



INFORMATION SOCIETY OUTLOOK

ICT INDICATORS NEWSLETTER



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ICT Indicators Web Portal: <http://indicators.ncb.mu>

Why ICT Indicators ?

The objectives of this first publication are to highlight indicators which show penetration of ICT in Mauritius. As recommended in the National Information Communication Technology Strategic Plan (NICTSP) 2007 – 2011, there is urgent need to establish the collection and analysis of ICT Indicators.

A Task Force set up by the National Computer Board (NCB) in 2008 defined 147 Indicators which are classified into seven broad categories, for monitoring the Information Society in Mauritius. The indicators are based on definitions from international organisations such as the International Telecommunication Union (ITU), the World Summit on Information Society (WSIS), UNESCO and Directorate for Science, Technology and Industry (DSTI) Committee for Information, Computer and Communications Policy. The seven broad categories are:

1. ICT Infrastructure Readiness
2. ICT Market Revenue
3. ICT Usage in businesses
4. ICT Penetration in households
5. ICT Manpower
6. ICT in Education
7. E-Government

As the ICT sector is now considered a key component of economic growth, there is immense value in the data collected on different ICT indicators. Standardized data highlight ICT development and access both in a national and regional context. Time series comparisons of country data provide insights into the effects of regulatory actions and market changes on a nation's ICT growth. As such, comparable, standardized data on a series of ICT indicators is of utmost importance to regulators, policy makers and operators in any country.

ICT Indicators Categories

1. Infrastructure Readiness (31 Indicators)

These indicators depict whether Mauritius has the necessary environment to use the new technologies. This is done by looking at the state of the infrastructure. These indicators would shed light on whether our country has the necessary physical networks and on the level of connectivity to use the new technologies

2. ICT Market Revenue (19 Indicators)

The objective of this group of indicators is to assess the revenue that is derived from ICT goods and related services. This will enable us to measure the ICT market revenue for local and export market, as well as employment, contribution of the ICT sector to GDP and growth of the ICT sector.

3. ICT Usage in businesses (34 Indicators)

This set of indicators will enable the assessment of the level of utilisation of ICT by different economic sectors.

4. ICT Penetration in households (8 Indicators)

The main objective of this group of indicators is to assess the penetration of ICT among the general population and to what extent ICT is changing daily life of Mauritian citizens.

5. ICT Manpower (16 Indicators)

The importance of a skilled workforce in ICT is growing as we move towards a knowledge based society. This set of indicators will enable us to assess our requirements in terms of manpower to meet the demands of the industry.

6. E-Government (9 Indicators)

This set of indicators will enable the assessment of the level of utilisation of ICT by ministries and departments.

7. ICT in Education (30 Indicators)

The growing importance of ICT in a knowledge based society implies the need to include ICT in the education curricula at all levels. This set of indicators aims at assessing ICT usage in education to provide a basis for policy planning and programme improvements, specifically demonstrating how ICT is raising standards in education.

Key Highlights

ICT Infrastructure Readiness	2
ICT Market Revenue	5
Employment in ICT sector	7
ICT Usage in Households	8
ICT in Education	10
International Indices	11

Network Readiness Index¹ 2008-2009 (Lower score implies higher risk) African Region – Top 5 countries

Rank	Country	Score
1	Tunisia	4.34
2	Mauritius	4.07
3	South Africa	4.07
4	Egypt	3.76
5	Botswana	3.72

Mauritius has made significant investment in enhancing infrastructure for ICT sector. Telecom costs have been declining by nearly 30% each year. Connection to the Lower Indian Ocean Network (LION) cable is expected to provide additional bandwidth and further cost reduction.

The country has positioned itself as the 2nd country with the lowest risk in terms of network reliability on the African continent².

¹ Based on The Global Information Technology Report 2008-2009

²Source: Everest Research Institute (2008)

1. ICT INFRASTRUCTURE READINESS

1.1 Fixed and Mobile Telephony

Teledensity and Mobidity is the ratio of telephone lines and mobile phones per 100 inhabitants respectively. The teledensity has been increasing from a level of 28.4 in 2006 to 28.6 in 2007 and from 28.9 in 2008 it has attained the level of 29.7% in 2009.

The Mobidity has been continuously increasing since recent years to reach 84.3 in 2009.

The annual average growth rate for the period 2005 to 2009 works out to be 12.5%.

Source: ICT Authority

FIG. 1: TELEDENSITY AND MOBIDENSITY

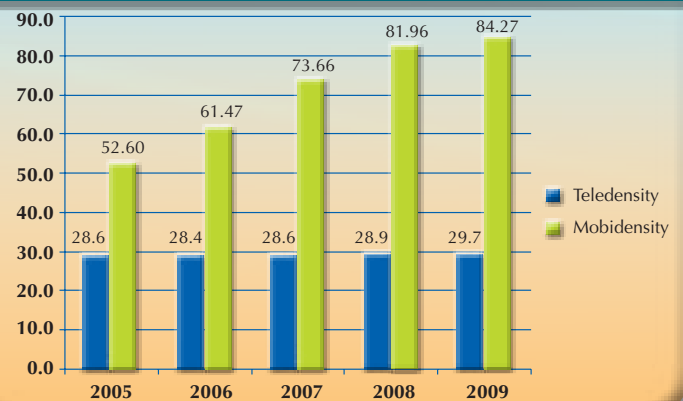
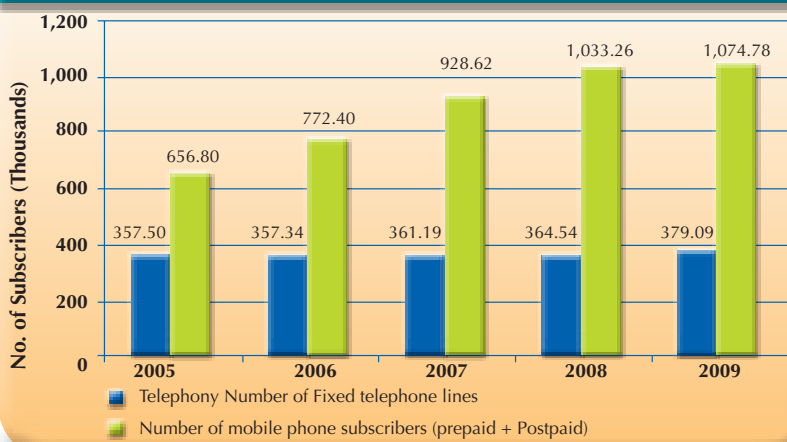


FIG. 2: NO. OF SUBSCRIBERS TO FIXED AND MOBILE TELEPHONY



The total number of subscribers to fixed telephone has reached a level of 379,100 in 2009 from 357,500 in 2005. The percentage increase for the year 2009 represents 4% compared to 2008.

