del estudio a fin de disponer cifras de nivel estatal para los ejercicios del 2010 y 2011.

PRECISIONES

- Error muestral no mayor del 15%.
- Nivel de confianza del 90%.
- Tasa de no respuesta esperada del 15%
- Tamaño de muestra: 7,000 viviendas para representatividad nacional.
- 38,426 viviendas para representatividad estatal

MODUTIH

Indicadores clave a nivel internacional

1. Proporción de hogares con radio (HH1)
2. Proporción de hogares con televisión (HH2)
3. Proporción de hogares con teléfono (HH3)
4. Proporción de hogares con computadora (HH4)
5. Proporción de hogares con acceso a la Internet (HH5)
6. Proporción de hogares con Internet por tipo de acceso (HH6)
7. Proporción de personas que han usado la Internet (HH7)
8. Proporción de personas que han usado una computadora (HH8)
9. Proporción de usuarios de Internet por lugar de uso (HH9)
10. Proporción de usuarios de Internet por tipo de uso (HH10)
11. Proporción de usuarios de Internet por frecuencia de uso (HH11)
12. Proporción de personas que han usado un teléfono celular (HH12)

NOTA: Considerados por organizaciones internacionales como UIT, OCDE, Partnership, CEPAL

Definiciones conceptuales

Usuarios de Internet

Recomendación internacional

- Miembros de los hogares que utilizaron Internet (en cualquier lugar) en los últimos 12 meses.

En el MODUTIH

- Individuo de seis o más años que en forma eventual o cotidiana, y de manera autónoma, ha accedido y realizado alguna actividad en Internet en los últimos doce meses. Las actividades pueden ser, entre otras, para realizar tareas escolares; las relacionadas con el trabajo; de comunicación, incluyendo correos electrónicos o conversaciones escritas (Chat); de capacitación, adiestramiento o formación a distancia mediante videoconferencias; de entretenimiento, como son las de bajar o jugar videojuegos o programas de computadora en la red, como son los de música.

Definiciones conceptuales

Tipo de conexión a Internet en el hogar

Recomendación internacional

- **Banda estrecha:** Se incluye en esta categoría el módem analógico (marcación a través de la línea telefónica normal), la RDSI (red digital de servicios integrados), DSL a velocidades inferiores a 256 kbit/s, teléfonos móviles y otras formas de acceso con una velocidad teórica de descarga inferior a 256 kbit/s. Cabe recordar que los servicios de acceso por telefonía móvil de banda estrecha incluyen CDMA 1x (Versión 0), GPRS, WAP e i-mode.
- **Banda ancha fija:** Esta categoría remite a las tecnologías con velocidades de 256 kbit/s, como mínimo, en uno o ambos sentidos, como DSL (línea de abonado digital), módem de cable, líneas arrendadas de alta velocidad, fibra en el hogar, líneas de energía eléctrica, satélite, tecnología inalámbrica fija, redes de área local inalámbrica y WiMAX.
- **Banda ancha móvil:** Esta categoría remite a tecnologías con velocidades de 256 kbit/s, como mínimo, en uno o ambos sentidos, tales como la CDMA de banda ancha (W-CDMA), conocida en Europa como sistema de telecomunicaciones móviles universales (UMTS); el acceso por paquetes de alta velocidad en el enlace descendente (HSDPA), complementado con el acceso por paquetes de alta velocidad en el enlace ascendente (HSUPA); CDMA2000 1xEV-DO y CDMA 2000 1xEV-DV. Se puede tener acceso a la banda ancha móvil a través de cualquier dispositivo (computadora de bolsillo, computadora portátil, teléfono celular móvil, etc.).

En el MODUTIH

- **Banda estrecha:** Se refiere de manera única a la tecnología de marcación a través de una línea telefónica normal (dial up).
- **Banda ancha:** Conjunta el servicio de Internet mediante líneas telefónicas dedicadas (ADSL), una red de televisión por cable y medios inalámbricos.

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Definiciones conceptuales

Usuarios de teléfono celular

Recomendación internacional

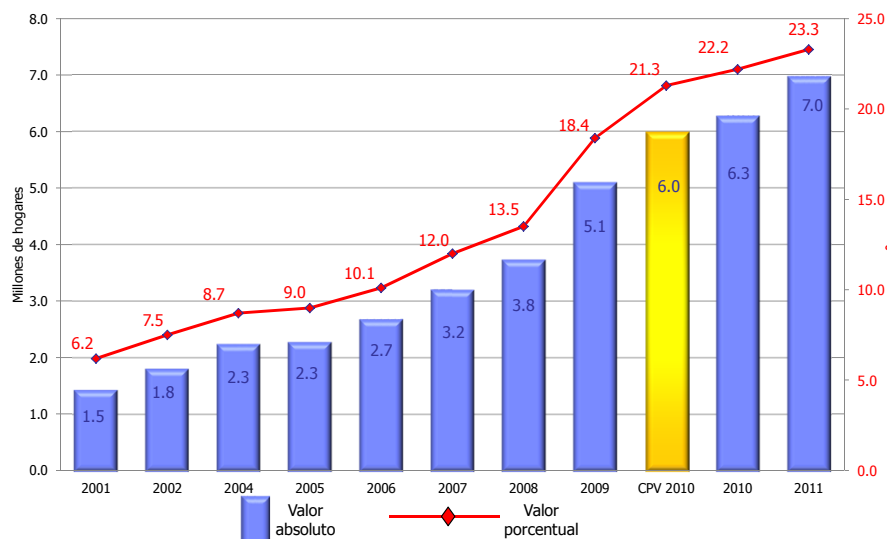
- Miembros de los hogares que utilizan un teléfono celular móvil. Un teléfono celular móvil es un teléfono portátil abonado a un servicio de telefonía pública móvil que utiliza tecnologías celulares y que permite el acceso a la RTPC. Se incluyen en esta categoría los sistemas celulares digitales y analógicos y también las IMT-2000 (3G). Se incluye también a los usuarios con abono y con tarjetas de previo pago. La utilización de un teléfono celular móvil no supone que el teléfono pertenezca a la persona que lo utiliza, ni que ésta pague el servicio, sino que lo tenga a su disposición, dentro de límites razonables, gracias a su trabajo, a un amigo, a un familiar o a otras circunstancias. No se incluye en esta categoría la utilización ocasional, por ejemplo, pedir prestado el teléfono móvil para realizar una llamada.

En el MODUTIH

- Individuo de seis o más años de edad que se comunicó con otra persona mediante un teléfono celular, durante los últimos 12 meses, ya sea como emisor o receptor de una llamada. Incluye envío o recepción de mensajes, así como consulta de información. El uso de un teléfono celular. Implica que la persona tiene el aparato a su disposición, independientemente de la propiedad del mismo o de quién pague el servicio.

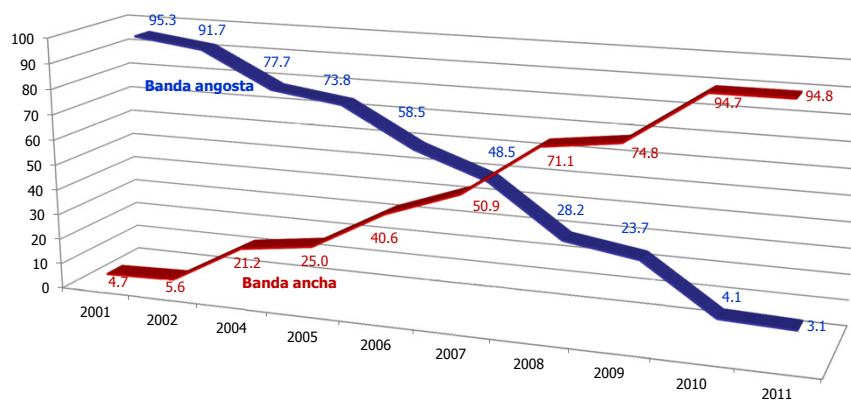
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Hogares con Internet 2001-2011



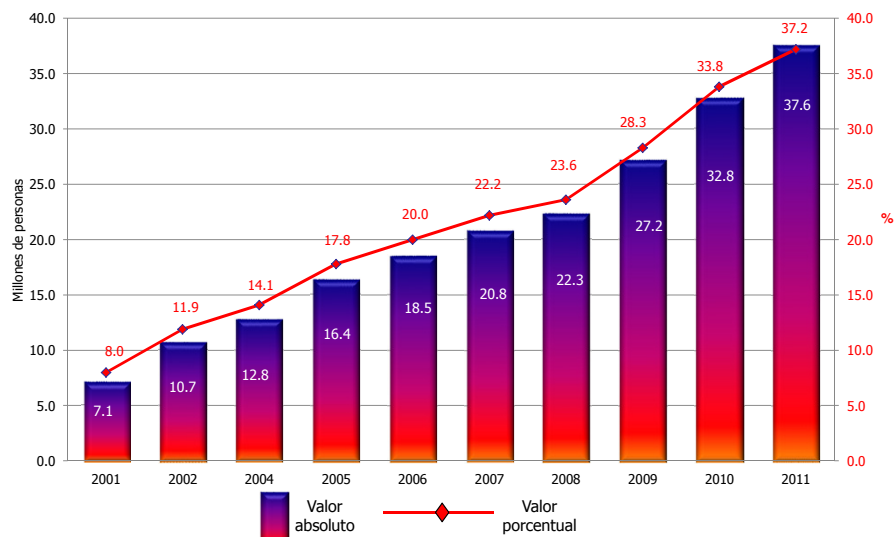
Fuente: INEGI – Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH)

Distribución de hogares con Internet por tipo de acceso, 2001-2011



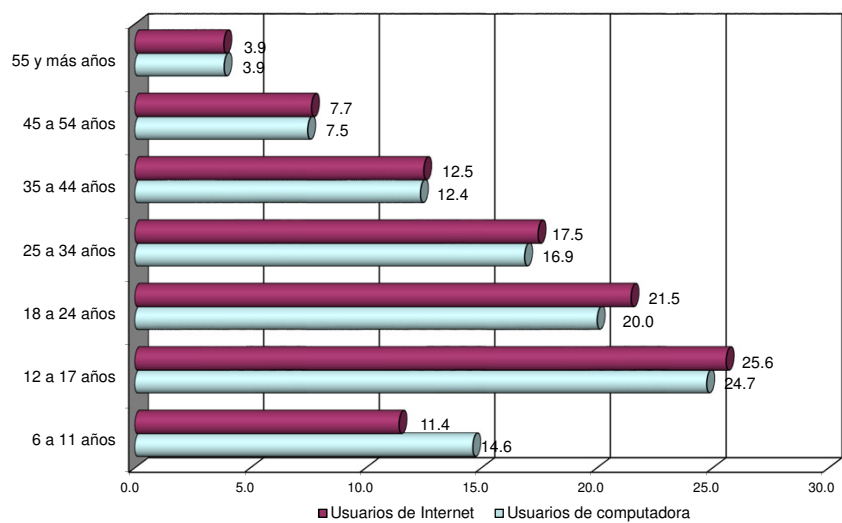
Fuente: INEGI – Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH)

Usuarios de Internet 2001-2011



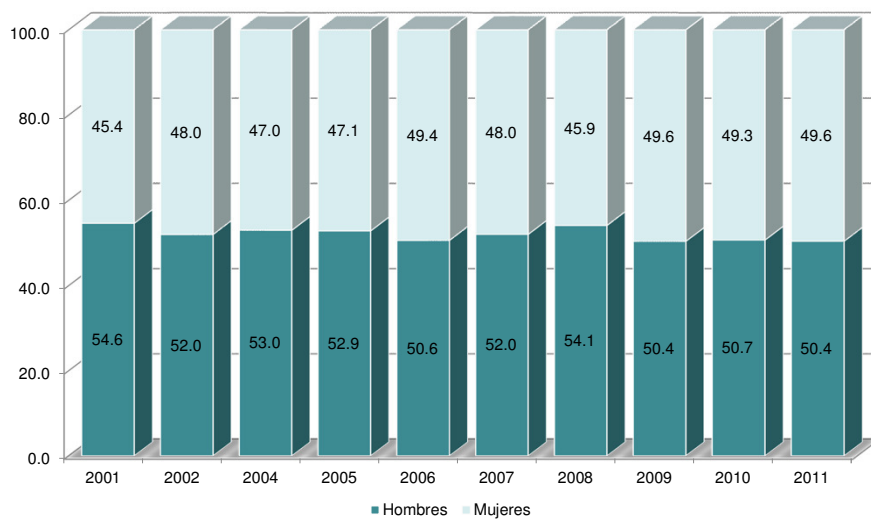
Fuente: INEGI – Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH)

Distribución de usuarios de Internet y computadora por grupos de edad, 2011 (%)



Fuente: INEGI – Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares 2011 (MODUTIH 2011)

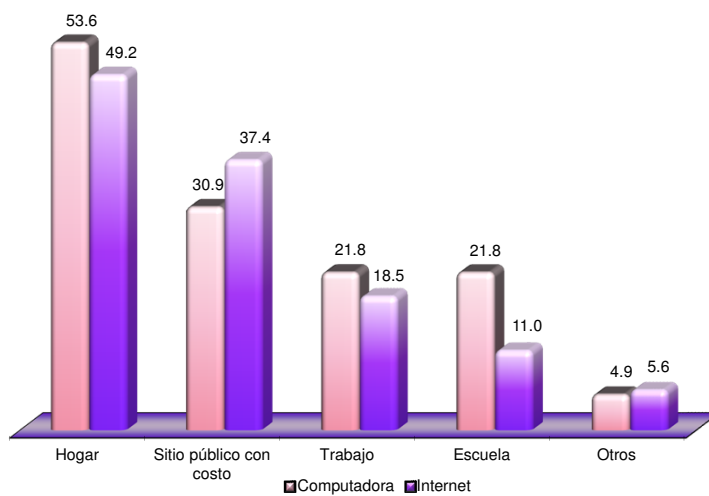
Distribución de usuarios de Internet por género, 2011 (%)



Fuente: INEGI – Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH)

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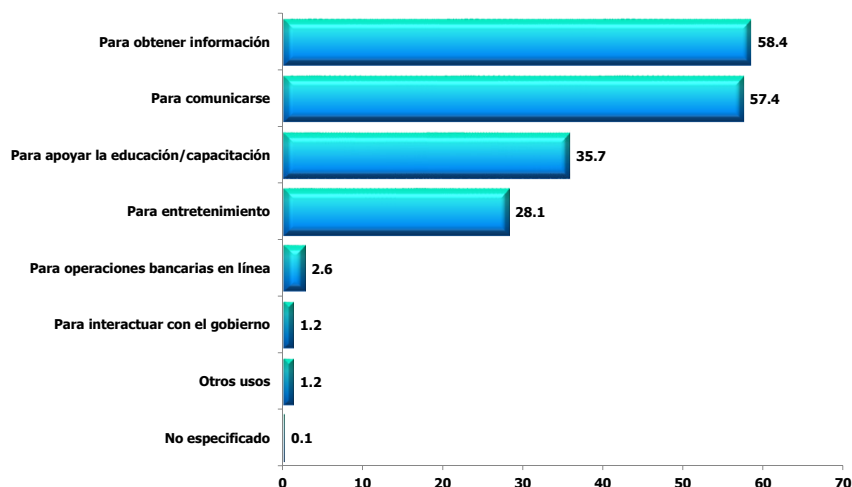
Distribución de usuarios de Internet por lugar de acceso, 2011 (%)



Fuente: INEGI – Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH 2011)

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Usuarios de Internet por tipo de uso 2010 (%)



Fuente: INEGI-Módulo sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (MODUTIH 2010)

NOTA: La suma de los parciales no corresponde con el total por ser una pregunta de opción múltiple

Alcances y limitaciones

- Se dispone de una serie de datos para los 12 indicadores clave recomendados por el Partnership.
- Los hogares con acceso a Internet de banda ancha móvil está en términos de los medios inalámbricos que incluye las conexiones de tipo satelital, BAM o 3G, así como las disponibles por señales públicas.
- La cantidad de usuarios de Internet incluye a los que declararon que el equipo principal de conexión es un teléfono celular, iPhone o similar.
- Población objetivo de seis o más años de edad.
- Informante universal.
- Cuestiones de presupuesto y gestión.
- Referencias a principal uso, lugar de acceso o tipo de conexión.

Conclusiones



- Las definiciones de los conceptos, así como los indicadores clave asociados, tienen como base las recomendaciones del Partnership.
- Las experiencias de implementación de las preguntas hace que las definiciones de los conceptos, si bien son similares a las recomendaciones internacionales, no necesariamente son del todo coincidentes, sobre todo por dificultades de claridad conceptual para el informante de las encuestas en hogares.
- En la medida que se requiere información personalizada es necesario que el informante adecuado sea un usuario de TIC.



- El concepto de acceso de los hogares a las TIC debe restringirse al equipamiento y servicios en el hogar. En ese sentido, el concepto de acceso móvil a Internet en los hogares se considera inapropiado, dado que el equipo de acceso es un equipamiento de carácter personal que por lo tanto es ubicuo.
- Las definiciones por tipo de conexión a Internet en función de velocidades de acceso, desconciertan e inducen no respuesta o indefinida por parte de los informantes, por lo que su identificación se facilita en términos de una referencia al tipo de tecnología de hogares con Internet.



- La conceptualización de usuarios de Internet incluye a los que lo hacen de manera principal mediante un teléfono celular y la población objetivo son los de seis o más años de edad.
- El lugar de acceso público sin costo incluye a los que son producto de programas de gobierno, sin que haya manera de desglosarlos.

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Propuestas

- En el contexto del acceso, que la medición de los hogares con Internet móvil se restrinja únicamente al equipamiento del hogar, en términos de que el dispositivo de conexión esté de manera permanente en el hogar.
- En el caso del uso de las TIC, estandarizar la integración del total de los usuarios de Internet, en términos de incluir o excluir de manera específica a los usuarios de Internet mediante un teléfono celular, iphone o similar.

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**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/19-E
31 August 2012**

English

SOURCE: Ministry of Information Technology and Communications, Moldova

TITLE: Development of information society and ICT sector in the Republic of Moldova

Development of Information Society and ICT sector in the Republic of Moldova

Contemporary history

Republic of Moldova is a landlocked country in Eastern Europe, located between Romania and Ukraine, with a population of 3.6 million of habitants and a territory of almost 34 thousand square km. *The country is divided into 32 districts, 3 municipalities, and 2 autonomous regions.*

Republic of Moldova gained its independence on August 27th, 1991 and became a member of United Nations on March 2nd, 1992. Also, in 1992 Moldova became a member of International Telecommunication Union.

Economy Reforms in Moldova are supported by the international specialised bodies, especially starting with 1992, after acceding to The International Monetary Fund, World Bank and European Bank for Reconstruction and Development. Also, a considerable financial support and technical assistance was offered to Moldova by such countries as USA, Germany, Japan, Sweden, Holland, Romania and Russia.

The Republic of Moldova became the World Trade Organization member on May, the 8th 2001.

According to the National Policy on Communication, policy elaboration and regulatory functions have been separated since 2000:

The authority that develops, promotes and realizes Government policy on electronic communications and determines development strategy of this sector is the Ministry of Information Technology and Communications.

The authority that regulates and monitors the market for electronic communications and information technology services is the National Regulatory Agency for Electronic Communications and Information Technology.

The main task of the Ministry of Information Technology and Communications is the elaboration and implementation of the policy regarding information society building.

Vision -The Information and communications Technologies are the economic growth driver through the increase of the productivity of all national economy sectors, by improving the public services quality and by increasing the governance transparency.

Our mission is to ensure sustainable development of the information and communications technologies sector by promoting robust policies. We create business opportunities and encourage investments by promoting liberalization policies and fair competition.

Transparency and efficiency are core values we consider fundamental for an effective government, responsible businesses, and an active and involved civil society.

The development of Information Society in RM

In June 2002 the Republic of Moldova signed the Declaration of Intent among the member states of Stability Pact for South - Eastern Europe, and committed itself to build an Information Society based on principles established in the UN Charter, the Universal Declaration of Human Rights and enshrined in the Okinawa Charter on the Global Information Society. Following this,

- In 2004, through Presidential Decree, building of Information Society in Republic of Moldova was declared as a national priority.
- the Government established the guiding principles about “Policies for building information society in the Republic of Moldova”.
- A National Committee on Building an Information Society has been created as a multi/stakeholder mechanism to monitor the implementation of related policies.
- A package of fiscal and other facilities for ICT companies approved by the Parliament in December 2004 demonstrates is yet another proof of confidence that the Government has in moving forward towards a developed Information Society.
- The National Strategy for Building Information Society „Electronic Moldova” was approved by the Government Decision on the March 9, 2005.

The National Strategy „Electronic Moldova” expresses the Moldovan Government’s commitment to building an inclusive Information Society.

According to the National Strategy for Building Information Society, the Government will take all the necessary measures to develop the Republic of Moldova as an active and competitive member of the emerging global knowledge economy to ensure its democratic path to the development and secure future economic prosperity. To accomplish this strategic goal, the Government of Moldova, with its specialized body – the Ministry of Information Technology and Communications will take a leading role in developing appropriate conditions and policies, fully harmonised with the European Information Society development framework.

Main achievements of Information Society building are:

- Creation of national institutional capacities for Information Society building;
- Developing of an European harmonized legal framework for IT&T
- Promotion of Information Society principles based on European agenda for Information Society building experience: Europe 2005, Europe 2010, and 2020

Enterprises and staff in ICT sector

In the last 10 years the Moldovan ICT sector has topped the list of the most dynamic national economy sectors and can be a major driver for increased competitiveness of the economy. ICT provides opportunities for building a competitive economy and increasing the effectiveness of the public sector.

At present more than 16 thousand employees work in ICT sector, with an average monthly salary of about \$600. The highest percentage of staff with university degree is involved in the sector.

On 1st January, 2004 in Republic of Moldova the liberalization of the electronic communications services market started that led to the promotion of changes on its various segments.

Development of ICT sector in RM

In this period, most of the market segments were marked by stable tendencies of growth.

In 2011, total value of electronic communications market increased over 2010 by 1.4%, and totalled 549.8 million US dollars. In relation to the country's Gross Domestic Product (GDP) per 2011, the average value of the electronic communications sector was estimated at 7.9%.

At the end of 2011 the number of license holders in the IT sector and telecommunications reached to 713 of which have got general authorization and total number of active companies is 460, including:

- 46 companies in the field of internet access and data transmission;
- 118 companies of broadcasting and retransmission of audiovisual program services;
- 20 fixed communications providers;
- 3 providers of public mobile communications services.

During the last 5 years, mobile telephony sector had the highest share of 58% of the total mobile communications market, followed by the fixed telephony market with 26.5%.

The share of Internet access service market is constituting 10.9%, while the share of broadcasting and retransmission of audiovisual program services maintains its level of 4.6%.

The decrease in the share of fixed telephony to be natural, as this market is close to saturation. However, the other markets, in particular the mobile and Internet access service market are developing rapidly.

The increase in the turnover was backed up by the growing volume of investments in market sectors, estimated at 154.5 million US dollars. The highest share of 62.5% was invested in mobile networks.

The investments in audiovisual networks increased in comparison with 2010 and constituted 13.6 % of the total investments.

The saturation of fixed telephony market accounts for the reduction of investments in this sector and constituted 34.1% in the structure of the total investments.

At the beginning of 2012, there was the following level of penetration of ICT services.

A penetration rate of 33.1% for fixed telephony and 104.3% for mobile telephony is achieved. The penetration rate of broadband Internet access services at fixed locations services per 100 inhabitants equalled 9.97%, a 2.42 p.p. increase over 2010.

In 2011, the market for audiovisual program broadcasting and retransmission services was noted by the rapid development of multichannel TV services. The penetration rate per 100 inhabitants grew by 0.7% and made up 7.2%.

According to ITU Report „Measuring the Information Society - 2011”, Republic of Moldova is placed in the „Medium average” category, with a medium level of ICT Development Index, and is on the 57^d place.

After examination of e-readiness level of the Republic of Moldova, are observed general positive trends at all chapters: regulation framework is created, which establishes principles and conditions of Information Society development, different programs are financed to facilitate assimilation of ICT, number of Internet users and demand for broadband access is growing, computers become an usual tool in business process and in the day-to-day life, etc.

Certainly, all these achievements are still modest comparing with data from other developed countries. This fact imposes the necessity to strengthen the state policy in this area and to find solution to stimulate growth.

