International Telecommunication Union

USE OF INFORMATION AND COMMUNICATION TECHNOLOGY BY THE WORLD'S CHILDREN AND YOUTH

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A statistical compilation

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PREFACE

The expansion of electronic and digital infrastructure has given many millions of people the potential to learn, publish and communicate on an unprecedented scale. The rapidly declining real cost of the requisite information and communication technologies, combined with vast changes to available infrastructure, have allowed many young people to take advantage of technology to do and achieve things unknown to earlier generations.

While access to technology and associated electronic content has significantly changed the lives of many young people in wealthier economies, the same is not generally true of those in less developed economies.

The main purpose of this report is to shed light on the current situation by presenting and describing statistical information on the use of information and communication technology (ICT) by the children and youth of the world.

A secondary goal is to describe the limitations of existing statistics, and to present proposals to increase the availability and comparability of statistics on young people's use of ICT. An important limitation, affecting both the data and the conclusions presented in this publication, is the small number of countries for which relevant data are available. While the majority of developed economies have rich datasets on individual use of ICT, data availability is poor for most developing and transition economies, and particularly poor for the least developed economies (only two of which collect any individual ICT use data).

This is the first ITU-D statistical report on use of information and communication technology by young people. ITU's Youth Initiative identified the need to develop global statistical indicators to measure use of ICT by children and youth (including by gender and disabilities), as a follow-up project to the ITU Youth Forum in 2006 (ITU, 2008). The publication is jointly produced by the ITU-D/SIS-Youth Initiative and ITU-D STAT and will enable users and analysts to have a better perspective on the evolution of the digital divide among youth and children.

Need for this publication also arose from ITU's recognition of the important relationships between ICT use and young people including the role of ICT in enhancing the development of children, and the contributions that young people can make to the development of an inclusive Information Society (World Summit on the Information Society, Tunis Commitment, articles 24 and 25). These were emphasized by the resolution of, the World Telecommunication Development Conference (Resolution 38, 2006) which called upon ITU to "… promote the interests and capabilities of youth in ICT…" and "… develop and strengthen actions to make ICTs accessible to children and youth, particularly the disadvantaged and marginalized, thereby bridging the digital divide."

This report is expected to be updated every four years in order to track use of ICT by the world's young people. This will enable ITU member states and sector members to monitor developments and to prepare a roadmap for actions and projects that would facilitate young people's integration into the Information Society.

The report will be distributed to ITU member states and made freely available on the ITU website.

Acknowledgements

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Ms Vanessa Gray and Ms Asenath Mpatwa provided valuable comments, while Roxana Widmer-Iliescu ensured the production of the report.

The data contained in the report were collected from national statistical offices by ITU or were compiled using other national statistical sources. Eurostat data were used for the European countries for which Eurostat collects ICT use statistics.

The Infocomm Development Authority of Singapore and the United Nations Economic Commission for Latin America and the Caribbean provided data especially for this report.

Special thanks are due to Nathalie Rollet for the overall formatting of the report.

The views expressed in this report are those of the authors and do not necessarily reflect the opinions of ITU or its membership.

CONTENTS

ABBREVIATIONS

AOL	America Online
BBS	Bulletin board system
CV	Coefficient of variation
DNS	Domain name system
DQAF	Data Quality Assessment Framework (IMF)
DSL	Digital Subscriber Line
EU	European Union
GSM	Global system for mobile communications
ICQ	'I seek you' (a type of instant messaging software)
ICT	Information and communication technology
ICTs	Information and communication technologies
IP	Internet protocol
IRC	Internet relay chat
ISC	Internet Systems Consortium
ISDN	Integrated services digital network
ISP	Internet service provider
IT	Information technology
ITU	International Telecommunication Union
Kbit/s	Kilobits per second
Mbit/s	Megabits per second
MSN	Microsoft network
NSO	National statistical office
OECD	Organisation for Economic Co-operation and Development
PDA	Personal digital assistant
SE	Standard error
UIS	UNESCO Institute for Statistics
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCWA	United Nations Economic and Social Commission for Western Asia
UNSC	United Nations Statistical Commission
UNSD	United Nations Statistics Division
URL	Uniform resource locator
WPIIS	Working Party on Indicators for the Information Society (OECD)
WSIS	World Summit on the Information Society
WWW	World Wide Web