The number of mobile phone subscribers (inclusive of both prepaid and postpaid) has also been constantly on the rise attaining 1,074,783 and bringing about an increase of 4% with respect to 2008.

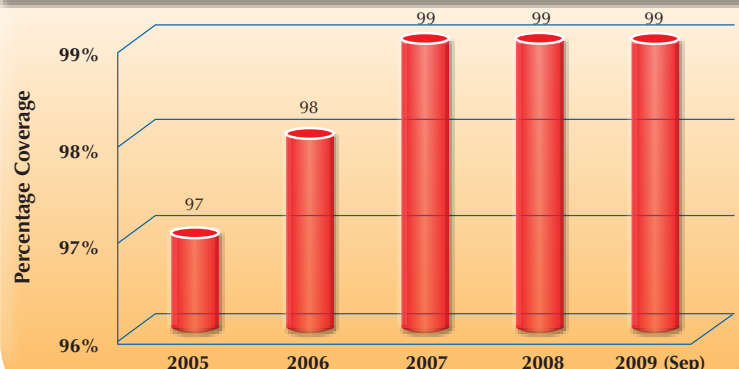
Source: ICT Authority

The population covered by mobile cellular telephony is defined as the number of inhabitants who live within areas covered by a mobile cellular network, irrespective of whether or not they subscribe to the service.

The coverage areas have been since 2005 above 95%. During 2007-2009, 99.0% of the population were covered by mobile cellular telephony.

Source: ICT Authority

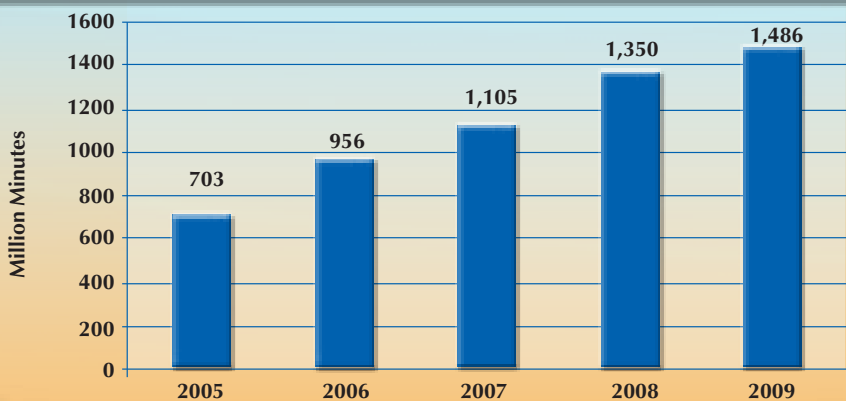
FIG. 3: % OF POPULATION COVERED BY MOBILE CELLULAR TELEPHONY



1. ICT INFRASTRUCTURE READINESS

1.2 Communication Traffic

FIG. 4: TELEPHONE TRAFFIC - OUTGOING FROM MOBILE



This indicator shows the volume of national mobile voice traffic in total number of minutes made by mobile subscribers (including minutes to fixed and minutes to other mobile subscribers).

Calls from mobile phones since 2005 have been rising rapidly and have more than doubled to reach a total of 1,486 million minutes in 2009.

Traffic flows have been evolving progressively over a more aggressive competitive market, resulting in decrease in tariffs.

Source: ICT Authority

1.3 Internet

The total Internet subscribers includes dial-up, fixed broadband, DSL Internet subscribers, leased line subscribers, mobile Internet users and other broadband connection subscribers.

The number of Internet subscribers at the end of 2008 stood at 199, 511 and as at September 2009 it had reached 251,453.

The percentage increase for 2009 compared to 2008 worked out to 26%.

Source: ICT Authority

FIG. 5: NO. OF INTERNET SUBSCRIBERS

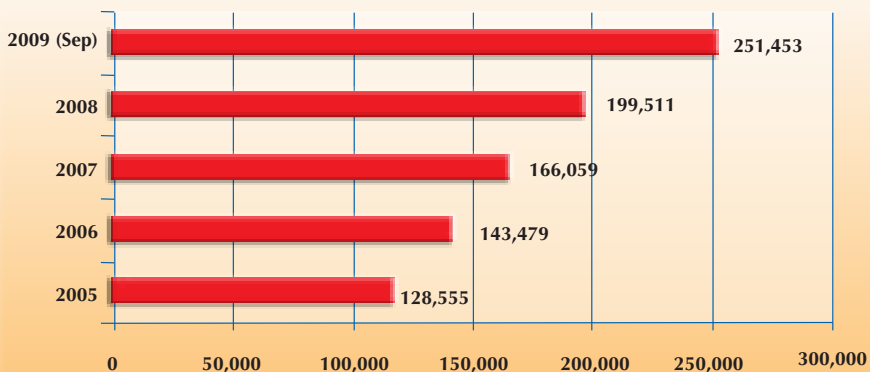
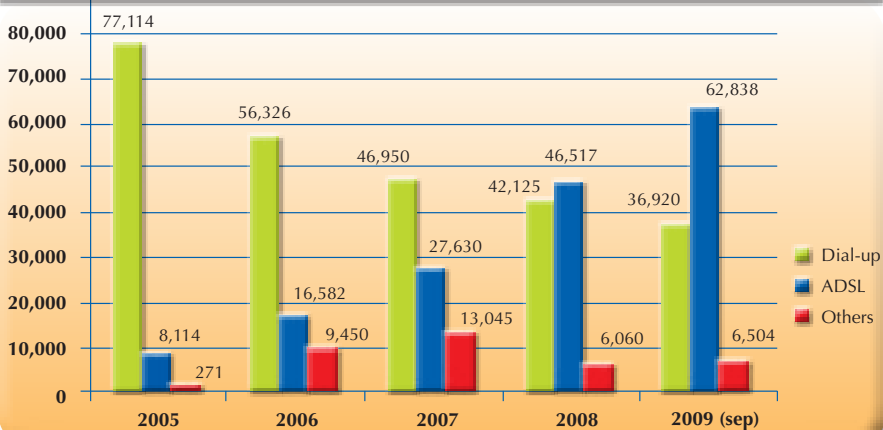


FIG. 6: NO. OF INTERNET SUBSCRIBERS BY MODE OF CONNECTION



The connection available to Internet subscribers are Dial-up, ADSL, Frame relay and wireless.