To stimulate further development of IT and electronic communications services market in the Republic of Moldova is necessary to undertake a number of actions such as:

- identification and analysis of relevant markets, designation of operators with significant market power,
- design and implementation of Methodology for calculating long-term incremental cost at the interconnection of electronic communications networks and services,
- regulatory insurance of access to the local loop,
- Finalizations of the process of rebalancing tariffs for public fixed telephony services.

In conclusion I would like to mention that taking into account all above, the ministry identified the main objectives to prepare and approve by Government of the follow strategical documents:

- ICT Strategy for 2012-2015
- Broadband Access Program
- Digital TV Strategy
- Digital Moldova 2020 Strategy
- Postal Services Strategy

We expect, that implementation of those initiatives will lead to:

-  ICT growth incentives, such as:
 - defining a place for Moldovan ICT proposition in global value chain
 - facilitative policies to support Country Proposition
 - positioning and promotion of the national ICT sector
 - stimulating public procurement
-  Infrastructure development, such as:
 - open communication market
 - broadband deployment targeting 20% penetration
-  Education sector as enabler, as such:
 - to ensure ICT sector has adequate resources to grow
 - to prepare citizens for e-Government.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/20-F
31 August 2012**

French

SOURCE: Ministère de la Communication et des Nouvelles Technologies de l'Information, Niger

TITLE: Projet d'étude : mesure des indicateurs TIC au service du développement au Niger



REPUBLIQUE DU NIGER
FRATERNITE-TRAVAIL-PROGRES
MINISTERE DE LA COMMUNICATION ET DES NOUVELLES TECHNOLOGIES DE L'INFORMATION

PROJET D'ETUDE : MESURE DES INDICATEURS TIC AU SERVICE DU
DEVELOPPEMENT AU NIGER

ZOUBEIROU Hassana

DIRECTRICE DES STATISTIQUES

-JUILLET 2012-

I. Présentation du pays et analyse de la situation du secteur tic et télécommunication au Niger

Doté d'une superficie de 1 267 000 kilomètres carrés, le Niger est un pays continental situé au cœur de l'Afrique de l'Ouest, il est situé entre 11° et 23° de latitude Nord et entre le méridien de Greenwich et 16° de longitude Est. A 700 KM au Nord du Golf de Guinée, à 1900 Km à l'Est de la cote Atlantique et à 1200 Km au Sud de la Méditerranée.

En 2012, sa population est estimée à 16 274 738 habitants dont 21,7% vivent en milieu urbain et 78,3% en milieu rural ; 49,2% constitue sa population âgée de moins de 15 ans.

AU Niger, les TIC constituent une préoccupation majeure des pouvoirs publics qui en ont fait un des outils de développement et de la lutte contre la pauvreté, car, Grâce à leurs multiples applications, aucun domaine d'activités humaines n'échappe à leur emprise.

En octobre 1999, Le Gouvernement a adopté une Déclaration de politique sectorielle des télécommunications dans laquelle il s'était fixé, entre autres objectifs de :

- offrir des services variés et de bonnes qualités à des prix concurrentiels qui soient plus orientés vers les couts réels ;
- augmenter les investissements productifs privés et nationaux dans le secteur ;
- construire un réseau national de Télécommunications fiable et connecté aux autoroutes de l'information ;
- promouvoir les télécommunications comme un secteur économique essentiel à l'essor d'une économie compétitive;
- promouvoir le développement des nouvelles technologies.

La mise en œuvre de cette Déclaration de politique sectorielle a permis d'atteindre des résultats indéniables mais qui restent en deçà des attentes au vu des taux actuels de couverture et de pénétration des services de télécommunications ainsi que de l'indice d'accès numérique établi en 2010 par l'Union Internationale des Télécommunications (UIT).

C'est conscient de ce fossé numérique et de l'importance de plus en plus grande des TIC dans le développement économique et social, que le Gouvernement vient de décliner, dans la Déclaration de sa Politique Générale, ses objectifs sectoriels de faire passer le taux de couverture nationale de 54 % en 2010 à 72 % en 2015 et le taux de pénétration de 25% en 2010 à 50% en 2015.

II Contraintes liés au secteur

Malgré les avancées significatives observées au cours de cette décennie de mise en œuvre de la Déclaration de politique sectorielle, des contraintes subsistent encore dans plusieurs domaines.

Sur le plan juridique et institutionnel

L'incohérence des cadres institutionnels d'orientation politique se traduisant des fois par de conflits de compétences, la nature multisectorielle de l'organe de régulation et la lenteur dans le processus décisionnel ne sont pas de nature à rendre efficace l'encadrement institutionnel d'un secteur pleinement ouvert à la concurrence.

Aussi, l'insuffisance du dispositif juridique d'encadrement de la concurrence dans le secteur telle que la non adoption des textes relatifs à l'accès universel aux services, au partage des infrastructures et à l'homologation des équipements, constituent un sérieux handicap dans la conduite de régulation du secteur.

L'absence d'une réglementation propre à garantir la confiance des utilisateurs dans l'économie numérique (cybercriminalité, preuve et signature électroniques, protection des données à caractère personnel, etc.) marque un retard important dans la construction d'une économie numérique au Niger.

La non transposition des textes communautaires de la CEDEAO et de l'UEMOA harmonisant les politiques et réglementation du secteur des télécommunications et des TIC maintient le dispositif juridique et institutionnel dans une incohérence en certaines de ses dispositions dans la réalisation du marché commun régional.

Enfin, le non règlement du contentieux né de la sanction de réduction de la durée de la licence de l'opérateur historique intervenue depuis 2009 limite cet opérateur dans ses efforts de modernisation et de développement de ses réseaux et de ses offres de services.

Sur le plan du développement des infrastructures des télécommunications et des TIC

Les contraintes majeures relevées ont trait, entre autres, à l'absence d'un réseau backbone national en fibre optique, à l'insuffisance de l'inter connectivité internationale large bande, à l'absence d'un réseau intranet de l'Administration, de points d'échange internet et de centraux téléphoniques de nouvelle génération (NGN).

Aussi, le retard dans la mise en œuvre de la Stratégie et du Fonds d'Accès Universel limite l'effort observé dans l'accès et l'accessibilité aux services des télécommunications et des technologies de l'information et de la

communication des populations notamment en milieu rural où les taux de couverture et de pénétration demeurent encore très faibles.

Il est également bien de relever l'insuffisance de partage des infrastructures entre opérateurs et un faible développement de la zone de nommage internet national « .ne ».

La problématique de la qualité des services offerts notamment dans le domaine de la connectivité internet demeure une préoccupation constante des consommateurs. La production des indicateurs et données statistiques du secteur est insuffisante.

Sur le plan du développement économique et social du secteur des télécommunications et des TIC

Les contraintes résultent principalement de l'insuffisance d'investissements, des difficultés de mobilisation des ressources auprès des institutions financières, du faible niveau de partenariat public-privé et de l'insuffisance de l'actionnariat national dans le capital des entreprises du secteur.

Il est également relevé comme contraintes majeures une pression fiscale (frais de régulation, impôts et taxes divers), et l'enclavement du pays qui contribuent à alourdir le financement des investissements réalisés par les opérateurs, rendant de facto les coûts des communications élevés et ceux des équipements informatiques inaccessibles aux consommateurs.

Sur le plan de la formation et de l'emploi,

On peut noter l'absence de centres de formation de niveau ingénieur en télécommunications et en informatique, l'insuffisance de transfert des technologies, et l'analphabétisme qui constituent de sérieux freins à l'usage des TIC.

III. Investissement et chiffre d'affaire réalisés dans le secteur des TIC

Tableau n°1 : Montant des investissements réalisés de 2001 à 2010 (en milliards de FCFA)

ANNEE	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
Montant investi	2,3	12,7	5,1	10,3	22,11	20,8	23,8	81,00	48,06	65,82	292,00

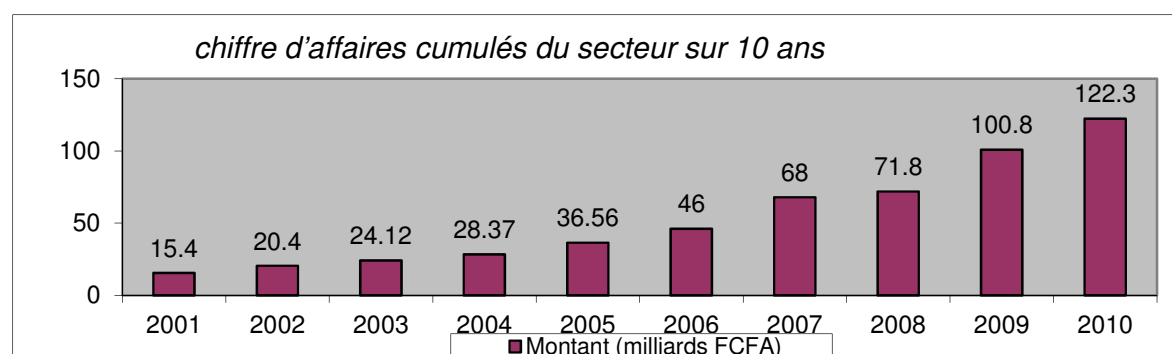
Source : opérateurs

En termes d'investissements, plus de 292 milliards de FCFA ont été investis par les opérateurs du secteur entre 2001 et 2010, comme l'indique le tableau ci-dessous.

Le chiffre d'affaires cumulé des opérateurs des télécommunications au cours de ces dix dernières années s'élève à plus de 533 milliards de FCFA.

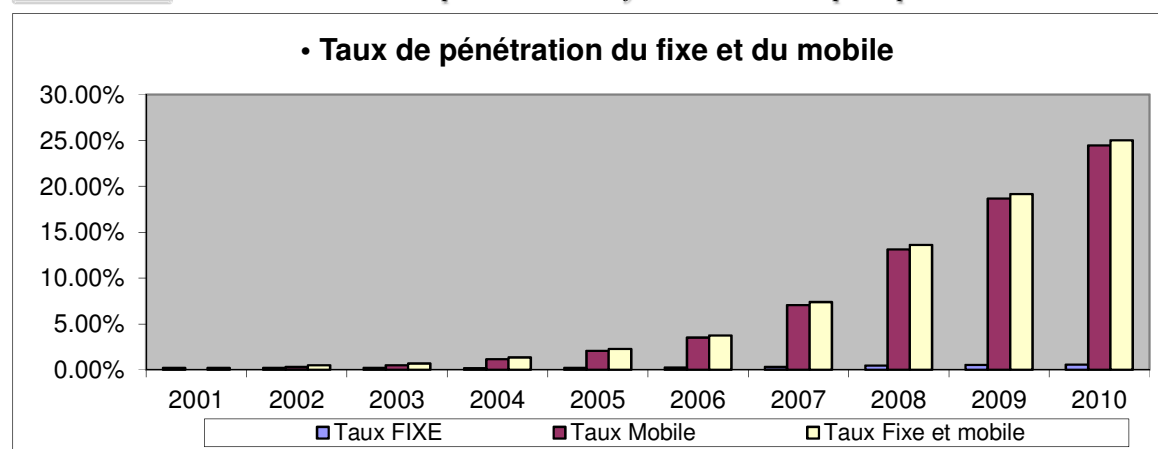
Cependant, au moment où le chiffre d'affaires du segment de la téléphonie mobile a enregistré un taux croissance annuelle de 26%, le segment de téléphonie fixe a connu un taux de croissance de - 0,01%.

Tableau n°2 : Chiffres d'affaires du secteur sur 10 ans



Source : opérateurs

Tableau n° 3: Evolution du taux de pénétration du fixe et du mobile par opérateur



IV. Etat des lieux des indicateurs TIC au service du développement au Niger

Au Niger, la production des données statistiques du secteur reste insuffisante. Aucune enquête n'a été réalisée dans le but de mesurer spécialement les indicateurs tics au service du développement ,cependant des enquêtes spécifiquement liée au TIC ont été réalisées: il s'agit de l'enquête ménage menée dans la capitale Niamey afin de mesurer l'audience des médias et l'utilisation des tics ; de l'enquête sur l'impact de la téléphonie mobile sur les conditions de vie des utilisateurs et des intervenants du marché

et ainsi qu'une autre sur la satisfaction des usagers des entreprises du secteurs Télécommunications en 2012

Outre ces dernières enquêtes essentiellement liées au tic, certaines enquêtes incluant des questions sur les TIC ont été réalisées, il s'agit entre autres de la troisième Enquête Nationale sur le Budget et la Consommation des Ménages NIGER-2007, Troisième enquête ENBC Avril 2007- Avril 2008.

V. Perspectives d'étude : Mesure des indicateurs TIC au service du développement au Niger

A. Contexte et justification

Au Niger, le processus d'élaboration de la Stratégie de Réduction de la Pauvreté (SRP) adoptée en février 2002 par le Gouvernement Nigérien a fait ressortir entre autres le manque d'informations statistiques fiables dans plusieurs secteurs clés de la vie économique et sociale du Pays. Devant cette insuffisance des données statistiques déjà révélée par les différentes analyses diagnostiques réalisées antérieurement et face à la demande de plus en plus croissante de ces données dans le processus de prise de décisions et du suivi des politiques et stratégies de développement (Stratégie Nationale de Réduction de la Pauvreté, Objectifs du millénaire pour le Développement, NEPAD) ; l'Etat du Niger appuyé par ses Partenaires Techniques et Financiers s'est engagé ces dernières années dans une refonte du Système Statistique National pour qu'à terme le pays puisse disposer d'un système cohérent et durable pour suivre et évaluer les actions de développement entreprises.

Pour renforcer d'avantage le dispositif institutionnel conformément à la volonté du gouvernement, des directions sectorielles de la statistique ont été créées dans les ministères techniques et ceci pour améliorer la qualité des statistiques sectorielles nécessaires à l'élaboration, au suivi et à l'évaluation des stratégies sectorielles et nationale.

Aussi, conscient du fait que, le secteur de la communication et des nouvelles technologies de l'information ne demeure pas épargné par cette insuffisance de données, le Ministère de la Communication et des Nouvelles Technologies de l'Information à travers sa Direction de la Statistique et sa Direction des Technologies de l'Information, se propose une fois de plus de mener une étude sur la mesure des indicateurs tic au service du développement au Niger.

Enfin, notons que les TIC pour le développement se rapportent à l'utilisation des TIC à des fins de développement.

B. Objectif général

L'objectif général de cette étude est de mesurer les principaux indicateurs tic intervenant dans le processus de développement au Niger. Il s'agira ici d'évaluer les moyens en terme de TIC mis à la disposition au niveau des grands secteurs clés de l'économie Nigérienne et d'en faire l'évaluation de leur utilisation qu'il s'agisse du secteur publique tel que la santé, l'éducation, l'agriculture, l'élevage et du secteur privé tel que les entreprises privées.

De manière spécifique cette étude vise à :

- déterminer les principaux secteurs clés au service du développement au Niger, afin d'en mesurer les indicateurs TIC.
- mesurer tous les principaux indicateurs tic au service du développement au Niger et d'en faire un guide;
- mettre en place un dispositif de collecte de traitement et d'analyse de ces indicateurs ;
- contribuer à la mise en place d'un observatoire du marché des TIC au Niger et dans l'espace Communautaire CEDEAO/UEMOA.

C. Résultats attendus

- Les principaux indicateurs tic au service du développement sont identifiés, définis et mesurés ;
- Les principaux secteurs clés intervenant dans le processus de développement au Niger son identifiés et l'évaluation de l'utilisation des tics en leur sein est fait.
- un dispositif de collecte, de centralisation, de traitement et de diffusion de ces indicateurs est élaboré ;

D. Méthodologie

Pour garantir une bonne réussite dans la conduite de cette étude, un groupe technique de travail sera mis en place. Ce groupe travaillera sous la présidence de la direction des Statistiques du Ministère de la Communication et des Nouvelles Technologies de l'Information et bénéficiera de l'appui technique de l'Institut National de la Statistique.

E. Document de collecte

Un document de collecte sera élaboré, il servira à identifier le degré d'utilisation des TIC ainsi que le taux d'accès à ces derniers dans les secteurs clés de l'économie nigérienne. Le contenu de ce questionnaire comprendra des questions axées sur les trois grandes catégories de TIC ci-dessus énumérées :

- **technologies de l'information** : matériel informatique, logiciels et périphériques, et culture informatique
- **technologies de télécommunication** : réseaux de téléphonie, radiodiffusion et télévision, satellites, téléphonie cellulaire et autre connexion à large bande
- **technologies de réseautage** : Internet et un large éventail d'applications sur Internet

F. CHRONOGRAMME

- Approbation du TDR par toutes les parties (le Ministère de la Communication et des Nouvelles Technologies de l'Information, l'Autorité de Régulation du secteur et l'Institut National de la Statistique)
- Rencontre (briefing) du groupe de travail pour la présentation du TDR
- Mise en œuvre du calendrier de travail
- Présentation du rapport provisoire
- Présentation du rapport final

VI. Quelques indicateurs TIC

Tableau 1- Taux d'utilisation (%) du téléphone mobile par milieux de résidence, par région administrative et par sexe

Ensemble	19,9
Milieu de résidence	
Rural	13,0
Autres centres urbains	46,4
Communautés urbaines	54,0
Région de résidence	
Agades	54,1
Diffa	18,9
Dosso	17,2
Maradi	10,9
Tahoua	23,1
Tillabéri	18,7
Zinder	10,8
Niamey	57,8
Sexe de la personne	
Masculin	28,2
Feminin	12,8

source ME/F/INS/ENBCIII_2007:/2008

Tableau 2- Taux d'utilisation (%) de l'ordinateur par milieux de résidence, par région administrative et par sexe

Ensemble	1,5
Milieu de résidence	
Rural	0,1
Autres centres urbains	2,5
Communautés urbaines	11,4
Région de résidence	
Agades	3,1
Diffa	0,6
Dosso	0,3
Maradi	0,3
Tahoua	0,3
Tillabéri	0,2
Zinder	0,3
Niamey	14,9
Sexe de la personne	
Masculin	2,3
Feminin	0,9

source ME/F/INS/ENBCIII_2007:/2008

Tableau 3- Taux d'utilisation (%) de l'Internet par milieux de résidence, par région administrative et par sexe

Au Niger, l'Internet reste quasiment absent, en effet seuls 7 nigériens âgés de 15 ans et plus sur 1000 en utilisent.

Ensemble	1,3
Milieu de résidence	
Rural	0,0
Autres centres urbains	1,4
Communautés urbaines	10,0
Région de résidence	
Agades	1,7
Diffa	0,5
Dosso	0,2
Maradi	0,1
Tahoua	0,1
Tillabéri	0,1
Zinder	0,2
Niamey	13,3

source ME/F/INS/ENBCIII_2007:/2008

Selon une récente étude sur la satisfaction/insatisfaction des usagers des entreprises réalisée par l'ARM en 2012 :

- Au Niger, 56% des entreprises sont équipées d'une connexion internet.
- 71% des entreprises à Niamey sont équipées de connexion internet pendant qu'en région plus de 53% n'y ont pas accès
- 70 % des institutions de l'Etat et missions diplomatiques sont équipés d'une connexion internet

Enquête ménage sur l'audience des médias : utilisation des Tic à Niamey la capitale (2011)

Tableau n°1 : Répartition(%) des ménages disposant de téléphone fixe

Téléphone	possession de téléphone fixe
	pourcentage
Téléphone fixe	10 ,3
Téléphone fixe et cellulaire combiné	5,5
Ni l'un, ni l'autre	84,2
TOTAL	100
	Utilisation personnelle du téléphone portable par le répondant
	pourcentage
Oui	76,6
Non	23.4
TOTAL	100

Tableau n° 2 : Répartition (%) des répondants selon leur accessibilité à l'ordinateur

	Accès ordinateur
	%
Oui	10,9
Non	89,1
TOTAL	100

Tableau n° 2 : Répartition (%) des répondants ayant accès à l'ordinateur selon leur accessibilité à l'internet

	Accès Internet
	%
Oui	83,8
Non	16,2
TOTAL	100

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Information document

**Document INF/21-F
31 August 2012
French**

SOURCE: Institut National de la Statistique, Niger

TITLE: Formation sur la mesure de l'accès et de l'utilisation des technologies de l'information et de la communication (TIC) par les ménages et les entreprises



REPUBLIQUE DU NIGER

Fraternité - Travail - Progrès

MINISTERE DES FINANCES

INSTITUT NATIONAL DE LA STATISTIQUE



Formation sur la mesure de l'accès et de l'utilisation des technologies de
l'information et de la communication (TIC) par les ménages et les entreprises

DOCUMENT D'INFORMATION SUR LES TIC

Préparé par M. Boubacar Issa KABIR, participant du NIGER

PRESENTATION DU CONTEXTE GENERAL DU PAYS

1. Géographie

Le Niger, avec une superficie de 1 267 000 kilomètres carrés, est un pays continental situé au coeur de l'Afrique de l'Ouest. Il est situé entre 11° 37 et 24° de latitude nord et entre le méridien de Greenwich et 16° de longitude est, à 700 km au nord du Golfe de Guinée, à 1 900 km à l'est de la côte Atlantique et à 1 200 km au sud de la Méditerranée. Il est limité au nord par l'Algérie et la Libye, à l'est par le Tchad, au sud par le Nigeria et le Bénin, à l'ouest par le Burkina Faso et au nord-ouest par le Mali. Le Niger est un pays complètement enclavé, à mi-chemin entre la Méditerranée et le golfe de Guinée. Du point de vue climatique, le Niger est caractérisé par un climat tropical de type sahélien= qui alterne entre deux saisons, une longue saison sèche d'octobre à mai et une courte saison de pluies de mai à septembre. Il est situé dans l'une des régions les plus chaudes du globe. Les températures moyennes les plus élevées sont enregistrées entre mars et avril où elles dépassent les 40°C, tandis que les plus basses le sont de décembre à février où elles peuvent descendre en dessous de 10°C. Le territoire est partagé en trois zones climatiques :

- Au nord, une immense zone saharienne, couvrant les trois cinquièmes du pays, peuplée essentiellement de nomades et renfermant les principaux minerais exploités;
- Au centre, une zone sahélienne, qui reçoit des précipitations moyennes de 200 à 300 mm d'eau par an;
- Au sud, une zone soudanienne qui est la partie la plus arrosée du pays, avec des hauteurs moyennes de pluies de 300 à 650 mm par an. Zone à vocation agricole, elle est caractérisée par une végétation de savane et elle est consacrée à des cultures de mil, de sorgho, de maïs et d'arachide. Le relief nigérien est peu contrasté. Au nord-est, les hauts plateaux (800 à 1 000 m d'altitude) sont bordés d'escarpements qui en rendent l'accès difficile. A l'ouest et au sud se trouvent de bas

plateaux (200 à 500 m d'altitude), tandis qu'au nord du «17e parallèle» s'étend le massif de l'Aïr, bordé, à l'ouest et au sud, par une dépression périphérique.

Au plan hydrographique, le pays ne possède qu'un seul cours d'eau permanent, le fleuve Niger qui traverse le pays sur une longueur d'environ 500 km dans sa partie ouest. On trouve aussi quelques lacs permanents dont le principal, le lac Tchad, est situé dans la partie sud-est du pays et plusieurs rivières semi permanentes dont les affluents de la rive droite du Niger à l'ouest et la Komadougou Yobé au sud-est. Malgré cela, selon les estimations des spécialistes, les ressources en eau du Niger seraient assez importantes même si elles demeurent inégalement réparties. Ainsi, le potentiel d'irrigation est estimé à 270 000 hectares en termes d'eaux de surface et d'eaux souterraines. Celles-ci, bien que très abondantes, sont difficilement exploitables parce qu'essentiellement constituées de nappes fossiles assez profondes. Elles sont estimées à près de 36 milliards de m³. Enfin, les terres agricoles, principales ressources de la majorité de la population, se regroupent en deux grandes catégories pédologiques classiques :

- les sols ferrugineux tropicaux ou sols dunaires représentant 80 à 85 % de la superficie agricole cultivable;
- les sols hydromorphes ou « goulbi », moyennement argileux, représentant 15 à 20 % de la superficie agricole cultivable.