CHAPTER 1. INTRODUCTION AND OVERVIEW

Background

1. The benefits that information and communication technology can bring to societies and their inhabitants have been widely acknowledged. In a broad sense, the benefits arise from societal improvements based on economic growth and other developments, such as improvements in education or the processes of government. At the individual level, ICT may assist people to gain more meaningful jobs, to communicate more easily with others and to do a range of day-to-day tasks more quickly and efficiently.

2. The role of young people in the Information Society is an important one. They are potential beneficiaries of increased access to ICT, for instance, through improvements in education. They may also play an important role in the development of information societies, through their ability to learn to use ICT and its applications. This should create an impetus to use ICT that will spread to older community members.

Objectives

3. The objectives of this report are to present relevant and reliable data on the use of ICT by the world's young people, to describe the limitations of existing data, and to present proposals to increase and improve data on young people's use of ICT.

4. The report uses data and metadata on ICT use collected by ITU and Eurostat, supplemented by information from National Statistical Offices (NSOs) and the United Nations Economic Commission for Latin America and the Caribbean.

Structure and content of this report

5. Chapter 2 provides some context, with a statistical overview of the world's young people, in terms of population, education, literacy and employment, as well as background information on the state of ICT infrastructure by level of economic development.

6. Chapter 3 looks at the international statistical standards used for measuring access to, and use of, ICT. These standards consist of 13 core indicators developed by the global *Partnership on Measuring ICT for Development*.[1] Six of the indicators deal with use of ICT by individuals. This report is largely based on these core indicators, disaggregated by age (and gender where possible).

7. Chapter 4 discusses statistical collection work being done in this area and the limitations of existing statistics. The latter include data availability and various data deficiencies such as data accuracy and poor international comparability.

8. Chapter 5 presents available statistics on use of ICT by young people. The main sources are official statistics, collected by national

statistical offices. Some non-official statistics are also included, although limited data on young people's use of ICT are available from such sources. Most of the official data presented in the chapter are based on the core ICT indicators developed by the *Partnership* and described in Chapter 3.

9. Chapter 6 summarizes the findings, briefly explores their policy implications and makes suggestions for improving statistical information on the use of ICT.

10. The report concludes with annexes showing data availability and detailed data tables.

[1] *Partnership*, 2005, http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf.

CHAPTER 2. CONTEXT

Introduction

11. A number of factors influence use of ICT. For instance, use of ICT is more likely amongst individuals who are employed and amongst those who are educated. It is also more prevalent where supported by existing and affordable infrastructure. This chapter provides some context to the statistics that follow by presenting a snapshot of the world's young people and their ICT environment. The first section looks at statistical information on population, education, literacy and employment. The second presents some of the available data on ICT infrastructure in different regions of the world.

A snapshot of the world's young people

Population

12. Global population data are shown for three years, 1996, 2001 and 2007. These are split into developed and less developed economies, male and female, and two age categories: 5-14 and 15-24. World totals are also included.

13. In the most recent (2007) data set, shown in Table 1, the 5-14 age group accounts for 20 per cent of developing economies' population, but only 11 per cent for developed economies. This is due to a higher birth rate in developing economies, as well as a higher mean age in developed economies, given higher life expectancy.

14. However, in both developed and developing economies, the proportion of the population in the 5-14 age group declined substantially in the 1996-2007 period, indicating probable life expectancy increases and/or birth rate decreases.

15. Youth in the 15-24 age group also account for a higher proportion of the population of less developed economies compared with developed economies (in 2006, 19 per cent compared to 13 per cent). The proportion of the population in this age group has been fairly stable over time (for the world, 18 per cent in both 1996 and 2007).

16. Between 1996 and 2007, the sex ratio in the 5-14 age group has changed more in less developed than in developed economies. For the overall world total in 2007, the ratio was 106.4 males to 100 females for children aged 5-14 compared with 105.1 for youth aged 15-24.