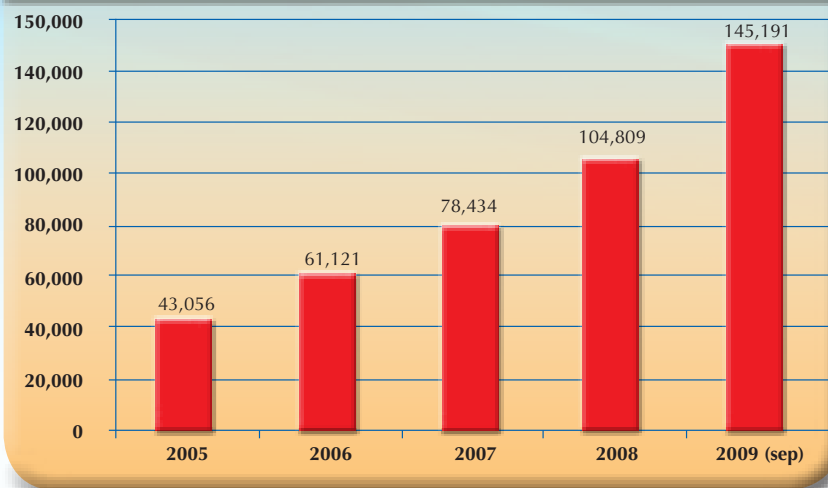
The tendency shows a shift from Dial-up connection to ADSL. It has become the preferred mode of connection of Mauritians.

This is mainly due to decrease in the broadband tariff and the introduction of My.T in 2006 which has increased the number of subscribers to ADSL to reach 62, 838 in September 2009 from only 8, 114 in 2005.

Source: ICT Authority

1. ICT INFRASTRUCTURE READINESS

FIG. 7: NO. OF MOBILE INTERNET PHONE SUBSCRIBERS



1.3 Internet - continued

The introduction of Mobile Internet Services in 2005 comprises mainly GPRS, WAP, and 3G connection.

The level of Mobile Internet Phone Subscribers in 2009 has reached 145,191, representing an increase of 38.5% with respect to 2008 (compared to 34% for the period 2007 to 2008).

As a percentage of total Internet subscribers, the mobile Internet subscribers have increased by 57.7% in 2009 from 52.5% in 2008. As observed the increase rate is more considerable than fixed Internet subscribers.

Source: ICT Authority

The number of Internet users that have subscribed for a broadband connection includes xDSL, My.T, 3G and other connection above 256 kbits/s.

The number of broadband subscriptions has made a major leapfrog from about 5,400 users in 2005 to 91,734 in 2008, increasing at an average of 260% annually. The number of users at September 2009 has increased to 127,718.

Note: The International Telecommunication Union (ITU) defines the Broadband as a high speed connection of greater than 256 kbits/s in both directions.

Source: ICT Authority

FIG. 8: NO. OF BROADBAND INTERNET SUBSCRIBERS

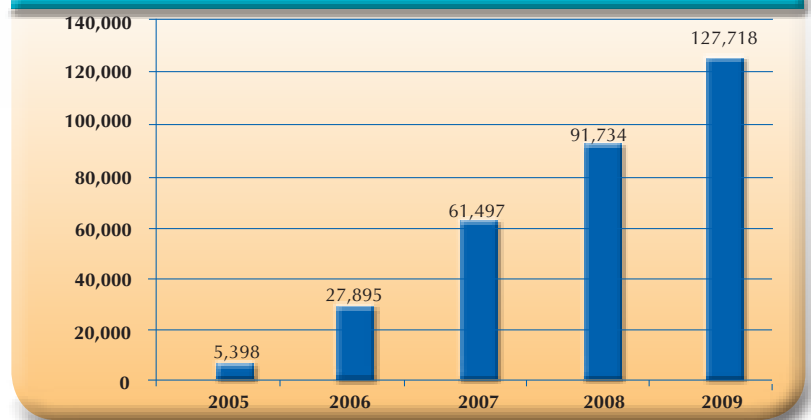
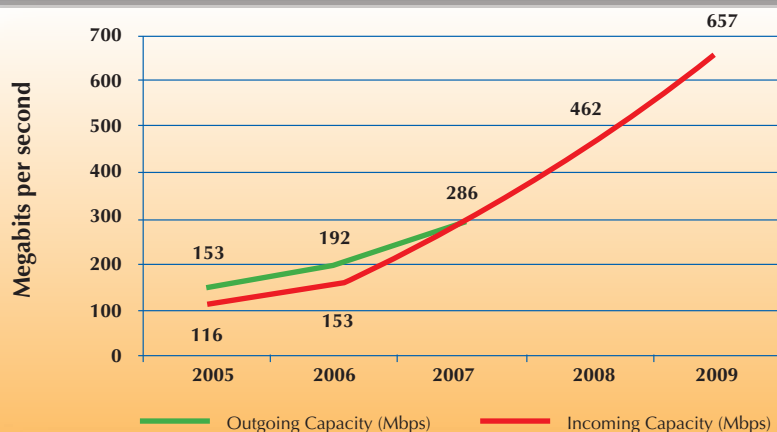


FIG. 9: INCOMING AND OUTGOING INTERNET BANDWIDTH 2005-2009



This graph is showing the incoming and outgoing capacity of International Internet bandwidth in Megabit per second (Mbps).

Both types of bandwidth have been constantly improving at an increasing rate over the years with an outgoing bandwidth of 153 Mbps and an incoming bandwidth of 116 Mbps in 2005 and then both bandwidth reaching 657 Mbps in 2009 (September).