Au niveau administratif, le Niger a mis en place un processus de décentralisation qui a transformé les anciens départements en régions et les anciens arrondissements en départements et créé des communes pour une meilleure gouvernance au plan local. Ainsi, le pays est subdivisé en 8 régions Administratives. Les régions sont subdivisées en départements (au nombre de 36). On dénombre 265 communes dont 52 urbaines et 213 rurales.

2. Économie

Le Niger est un pays sahélien à prédominance rurale et disposant de ressources naturelles limitées. Il est classé parmi les Pays les Moins Avancés (PMA) et éligible à l'initiative PPTE (Pays Pauvres Très Endettés). Le phénomène de la pauvreté est apparu et s'est amplifié dans les années 90

avec une détérioration continue des conditions de vie des ménages. Sur la base des estimations issues des comptes rapides, le taux de croissance économique réel est estimé à 4,8% en 2006 après 7,2% observé en 2005 en rapport avec la bonne campagne agricole 2006/2007. Cette croissance reste toujours tirée par le secteur primaire qui enregistrerait une progression de 11,7%, contribuant ainsi pour 2,2 points de pourcentage à la formation du PIB. Ce résultat enregistré sur le plan macroéconomique au cours des dernières années n'est pas encore suffisant pour créer les conditions d'un développement durable soutenu. En effet, les indicateurs de pauvreté calculés à partir des données de l'Enquête Nationale sur le Budget et la Consommation de 1989-1990 en milieu urbain et 1992-1993 en milieu rural et l'Enquête QUIBB de 2005 sont restés pratiquement identiques (63 % contre 62 %). À cet égard, pour lutter contre ce phénomène de pauvreté, l'Etat du Niger, avec l'appui des partenaires au développement met en oeuvre depuis 2002 une Stratégie de Réduction de la Pauvreté (SRP). La version révisée de cette stratégie est actuellement en cours d'élaboration. Elle mettra en exergue les performances et les lacunes observées durant ces quatre années. Cette révision consistera à prendre en compte certains indicateurs qui n'existaient pas dans le document initial de la SRP et de mettre à jour certains autres.

3. Population

Le Niger a réalisé trois Recensements Généraux de la Population et de l'Habitat (RGPH de 1977, RGPH de 1988 et RGPH de 2001) et plusieurs enquêtes d'envergure nationale : Enquête sur le Budget et la Consommation de 1989-1990 en milieu urbain et celle de 1992-1993 en milieu rural, Enquête sur les Migrations et l'Urbanisation au Niger en 1993, et trois Enquêtes Démographiques et de Santé (1992, 1998 et 2006). Ces différentes investigations ont permis d'obtenir des indicateurs démographiques de base à différentes dates. Estimée à 7 256 626 habitants en 1988, la population est passée à 11 060 291 en 2001, puis à 13,475 millions en 2007. La densité moyenne était de 8,7 habitants au kilomètre carré en 2001. Cependant, cette population est inégalement répartie entre les 8 régions administratives

du pays. La région la plus étendue, celle d'Agadez, occupe 53 % de la superficie du territoire national et abrite seulement 3 % de la population totale. La région la moins étendue, Niamey, abrite 39 % de la population urbaine. La croissance démographique demeure encore élevée (3,3 %). Le rythme d'accroissement rapide de la population est principalement dû à la forte fécondité (ISF de 7,1 en 2006) malgré une mortalité en baisse sensible mais toujours élevée. La population du Niger est extrêmement jeune : les moins de 15 ans représentaient 48 % en 2001.

➤ **Mesure de l'accès aux réseaux large bande, fixes et mobiles,**
Y compris sous l'angle du prix, du débit et de la capacité.

Le Niger est un pays pauvre où c'est seulement 1435590 personnes de plus de 6 ans qui sont alphabétisés. Pour des raisons du faible niveau de scolarisation un problème d'accès au TIC plus particulièrement l'internet est donc inévitable. En effet au Niger comme d'ailleurs dans les pays pauvres seul le portable cellulaire est de plus en plus acquit avec un accroissement faible. Les derniers résultats de l'enquête Enquête Démographique et Sanitaire et Indicateurs Multiples montrent que sur 7660 ménages seul 0.7% ont un téléphone, 51.2% ont un poste radio, 6,2% ont une télévision. Le nombre d'abonné en internet s'élève à 1795. L'accès au TIC reste un problème majeur au Niger simplement pour des raisons de non connaissance de cet outil, la dernière enquête ENBC à montrer que **95% des nigériens n'utilisent pas l'internet parce qu'ils n'ont aucune connaissance de cet outil, 2.1% disent que c'est parce que il n'est pas en place, 0.1 disent c'est à cause du coût et 2.8% pas besoin du service.** En outre on constate que très peu de nigériens utilisent de téléphone portables et malgré l'avènement dans le pays des compagnies de téléphonie mobile depuis 2001. Ce faible taux d'utilisation du téléphone est en grande partie imputable à l'état de pauvreté dans lequel végète dans une grande partie la population nigérienne.

Les populations du milieu urbain utilisent beaucoup plus le téléphone portable que celles du milieu rural. En effet, en milieu urbain, il atteint 54% dans les communautés urbaines et 46,4% dans les autres centres urbains. Le milieu rural où vit la majorité des nigériens ne compte que 13% d'utilisateurs de téléphone portable.

ENBC(enquête national sur budget et consommation) a permis d'apprécier l'utilisation de l'ordinateur par les ménages au pendant les 12 derniers mois ayant précède l'enquête. Il en ressort que, avec un taux de 1,5%, l'ordinateur est très peu utilisé au Niger.

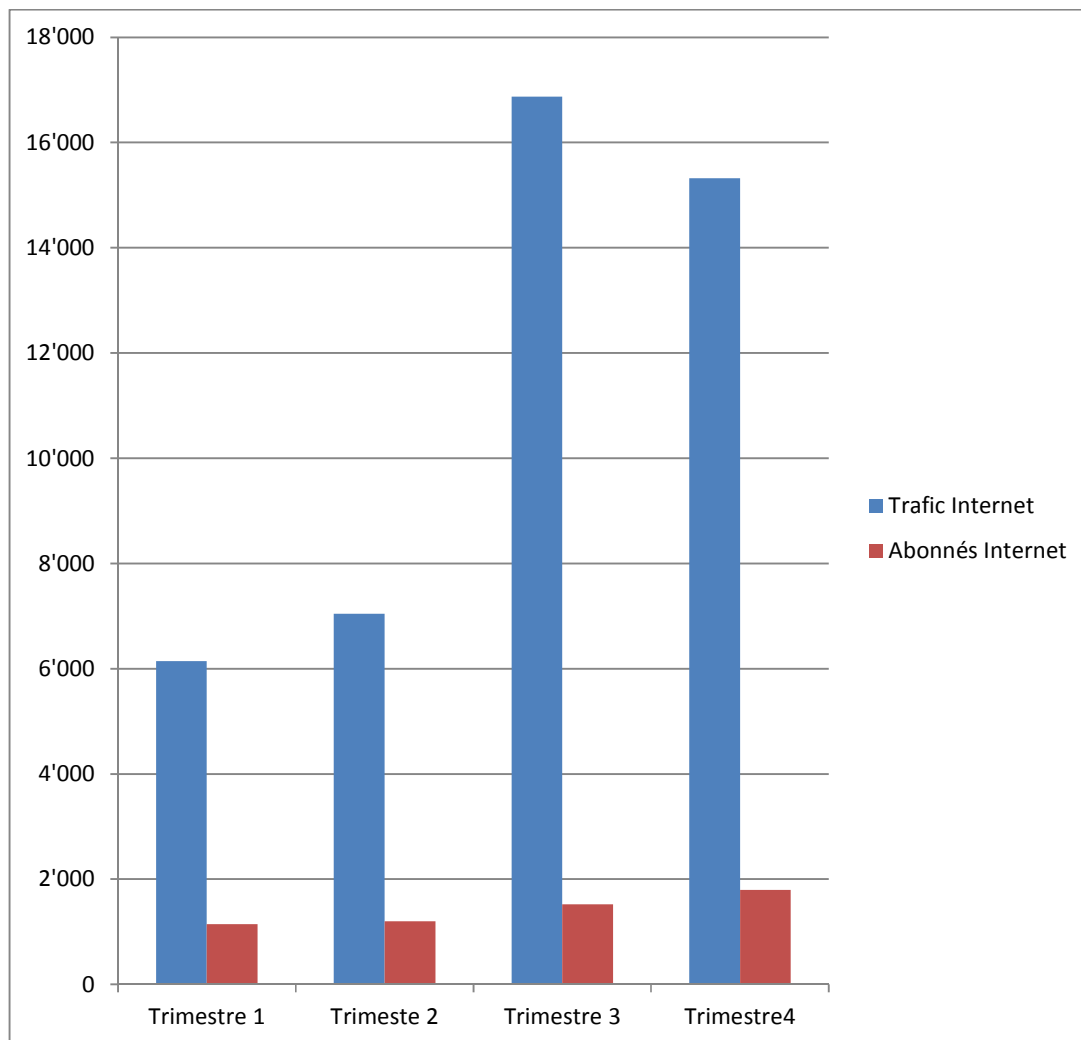
On relève toutefois des disparités d'un milieu de résidence à un autre, d'une région à une autre et selon le sexe (23% pour les hommes contre 0.9% pour les femmes).

Selon le milieu de résidence, l'ENBC relève que « ordinateur est plus utilisé dans les communautés urbaines où sont taux d'utilisation est de 11.4%. »

Ce taux est estimé à seulement 2.5% dans les autres centres urbains. En milieu rural l'ordinateur n'est pas du tout utilisé, le taux d'utilisation étant quasi nul (0.1%). En somme au Niger l'accès au TIC reste un problème majeur qui ne serait pas facile à résoudre non seulement les prix jouent un rôle dans ce fléau mais le grand handicap c'est la non connaissance de cet outil par la majorité de la population. La meilleure façon de donner une place prépondérante au TIC est la sensibilisation voire formé les gens en matière des TIC. Le tableau ci-dessous montre les communications effectué selon divers facteurs.

	1 T11	2 T11	3 T11	4 T11
Nombre de lignes GSM (milliers-nombre)	4 163	4 341	4 505	4 650
Nombre d'abonnés GSM (milliers-nombre)	3 356	3 521	4 193	4 340
Communication nationales (milliers-Nombre)	138 848	151 903	183 523	189 100
Communication internationales au départ (milliers-Nombre)	13 587	14 752	13 294	14 378
Communication internationales à l'arrivée (milliers-Nombre)	61 945	62 264	58 464	70 752
Durée communications nationales (milliers de minutes)	160 364	157 675	178 116	295 640
Durée communications internationales au départ (milliers de minutes)	21 490	22 246	18 337	22 157
Durée communications internationales à l'arrivée (milliers de minutes)	113 025	92 300	97 946	120 725
Nombre d'abonnés internet (milliers-nombre)	1 145	1 196	1 523	1 795
Trafic Internet (milliers de minutes) (Gigabits)	6 142	7 042	16 871	15 321

Ce tableau montre la faiblesse du niveau des NTIC au Niger et bien que le niveau des abonnés croît moyennement. Le graphique ci-dessous nous montre l'évolution des trafics et abonnés en internet au Niger.



Le graphique ci-dessous montre que le trafic par internet connaît une forte évolution pendant l'année 2011 tandis que les abonnés en internet évoluent d'une manière très faible et cela s'explique par le fait que les gens commencent lentement à donner de l'importance à l'internet.

Cependant le nombre des abonnés en gigabits concerne les grandes entreprises de la place. Globalement le problème d'accès à bas débit reste majeur encore moins celui des larges bandes.

Comme convenu, ci-joint quelques éléments sur les réseaux larges bandes :
 Au Niger, l'accès aux réseaux large bande (haut débit) est commercialisé sous 4 formes :

- Par faisceaux hertziens (technologie Wimax d'Orange)
- Par ADSL (Sonitel)
- Par Fibre Optique (pour les grandes entreprises par Sonitel et Orange)
- Par satellite (par Orange et d'autres ISP).

Le réseau d'accès utilisé est fonction du débit demandé, et aussi de la possibilité offerte à l'opérateur. Les débits offerts vont de 128 kbits aux dizaines de Mbits selon les clients. C'est ainsi que 512 ko coutent 72000 fcfa, 1Mg coute 135000 fcfa , ce qui semble un peu cher par rapport au revenu de la population.

Les grandes entreprises utilisent des accès aux débits dédiés pour disposer d'un débit conséquent et aussi d'une grande disponibilité du service. Les prix varient selon le débit demandé et la qualité de service.

Globalement pour permettre l'accès au haut débit au Niger il faut que l'Etat mène une politique de forte d'alphabétisation et de sensibilisation sur les atouts de connaître l'internet. S'agissant des prix c'est surtout l'accès à l'ordinateur qui cause un véritables déficit. En effet dans un pays où la population dépense moins de 1 dollars par jour il serait difficile que l'accès à l'ordinateur dont il faut au moins avoir 300000fcfa pour en avoir neuf soit facile. En conclusion au Niger le problème d'accès aux larges bandes a seulement pour source l'analphabétisme.

➤ **révision des indicateurs relatifs à l'accès aux TIC dans les foyers et à l'utilisation individuelle des TIC, y compris en ce qui concerne les jeunes et la répartition hommes-femmes.**

- Concernant la révision des indicateurs d'accès au TIC par les ménages, dans les pays pauvres comme le Niger le nombre des gens qui sachent manipuler les ordinateurs est faible pour vouloir se renseigner sur les ménages qui ont un enfant de moins de 15 ans par exemple. Il est plus préférable de poser des questions sur le nombre de

personnes sachant manipuler un ordinateur ou ayant un ordinateur au sein des ménages ou bien si le ménage a au moins une personne qui . En effet il pose même un problème de d'alphabétisation des personnes à plus forte raison l'accès au NTIC.

Cette année avec l'enquête ENDSM en cours des nouvelles informations en matière de télécommunication seront disponibles.

Toutes fois j'aimerais si possible avec votre aide faire une étude sur les NTIC au Niger capable de répondre de façon cohérente a vos consultations en matière d'information sur les TIC comme au Niger Il n'ya jamais eu une étude spéciale sur les NTIC toutes les informations sur les NTIC ne sont qu'une partie de l'information recueillit d'une lors d'une autre enquête.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/22-E
31 August 2012**

English

SOURCE: Zimbabwe National Statistics Agency, Zimbabwe

TITLE: An overview of Zimbabwe's work on measuring the WSIS targets in the context of the WSIS+10 process

**10TH ITU WORLD TELECOMMUNICATION/ICT INDICATORS MEETING
(WTIM) 25 - 27 SEPTEMBER 2012, BANGKOK, THAILAND ZIMBABWE
PAPER**

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**AN OVERVIEW OF ZIMBABWE'S WORK ON MEASURING THE WSIS
TARGETS IN THE CONTEXT OF THE WSIS+10 REVIEW PROCESS.**

The installation of the fibre optic cable linking Zimbabwe to an undersea cable at Beira, Mozambique was completed last year at a cost of US\$6, 3 million. Another fibre optic project linking Harare-Bulawayo-Beitbridge to the undersea cable in South Africa is nearing completion. Once complete, the fibre optic project is set to transform the country's information communication technology landscape. Expectations are that Zimbabwe which is landlocked will have faster Internet and telephone connection, transmission of data as well as multimedia facilities. It is expected that by 2014 the country will be internationally networked, with about 1 340 km of cables, carrying massive amounts of mobile phone, television, Internet and other telecommunication signals. It is also expected that vast job opportunities will open up, costs of internet access and doing business will be lowered. The development is seen as ushering in a new era in Zimbabwe, for example, it is anticipated that software developers, students, internet fanatics, broadcasters and other sectors will cash in as telecommunication services become better. Expressed simply, fibre optic internet cables are expected to change lives and livelihoods in the country and drive it faster towards becoming a knowledgeable based information society. The country has traditionally relied on the Mazowe earth satellite link which is not only limited but very slow and expensive.

The link between ICT statistics and policy making, and suggestions on how to improve the availability of the data, both at the national and global level cannot be overemphasised. Below are target achievement developments that have taken place in the country so.

Target 1. Connect all villages with ICTs and establish community access points.

The government is committed to building community awareness on the important role ICT plays in today's constantly evolving technological world. Zimbabwe like other nations in the region is exploring ways to develop the ICT industry. There is in Zimbabwe an ICT Achievers Programme. The programme is a gesture to inspire Zimbabweans to view ICTs as the key to fulfilling their life-wide aspirations, reward

excellence and create appetite for success for those companies in the habit of super-achievement. ICT is a locomotive force for socio-economic development in developing countries, as a result, efforts of individuals and organizations that have excelled, have been innovative and have contributed meaningfully to the development of the nation through ICTs need to be acknowledged. Mubaira, Murambinda, Maphisa, Ngundu and Mutoko have been identified as pilot points for establishing community access points

Target 2. Connect all secondary schools and primary schools with ICTs

The ministry of Information and Communication Technology in conjunction with the Zimbabwe Academic Research Network (ZARnet) has initiated a programme to link to the Internet all schools that benefited from the President's Computerisation Programme. As a starting point eighty (80) schools have been identified for the first phase of the project. One thousand three hundred (1 300) personal computers, sixty (60) projectors and ancillary equipment was procured. **ICT has changed** our way of doing things and no doubt education is part of this. What stands out from the achievements on this target was the establishment of a 40-seater lab model for schools which was implemented in 10 2011 at Chogugudza Primary School in Mashonaland East. This will act as the standard and will be rolled out to more schools in all provinces in the next two years. **This is being done** in pursuit of the target of equipping every school in Zimbabwe with a computer lab and Internet connection in order to increase computer literacy at grassroots level and also promote electronic learning at the schools by providing e-learning content. In the Matabeleland region, the government identified Manje Secondary School as the model school for region. The school received 42 x PCs, 2 x Printers, 1 x LCD Projector, 7 x 4 way adaptors, 1 x white board 1 x local area Network (LAN) setup and Internet setup. A wireless internet connection was also put up to enable anyone around the school in a certain radius to access the internet using wireless mobile Internet devices. Government being aware of the current electricity shortages is looking to alternative solar energy to power the programme in rural areas.

Target 3. Connect all scientific and research centres with ICTs

With the completion of the installation of a fibre optic cable projects linking the country to the outside world through the sea on via Mozambique and South Africa the whole country will be assured of fast and reliable internet connectivity. It should then be easy to connect all scientific and research centres with ICTs by 2015.

Target 4. Connect all public libraries, museums, post offices and national archives with ICTs

The massive investment in ICT Infrastructure fibre will result in requirement for high-speed Internet connectivity being achieved and this will catalyse connection of all public libraries, museums, post offices and national archives.

Target 5. Connect all health centres and hospitals with ICTs

In the health sector one thousand two hundred (1 200) cell phones were purchased for clinics to improve reporting on health data and enable the Ministry to identify and respond timeously to epidemics. All provincial health offices are radio connected while radio connection of district centres is work in progress with quite a number already connected by radio.

Target 6. Connect all central governments departments and establish websites.

The government is working on establishing a trust-worthy ICT legislative environment through the development of a specific legal framework. This is seen as a prerequisite for the successful implementation of E-government encompassing the areas of e-commerce, e- banking, and other online services. The following successes have been recorded:

All ministries have had websites developed and contact persons trained to upload content and maintain the websites;

All ministries' head offices are now linked the Internet:

All senior government officials have been issued with more secure government domain e-mail addresses.

Work is in progress to link all government offices to the Internet; Two hundred and five civil servants have received training in information and communication technology.

The Ministry of ICT is working with the Ministry of the Public Service in establishing units for capacity building in various centres to train more civil servants. So far the Public Service has thirty six (36) trained ICT trainers.

Target 7. Adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances.

Zimbabwe has an Information and Communication Technology (ICT) Policy requiring all school and college students be exposed to computer skills. This is in view of the importance ICT literacy skills have assumed in today's world, especially for teachers who have the responsibility for preparing the nation's children for a future dominated by ICT technology.

Zimbabwe's education system has been regarded as one of the best in Africa but recently it has been falling behind the times. The global trends in the use of ICTs in education have left gaps in our education system and calls for the review of the education curriculum have currently been intensifying. The government has embarked

on a curriculum review process to try and transform the system and embrace teaching of skills in ICTs in schools. The education review process was started through consultations with teachers, parents, children and partners in the education sector.

Target 8. Ensure that all of the world's population has access to television and radio services

Going forward there are initiatives focusing on rural areas through PC per classroom project and setting up of information kiosks. The laying and completion of a dependable and robust national backbone remain the Government's top priority. "Seek ye first the kingdom of infrastructure and connectivity" and the rest will follow. Revamping of existing radio and television services transmission grid and building of new sites around the country is nearly complete. Phased digitalisation of transmission networks is in progress.

Target 9. Encourage the development of content and put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet

Target 10. Ensure that more than half the world's inhabitants have access to ICTs within their reach and make use of them.

Information is an important business asset and is valuable to any organization. In present day business environment, information defines the performance of most organisations. Thus, it needs to be protected to ensure its confidentiality, integrity and availability. Government is in the process of setting up policies and procedures on how to protect Information. ICT will continue spreading its revolutionary power to modernize and catalyze growth of the economy and development of a knowledgeable information society and generally improve living conditions and opportunities of our people. The government committed to creating a national digital culture and provide ICT access for many, regardless of gender, region, or any other criteria. To date, our mobile penetration rates have increased from 9% in 2008 to over 60 % in 2010. Sim cards are now ubiquitously available. Its now a lose and buy affair. Internet penetration rates have risen from 1.5% to anything between 11% and 20% during the same period the quality and price of calls remain below expected standards and Potraz and the operators have been directed to deploy attention and action with immediacy and urgency. Speed and cost issues of internet are likely to be part of our history once we complete the fibre optic connection for a handshake with the rest of the world.

Preparations are underway for the conduct of a national survey on ICT Use and access by individuals in early 2013.

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/23-E
31 August 2012**

English

SOURCE: Ministry of Transport, Communications and Infrastructural Development, Zimbabwe

TITLE: Coordination of national ICT statistics : The case of Zimbabwe

Coordination of national ICT statistics : The case of Zimbabwe

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Introduction

To improve the quality of ICT statistics, countries must take primary responsibility for the collection of ICT statistics. As in many areas of economic statistics, the collection of ICT data can be done in a centralized fashion by a National Statistical Office or on a decentralized basis, where each Government Department collects the statistics pertaining to its own activities. This paper examines organizational issues relating to the co-ordination of national ICT statistics. The current situation regarding ICT statistics collection in Zimbabwe is reviewed.

The need for ICT statistics

On 20 December 1988, the United Nations General Assembly proclaimed the second United Nations Transport and Communications Decade in Africa (UNTACDA II) for the period 1991 - 2000 to focus African and international attention on the crucial role of the transport and communications sectors in Africa's economic and social development. The programme document for UNTACDA II highlighted, as Objective 5, the requirement to establish information systems on transport and communications as a basis for analysis and better planning and management of investments. In this regard, the following became areas of immediate concentration:

- a) Establishment of harmonized and statistical transport and communications data base systems at national, sub-regional and regional levels;
- b) Establishment of computerized management information systems in national transport and communications organizations to improve management; and
- c) Introduction of the United Nations Rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) in all electronic data interchange communications.

In the same vain, a 2001 presentation document, that was crafted by the New Partnership for Africa's Development (NEPAD) - the planning and coordinating technical body of the African Union (AU), upholds this argument that intensive use of ICTs can bring unprecedented comparative advantages to the African continent. NEPAD's Short Term Action Plan - Infrastructure (STAP) considers ICTs as much important as other infrastructures (transport, energy and water) due to the important role that ICTs may play in regional and international integration and in reaching NEPAD's primary objectives.

Coordination of national ICT statistics in Zimbabwe

The need for ICT statistics for planning and evaluation purposes

The shortage of economic data in Africa in general and in Zimbabwe in particular extends to the ICTs Sector. We have been searching for the improvement in the quality, reliability and relevancy of ICTs data as an essential step towards building up the indigenous capacity to evaluate and to analyse ICTs policy. The performance monitoring essential for the development of effective policies and programs in the ICTs Sector has been adversely affected by the lack of reliable data. There is, therefore, an obvious need for ICTs statistics for planning and evaluation purposes.

Coordination with other institutions

The ICTs sector has a wide range of stakeholders, here defined as ‘individuals, groups, communities or institutions which are affected by the impact of ICTs, or which can influence an activity’. The key stakeholders are categorised as:

- a) Suppliers of data (who are key players in the production of sectoral data and information). Here, both centralised systems of data collection and decentralized systems of data collection exist.
- b) Users of data (who use sectoral data and information). Here, these can be further categorised into:
 - operational management;
 - sector or sub-sector management;
 - national authorities; and
 - International organizations.

Data priorities and how they are determined

Different user groups require a different degree of detail or disaggregation level as follows:

- a) Operational management requires detailed data for the monitoring and control of operations, the preparation of budget submissions and project investment identification. In many cases, such users are also producers of basic data.
- b) Sector or sub-sector management is mainly the responsibility of Government Line Ministries with the interest to monitor sector performance and needs in order to make resource allocation and planning decisions as well as to monitor and control the performance of operational entities.
- c) At the level of national authorities, the principal data needs relate to monitoring the performance and needs of different sectors and sub-sectors as an aid to decision-making on inter-sectoral allocations and national policy development.
- d) The need for international compilation of ICTs statistics stems from several factors:
 - International comparisons are useful as instruments of experience transfer;
 - An overall assessment of regional requirements and problems is needed to serve as an input for regional studies and development of regional programmes;

- Some ICTs problems are inherently international in scope and require performance comparisons of different national systems; and
- Internationally comparable data are often required for market research and planning.

User liaison

- Given the present precarious position of the statistical programmes in Zimbabwe's ICTs Sector, there is inadequate user-producer collaboration. A strong case can thus be made for institutionalizing user-producer relations!
- Continuing liaison between the providers and users of data is essential for the sustainability and development of a statistical system.
- The users and the potential users should be drawn into the design of the system and establishment of priorities.
- The statisticians should be involved in advising users on data uses, pointing out data limitations and suggesting alternative methods of obtaining information.
- Statistics have no inherent value in themselves; their value depends on applications.
- Successful user liaison can result in a situation where users can be required to participate in meeting the cost of some of the surveys conducted by the Statistical Agency. In the same vain, the Statistical Agency should investigate the possibility of being hired as a consultant!

Statistical Advocacy

Statistical advocacy is about making the case for statistics. A large proportion of time, cost and effort, of ICTs studies and project evaluation, is spent on ad hoc data collection; furthermore, such efforts are not always consistently followed, requiring subsequent repetition of essentially similar work a few years later. This makes advocacy difficult.

No one in the Ministry of Transport, Communications and Infrastructural Development of Zimbabwe, save for the efforts, first, of the Zimbabwe Statistics Database (ZIMDAT) Team, and now, of Zimbabwe National Statistics Agency (ZIMSTAT) has been championing ICTs statistical advocacy save for our current interest and participation.

Data development

The sector has a regular data production programme. Much of the information is generated as "administrative statistics", i.e. data collected to serve particular managerial needs of operating entities in the Sector or as a by-product of administrative activities, e.g. licensing of operators. ICTs enterprises produce such data consistently for monitoring and control of their operations. There are several indicators. Only a few of these have been captured in ZIMDAT.

Data sources

- "Administrative statistics" are produced as a by-product of administrative activities, e.g. licensing of operators, et cetera.
- The product of successive aggregation of more detailed data collected at the level of operational management required for planning and decision-making at a senior level.
- Other data production programmes.

- The revision of data collection instruments is regular. ICTs enterprises produce “administrative statistics” consistently for monitoring and control of their operations. If monitoring and control of operations are taken seriously, i.e. the users actually employ the data in discharging their managerial responsibilities – there is a virtually automatic system of quality control.

Documentation

The Central Statistics Office of Zimbabwe used to produce an Annual Digest of Statistics covering all sectors, including the ICTs Sector. No annual statistics report was produced particularly for the sector.

Dissemination strategy

The principal methods of statistical dissemination in the ICTs Sector are:

- Standard publications (monthly, quarterly, annually);
- Special tabulations and reports; and
- Organized “machine to machine” or “computer to computer” access.

SWOT analysis

<u>Strengths</u> • Existence of a regular data production programme. • Will to learn from ZIMSTAT’s statistical advocacy. • Staff in the Division of Policy, Planning and Co-ordination	<u>Opportunities</u> • Existence of the Division of Policy, Planning and Co-ordination, that will, among other functions, maintain a database for the sector. • Membership of the ZIMDAT Taskforce for the sake of statistical advocacy. • To learn from international best practices.
<u>Weaknesses</u> • Absence of a single Statistical Unit. • Outdated IT equipment and under-developed statistical software. • Poor co-ordination of information flow within the sector.	<u>Threats</u> • Absence of a budget item on production of statistics. • Duplication of efforts by various organizations. • Change of Government Ministry Structures, especially after a Cabinet Re-shuffle.

Gap analysis

These include among others:

- Resource gap;
- Capacity gap; and
- Skills gap, *et cetera*.

Challenges

- If data is to be collected for the ICTs Sector on our behalf, there is a particular format we require.
- ICTs data must be collected on a comparative basis over time to trace the evolution of the Sector.

Available ICTs databases in Africa

Considerable progress has been made in advocating regionally for ICT indicators, and several countries in the region have undertaken statistical operations to investigate ICT readiness for households and businesses. The launching of ICT regional policies, such as the ICT component of the NEPAD, carried out by the International Telecommunications Union (ITU), the African Initiative for the Information Society (AISI) and the associated National Information and Communication Infrastructure (NICI) plans, have fostered demand for ICT indicators in the region.

Except for Tunisia and Morocco, where the Ministries responsible for Telecommunications carried out surveys on home PCs, ICT firms and investments, use of ICTs in businesses, government and higher education, all statistical operations were carried out by the National Statistical Offices (NSOs). Other institutions that provide ICT-related information in the region are Telecommunication Regulatory Authorities, the National Internet Agency (Tunisia) and the Association of ICT Professionals (Morocco). The main source of ICT data still remains ITU which conducts annual data surveys and includes them on a database commented by a report.

Conclusion

This conclusion consists of some general recommendations based on the assumptions that a comprehensive program will be developed to improve national ICTs statistics and that an adequate organizational framework will be established. In order to meet the quality and coverage of ICTs statistics, designation should be done by each national government of a lead agency in ICTs statistics, either a Government Ministry or a Central Statistical Office, while ensuring cooperation of other government agencies. Parallel with the work of upgrading national ICTs statistical systems, the development of a regional ICTs database will be required to meet the objectives of UNTACDA II and NEPAD. Finally, there will be need to establish the format for ICTs data dissemination by electronic methods and through the production of a ICTs Statistics Yearbook for the region.

References

1. Adams, 2007, African Technology Forum, ATDF Journal.
2. Global Information Technology Report (GITR), 2006.

3. Government of Zimbabwe, 2005, National Information and Communication Technology Policy, September 2007.
4. UNDP and World Bank, 2004, Economic and Social Context : ICT Zimbabwe.
5. www.choice.org
6. www.comminit.com



Information document

**Document INF/24-E
08 November 2012**

English

SOURCE: Central Statistical Bureau, Kuwait

TITLE: Availability and usage of information and communication technologies statistics and their impacts: The case of Kuwait



State of Kuwait
Central Statistical Bureau

Availability and Usage of Information and Communication Technologies Statistics and their Impacts: The case of Kuwait

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10th International Meeting of the International Telecommunication Union (ITU) on (Indicators of Communications / Information and Communication Technology (WTIM)) - Bangkok, Thailand,
25 to 27 September 2012

(A preliminary version)

2012

Introduction

The technological developments achieved by the means of communication had deep implications, both quantitatively and qualitatively on the various segments of society. With the elapse of time, the number of this technology users increased to cover a wide range of the social sectors, ultimately leading to fundamental change in the nature of jobs and roles played by those means, especially communication media.

As a result of the massive and overwhelming developments in telecommunication, the world was transformed into a small village, with the rapid and quick flow of information.

To pressure these developments, Kuwait was one of few countries which invest in information and telecommunication technology sector. Hence, the paper sheds light on the digital revolution witnessed in mobile telecommunication technology, whereby intercommunication and interconnection with the outside world became more direct, easy and reachable.

Moreover, with the rapid developments in technology and the persistent increase in competition among the telecommunication companies, it became indispensable to provide new services that reinforce these technologies. Accordingly, the Smartphone was introduced, thus opening new horizons and concepts in telecommunication.

Based on the above mentioned, the paper tackles the following three aspects:

1. The development and growth of the information and communication technology infrastructure in Kuwait during the period 2003-2010.
2. Information and communication technology usage by the individuals in Kuwait.
3. Household accessibility and linkage with information and communication technology.

1 Information and Telecommunication Technology Infrastructure

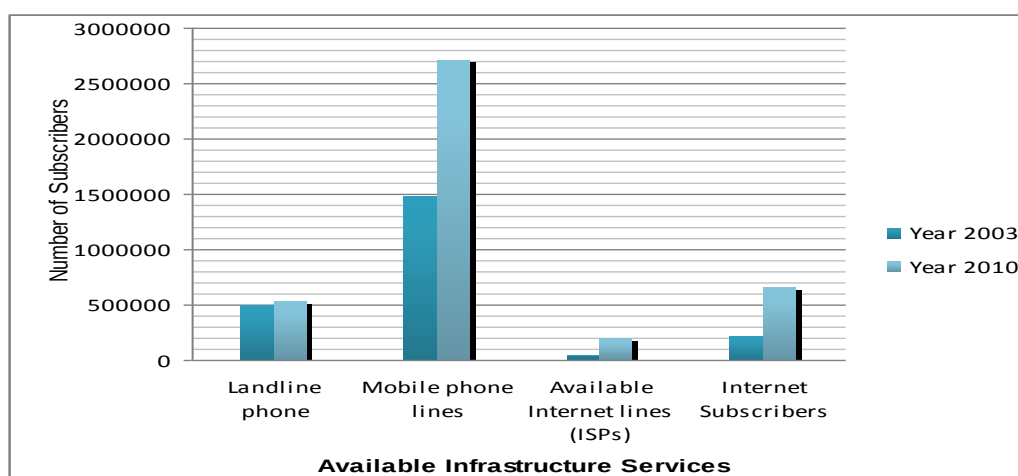
Kuwait managed during the last decade to bridge the digital gap, which disintegrated it from the most advanced economies of the industrialized countries.

In 2010, the density of landline and mobile phones was approximately 19, 149 phones per each 100,000. The number of available Internet connection and the number of Internet subscriber's reached 189.5 thousand and 649.843 thousand respectively in 2010 compared with 38.8 thousand connection and 212.881 thousand subscribers in 2003, see Table 1- Figure 1

Table 1 Available Infrastructure services and Numbers of Subscribers

Type of Service	2003	2010
Landline phone	486,904	519,418
Mobile phone lines	1,479,022	3,979,145
Available Internet lines (ISPs)	38,800	189,500
Internet Subscribers	212,881	649,843

Figure 1 Available Infrastructure services and Numbers of Subscribers



2 Individuals usage of information and communication technology

Updating infrastructure helped in facilitating the communication process between the components of Kuwaiti society locally and with the outside world by the rapid increase in mobile phone usage. International calls through the mobile phone comprised 95% of the total calls, and 93.4% of the total minutes of these calls in 2011. Total annual cost of this service is estimated at Kuwait Dinars 56.0 million (approx. US \$196 million).

As for the size of the landline use as a means of communication with the outside world it did not exceed 7.526 million calls and the number of minutes 28.055 million minutes by about 5% and 6.5% of the total calls and minutes consumed, respectively. According to available data, the commercial purpose was most prevalent among users of landline by 65.9% and 63% of the total calls and minutes used, while the percentage of minutes consumed by the households is 32.3%. See Table -2 - and figures 2, 3 and 4. As well as Table 3 - more details about the Landline phones.

Table 2 Total of minutes, calls and amounts due by phone type (mobile & landline)

	Number of Minutes	Percentage	Number of Calls	Percentage
Mobile Phones	400850.4	93.5%	143830.5	95.0%
Landline phones	28055.4	6.5%	7525.9	5.0%
Total	428905.8	100.0%	151356.4	100.0%

Figure 2 Percentage distributions of consumed minutes by phone type (mobile, landline) 2010-2011

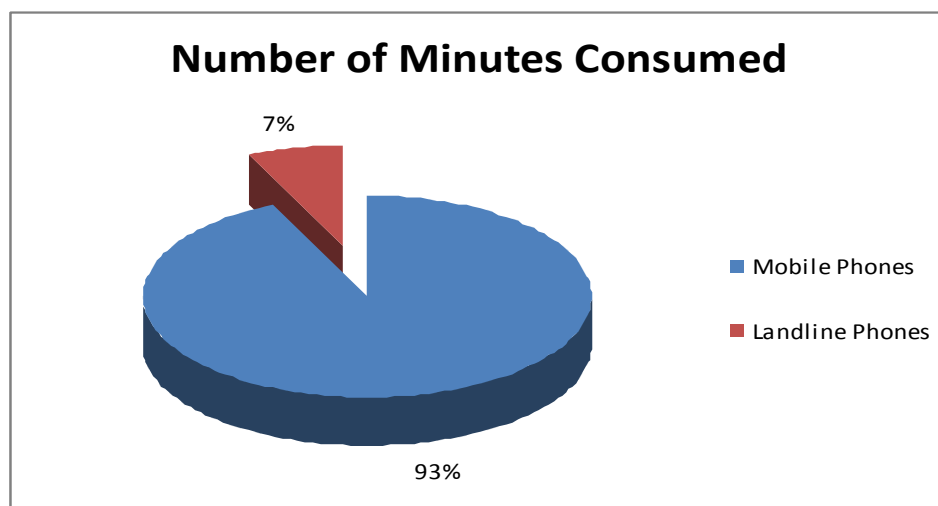


Figure 3 Percentage distributions of calls by phone type (mobile, landline) in 2010-2011

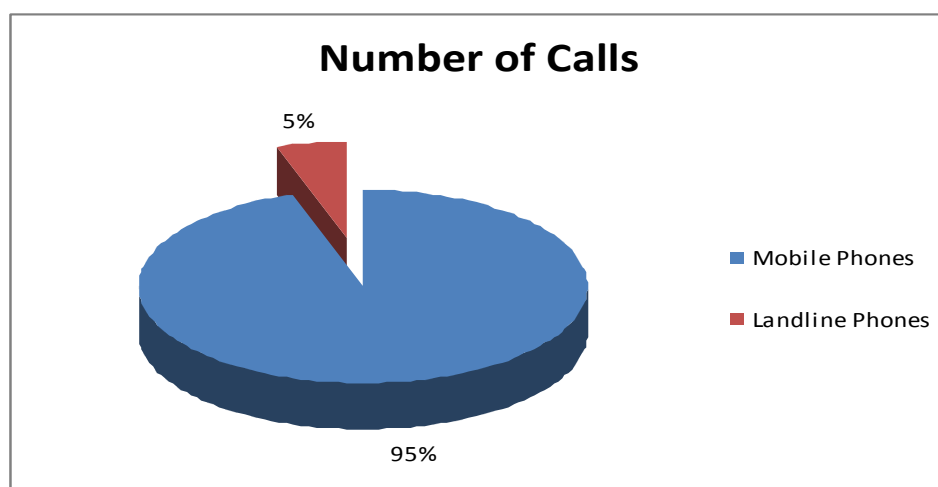


Figure 4 Amounts due for calls by phone type (mobile, landline) in 2010-2011

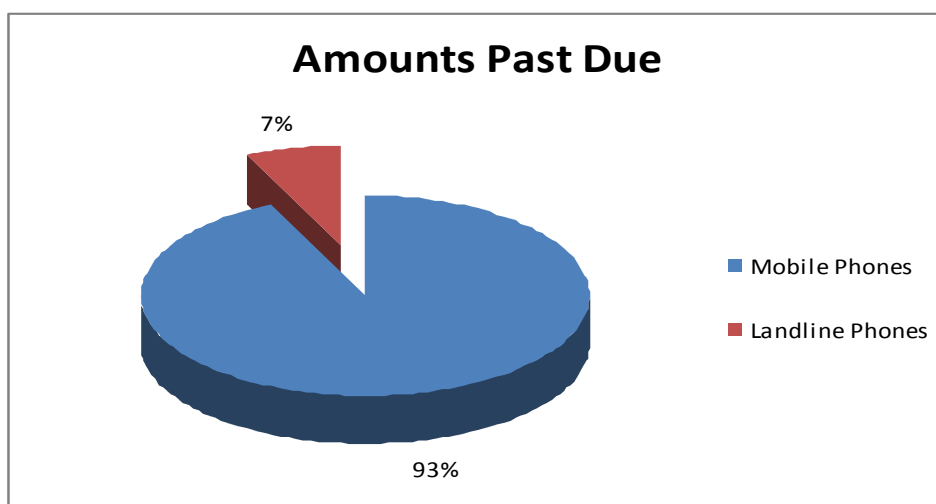


Table 3 Number of minutes and calls by type of usage (commercial, households, governmental, other) in 2010-2011

Sector	Number of Minutes	Percentage	Number of Calls	Percentage
Commercial	17668.8	63.0%	4963.2	65.9%
Households	9051.8	32.3%	2037.1	27.1%
Governmental	1005.5	3.6%	421.1	5.6%
Other	329.4	1.2%	104.6	1.4%
Total	28055.4	100%	7525.9	100%

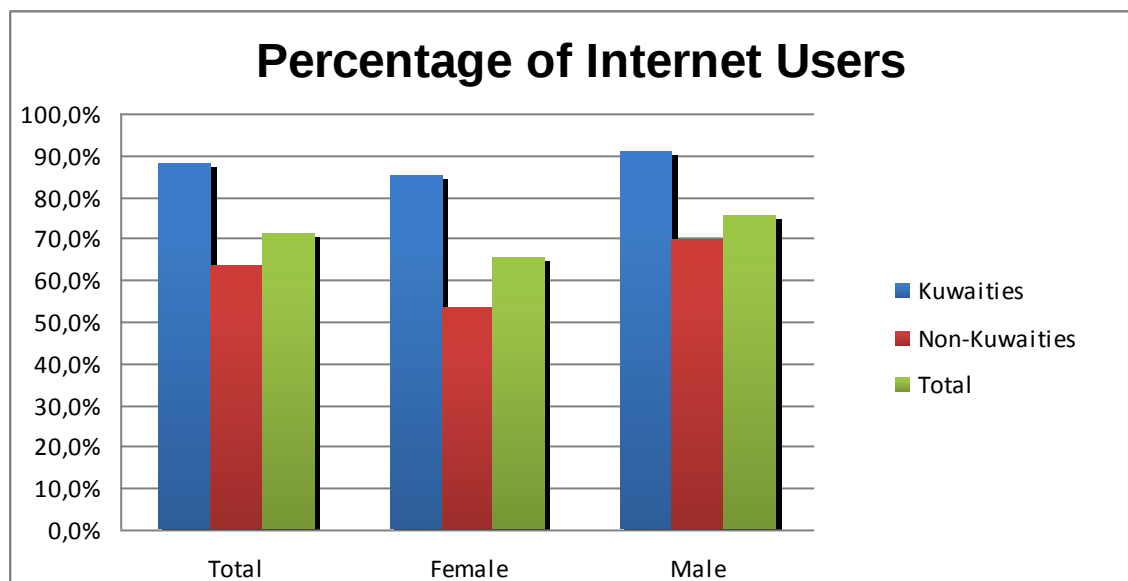
3 Telecommunications infrastructure

The development of telecommunications infrastructure enabled the Kuwaiti society to benefit from the information revolution that has characterized this century. The census of 2011 showed that 71.2% of the total population (10 years+) and 87.9% of Kuwaitis utilize the global network of information. The 2011 census data also indicated that the rate of access to the global information network is higher among males where users reached 75.5%, compared with 65.3% among employed females. This disparity is mainly due to the decline in the proportion of non-Kuwaiti employed females to 53.3%, while the proportion of Kuwaitis employed females reached (85.1%) compared to male Kuwaiti users of the global network of information, which reached 90.8%, see Table -4 - Figure -5 -.

Table 4 Percentage distribution of the population (10 years +) by Nationality (Kuwaiti/ non-Kuwaiti) and the type and usage of the global information network (Internet) according to the results of the 2011 Population & Housing Census

Users	Males	Females	Total
Kuwaiti	90.8%	85.1%	87.9%
Non-Kuwaiti	69.8%	53.3%	63.5%
Total Population	75.5%	65.3%	71.2%

Figure 5 Percentage distribution of the population (10 years +) by Nationality (Kuwaiti/ non-Kuwaiti) and the type and usage of the global information network (Internet) according to the results of the 2011 Population and Households Census

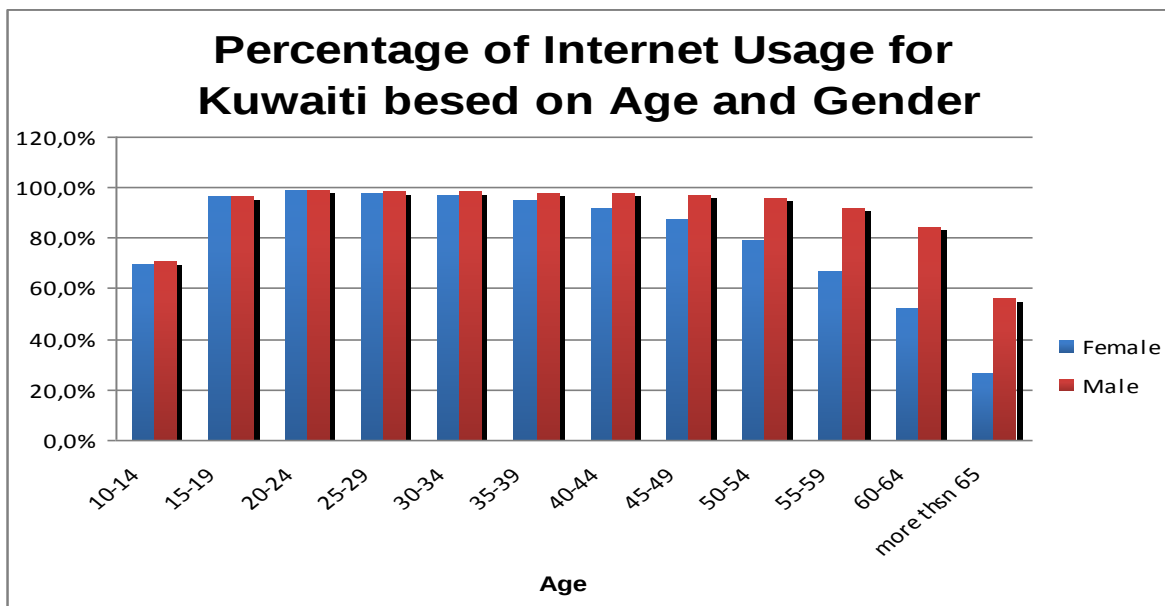


The 2011 Census data highlighted the widespread usage of the global network of information among Kuwaiti males and females belonging to the age group (15-39) years, where the percentage of male usage of the network was 97.7% and the percentage of female users is 96.9%. The widening disparity in the usage of the network among the Kuwaiti males and females parallel with aging is also noted as ratio of male users aged 40 years and over stood in a high level (90.3%), while the rate of female users of the same age group declined to about 71.8 %.