Source: ICT Authority

1. ICT INFRASTRUCTURE READINESS

1.3 Internet - continued

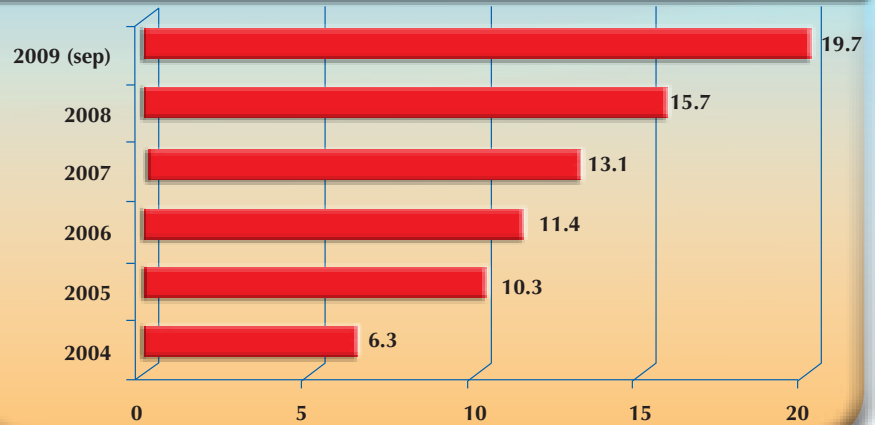
The graph depicts the ratio of Internet users per 100 inhabitants.

The total number of Internet subscriptions per 100 inhabitants has more than doubled over the past 5 years reaching around 20 Internet users per 100 inhabitants in 2009 compared to only 6 users in 2004.

The driving factor for this improvement is due to a continuous decline in Internet tariff rates over the years.

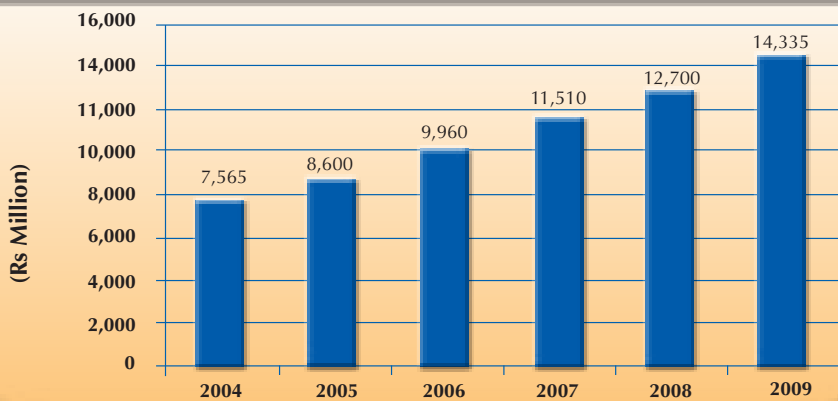
Source: ICT Authority

FIG. 10: INTERNET SUBSCRIPTIONS PER 100 INHABITANTS



2. ICT Market Revenue

FIG. 11: VALUE ADDED IN THE ICT SECTOR



The Value Added in the ICT Sector is the contribution of ICT to the Gross Domestic Product (GDP).

The contribution of value added services in the ICT sector has constantly improved since 2004 to reach Rs 14.3 billion in 2009. In 2008, the contribution was at Rs 12.7 billion.

The annual percentage growth rate over the past 6 years has been at 14.9%.

Source: Central Statistics Office (CSO)

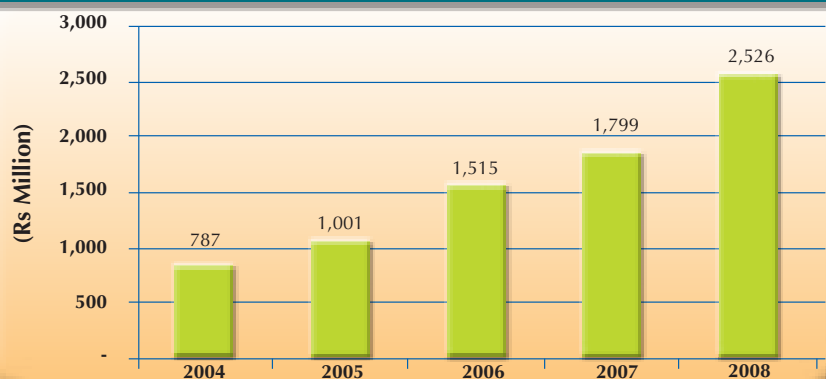
This graph depicts the Export of ICT Services in Mauritius for the period 2004 to 2008.

It is observed that the turnover of establishments in exports of ICT services has increased to Rs 2.5 billion in 2008 from Rs 1.8 billion in 2007.

This represents an increase of 40%. The annual percentage growth rate from 2004 to 2008 stood at 44.2%.

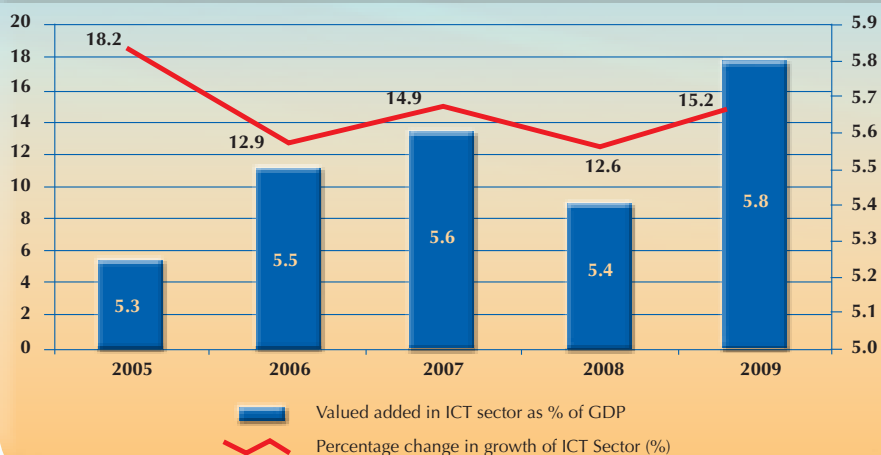
Source: Central Statistics Office (CSO)

FIG. 12: EXPORTS OF ICT SERVICES



2. ICT Market Revenue

FIG. 13: PERCENTAGE GROWTH OF THE SECTOR AND PERCENTAGE CONTRIBUTION TO GDP



The graph shows the percentage change in growth in the ICT sector and the Value Added in the ICT sector as a % of total value added in all sectors.