Table 5 Percentage distribution of Kuwaiti population (10 years +) by age groups, gender and usage of Internet according to the results of the 2011 Population and Households Census

Age Group	Males	Females
10-14	70.5%	69.0%
15-19	96.1%	96.1%
20-24	98.6%	98.5%
25-29	98.4%	88.8%
30-34	98.1%	96.6%
35-39	97.8%	95.1%
40-44	97.4%	92.1%
45-49	96.7%	87.3%
50-54	95.4%	78.8%
55-59	91.6%	67.0%
60-64	84.0%	51.8%
65 +	55.9%	26.1%

Figure 6 Percentage distribution of Kuwaiti population (10 years +) by age groups, gender and usage of Internet according to the results of Census of Population and Housing 2011



The final results of the 2011 Population and Households Census show that the computer is the most widely used medium to access to the global information network, with an average percentage of individuals who use computers 71.7% of the total population of the State of Kuwait, by 75.9% among males and 65.9% among females . These data also indicate the increase of these percentages among the Kuwaiti population to the extent of 88.8% by 91.7% males and 86% females. While the rate of computer usage among non-Kuwaiti population declined to 70.1% among male users and 53.7% among female users. See Table 6 - and Table 7

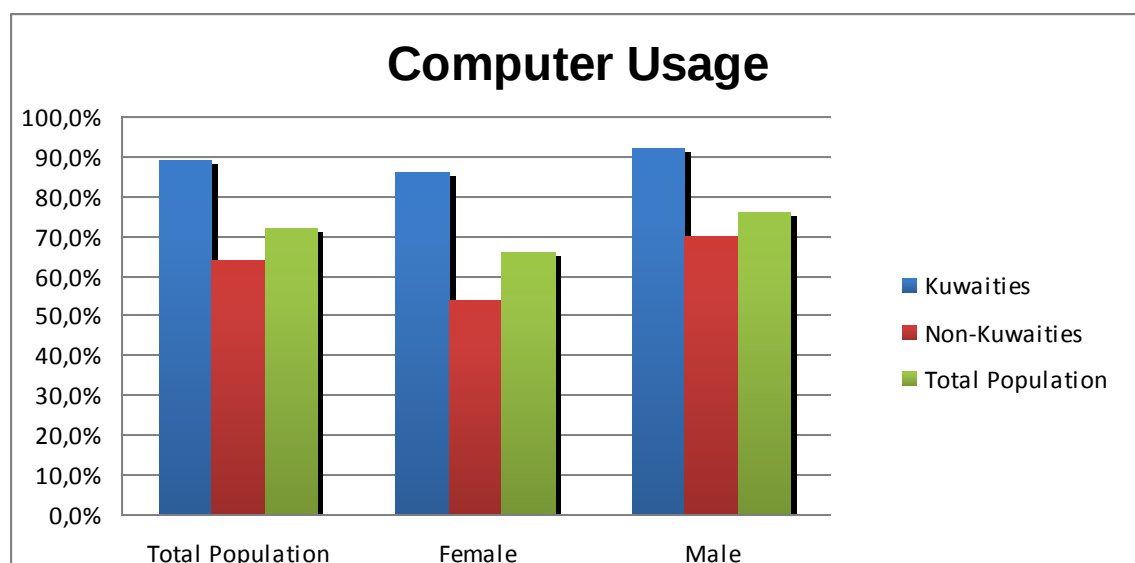
Table 6 Distribution of Kuwaiti population (10 years +) computer users by nationality and gender according to the results of the 2011 Population and Households Census (1)

Nationality	Males	Females	Total
Kuwaitis	365,322	354,161	719,483
Non-Kuwaitis	760,572	363,655	1,124,227
Total Population	1,125,894	717,816	1,843,710

Table 7 % distribution of the Kuwaiti population (10 years +) computer users by nationality and gender according to the results of the 2011 Population and Households Census

Users	Males	Females	Total
Kuwaitis	91.7%	86.0%	88.8%
Non-Kuwaitis	70.1%	53.7%	63.8%
Total Population	75.9%	65.9%	71.7%

Figure 6 Percentage distribution of the Kuwaiti population (10 years +) computer users by nationality and gender according to the results of the 2011 Population and Housing Census



4 Households Accessibility to Information and Telecommunication

From the actual data of the final results of the 2011 Population and Housing Census regarding households possession of the means of access to information telecommunication, it has been observed that:

- The percentage of households possessing computers is 69% of total households by 86.9% of Kuwaitis households and 59.3% of non-Kuwaiti households.
- The percentage of households having internet service at home is 63% of total households by 80% of Kuwaiti households and 53.7% of non-Kuwaiti households.
- The percentage of households possessing mobile phones is 93.4% and 91.9% respectively, as a result of Kuwaiti and non-Kuwaiti households' interest in possessing communication devices. While the percentage of having Landline phone reached 81% among Kuwaiti households and did not exceed 38.6% among non-Kuwaiti households.

Table 8 Number and percentage distribution of Kuwaiti and non-Kuwaiti households by possession of the means of access to information technology and communication according to the final results of the 2011 Population and Housing Census

Households' Access to Info. Tech. and Communications	Private Kuwaiti Households		Private Non-Kuwaiti households		Total Private Households	
Houses Accessing to Internet	133929	80.0%	164244	53.7%	298173	63.0%
Computers	156882	86.9%	199163	59.3%	356042	69.0%
Mobile Phones	168600	93.4%	308738	91.9%	477338	92.5%
Landline phones	146125	81.0%	129692	38.6%	275817	53.4%

5 The Importance of Information and Telecommunication Technology Development and Communication and Its Economic and Social Impacts

The development of information and communication technology contributed in the welfare of the individuals in the world including the Kuwaiti society, providing communication services of various kinds, education services, and necessary information for people and organizations it made communication between members of human societies easier and more streamlined reflecting the reality that the world became a small village. In this village, people can communicate with each other freely and easily sharing information with each other without restrictions and barriers as were imposed on them before. This communication is not confined to a related community, but among individuals who have never met and who found themselves involved in similar purposes and objectives that have made them invisible but effective at all levels. So that the information technology and communications got special importance due to the

characteristics of quick widespread, endurance capacity both for the number of people involved or connected, or in relation to the size of information transmitted, as they are characterized by fast performance and ease of usage and variety of services. Communication technology has affected the communities in large and varying degrees leading to radical changes in the social and economic fabrics which should be noted and try to focus on, analyze and discuss in order to achieve maximum benefit for mankind. We will review the most important areas affected by the information technology and communication, both in all societies in general or in the Kuwaiti society in particular. The areas are as follows:

First – Economic Effects: Information technology and telecommunication contributes to the economic development. The digital revolution creates entirely new forms of social and economic interactions and causes the rise of new societies. Unlike the Industrial Revolution in the last century, information technology and communication revolution is featured with rapid spread and influence on everyone's vitality. That revolution revolves around the power of information technology and communication that allows people to access the information and the knowledge available anywhere in the world at the same time. Increasing people's ability to communicate and share information and knowledge increases the chance to make the world safer and more prosper for all its inhabitants. Information technology and communication are able to help in improving the main economic tools through the access to information and transparency. Hence it is clear that information technology and communication have a substantial role in enhancing human, economic, social and intellectual development, and that is because of what the latter has features more significant and efficient than the traditional communication means.

Information technology and communication are widely spread that they overreach counties' geographical boundaries to reach to any point in the world that the old communication means have failed to reach; they are also available at any time and in any place, and with low costs.

They are considered as a major source of information, whether to individuals, different types of organizations or governments. They have a substantial role in developing the human element through the programs they are displayed by, like training programs and learning programs and others. Information technology and communication play a substantial role considering

economics; they help in achieving efficient monitoring to the operational processes, especially to the industrial institutions that use high technology in production. Information technology will also facilitate detecting manufacturing errors, and providing concerned administration with any information required in the time needed. This in itself is a competitive advantage can be used by the institutions to face the environment's fluctuation using less time and less human effort. This affects primarily the organizational structure and all its levels, and the quantity and quality of human labour sources. Although it is considered a huge advancement in the positive effects on the information structure and decisions making, there are many negative economic phenomena resulting of these developments.

One of these cons is the increase dispense of the human cadres and its effect on labour market and unemployment. There is also monopolizing technical information which affects negatively on knowledge transmitting. Also there is the extent to which the developing countries are coping with the technological era, which leads to the expand of the gap between the rich industrial countries and the poor consuming countries. Amongst the cons there are also the considerable violations to the copy rights, and the thefts in information technology field that have a huge economic impact on its manufacturers.

All the above with its effects in the economic dimensions cannot be ignored, it is not acceptable neither to restrict the use of information technology field in solid numbers only without studying its overlapped effects that reflect, in a way or another, on human and daily lives of individuals, societies and countries. Hence, we call for those studies of the special workshops to analyse these phenomena, and link it in arrays and logical connections, for the resulting statistics will not be useful without identifying the standards and values, nor it will be possible to decide if those numbers, whether in high or low case, are positive or negative.

Second – Social Effects: Information and communication revolution and the spread of internet in houses, institutions and other places are considered a phenomenon worthy of concern and study to know its social and psychological effects. It has also left its impact on various other aspects. The modern means of communication brought geographically distant people closer, and made the world look actually like a small village regarding the easy communication and the connecting of news and expertise. Although the communication revolution had brought distant people closer and took close people away, for one communicates enjoyably and smoothly with others from the farthest places on earth, and gives considerable amount of time for that, yet, at the same time, he\she reduces the communication with the individuals of the family and social environment, like communication between the father and the mother and their children, passing by parents to check on them, or leaving the seat to hang out with visible friends. Thus, one of this revolution's results is creating a social gap with serious consequences on the family environment that is the main nurturer of human upbringing and raising, and replacing this environment with another one that has different values and principle swarming within it, and these different values and principles cause serious contradictions to the societies and families that reflect on the social structure. In other words, the communication bridge became likable and easy in the virtual world with the electronic people, yet it also became the barrier of separation and alienation in the actual world for the socially and geographically close ones.

The use of the internet by many individuals, especially teenagers and youth, became one of the notable phenomena that affected in terms of thought, movement, profession and value. That affecting caused many positive phenomena and, at the same time, negative phenomena with the same scale and measure, if not more. The use of internet became a substitute to the healthy social interaction between companions and relatives. Individuals concern became on spending long hours in finding various internet websites, this means a change in individuals' social values system. This excessive usage enhances the individual values rather than social values and joint collective work values that are a major component in societies' culture.

Individual use of computers may enhance the teenagers and youth's desire and tendency towards solitude and alienation, which reduces the chances of healthy social and emotional interaction and growth, and this, is not less important than cognitive growth or the passion for knowing and discovering. Preliminary studies point out that the use of internet exposes children and teenagers to imaginary and unrealistic materials and information, which obstructs their thinking and adaptation, and raise some irrational thoughts, especially about personal relations and life patterns, and costumes and traditions of other societies.

Moreover, internet interference to the wide areas of life became a factor helping with expanding the gap between generations regarding computational culture and connection to the external world. In fact, many of those who do not enjoy the internet are condemned of being backwards, this helps in developing a model of the social and intellectual conflict between the generations, sections of the society, children and adults or children and parents. There is a moral direct relational connection between the period that children use to login to the internet, and the effect of this use on the relation between parents and children.

Therefore, this paper repeats its call for the specialists of the fields of sociology and economics, as well as their counterparts in the field of information technology, to hold long sessions and workshops to deal with these phenomena and to set needed conceptions that can be used as healthy evidences in favour of stable development for all human societies within a balanced value system accepted by all in a critical time and a new age that we, the nations, stand on its tortuous edges.

5 Proposals and Recommendations

First – Taking action to lay a system for information technology and communication statistics that contributes to help decision makers in setting the futuristic policies and plans and the methodologies based on evidences to develop information technology and communication sector, and that is achieved by creating a team work to do the following:

- Collecting and evaluating statistical data available in the field of information technology and communication.
- Lay a methodology to standardize terminology and concepts in order to build an overall base for data and indicators compatible with international standards and recommendations.
- Revising commodities, services and economic activities classifications, to facilitate the assessment of the information technology and communication sector contribution to the growth of GDP, foreign trade and the operating.

Second – Implementing regular surveys relating to information technology and information that aim to observe the range of individuals and families' ownership and use of means with access to information technology and communication, as well as the purposes of its use.

Third – providing the fund needed to lay the system of information technology and communication statistics, and the needs of the assigned work team.

Fourth - training and qualifying national cadres in the field of information technology and communication statistics, and extracting key indicators of information technology and communication.

Fifth – It is necessary to make individuals in general, and youth in specific, totally aware about what is possible to do through the net, and guide them to best use of the internet and modern means of communication which will yield with avail to them and to their societies.

Sixth – The necessity of emphasizing the role of parents in taking care and protecting children from the risks of internet through guidance, supervision and organizing is obvious.

Seventh – Holding further studies in the field of the influence of internet and modern means of communication on family and society.

7 References

1. Annual Statistical Abstract of the year 2010, edition 47, Central Statistical Bureau, Kuwait, 2011.
2. State of Kuwait's General Census Index, first part, Central Statistical Bureau, Kuwait, 2011.
3. State of Kuwait's General Census Index, second part, Central Statistical Bureau, Kuwait, 2011.
4. State of Kuwait's General Census Index, third part, Central Statistical Bureau, Kuwait, 2011.
5. Ministry of Transportation: the Statistical Index, Kuwait, 2010-2011.
6. Samiya Muhammad Jabir; Namat Ahmad Othman, Communication and Media (Information Technology), Dar Al-Marefa Al-Jami'eya, Egypt, 2000.
7. Maaly Fahmi Hethar, Information Systems: Introduction to Achieve Competitive Advantage, Al-Dar Al-jami'eya, Egypt, 2002.



Information document

**Document INF/24-A
23 September 2012**

Arabic

SOURCE: Central Statistical Bureau, Kuwait

TITLE: Statistics of availability and usage of Information Technology



دولة الكويت
الادارة المركزية للإحصاء

إحصاءات إتاحة واستخدام تكنولوجيا المعلومات والاتصالات في دولة الكويت وانعكاساتها

الاجتماع العالمي العاشر للاتحاد الدولي للاتصالات المعني بمؤشرات الاتصالات/تكنولوجيا
المعلومات والاتصالات (WTIM) - بانكوك، تايلاند، 25-27 سبتمبر 2012

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مدير إدارة المكتب الفني بالادارة المركزية للإحصاء

(نسخة أولية غير قابلة للاقتباس أو النقل)

2012

المقدمة

إن التقدم التكنولوجي الهائل الذي أحرزته وسائل الاتصال له انعكاسات عميقة في اتساع وسائل الاتصال من حيث الكم والنوع ووصولها إلى مختلف شرائح المجتمع، ومن ثم تزايد هذه الشرائح مع مرور الزمن. وقد وصلت بتغطيتها الواسعة إلى مناطق نائية في المجتمعات، ولم تعد مقتصرة على أبناء المدن الكبرى مما أدى إلى تحول أساسي في طبيعة الوظائف والأدوار التي تقوم بها تلك الوسائل، ولا سيما وسائل الاتصالات المتنقلة.

عصر تدفق المعلومات هو العنوان العريض لعصرنا الحالي، فأصبح العالم قرية صغيرة، نتيجة للتطور الهائل لوسائل الاتصال، بجميع أنواعه.

وتعد دولة الكويت من الدول القليلة التي استثمرت في هذا القطاع الخدمي المهم مقارنة مع دول أخرى سواءً على الصعيد الإقليمي أو الدولي. حيث سنستعرض تطور الثورة الرقمية في مجال الاتصالات المتنقلة في هذا المجتمع خلال العقد الأول من الألفية الثانية.

منذ العقد الأول في الألفية الثانية تعيش دولة الكويت العصر الذهبي لتكنولوجيا المعلومات والاتصالات المتنقلة. فبعد أن كانت الاتصالات بالغة الصعوبة، أصبح الاتصال الدولي متداولاً ورخيصاً وبمنتهى السهولة واليسر، وبإمكان الفرد الاتصال مباشرة بجميع انحاء العالم، سواء من التلفون الثابت أو النقال.

ومع تطور التكنولوجيا وازدياد المنافسة بين الشركات المقدمة لتلك الخدمات باتت الحاجة لتضمين خدمات أخرى تدعم تكنولوجيا الاتصالات ضرورة لا غنى عنها، ونتيجة لذلك انبثق الهاتف الذكي بما يحمله من خدمات في ذلك الوقت وبما سيفتح من آفاق جديدة ومفاهيم باتت الاسس في تلك الخدمات بعدما كانت تكميلية في يومٍ ما.

ومن هذا المنطلق سيغطي البحث في الصفحات التالية ثلاث محاور تناقش البنية التحتية لتكنولوجيا المعلومات والاتصالات بدولة الكويت ومدى نموها وتطورها خلال الفترة الزمنية 2003 الى 2010 والمحور الثاني يناقش مدى استخدام الافراد لتكنولوجيا المعلومات والاتصالات في حين يناقش المحور الثالث نفاذ الأسر لتكنولوجيا المعلومات والاتصالات.

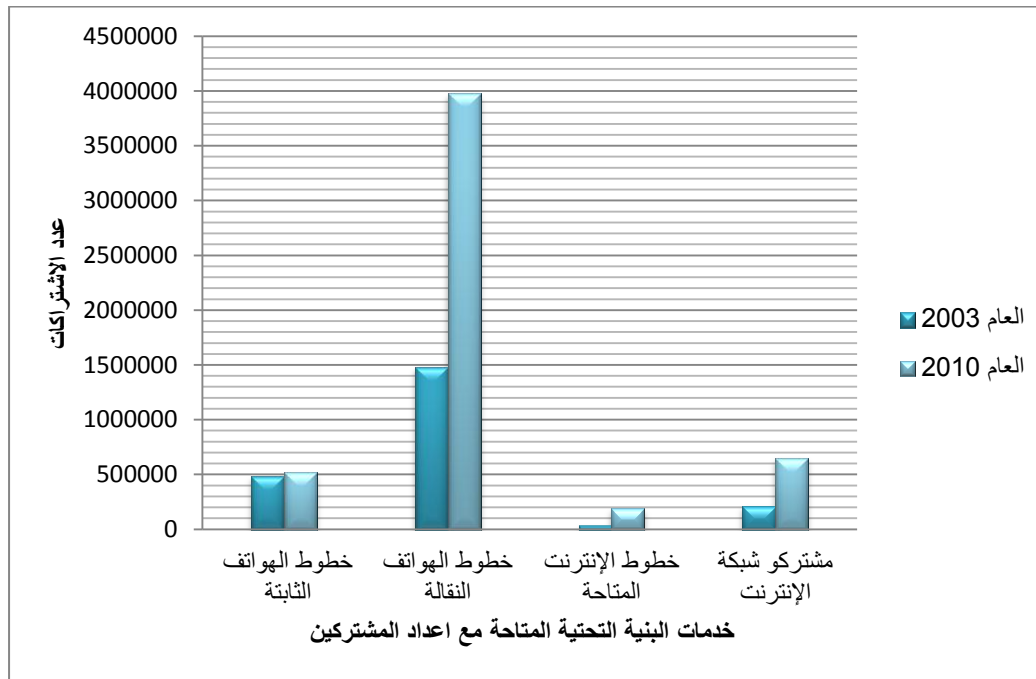
1- البنية التحتية لتكنولوجيا المعلومات والاتصالات

تمكنت دولة الكويت خلال العشرية الاخيرة من سد الفجوة الرقمية التي كانت تفصلها عن اقتصاديات البلدان المصنعة والأكثر تقدماً حيث تجاوزت كثافة خطوط الهاتف الثابت والهاتف النقال سنة 2010 حوالي 19، 149 هاتف لكل مائة من السكان على التوالي. ووصلت أعداد خطوط الإنترنت المتاحة وأعداد مشتركى شبكة الإنترنت 189.5 ألف خط و 649.843 ألف مشترك سنة 2010 مقابل 38.8 ألف خط و 212.881 ألف مشترك سنة 2003 ، انظر الجدول -1- والشكل 1.

جدول -1- خدمات البنية التحتية المتاحة مع اعداد المشتركين

نوع الخدمة	2003 سنة	2010 سنة
خطوط الهواتف الثابتة	486904	519418
خطوط الهواتف النقالة	1479022	3979145
خطوط الإنترنت (شركات الإنترنت)	38800	189500
مشتركو شبكة الإنترنت	212881	649843

شكل -1- خدمات البنية التحتية المتاحة مع اعداد المشتركين



2- استخدام الأفراد لتكنولوجيا المعلومات والاتصالات

أسهم تحديث البنية التحتية بما يتيح من تيسير لعملية الاتصال بين مكونات المجتمع الكويتي محليا وبينها والعالم الخارجي في انتشار استخدام الهاتف النقال. وقد بلغت نسبة المكالمات الدولية عبر هذه الوسيلة 95.0% ونسبة الدقائق المستهلكة 93.4% من اجمالي المكالمات والدقائق المسجلة في سنة 2011. كما بلغ حجم الإنفاق السنوي مقابل هذه الخدمة حوالي 56.0 مليون دينار كويتي أي بنسبة 93.4% من مجمل تكلفة الاتصالات الدولية الصادرة سنة 2011.

وأما بالنسبة لحجم استخدام الهاتف الثابت كوسيلة اتصال مع العالم الخارجي فلم يتعدى عدد المكالمات 7.526 مليون مكالمة وعدد الدقائق 28.055 مليون دقيقة أي بنسب تقارب 5% و 6.5% من مجمل المكالمات والدقائق المستهلكة على التوالي. كما تفيد البيانات المتاحة بأن غرض التبادل التجاري كان الأكثر انتشارا بين مستخدمي الهاتف الثابت بواقع 65.9% و 63% من اجمالي المكالمات والدقائق المستعملة، في حين بلغت نسبة الدقائق المستهلكة من الطرف الأسر 32.3% ، انظر الجدول -2- والاشكال 2 و 3 و 4. وكذلك الجدول -3- بشكل تفصيلي أكثر حول الهواتف الثابتة.

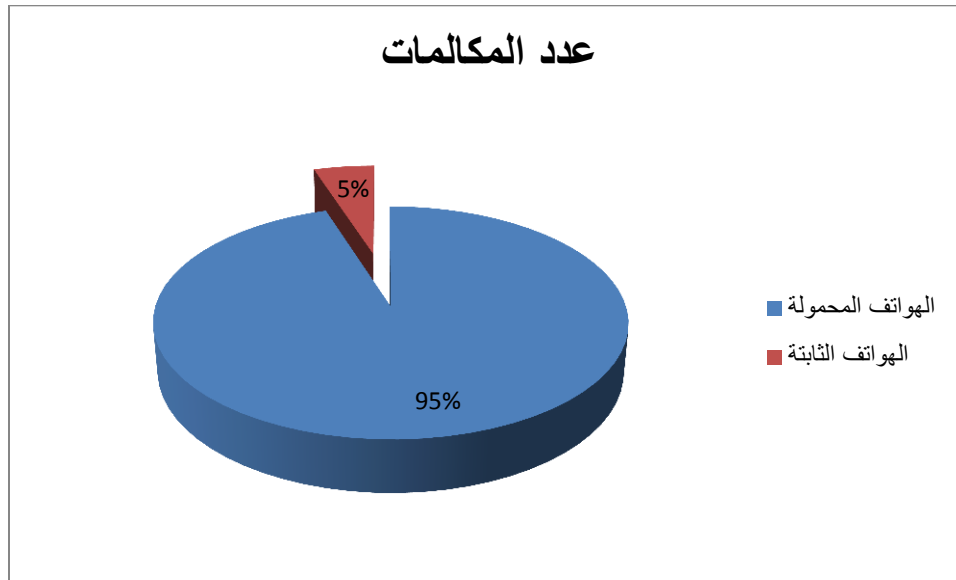
جدول -2- جملة الدقائق والمكالمات والمبالغ المستحقة حسب نوع الهاتف (محمول، ثابت، بالأسف)

عدد الدقائق	النسبة	عدد المكالمات	النسبة
400850.4	93.5%	143830.5	95.0%
28055.4	6.5%	7525.9	5.0%
428905.8	100.0%	151356.4	100.0%
الهواتف المحمولة			
الهواتف الثابتة			
المجموع العام			

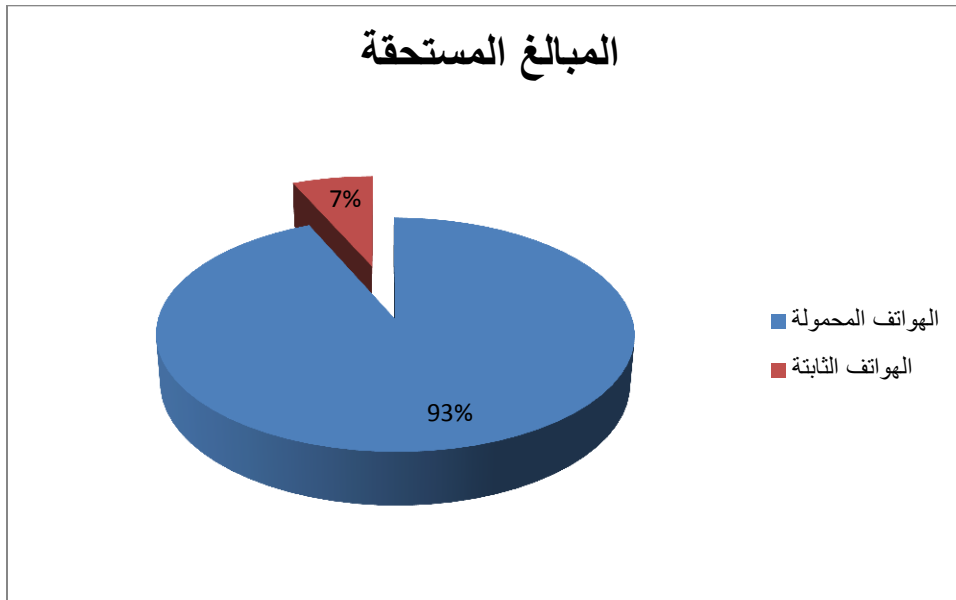
شكل -2- التوزيع النسبي للدقائق المستهلكة حسب نوع الهاتف (محمول، ثابت) خلال عام 2010/2011



شكل -3- التوزيع النسبي للمكالمات حسب نوع الهاتف (محمول، ثابت) خلال عام 2010/2011



شكل -4- المبالغ المستحقة للمكالمات حسب نوع الهاتف (محمول، ثابت) خلال عام 2010/2011



جدول -3- عدد الدقائق والمكالمات حسب نوع الاستخدام (تجاري، منازل، حكومي، أخرى) خلال عام 2010-2011

القطاع	عدد الدقائق	النسبة	عدد المكالمات	النسبة
تجاري	17668.8	63.0%	4963.2	65.9%
منازل	9051.8	32.3%	2037.1	27.1%
حكومي	1005.5	3.6%	421.1	5.6%
أخرى	329.4	1.2%	104.6	1.4%
المجموع	28055.4	100%	7525.9	100%

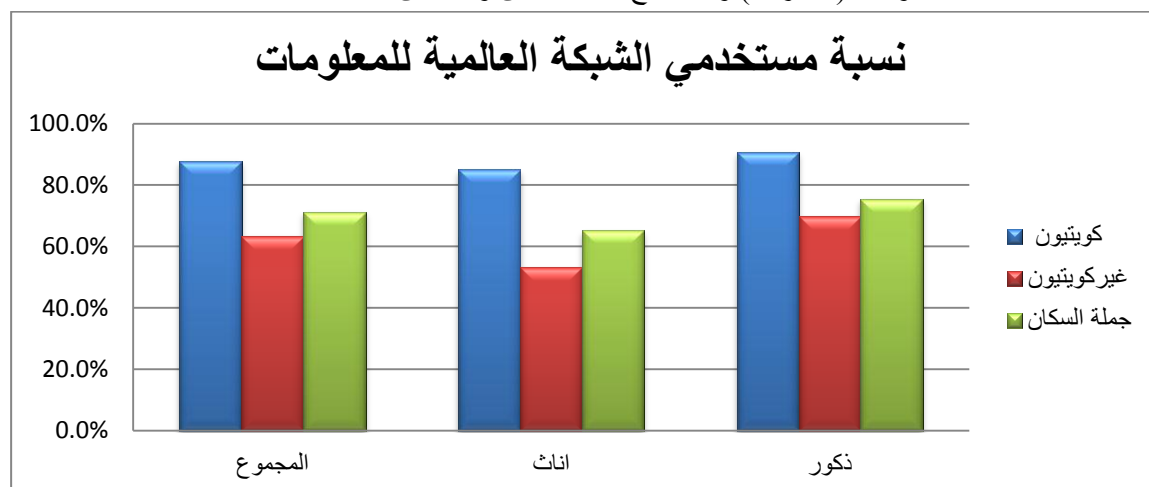
3- تطوير البنية التحتية للاتصالات

مكن تطوير البنية التحتية للاتصالات المجتمع الكويتي من الاستفادة من الثورة المعلوماتية التي ميزت هذا القرن، إذ بيّن تعداد سنة 2011 أن 71.2% من إجمالي سكان دولة الكويت (10 سنوات فأكثر) و 87.9% من الكويتيين يستخدمون الشبكة العالمية للمعلومات، كما تشير بيانات تعداد سنة 2011 أن نسبة النفاذ إلى الشبكة العالمية للمعلومات هي أكثر ارتفاعاً بين المستخدمين الذكور حيث بلغت 75.5% فيما كانت هذه النسبة 65.3% بين المستخدمات الإناث. ويعود هذا التفاوت أساساً إلى تراجع نسبة المستخدمات الإناث من غير الكويتيات إلى حد 53.3% في حين قاربت نسبة المستخدمات الكويتيات (85.1%) مقارنة بنسبة الذكور الكويتيين المستخدمين للشبكة العالمية للمعلومات والتي بلغت 90.8%، انظر الجدول -4- والشكل -5-.

جدول -4- التوزيع النسبي للسكان (10 سنوات فأكثر) حسب الجنسية (كويتي / غير كويتي) والنوع واستخدام الشبكة العالمية للمعلومات (الانترنت) وفقاً لنتائج تعداد السكان والمساكن 2011

المستخدمين	ذكور	إناث	المجموع
السكان الكويتيين	90.8%	85.1%	87.9%
السكان غير الكويتيين	69.8%	53.3%	63.5%
إجمالي السكان	75.5%	65.3%	71.2%

شكل 5- التوزيع النسبي للسكان (10 سنوات فأكثر) حسب الجنسية (كويتي / غير كويتي) والنوع واستخدام الشبكة العالمية للمعلومات (الانترنت) وفقا لنتائج تعداد السكان والمساكن 2011

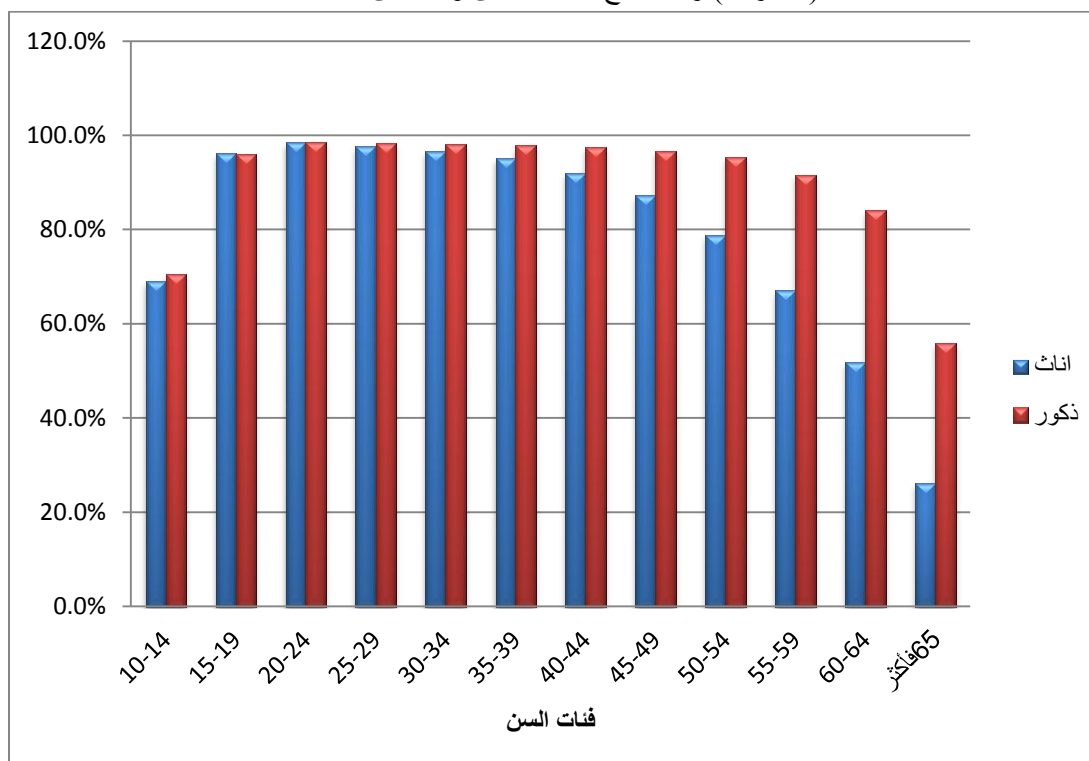


وقد أبرزت بيانات تعداد سنة 2011 الانتشار الواسع لاستخدام الشبكة العالمية للمعلومات بين الكويتيين والكويتيات المنتمين للفئة العمرية 15-39 سنة، حيث بلغت نسبة استخدام الذكور للشبكة 97.7 % ونسبة المستخدمات بين الاناث 96.9%. ويلاحظ كذلك اتساع التباين في استخدام الشبكة بين الكويتيين والكويتيات بالتوازي مع التقدم في السن، إذ استقرت نسبة المستخدمين بين الذكور الذين يبلغ عمرهم 40 سنة فأكثر في مستوى يعد مرتفعاً (90.3%) بينما تراجع معدل نسبة المستخدمات بين الاناث المنتميات لنفس الفئة العمرية الى حوالي 71.8%.

جدول 5- التوزيع النسبي للسكان الكويتيين (10 سنوات فأكثر) حسب فئات العمر والنوع واستخدام الشبكة العالمية للمعلومات (الانترنت) وفقا لنتائج تعداد السكان والمساكن 2011

الفئة العمرية	ذكور	اناث
10-14	70.5%	69.0%
15-19	96.1%	96.1%
20-24	98.6%	98.5%
25-29	98.4%	88.8%
30-34	98.1%	96.6%
35-39	97.8%	95.1%
40-44	97.4%	92.1%
45-49	96.7%	87.3%
50-54	95.4%	78.8%
55-59	91.6%	67.0%
60-64	84.0%	51.8%
65 فأكثر	55.9%	26.1%

شكل 6- التوزيع النسبي للسكان الكويتيين (10 سنوات فأكثر) حسب فئات العمر والنوع واستخدام الشبكة العالمية للمعلومات (الانترنت) وفقا لنتائج تعداد السكان والمساكن 2011



وفقا لبيانات النتائج النهائية لتعداد السكان والمساكن 2011، يتبين بأن الحاسب الآلي هو الوسيلة الأكثر استعمالا للنفاد الى الشبكة العالمية للمعلومات، حيث بلغ معدل نسبة الأفراد الذين يستخدمون الحاسب الآلي 71.7% من إجمالي سكان دولة الكويت بواقع 75.9% بين الذكور و65.9% بين الاناث. كما تشير هذه البيانات الى ارتفاع هذه النسب بين السكان الكويتيين الى حدود 88.8% وبواقع 91.7% ذكور و 86% اناث. في حين انخفض معدل استخدام الحاسب الآلي بين السكان غير الكويتيين ليصل الى 70.1% بين المستخدمين الذكور و53.7% بين المستخدمات الاناث. انظر جدول 6- و جدول 7-.

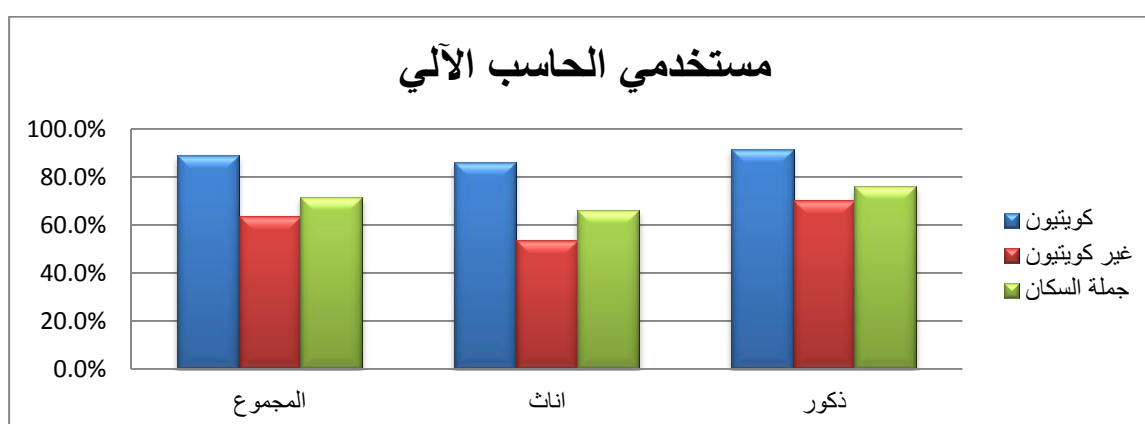
جدول 6- التوزيع العددي للسكان الكويتيين (10 سنوات فأكثر) مستخدمي الحاسب الآلي حسب الجنسية والنوع وفقا لنتائج تعداد السكان والمساكن (1)

الجنسية	ذكور	اناث	المجموع
كويتيون	365322	354161	719483
غير كويتيين	760572	363655	1124227
جملة السكان	1125894	717816	1843710

جدول 7- التوزيع النسبي للسكان الكويتيين (10 سنوات فأكثر) مستخدمي الحاسب الآلي حسب الجنسية والنوع وفقا لنتائج تعداد السكان والمساكن 2011

المستخدمين	ذكور	اناث	المجموع
كويتيون	91.7%	86.0%	88.8%
غير كويتيين	70.1%	53.7%	63.8%
جملة السكان	75.9%	65.9%	71.7%

شكل 6- التوزيع النسبي للسكان الكويتيين (10 سنوات فأكثر) مستخدمي الحاسب الآلي حسب الجنسية والنوع وفقا لنتائج تعداد السكان والمساكن 2011



4- نفاذ الأسر لتكنولوجيا المعلومات والاتصالات

من واقع بيانات النتائج النهائية لتعداد السكان والمساكن 2011 ، وذلك فيما يتعلق ببيانات تملك الأسر لوسائل النفاذ لتكنولوجيا المعلومات والاتصالات، فقد لوحظ ما يلي:

- بلغت نسبة الأسر التي يتوفر لديها جهاز حاسب آلي 69% من اجمالي الأسر بواقع 86.9% للأسر الكويتية و 59.3% للأسر غير الكويتية.
- بلغت نسبة الأسر التي يتوفر لديها خدمة الإنترنت في المنزل 63% من اجمالي الأسر بواقع 80% للأسر الكويتية و 53.7% للأسر غير الكويتية.
- اهتمام الأسر الكويتية وغير الكويتية بامتلاك أجهزة الاتصال لتبلغ نسبة الأسر التي يتوفر لديها هاتف نقال 93.4% و 91.9% على التوالي، في حين بلغت نسبة امتلاك هاتف أرضي 81% بين الأسر الكويتية ولم تتجاوز 38.6% بين الأسر غير الكويتية.

جدول -8- التوزيع العددي والنسبي للأسر الخاصة الكويتية وغير الكويتية حسب تملكها لوسائل النفاذ لتكنولوجيا المعلومات والاتصالات وفقا للنتائج النهائية لتعداد السكان والمساكن 2011

نفاذ الاسر لتكنولوجيا المعلومات والاتصالات		اسر خاصة كويتية		اسر خاصة غير كويتية		جملة الأسر الخاصة	
المساكن المتصلة بالشبكة العالمية للمعلومات	133929	80.0%	164244	53.7%	298173	63.0.8%	
الحاسب الآلي	156882	86.9%	199163	59.3%	356042	69.0%	
الهاتف النقال	168600	93.4%	308738	91.9%	477338	92.5%	
الهاتف الأرضي	146125	81.0%	129692	38.6%	275817	53.4%	

5- أهمية تطور تكنولوجيا المعلومات والاتصالات وانعكاساتها الاقتصادية والاجتماعية

لقد ساهم تطور تكنولوجيا المعلومات والاتصالات في دول العالم ومنها الكويت في تحقيق رفاهية الأفراد بالمجتمع الكويتي، حيث توفر خدمات الاتصال بمختلف أنواعها، وخدمات التعليم والتثقيف وتوفير المعلومات اللازمة للأشخاص والمنظمات، حيث جعلت التواصل بين أفراد المجتمعات البشرية أكثر سهولة وانسيابية وعكس بالواقع ما يسمى بعالم القرية الصغيرة. في هذه القرية يستطيع الأفراد الاتصال فيما بينهم بحرية وبسهولة ويتبادلون المعلومات فيما بينهم دون قيود وعوائق كانت تفرض عليهم في العصور السابقة. هذا التواصل ليس محصورا بين أفراد مجتمع متعرف على بعضه البعض بل بين أفراد لم يتلاقون أبدا ولكنهم وجدوا أنفسهم مشتركين في أغراض وأهداف مشتركة جعلت منهم جماعات غير مرئية ولكنها فعالة على كافة المستويات. لذلك تنبئ أهمية خاصة للتكنولوجيا المعلومات والاتصالات والتي تمتاز بخصائص سرعة الانتشار الواسع وسعة التحمل سواء بالنسبة لعدد الأشخاص المشاركين أو المتصلين، أو بالنسبة لحجم المعلومات المنقولة، كما أنها تتسم بسرعة الأداء وسهولة الاستعمال وتنوع الخدمات. ولقد أثرت تكنولوجيا الاتصالات على المجتمعات بدرجات كبيرة ومتفاوتة أدت لإحداث تغييرات جذرية وفي بنائها الاجتماعية والاقتصادية، مما يتعين الإشارة لها ومحاولة وضعها تحت المجهر وتحليلها ومناقشتها من أجل تحقيق أقصى درجات الفائدة للبشرية. وسوف نستعرض أهم المجالات التي أثرت بها تكنولوجيا المعلومات والاتصالات سواء في كافة المجتمعات بشكل عام أو في المجتمع الكويتي بشكل خاص، وهي على النحو الآتي:

أولاً- التأثيرات الاقتصادية: تساهم تكنولوجيا المعلومات والاتصالات في التنمية الاقتصادية حيث تؤدي الثورة الرقمية إلى نشوء أشكال جديدة تماماً من التفاعل الاجتماعي والاقتصادي وقيام مجتمعات جديدة. وعلى عكس الثورة الصناعية التي شهدتها القرن المنصرم، فإن ثورة تكنولوجيا المعلومات والاتصالات من شأنها الانتشار بشكل سريع والتأثير في حيوية الجميع. وتتمحور تلك الثورة حول قوة تكنولوجيا المعلومات والاتصالات التي تسمح للناس بالوصول إلى المعلومات والمعرفة الموجودة في أي مكان بالعالم في نفس الوقت. فزيادة قدرة الأشخاص على الاتصال وتقاسم المعلومات والمعارف ترفع من فرصة تحول العالم إلى مكان أكثر سلاماً ورخاء لجميع سكانه. ويمكن تكنولوجيا المعلومات والاتصالات المساعدة على تحسين كفاءة الأدوات الأساسية للاقتصاد من خلال الوصول إلى المعلومات والشفافية. من هذا يتضح أن لتكنولوجيا المعلومات والاتصال دور هام في تعزيز التنمية البشرية والاقتصادية والاجتماعية والثقافية، وذلك لما لهذه الأخيرة من خصائص متميزة وأكثر كفاءة من وسائل الاتصال التقليدية، فتكنولوجيا المعلومات والاتصال واسعة الانتشار تتخطى بذلك الحدود الجغرافية للدول لتصل إلى أي نقطة من العالم عجزت أن تصل إليها وسائل الاتصال القديمة، متاحة في أي مكان وزمان، وبتكلفة منخفضة. فهي تعد مصدر هام للمعلومات سواء للأشخاص أو المنظمات بمختلف أنواعها أو للحكومات، كما أنها تلعب دوراً هاماً في تنمية العنصر البشري من خلال البرامج التي تعرض من خلالها، كبرامج التدريب وبرامج التعليم وغيرها. تلعب تكنولوجيا المعلومات والاتصالات دوراً هاماً في الناحية الاقتصادية، حيث تساعد على تحقيق رقابة فعالة في العمليات التشغيلية، خاصة بالنسبة للمؤسسات الصناعية التي تستعمل تكنولوجيا عالية في الإنتاج. كما أن تكنولوجيا المعلومات ستسهل من اكتشاف أخطاء التصنيع وكذا إمداد الإدارة المعنية بالمعلومات اللازمة في الوقت المطلوب، وهذا يشكل في حد ذاته ميزة تنافسية تواجه بها المؤسسة تقلبات المحيط بوقت وجهد بشري أقل. وهذا يمس بالدرجة الأولى الهيكل التنظيمي وجميع مستوياته ونوعية وكمية المصادر البشرية العاملة. وعلى الرغم من هذه الطفرة الكبيرة في التأثيرات الإيجابية على بنية المعلومات واتخاذ القرارات إلا أن هنالك العديد من الظواهر الاقتصادية السلبية الناتجة من هذه التطورات.

ومن هذه السلبيات هي الاستغناء المتصاعد عن الكوادر البشرية وتأثير ذلك على أسواق العمل والبطالة، واحتكار المعلومات التقنية مما يؤثر سلباً على انتقال المعرفة مدى مواكبة الدول النامية للحقبة التكنولوجية مما قد يزيد من الفجوة بين الدول الغنية والصناعية والدول الفقيرة والمستهلكة، إضافة إلى الانتهاكات الكبيرة للملكيات الفكرية والسرقات في مجال تكنولوجيا المعلومات ذات الأثر الاقتصادي الكبير على الجهات المصنعة لها. إن كل ما جاء مسبقاً وآثاره على صعيد الأبعاد الاقتصادية لا يمكن أغفاله، وحصر التعامل مع مجال تكنولوجيا المعلومات كأرقام صماء فقط دون دراسة مؤثراتها المتداخلة والتي ستعكس بشكل أو بآخر على الحياة البشرية والمعيشية للأفراد والمجتمعات والدول. لذلك فإننا ندعو لمثل تلك الدراسات في ورش عمل خاصة لتحليل تلك الظواهر وربطها في مصفوفات وعلاقات منطقية ذلك لأن الإحصاءات الناتجة منها لن تكون ذات جدوى كبيرة دون تحديد المعايير والقيم، وبالتالي الحكم ما إذا كانت تلك الأرقام في حالة ارتفاعها أو تدنيها إيجابية أم سلبية.

ثانياً: التأثيرات الاجتماعية: تعتبر ثورة المعلومات والاتصالات وانتشار الانترنت في البيوت والمؤسسات وغيرها ظاهرة تستحق الاهتمام والدراسة لمعرفة أثارها الاجتماعية والنفسية كما تركت أثارها في جوانب أخرى عديدة. فلقد قربت وسائل الاتصال الحديثة بين الأشخاص المتباعدين جغرافياً، وجعلت العالم يبدو بحق كقرية صغيرة من حيث سهولة التواصل وتبادل الأخبار والخبرات. وعلى الرغم من أن ثورة الاتصالات أنها قربت المتباعدين وأبعدت المتقاربين حيث أن المرء يتواصل بانسيابية واستمتاع مع أشخاص من أقاصي الأرض، ويخصص لذلك أوقاتاً كبيرة، ولكنه في ذات الوقت يقتصد في تواصله مع أفراد محيطه الأسري والاجتماعي مثل أن يتواصل الأب أو الام مع الأبناء أو أن يعطف على الوالدين للاطمئنان عليهما، أو أن يفارق مقعده ليتنزه مع أصدقائه المرثيين. لذلك فإن من نتائج هذا الثورة هو أحداث فجوة اجتماعية ذات تداعيات خطيرة على البيئة الأسرية التي تعتبر الحاضنة الرئيسية للتربية وللتنشئة الإنسانية واستبدالها بيئة أخرى تتكاثر بها قيم ومبادئ مختلفة تصيب المجتمعات والأسر بتناقضات خطيرة تنعكس على النسيج الاجتماعي. وبمعنى آخر فلقد أصبح جسر التواصل محبب وسهل في العالم الافتراضي، ومع الأشخاص الإلكترونيين، ولكن حاجز الفرق والانعزال في العالم الحقيقي للمقربين مكانياً واجتماعياً.

إن استخدام الانترنت من قبل العديد من الافراد وخصوصاً شرائح المراهقين والشباب أصبح من الظواهر البارزة التي أثرت فيهم فكريا وحركيا ومهنيا وقيميا والتي أثارت العديد من الظواهر الإيجابية وفي ذات الوقت السلبية على نفس الوزن والمقدر إن لم تكن أكثر. إن استخدام الانترنت أصبح بديلاً للتفاعل الاجتماعي الصحي مع الرفاق والأقارب وأصبح هم الفرد قضاء الساعات الطويلة في استكشاف مواقع الانترنت المتعددة مما يعني تغيراً في منظومة القيم الاجتماعية للأفراد حيث يعزز هذا الاستخدام المفرط القيم الفردية بدلاً من القيم الاجتماعية وقيم العمل الجماعي المشترك الذي يمثل عنصراً هاماً في ثقافة المجتمعات.