The percentage change in growth was 12.6 % in 2008 and in 2009 the ICT sector has experienced considerable growth where it stood at 15.2%.

The contribution of ICT to the Gross Domestic Product has also improved from 5.4% in 2008 to 5.8% in 2009, the highest achieved since 2005.

Source: Central Statistics Office (CSO)

The graph depicts the turnover of ICT companies in the ICT sector.

ICT companies have experienced sustainable growth and this has directly impacted their turnover.

In 2009, the turnover generated has been more than Rs 29 billion, an increase of more than 16.3% over previous year.

Note: The ICT Sector definition comprises of the following activity group:- Manufacturing of Electronic Devices, Wholesale and Retail Trade (Hardware and Software), Telecommunications and IT Services and IT Enabled Services.

Source: Central Statistics Office (CSO)

FIG. 14: TURNOVER OF ESTABLISHMENTS IN THE ICT SECTOR

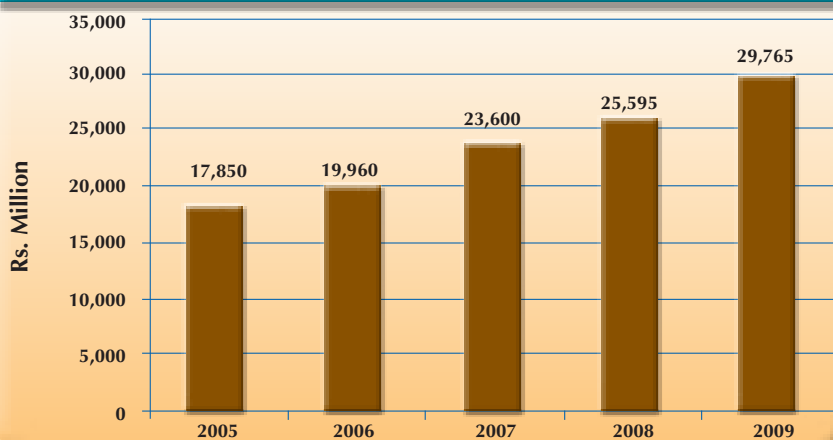
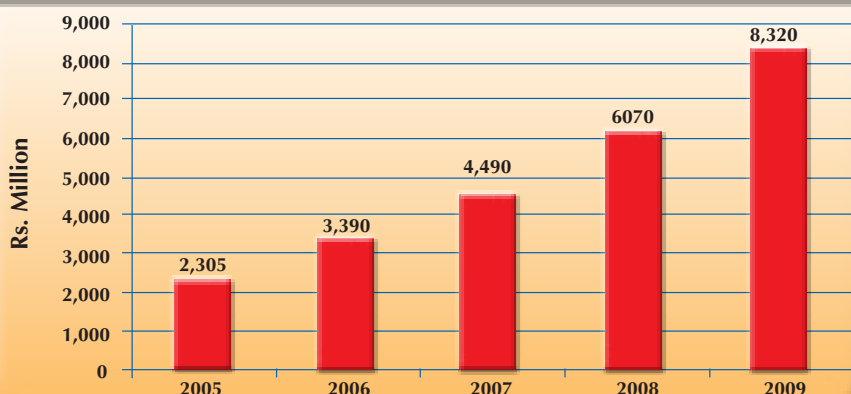


FIG. 15: TURNOVER FOR IT SERVICES AND IT ENABLED SERVICES



The turnover for IT services and IT Enabled services concerns mainly of renting of office and equipments, computer related activities and call centres.

In 2009, the turnover has attained Rs 8.3 billion, an increase of more than 37% over the previous year.

The growth rate has constantly been improving over the years and this is mainly due to the increase in the number of call centres operating in Mauritius.

Source: Central Statistics Office (CSO)

3. Employment in the ICT Sector

3.1 Employment in the IT-BPO sector

In 2009 the IT-BPO sector saw the entrance of 50 new players in the IT-BPO arena in Mauritius totaling 300 operational companies.

Whilst maintaining its position in the top 25 in the AT Kearney Offshoring Index, Mauritius is now increasingly being recognised as an emerging outsourcing destination. More than 1,500 new jobs were added in the sector in 2009 bringing the employment level to over 12,000.

The industry is segmented along the lines of customer care, finance, HR, payment services, administration and content development.

However, the types of outsourced services are becoming more diverse with the emerging growth areas such as Insurance, Stock Broking and Biotech research. Despite the fact that BPO maintains its dominant position in the industry, the share of software and web development is picking up very fast. Interestingly also, Mauritius is carving a niche in the shared service space in view of the ability of its bilingual (French / English) talent pool to deliver on various verticals with high productivity levels.

Source: Central Statistics Office (CSO)

FIG. 16: EMPLOYMENT IN THE IT-BPO SECTOR

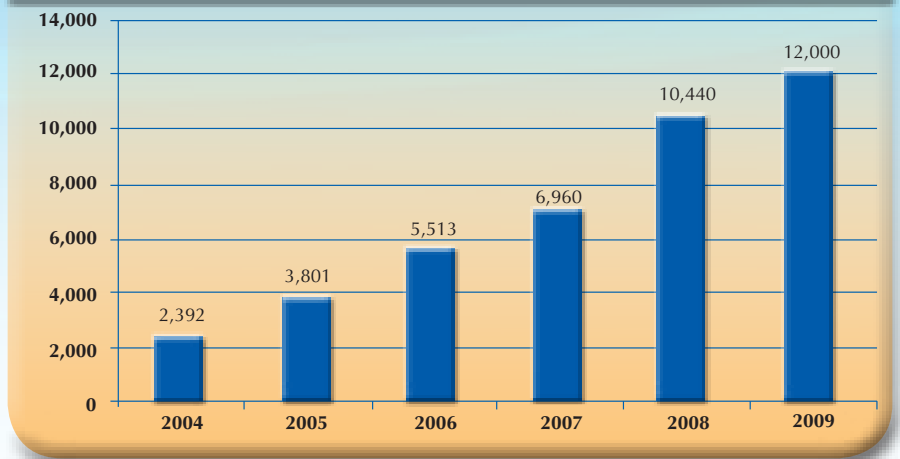
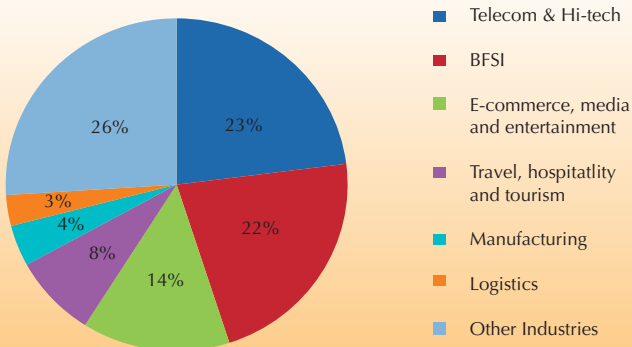


FIG. 17: EMPLOYMENT DISTRIBUTION 2008



3.2 Employment Distribution in IT-BPO

The chart shows the employment distribution by vertical support for 2008 where the total number of employees stood at 10,400.

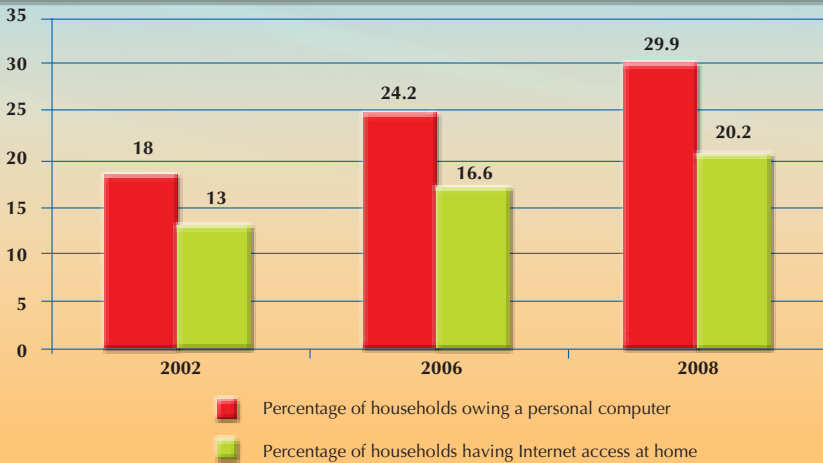
A wide range of industry verticals are being supported, with some spike in Telecoms and high-tech (23%), and Banking and Financial Services and Insurance (BFSI) (22%).

Other Industries (26%) refer to all other client industry verticals (e.g. healthcare, pharmaceutical, retail, government etc.)

Source: Everest Global Inc., Board of Investment.

4. ICT Usage in Households

FIG. 18: PERCENTAGE OF HOUSEHOLD WITH ICT ACCESS



4.1 ICT Access by Households

The indicators concern in-scope households having a personal computer and also access to Internet.

The graph shows that percentage of households owning a computer increased to 29.9% in 2008 compared to only 18% in 2002. Households having Internet access at home increased to 20.2% in 2008 from 13% in 2002.

The progressive change of both indicators can be explained by the lower Internet cost and loan facilities for purchasing computers.

Source: Central Statistics Office

The chart depicts the percentage of households that have access to a computer categorized by age group.

It is observed that more and more youngsters use a computer with nearly 78% in 2008. The higher age group are the least to use a computer. Thus for those between 50 and 59 years, only 19% of them were using a computer while for those above 60 years represents only 4.1%.

Source: Central Statistics Office (CSO)

FIG. 19: PERCENTAGE OF POPULATION THAT USES A COMPUTER BY AGE GROUP

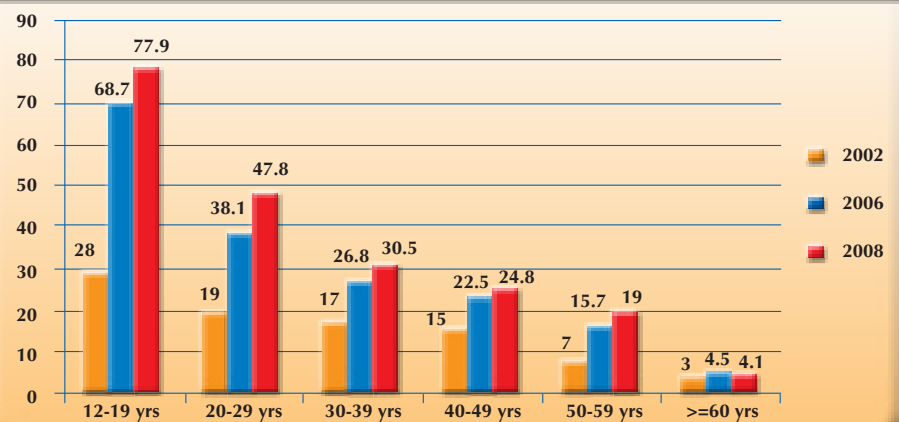
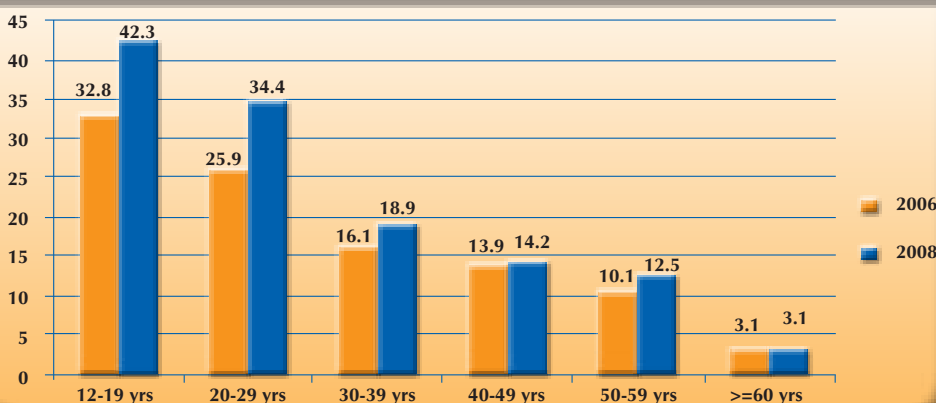


FIG. 20: PERCENTAGE OF POPULATION THAT USES INTERNET BY AGE GROUP



This graph depicts the percentage of households that uses Internet categorized by age group.