ولعل الاستخدام الفردي للحواسيب والانترنت يعزز الرغبة والميل للوحدة والعزلة للمراهقين والشباب مما يقلل من فرص التفاعل والنمو الاجتماعي والانفعالي الصحي الذي لا يقل أهمية عن النمو المعرفي وحب الاستطلاع والاستكشاف، وأن بعض الدراسات الأولية تشير إلى أن استخدام الانترنت يعرض الأطفال والمراهقين إلى مواد ومعلومات خيالية وغير واقعية مما يعيق تفكيرهم وتكيفهم وينمي بعض الأفكار غير العقلانية وخصوصاً ما يتصل منها بنمط العلاقات الشخصية وأنماط الحياة والعادات والتقاليد السائدة في المجتمعات الأخرى.

علاوة على ما سبق، فإن دخول الانترنت مجالات الحياة الواسعة أصبح عاملاً مساعداً في اتساع الفجوة بين الأجيال فيما يتعلق بثقافة الحوسبة والاتصال مع العالم الخارجي، بل إن الكثير من الناس الذين لا يتمتعون بميزة استخدام الانترنت أصبحوا عرضة للاتهام بالتخلف مما يساعد على تطوير نموذج من الصراع الاجتماعي والثقافي بين الأجيال أو شرائح المجتمع أو بين الصغار والكبار أو الأبناء والآباء، لذا توجد علاقة ارتباطية طردية معنوية بين مدة استخدام الأبناء للإنترنت وبين تأثير ذلك الاستخدام على العلاقة بين الوالدين والأبناء.

لذا فإن هذه الورقة تكرر الدعوة مرة أخرى لدعوة المتخصصين في الاجتماع والاقتصاد، وكذلك نظرائهم في تكنولوجيا المعلومات لعقد دورات وورش عمل طويلة لمحاكات تلك الظواهر ووضع التصورات اللازمة ما يمكن الاسترشاد به كأدلة صحية تصب في صالح تطور مستقر لكافة المجتمعات البشرية ضمن منظومة قيمية متوازنة يقبلها الجميع في وقت حساس وعصر جديد نحن شعوب العالم نقف على حوافه المتعرجة.

6- المقترحات والتوصيات

أولاً- العمل على ارساء نظام احصاءات تكنولوجيا المعلومات والاتصالات يسهم في مساعدة صانعي القرار في وضع الخطط والسياسات المستقبلية والآليات المستندة على الادلة لتطوير قطاع تكنولوجيا المعلومات والاتصالات، وذلك من خلال تكوين فريق عمل للقيام بالآتي :

- جمع وتقييم البيانات الاحصائية المتوفرة في مجال تكنولوجيا المعلومات والاتصالات.
- وضع منهجية لتوحيد المصطلحات والمفاهيم لبناء قاعدة بيانات ومؤشرات شاملة تتوافق مع المعايير والتوصيات الدولية.
- مراجعة تصانيف السلع والخدمات والانشطة الاقتصادية المعتمدة بما ييسر تقييم مساهمة قطاع تكنولوجيا المعلومات والاتصالات في نمو كل من الناتج المحلي والتجارة الخارجية والتشغيل.

ثانياً - اجراء مسح دورية خاصة بتكنولوجيا المعلومات والاتصالات تهدف الى رصد مدى امتلاك واستخدام الأفراد والأسر لوسائل النفاذ الى تكنولوجيا المعلومات والاتصالات واغراض استخدامها.

ثالثاً - توفير الاعتماد المالي اللازم لإرساء نظام إحصاءات تكنولوجيا المعلومات والاتصالات واحتياجات فريق العمل المنوط بذلك.

رابعاً - تدريب وتأهيل الكوادر الوطنية في مجال إحصاءات تكنولوجيا المعلومات والاتصالات واستخلاص المؤشرات الرئيسية لتكنولوجيا المعلومات والاتصالات.

خامساً - ضرورة توعية أفراد المجتمع بشكل عام والشباب منهم بشكل خاص بما يمكن القيام به من خلال الشبكة وتوجيههم ناحية الاستغلال الأمثل لاستخدام الانترنت ووسائل الاتصال الحديثة بما يعود عليهم وعلى مجتمعاتهم بالنفع.

سادساً - يتضح ضرورة التأكيد على دور الآباء والأمهات في رعاية ووقاية الأبناء من مخاطر الانترنت من خلال التوجيه والمتابعة والرقابة والتنظيم.

سابعاً - إجراء المزيد من الأبحاث في مجال تأثير الانترنت ووسائل الاتصال الحديثة على الأسرة والمجتمع.

7- المصادر

1. المجموعة الإحصائية السنوية للعام 2010، العدد السابع والاربعون ، الادارة المركزية للإحصاء، الكويت، 2011
2. دليل التعداد العام لدولة الكويت ، الجزء الأول، الادارة المركزية للإحصاء، الكويت، 2011
3. دليل التعداد العام لدولة الكويت ، الجزء الثاني، الادارة المركزية للإحصاء، الكويت، 2011
4. دليل التعداد العام لدولة الكويت ، الجزء الثالث، الادارة المركزية للإحصاء، الكويت، 2011
5. وزارة المواصلات الدليل الإحصائي ، الكويت، 2010-2011
6. سامية محمد جابر، نعمات أحمد عثمان، الاتصال والإعلام (تكنولوجيا المعلومات)، دار المعرفة الجامعية، مصر، 2000
7. معالي فهمي حيزر، نظم المعلومات مدخل لتحقيق الميزة التنافسية، الدار الجامعية، مصر، 2002

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/25-E
25 September 2012**

English

SOURCE: Nepal Telecommunications Authority, Nepal

TITLE: ICT Indicators - Nepal at a Glance

ICT Indicators - Nepal at a Glance

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September 2012

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1. General Introduction

Federal Democratic Republic of Nepal is a small land-locked Himalayan country that lies between China and India spanning an area of 147,181 sq. km. in South Asia. Administratively, the country is divided into 5 Development Regions, 14 Zones and 75 Districts. Apart from this, there are 3,915 Village Development Committees (VDCs) and 58 Municipalities. VDCs are further divided into Wards, the smallest administrative division of the country. Each VDC consist of nine wards, and number of wards in Municipalities depends on their size. Topographically, Nepal is divided into three regions: the mountain, the hill and the plain region, also known as Terai. About 83% of the country is rugged terrain and only 17% is flat land.



Fig.: Map of Nepal

The population of the country as per the census carried out in June 2011 is 26.6 million (6.7% in Mountain, 3.1% in Hill and 50.2% in Terai) with average family member per household dropping to 4.7 from 5.44 in the last ten years. The percentage of population residing in urban and rural areas is 17% and 83% respectively. The average population growth rate in the past ten years is around 1.4%. The average life expectancy is just above 67 years. The female to male ratio is 94.41%. Absent population of Nepal is recorded as 1.92 million, which means significant percentage of population is abroad on foreign employment, which is a major source of remittance into the country.

2. Introduction

Nepal is relatively slow to grasp the advantages of the Information and Communication Technologies. Likewise, as is the world trend, getting the ICT related information is still difficult as this encompasses a variety of information viz. Telecommunication, Broadcasting, Information Technology, Community Access, etc. The problem becomes more difficult when the responsibility of collecting and disseminating such information is shared among number of entities, as is the case in Nepal. Nepal Telecommunications Authority (NTA) is primarily collecting and disseminating information related to Telecommunication and partly on Information Technology and Community Access.

However, the prime responsibility to carry out the collection, consolidation, processing, analysis, publication and dissemination of statistics falls under Central Bureau of Statistics (CBS) which was established in 1959 under Statistics Act, 2015 B. S. It is under the National Planning Commission Secretariat (NPCS) of Nepal and serves as a national statistical organization of Government of Nepal. It generates timely and reliable socio-economic statistics mainly through the operation of censuses and surveys. The main objective of setting up CBS is to avail data to NPCS and other Government agencies for the formulation of national plans, policies and also produces national account estimates to measure the economic growth of the country. It carries out different household surveys and censuses regularly to assess the socio- economic condition of the country. The major tasks, which CBS has been performing, are decennial population census, agriculture census and quinquennial manufacturing establishment census. In addition, many household surveys like living standard surveys, labor force surveys and multiple indicator surveillance are indispensable tasks, which CBS has been accomplishing. The role of the CBS is always decisive for the effective functioning of the national statistical system as a whole. It promotes collaborative research efforts among members of academic community, data producers and users. It has a prominent role in developing statistical system and maintaining statistical standard in the country.

2.1. Objectives of CBS

1. Provide timely and quality statistics to Government for the formulation of plan and policy and acquires the information about socio-economic condition of the country.
2. Processing, analysis, publication, dissemination and protection of collected data.
3. Coordinate with various agencies involved in data collection, processing and analysis to avoid statistical discrepancies.
4. Develop standard statistical system by performing a leading role in statistical activities.
5. Develop statistical manpower.

2.2. Main Functions of CBS

1. Provide necessary statistics to Government for the formulation of plan and policy.
2. Collection, processing and analysis of data related to the socio-economic sector.
3. Develop definitions and scientific methodologies for reliable data collection and implementation.
4. Coordinate various data collection agencies and avoid duplications of efforts to generate the same statistics and develop consolidated statistical system.
5. Investigation of various statistical sectors for the need of the Government and produce these statistics.
6. Protection of statistical records.
7. Investigation of new technologies in order to make more scientific, reliable and useful data collection, processing and analysis method.
8. Coordinate with various agencies by maintaining consistency and uniformity for quality of national level statistics.
9. Organize training, seminar and workshop on statistical fields at national and international level.

10. Play advisory role to control and coordinate various statistical activities.
11. Develop basic statistical manpower.
12. Develop and implement the system to provide regular and reliable statistics through Branch Statistics Offices.

2.3. Historical Background

NTA started collecting and disseminating ICT statistics since October 2003 in the form of Management Information System (MIS) which was published quarterly before, is a monthly issue at present. It consists of Telecom data as well as the NTA activities in the past month. It continued in its original form with slight modification till 11th issue. In the year July 2006, the 12th issue got major overhauling as collecting and disseminating ICT statistics was given more importance with section dedicated for it. Likewise, each service category of Telecommunication service viz. basic telecommunication, cellular communication, Internet, GMPCS, Rural Telecom Service, etc. were analysed separately comparing with the adjacent quarters. Consequently, in the year February 2007, information on Basic Core ICT Indicator was added after NTA started collecting information on it following NTA's participation in the Joint UNCTAD-ITU-UNESCAP Regional Workshop on Information Society Measurements in Asia-Pacific, Bangkok, 26-28 July 2006.

Likewise, in February 2008, the previous MIS was separated into two parts namely, "Management Information System", which contains the activities of NTA and "Quarterly Performance Indicator of Telecom Sector/Services" which contains the information of the Telecom sector of the past quarter, solely dedicated to disseminate the ICT statistics. This was done to give prime focus on the collection and dissemination of ICT statistics segregating it from the regular activity of NTA.

Furthermore, the UNCTAD mission to assist the Nepalese Government on ICT Measurement in June, 2008 helped us in strengthening our expertise in collection and dissemination of ICT statistics in much better way and in making our understanding clearer on the number of data to be collected. As advised to the mission, NTA is in the process of collecting data that are not yet collected and disseminated, but it has not materialised yet.

3. Current Scenario

As we are well aware that data collection is a tedious job and it is time as well as resource consuming for the operators too. So it is necessary to collect those data which are very much essential and that are valuable for the general public as well as stakeholders in taking appropriate decisions. Although NTA published the Quarterly Performance Indicator of Telecom Service till August 2008, it was discontinued after that, primarily because of difficulty in collecting such data regularly.

However, at present NTA collects and disseminates the following primary information regarding ICT statistics in its monthly Management Information System (MIS). Likewise, information on Quality of Telecommunication service with respect to Network performance and billing is also disseminated.

Available Voice Telephony Services (As of July 2012)

Services Operators	Fixed		Mobile		Others		Total
	PSTN	WLL	GSM	CDMA	LMS	GMPCS	
NDCL	628,575	131,395	6,166,814	829,534	-	-	7,756,318
UTL	-	71,339	-	-	565,965	-	637,304
NCELL	-	-	8,338,065	-	-	-	8,338,065
STM	5,192	-	-	-	155	-	5,347
NSTPL*		2,611	-	-	143,708	-	146,319
Smart	598	-	-	-	395,138	-	395,736
Others (GMPCS)	-	-	-	-	-	1,742	1,742
Total	634,365	205,345	14,504,879	829,504	1,104,966	1,742	17,280,831
	839,710		15,334,413		1,106,708		
Tele-Density							
Services					Penetration Rate %		
Fixed					3.15		
Mobile					57.60		
Others (LM, GMPCS)					4.15		
Total					64.91		

Data Internet Services (As of July 2012)

Services	Subscribers				Total
	NDCL	UTL	NCELL	ISPs	
Dialup (PSTN +ISDN)	4,532	-	-	10,547	15,079
Wireless Modem, Optical Fibre Ethernet	-	-	-	45,602	45,602
Cable Modem, Cable etc.	-	-	-	17,968	17,968
ADSL	92,302	-	-	-	92,302
GPRS	1,870,097	-	2,813,824	-	4,683,921
CDMA 1X	111,890	76,329	-	-	188,219
Total	2,078,821	76,329	2,813,824	74,117	5,043,091
Internet Penetration Rate %					18.94

Public Call Centres (As of July 2012)

Services	Subscribers
Rural PCO's of STM Telecom Sanchar Pvt. Ltd.	2,024
Rural PCO's of SMART Telecom Pvt. Ltd.	598
Total	2,622

Note: Projected population as per Central Bureau of Statistics is taken as 26,620,809

4. Measurement of WSIS targets

A very preliminary study was carried out by NTA in May, 2011 to find out the status of WSIS targets in the country. As the study was first of its kind, it cannot be and should not be taken as a complete picture of the ICT status in Nepal in line with the WSIS targets.

The brief summary of the overall status on the penetration and use of ICT in Nepal in line with WSIS targets found through that study is shown as below.

WSIS Targets	Proposed target revisions for monitoring progress	Most relevant WSIS action lines	Proposed indicators for monitoring progress*	Overall Status **
1. To connect villages with ICTs and establish community access points	To connect all villages with ICTs and establish community access points	C2. Information and communication infrastructure C3. Access to information and knowledge C4. Capacity building	Indicator 1.3: Proportion of households with Internet access, by type of access, by urban/rural. Indicator 1.4: Proportion of individuals using the Internet, by location, by urban/rural.	Medium
2. To connect universities, colleges, secondary schools and primary schools with ICTs	To connect all universities, colleges, secondary schools and primary schools with ICTs	C2. Information and communication infrastructure C3. Access to information and knowledge C7. E-learning	Proportion of schools with a radio used for educational purposes (for ISCED levels 1-3) Proportion of schools with a television used for educational purposes (for ISCED levels 1-3) Learners-to-computer ratio (for ISCED levels 1-3) Proportion of schools with Internet access (for ISCED levels 1-3), by type of access (narrowband, broadband)	n.a
3. To connect scientific and research centres with ICTs	To connect all scientific and research centres with ICTs	C2. Information and communication infrastructure C3. Access to information and knowledge C7. E-science	Indicator 3.1: Proportion of public scientific and research centers with broadband Internet access. Indicator 3.2: Presence of a national research and education network (NREN), by bandwidth (Mbit/s). Indicator 3.3: Proportion of public scientific and research centers with Internet access to a NREN.	Low
4. To connect public libraries, cultural centres, museums, post offices and archives with ICTs	To connect all public libraries, cultural centres, museums, post offices and national archives with ICTs	C3. Access to information and knowledge C4. Capacity building C8. Cultural diversity and identity, linguistic diversity and local content	Indicator 4.1: Proportion of public libraries with broadband Internet access. Indicator 4.2: Proportion of public libraries providing public Internet access. Indicator 4.3: Proportion of public libraries with a web presence. Indicator 4.4: Proportion of museums with broadband Internet access. Indicator 4.5: Proportion of museums with a web presence. Indicator 4.6: Proportion of post offices with broadband Internet access. Indicator 4.7: Proportion of post offices providing public Internet access. Indicator 4.8: National archives organizations with broadband Internet access Indicator 4.9: National archives organizations with a web presence. Indicator 4.10: Proportion of items in the national archives that have been digitized. Indicator 4.11: Proportion of digitized items in the national archives that are publicly available online.	Low
5. To connect health centres and hospitals with ICTs	To connect all health centres and hospitals with ICTs	C2. Information and communication infrastructure C7. E-Health	Indicator 5.1: Proportion of public hospitals with Internet access, by type of access. Indicator 5.2: Proportion of public health centres with Internet access, by type of access.	n.a
6. To connect all local and central government departments and	To connect all local and central government	C1. The role of public governance authorities and all	Indicator 6.5: Proportion of central government organizations with Internet access, by type of access.	Low

establish websites and e-mail addresses	<i>departments and establish websites and e-mail addresses</i>	stakeholders in the promotion of ICTs for development C2. Information and communication infrastructure C3. Access to information and knowledge C7. E-government	Indicator 6.6: Proportion of central government organizations with a web presence. Indicator 6.7: Level of development of online service delivery by national governments	
7. To adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances	<i>(no revision proposed)</i>	C4. Capacity building C7. E-learning	Indicator 7.1: Proportion of ICT-qualified teachers in schools. Indicator 7.2: Proportion of teachers trained to teach subjects using ICT. Indicator 7.3: Proportion of schools with computer-assisted instruction. Indicator 7.4: Proportion of schools with Internet-assisted instruction.	n.a
8. To ensure that all of the world's population have access to television and radio services	<i>(no revision proposed)</i>	C2. Information and communication infrastructure C3. Access to information and knowledge C9. Media	Indicator 8.1: Proportion of households with a radio. Indicator 8.2: Proportion of households with a TV. Indicator 8.3: Proportion of households with multichannel television service, by type of service.	n.a
9. To encourage the development of content and put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet	<i>no revision proposed)</i>	C3. Access to information and knowledge C8. Cultural diversity and identity, linguistic diversity and local content	Indicator 9.3: Proportion of web-pages, by language. Indicator 9.4: Number of domain name registrations for each country-code top-level domain, weighted by population. Indicator 9.5: Number and share of Wikipedia articles by language	Low
10. To ensure that more than half the world's inhabitants have access to ICTs within their reach	<i>To ensure that more than half the world's inhabitants have access to ICTs, in particular broadband Internet, within their reach and make use of them</i>	C2. Information and communication infrastructure C3. Access to information and knowledge C6. Enabling environment C7. ICT applications: benefits in all aspects of life	Indicator 10.4: Proportion of individuals using the Internet Indicator 10.5: Proportion of households with Internet access, by type of access.	Medium

Note: *Refers to percentages unless otherwise indicated. **High/medium/low level of achievement of indicator based on reported values; n.a. = data not available to determine overall status. High level of achievement indicates nearly perfection as per described in the indicators. Medium level of achievement refers to those indicators whose works have been done to some extent, but still work has to be done. Low level of achievement indicates nearly nil or only some work have been done or not reported Based on data available and featured in the chapters of this report.

***Includes local and central government institutions. Source: ITU

5. Conclusion

NTA was collecting and disseminating the Telecommunication Indicators those defined by ITU which are comparable across countries. Although this was being done at regular interval in the past, difficulty in obtaining data in time has been a major concern in our effort to make those indicators available to the stakeholders without delay. Due to this fact and some sort of leniency on part of NTA in enforcing the operators to submit that in time has resulted in the discontinuation of the process of making public the ICT indicator statistics of Nepal. However, the preliminary steps NTA has taken in the past should be restarted which should reflect the preset ICT statistics of the country, which carries much significance for the development of ICT in the country as it is the basic requirement for the planners, researchers, industrialists etc. to name few. Periodic reporting of such data helps to find out the impact of the ICT in the society and in turn, its effect on the overall development of the country as a whole.

References

1. www.nta.gov.np
2. www.cbs.gov.np
3. www.maps.google.com

**10th World Telecommunication/ICT
Indicators Meeting (WTIM-12)**
Bangkok, Thailand, 25-27 September 2012



Information document

**Document INF/26-E
2 October 2012**

English

SOURCE: Information Technology Authority, Sultanate of Oman

TITLE: Information and Communication Technologies (ICT) Indicators (2011) Government and Higher Education Sector



INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) INDICATORS (2011) GOVERNMENT AND HIGHER EDUCATION SECTOR



Information Technology Authority
Sultanate of Oman

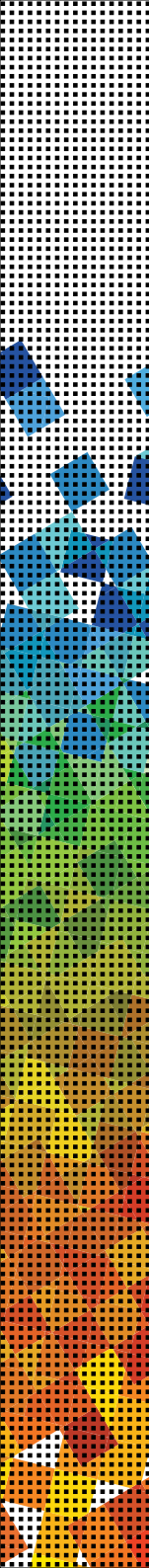




HIS MAJESTY SULTAN QABOOS BIN SAID

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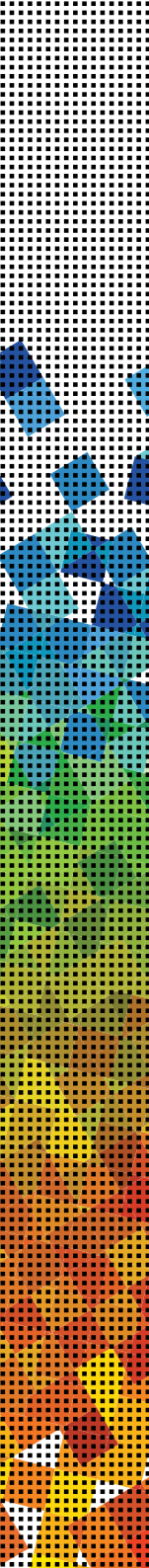
INTRODUCTION:

The Digital Oman Strategy/e.oman Initiative outlines the blueprint for several key IT initiatives in the Sultanate of Oman which aim to empower the citizens by providing meaningful interaction through eServices.

Through the implementation of eServices, the government seeks new and innovative ways to better engage and interact with citizens in the delivery of public services. It imperative that assessment is carried out along with the execution of the plan. This is essential to quantify the successful implementation of the key initiatives and to facilitate any challenges identified during the course of the implementation, effectively and efficiently. Information Technology Authority strictly follows “Core Information and Communication Technologies (ICT) Indicators” that have been developed under the umbrella of International Telecommunication Union (ITU) by the Partnership on Measuring ICT for Development whose members are:-

- a. International Telecommunication Union (ITU)
- b. United Nations Conference on Trade and Development (UNCTAD)
- c. United Nations Educational, Scientific and Cultural Organization (UNESCO)
- d. Eurostat
- e. Organisation for Economic Co-operation and Development (OECD)
- f. United Nations Department of Economic and Social Affairs (UNDESA)
- g. Institute for Statistics (UIS)
- h. The World Bank
- i. Four United Nations Regional Commissions (the UN Economic Commission for Africa, the UN Economic Commission for Latin America and the Caribbean, the UN Economic and Social Commission for Asia and the Pacific, and the UN Economic and Social Commission for Western Asia).

This publication presents the results of two surveys for the reference



year of 2011; ICT Usage in Government Survey and ICT Access and Usage in Higher Education Survey.

ITA wishes to thank all government and private organization who have cooperated and assisted in conducting these surveys.

Survey's Objectives:

- To measure ICT penetration rate in government and higher education sectors.
- To compile ICT statistics from government and higher education sectors to assist decision makers in developing strategic plans.
- Collect and analyze ICT Indicators in compliance with the International Telecommunication Union (ITU) and Global Community unified indicators and definitions of IT sector.
- To provide ICT data for international and regional benchmarking.

Survey Methodology:

Survey Sample:

- **Government Sector:**

The survey covered most government entities. A total of 58 organizations were surveyed and 91% (53 entities responded).