Figures indicate that both in 2006 and 2008 the use of Internet was the highest among the young age group (12-19 years old) with 32.8% and 42.3% respectively.

The percentage of Internet use among the senior age group (above 60 years) has remained at 3.1% between 2006 and 2008.

Source: Central Statistics Office (CSO)

4. ICT Usage in Households

4.2 Internet Access by Households

The chart shows the main purpose for use of Internet in households in Mauritius. Surveys conducted between 2000 and 2008 show some major changes in the trend of Internet use at level of household.

In 2000, the main purpose for Internet use was Email and Chat with 62%, followed by Research work representing only 50%. However, in 2008, although the percentage of usage is higher for all activities, we observed that most people go on Internet for Research work (82.5%), rather than Email and Chat (71.6%).

It is observed that there has also been an increase in usage of Online Banking services. From only 1% in 2000, the percentage usage has increased to 6.8% in 2008. The number of persons using the Internet for education purposes has also increased notably, from 10% in 2000, it has reached 32.4% in 2008. The use of Internet as a medium for Entertainment (music, movies, online games), has doubled over the years from 27% in 2000 to 54.3% in 2008.

FIG. 21: TYPES OF INTERNET USAGE

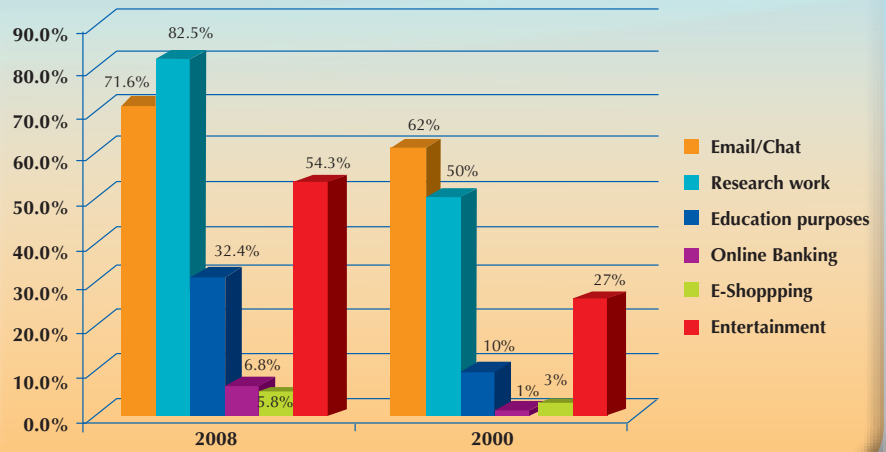
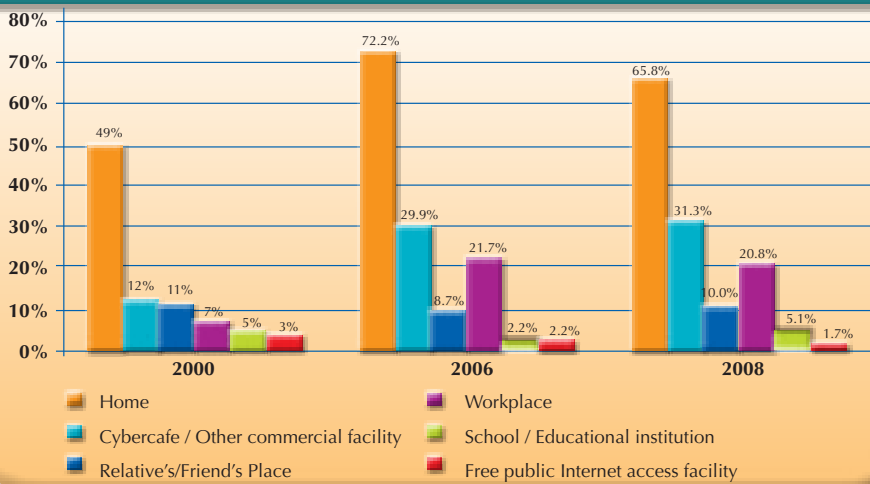


FIG. 22: INTERNET USAGE BY LOCATION



Internet is accessed from more than one location. Since the year 2000, the trend shows that using the Internet at home has always been the preferred mode for access. The next popular mode for accessing the Internet is at the person's place of work.

Internet was least accessed at free public access facilities. From 3% in 2000, it has dropped down to 1.7% in 2008. However using the Internet at another person's place, i.e. relatives or friends has increased from 2.2% in 2006 to 5.1% in 2008. Using the Internet at the place of study has slightly decreased from 21.7% in 2006 to 20.8% in 2008.

Source: CSO

Public Internet Access Points (PIAPs)

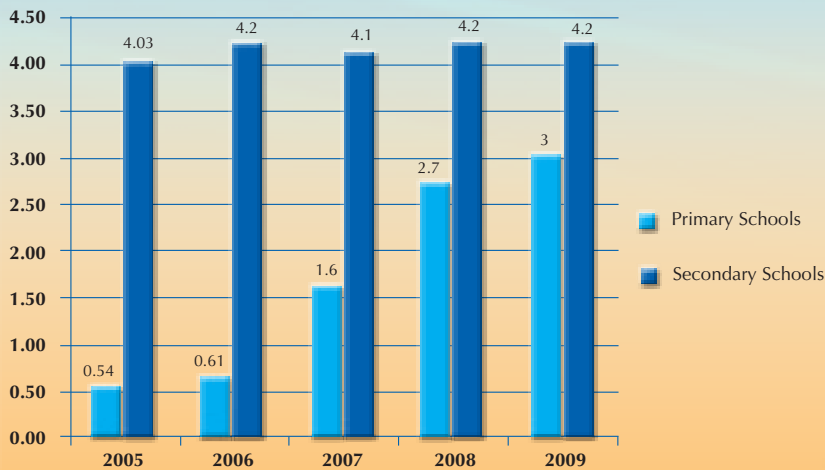
53 PIAPs have been set up in Post Offices around the island and are fully operational. Another batch of 40 new PIAPs have been set up and will be operational by March/April 2010, in all the 93 Post Offices in Mauritius.