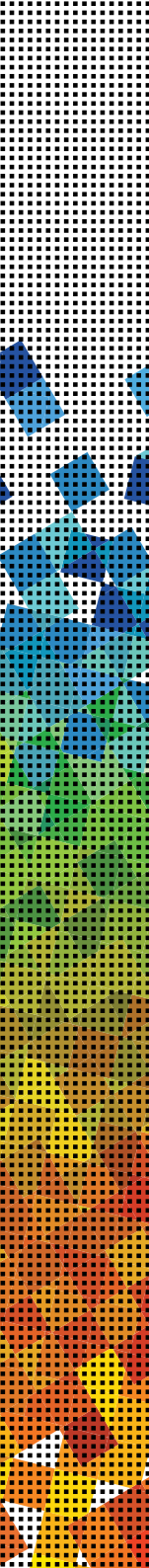
- **Higher Education Sector:**

The survey covered most higher education institutions totally around 46 which are as follow:

- Ministry of Health: (15) Health Institutes
- Ministry of Higher Education: (6 Colleges of Applied Sciences and 16 Private) Higher Education Institutions
- Ministry of Manpower: (7) Technical Colleges
- Sultan Qaboos University
- College of Banking and Financial Studies

Survey's Period:

The Survey period including data collection, data validation, data analysis and final results approximately 4 months.



Survey Questionnaire:

The questionnaires were designed according to ITU- Core ICT indicators 2010 that had been developed by the members of the Partnership on Measuring ICT for Development with consideration to ITA's requirements to implement e.oman Strategy.

Training:

All focal points in government entities and higher education institutions received training in data collection procedures. The questionnaires were explained to ensure maximum response rate and accurate data.

Data Collection:

The Survey was online at ITA website (www.ita.gov.om).

Data Editing, Processing and Analyzing:

Data verification and validation was conducted by calling back via various methods e.g. fax, emails and telephone calls. Data analyses were done by a specialized staff in analyzing ICT data.

Survey's Reference Year:

- **Government Sector:** Year of 2010.
- **Higher Education Sector:** Academic Year of 2009\2010.

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**INFORMATION AND COMMUNICATION
TECHNOLOGIES (ICT) USAGE IN
GOVERNMENT SURVEY (2011)**

SUMMARY RESULTS

Indicator	2011	2010	2009
Percentage of Staff With ICT Skills	43%	42%	15%
Staff to Computers Ratio	1.4	1.2	2.9
Percentage of Computers Connected to the Internet	83%	50%	42%
Percentage of Staff Routinely Using Computers at Work	45%	43%	21%
Percentage of Staff Routinely Using Internet at Work	39%*	42%	15%
Estimated Percentage of Government Employees Using E-mail as a Mean of Communication – External Communication	94%	90%	88%
Estimated Percentage of Government Employees Using E-mail as a Mean of Communication – Internal Communication	85%**	93%	83%
Percentage of Government Entities with an Intranet	87%	86%	85%
Percentage of Government Entities Linked to any Network	91%	89%	69%

* Limited access to internet to some staff as per entities policies.

** eOffice is being used by some government entities.

eOffice: Is an Internal Communication System.

Figure (1): Percentage Distribution of Total Staff by Nationality 2011

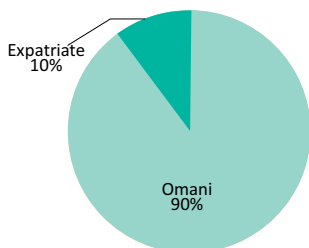


Figure (2): Percentage Distribution of Omani Staff by Gender 2011

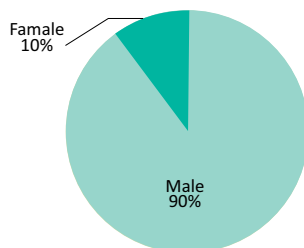


Figure (3): Percentage of Staff with ICT Skills 2011

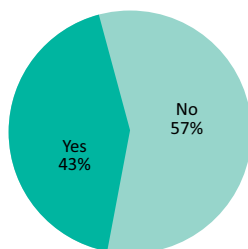


Figure (4): Percentage of Staff with ICT Majors 2011

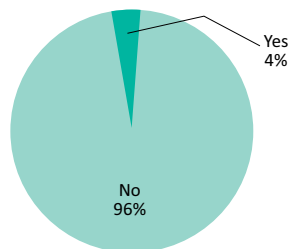


Figure (5): Percentage of PCs Connected to the Internet 2011

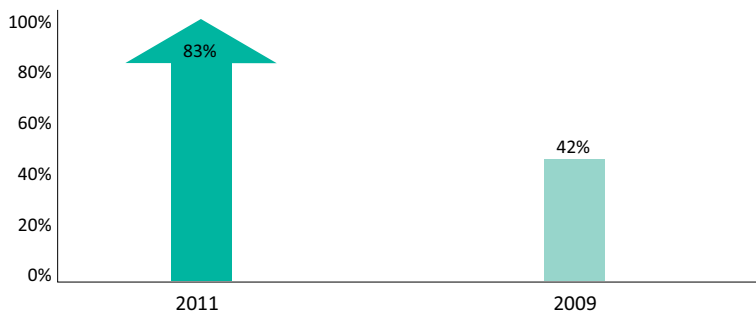


Figure (6): Percentage of Government Entities by Type of Internet Access 2011

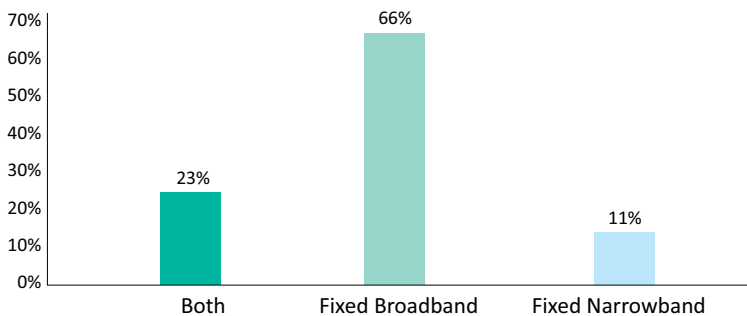


Figure (7): Percentage of Staff Routinely Using PCs and Internet at Work

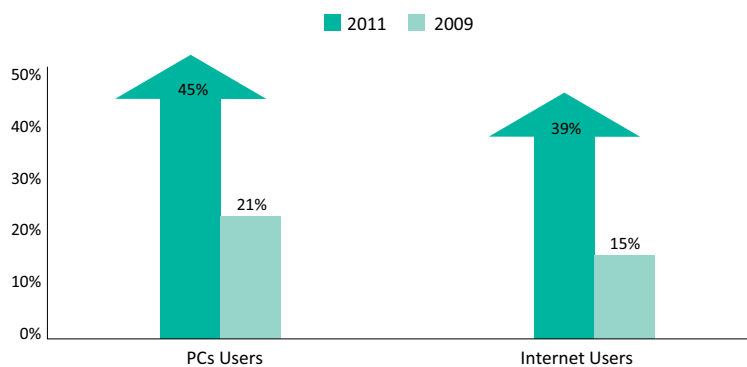


Figure (8): No. of Government Entities who Use E-mail for Official Internal Communications by the Percentage of Usage 2011

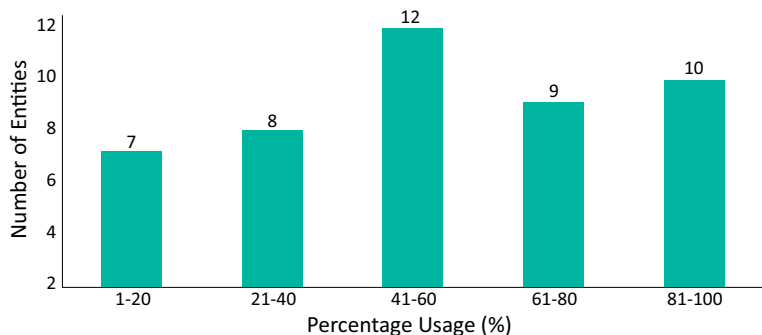


Figure (9): No. of Government Entities who Use E-mail for Official External Communications by the Percentage of Usage 2011

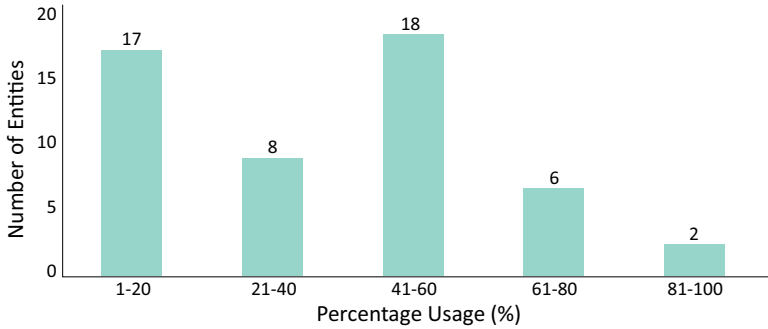


Figure (10): Percentage of Government Entities Having the Following Information Technologies Tools 2011

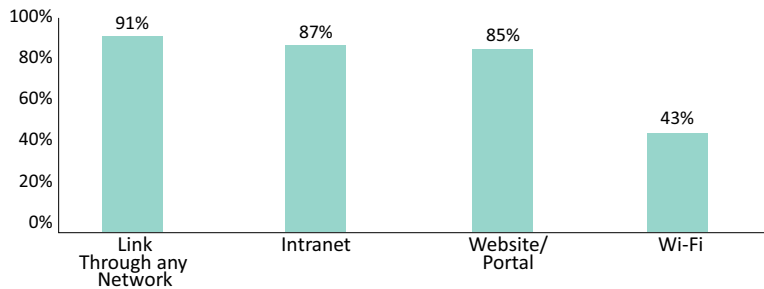


Figure (11): Percentage of Government Entities Using the Following Communication Tools 2011

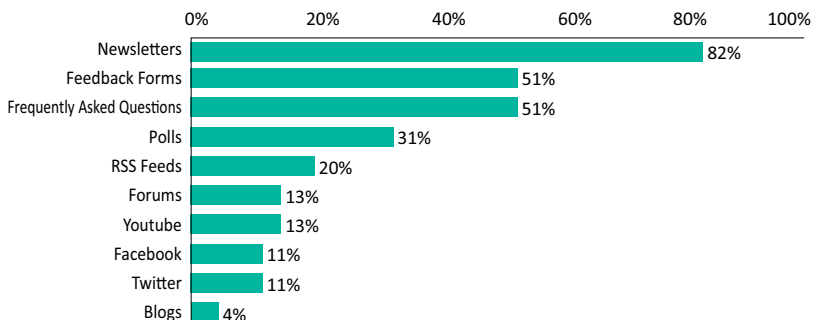
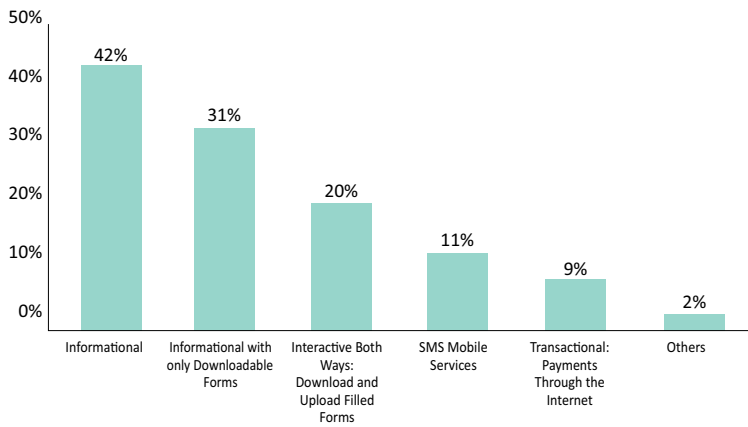


Figure (12): Percentage of Online Services by the Type of Service 2011



INFORMATION AND COMMUNICATION
TECHNOLOGIES (ICT) ACCESS TO AND
USAGE IN HIGHER EDUCATION SURVEY
(2011)

SUMMARY RESULTS

Indicator	2011	2010
Higher Education Institutions:		
Percentage of Institutions with Website Presence	64%	100%
Percentage of Institutions Offer ICT Majors	60%	76%
Percentage of ICT Majors out of Total Majors	25%	15%
Percentage of Computers Connected to the Internet	97%	97%
Percentage of Institutions Provide an E-mail Accounts to:		
• Students	98%	44%
• Academic Staff	98%	92%
• Admin. Staff	89%	100%
Staff:		
Percentage of Staff with Information and Communication Technologies (ICT) Majors	17%	14%
Percentage of Staff with Information and Communication Technologies (ICT) Skills	78%	78%
Students:		
Percentage of Students Enrolled in Information and Communication Technologies (ICT) Related Majors	20%	17%
Percentage of Students Enrolled in Information and Communication Technologies (ICT) Related Majors by Gender:		
• Male	49%	47%
• Female	51%	53%

Figure (13): Percentage of Institutions by Type and Type of Internet Access 2011

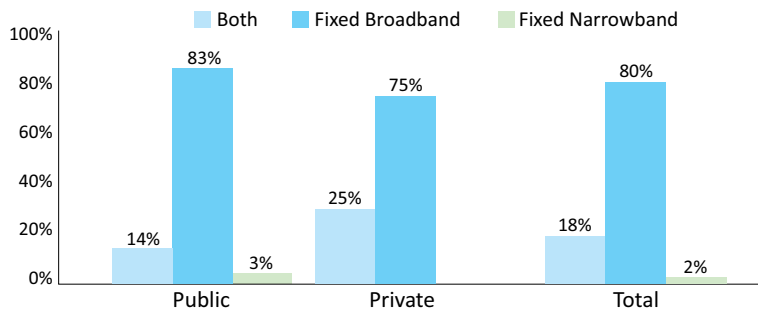


Figure (14): Percentage of PCs Connected to the Internet by Type of Institution 2011

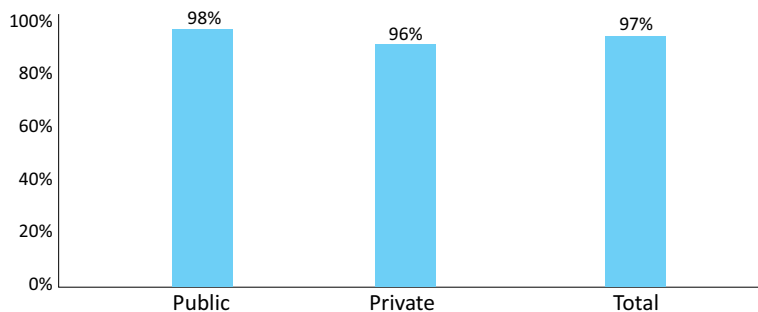
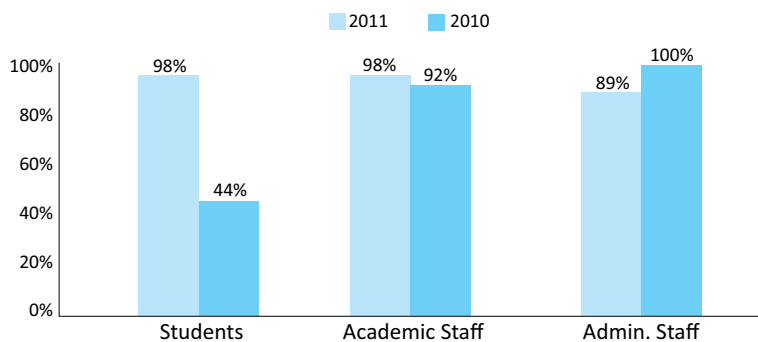


Figure (15): Percentage of Institutions that Provide an Official E-mail Account to



Around 11% of private institutions don't provide an official email account for administrative staff because of having an e-internal communication application.

Figure (16): Percentage of Institutions that Provide an Official E-mail Account to Admin. Staff by Type of Institution 2011

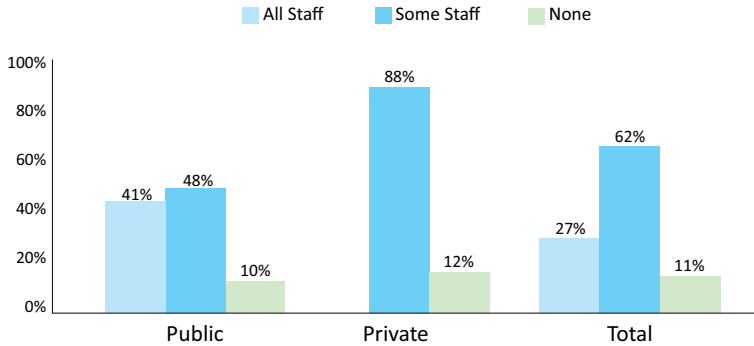


Figure (17): Percentage of Institutions that Provide an Official E-mail Account to Academic Staff by Type of Institution 2011

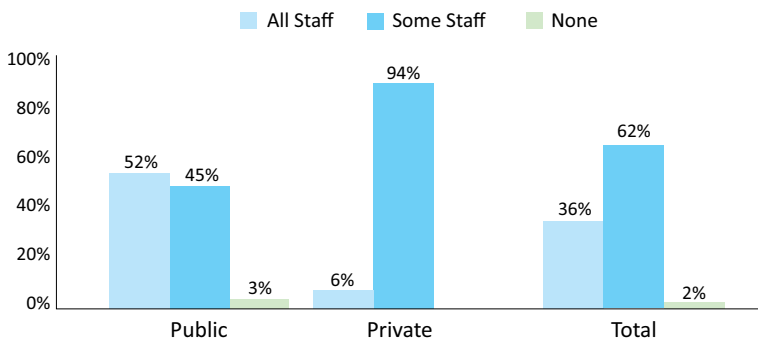


Figure (18): Percentage of Institutions that Provide an Official E-mail Account to Students by Type of Institution 2011

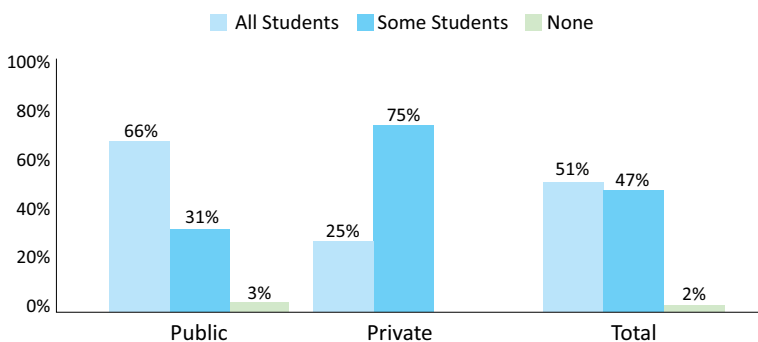


Figure (19): Percentage of Institutions Having the Following Information Technologies by Type of Institution 2011

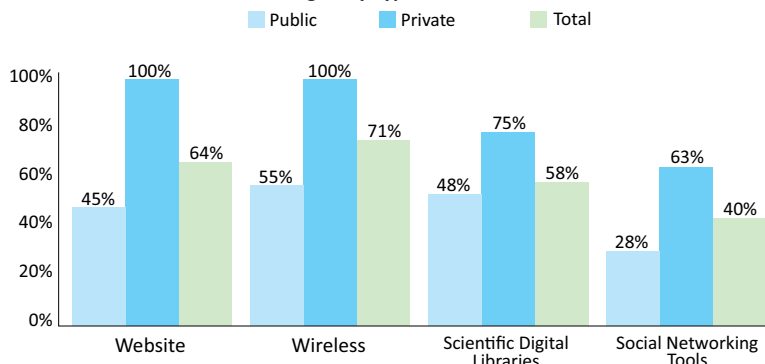


Figure (20): Percentage of Institutions by Type of Institution and Type of Network 2011

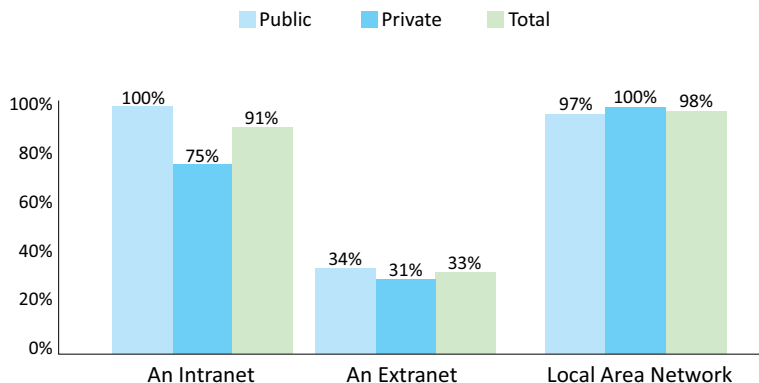
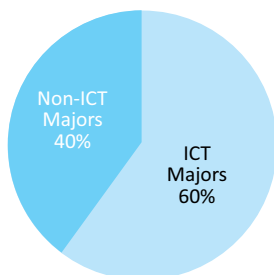


Figure (21): Percentage of Institutions Offering 2011

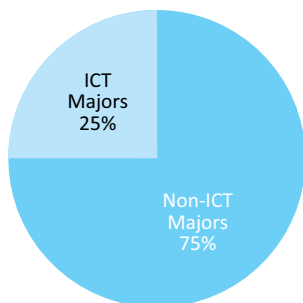


ICT Majors and Non-ICT Majors by Type of Institution 2011

	Public	Private
ICT Majors	*48%	81%
Non-ICT Majors	52%	19%

* 15 out of 29 of the public institutions are health institutions, where they don't offer ICT majors but offer ICT subjects.

Figure (22): Percentage of ICT Majors out of Total Majors 2011



ICT Majors: a diploma degree or higher degree in ICT studies e.g. information technology, system analysts, programmers, developers, security specialists etc.

Figure (23): Percentage of Staff with ICT Majors and Skills

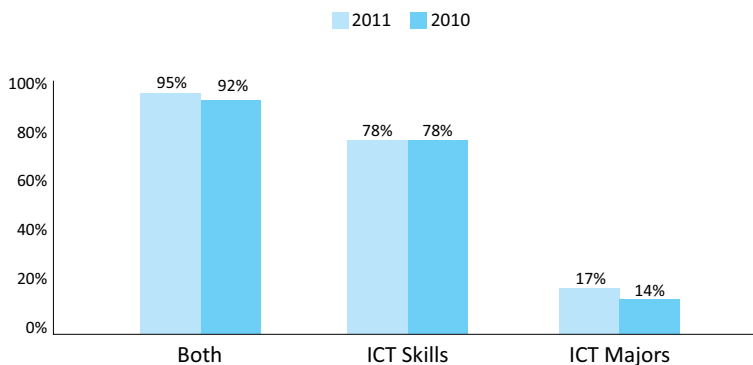
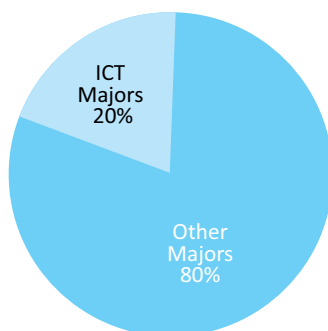
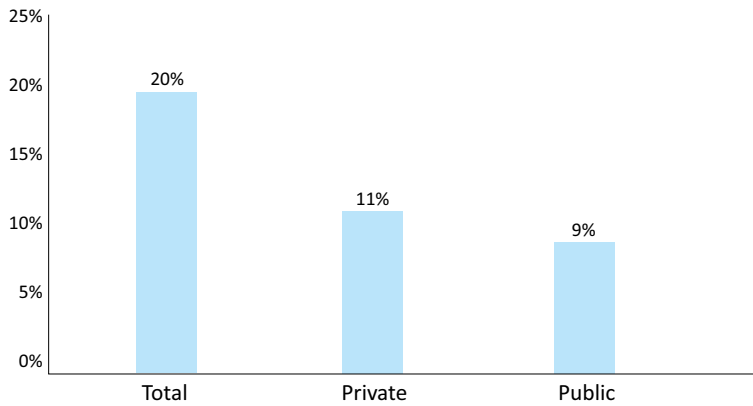


Figure (24): Percentage of Students Enrolled in ICT Related Majors 2011



**Figure (25): Percentage of Students Enrolled in ICT Related Majors
by Type of Institution 2011**



**Figure (26): Percentage of Students Enrolled in ICT Related Majors
by Gender 2011**