Computer Clubs

Under the Community Empowerment Programme (CEP) of the NCB, 38 Computer Clubs are operational around the island (16 in Women Centres and 22 in Youth Centres) since February 2009. As at 4th April 2010, over 125,000 persons have made use of such facilities free of charge.

5. ICT in Education

FIG. 23: NO. OF PC PER 100 STUDENTS - PRIMARY AND SECONDARY



5.1 Computer Facilities at Schools

The chart illustrates the number of computer per 100 students both at the primary and secondary level.

The figures for primary schools have been improving since 2005 with only 1/2 PC per student in that year to 3 PCs in 2008.

The status for secondary schools has remained stationary to 4 PCs per 100 student over the past 5 years.

Source: Ministry of Education, Culture and Human Resources

5.2 Internet Access at Schools

The percentage of Internet access for primary schools has known a considerable change with a mere 4.5% in 2005 to 100% in 2009. This shows the determination of the government to fully provide ICT facilities for a better education.

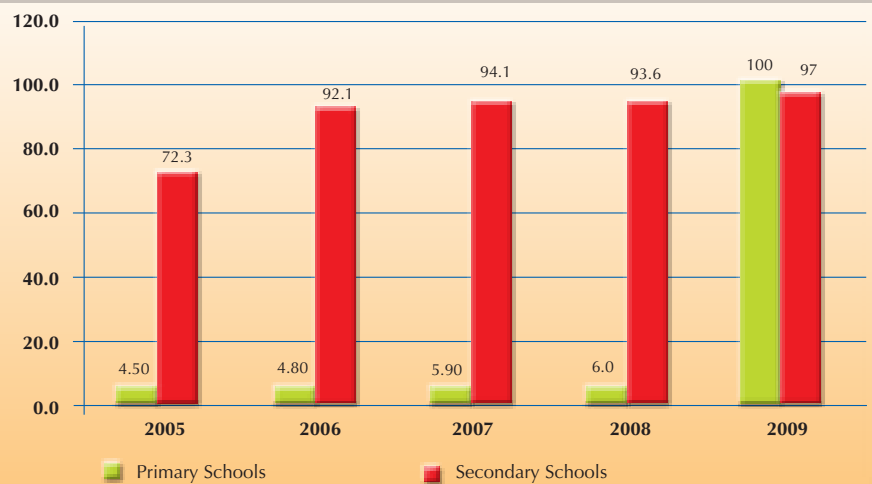
The percentage of Internet access for secondary schools also has constantly been improving with 72.3% in 2005 to 97% in 2009.

Both primary and secondary schools have been provided with ADSL mode of internet access in the ICT lab where the PCs are connected in wireless LAN for internet access.

Note: Figures are for state-owned schools only.

Source: Ministry of Education, Culture and Human Resources

FIG. 24: PERCENTAGE OF SCHOOLS HAVING ACCESS TO INTERNET



6. International Indices

6.1 ITU's Development Index

The ICT Development Index (IDI) is used to benchmark ICT progress in terms of development of ICT, level of advancement of ICT and the digital divide among countries at the global level.

Three sub-indices are used to compile the IDI, namely the *ICT Infrastructure Readiness*, *ICT use* (by households, businesses) and *ICT skills* (capacity required to use ICT effectively).

Mauritius holds the 2nd position with an IDI of 3.44 in the African region and is ranked 72nd on the international level.

6.2 Global Services Location Index

The Global Services Location Index places Mauritius in the 25th position among 50 countries. This index analyses the cost, people skills and availability and business environment for each country to serve as a Business Process Offshoring platform.

Mauritius is one of the lowest-cost emerging destinations for such services and benefits from its bilingual skills and its conducive business environment.

In terms of infrastructure risk, Mauritius is well known for having a good quality of real estate, roads and telecom network. Political stability also places Mauritius in a good position when it comes to assess environment risks.

6.3 Ease of Doing Business 2010

Mauritius is among the most competitive and successful economies in Africa. It holds the pole position for ease of doing business in Africa. The country is ranked at 17th position among 183 countries according to the World Bank's 2010 Doing Business Survey.

The Government of Mauritius's objective is for Mauritius to rank among the top 10 most investment and business-friendly locations in the world. It is to be noted that the country was ranked at the 32nd and 28th position in 2007 and 2008 respectively. In 2009 Mauritius was at the 24th position. The statistics is showing the continuous improvement and effort Mauritius is making to become competitive on the global market.

This index takes into consideration Starting a business, Dealing with, Employing workers, Registering property, Getting credit, Protecting Investors, Paying taxes and Trading across borders.

African Region – Top 5 countries			
Rank	Country	IDI Score 2007	Global Rank 2007
1	Seychelles	3.64	66
2	Mauritius	3.44	72
3	South Africa	2.79	92
4	Cape Verde	2.62	102
5	Bostwana	2.30	109

Source: Measuring the Information Society, ITU 2010

Rank	Country	Rank	Country	Rank	Country
1	India	11	Singapore	21	USA
2	China	12	Slovakia	22	Uruguay
3	Malaysia	13	Egypt	23	Argentina
4	Thailand	14	Jordan	24	Hungary
5	Brazil	15	Estonia	25	Mauritius
6	Indonesia	16	Czech	26	Tunisia
7	Chile	17	Latvia	27	Ghana
8	Philippines	18	Poland	28	Lithuania
9	Bulgaria	19	Vietnam	29	Sri Lanka
10	Mexico	20	UAE	30	Pakistan

Source: A.T Kearney Global Services Location Index 2009

Economy	Ease of Doing Business Rank	Starting a Business
Singapore	1	4
New Zealand	2	1
Hong Kong, China	3	18
United States	4	8
United Kingdom	5	16
Denmark	6	28
Ireland	7	9
Canada	8	2
Australia	9	3
Norway	10	35
Georgia	11	5
Thailand	12	55
Saudi Arabia	13	13
Iceland	14	33
Japan	15	91
Finland	16	30
Mauritius	17	10

Source: World Bank's Doing Business Survey 2010



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