Table 1. Population by age and gender, 1996, 2001 and 2007, millions

	5-14	*5-14 ratio (M:100F)*	*15-24*	*15-24 ratio (M:100F)*	*Total*	*Total Ratio (M:100F)*	*5-14: total ratio*	*15-24: total ratio*
2007								
World	1'189	106.4	1'175	105.1	6'602	101.4	0.18	0.18
Developed [a]	135	105.3	162	104.6	1'217	94.4	0.11	0.13
Less Developed [b]	1'054	106.5	1'013	105.2	5'386	103.0	0.20	0.19
2001								
World	1'206	106.0	1'090	104.7	6'147	101.4	0.20	0.18
Developed	150	105.2	164	104.4	1'198	94.4	0.13	0.14
Less Developed	1'057	106.1	925	104.7	4'949	103.2	0.21	0.19
1996								
World	1'186	105.4	1'035	104.5	5'755	101.4	0.21	0.18
Developed	158	104.8	165	104.4	1'179	94.3	0.13	0.14
Less Developed	1'028	105.5	870	104.6	4'576	103.3	0.23	0.19

Note: a. Based on classifications provided by the IDB. Consists of the countries of Europe (including transition economies), Northern America, Australia, Japan and New Zealand (the transition economies are as shown in the UN Statistics Division's *Standard country or area codes for statistical use*, see http://unstats.un.org/unsd/methods/m49/m49.htm, 31 January 2008 revision).
b. Based on classifications provided by the IDB. Consists of developing economies, least developed economies and the transition economies of Asia (as shown in the UN Statistics Division's *Standard country or area codes for statistical use*, see http://unstats.un.org/unsd/methods/m49/m49.htm, 31 January 2008 revision).

Source: *International Data Base (IDB)*, U.S. Census Bureau, Population Division, 2008.[1]

Education

17. Education is an important indicator, both economic and social, especially in school-age populations. Educational enrolment and outcomes are two ways of gauging the educational circumstances of a population.

18. International data on enrolments of children of primary-education age are available as part of the UN's indicators of the Millennium Development Goals (Goal 2, Target 3 "Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling").[2] The enrolment ratio is a typical measure, and is a ratio of the number of enrolled children to the number of children of appropriate age to be enrolled at a particular school level (e.g. primary, secondary).

19. Table 2 shows the enrolment ratio for children of primary enrolment age for the years 1991, 1999 and 2005, and the percentage change between 1991 and 2005 for a given level of development or geographical region. The greatest increases in enrolment naturally come from those with the lowest initial enrolment rates in 1991. The geographical regions of Northern and Sub-Saharan Africa and Southern Asia show large increases (16 per cent, 31 per cent and 21 per cent) from 1991, with the least developed economic groups also showing a very large increase (LDCs 39 per cent).

Literacy

20. Coupled with increasing enrolment figures, the global increase in youth literacy rates (4.7 per cent worldwide), shown in Table 3, demonstrates some success by national governments and international organizations in challenging poor education in economically disadvantaged areas. The most notable changes in literacy rates across the two periods, 1984-1994 and 1995-2004, are among women in these areas. A 39 per cent increase in Northern Africa, 36 per cent in Southern Asia, and 16 per cent across all the LDCs shows that this traditionally disadvantaged group is reaping the benefits of more accessible education.

Table 2. Primary- and secondary-level enrolees per 100 children of primary-education enrolment age, 1991, 1999 and 2005

Level of development and region[a]	*1991*	*1999*	*2005*	*Percentage change 1991-2005*
World	82.5	85.0	88.8	7.64
Northern Africa	82.0	89.9	95.3	16.22
Sub-Saharan Africa	53.7	57.4	70.4	31.10
Latin America and the Caribbean	86.8	93.8	96.7	11.41
Eastern Asia	98.6	99.0	94.9	-3.75
Southern Asia	74.5	81.3	90.0	20.81
South-Eastern Asia	93.8	91.8	93.8	0.00
Western Asia	80.8	84.9	86.4	6.93
Oceania	74.6	80.6	78.4	5.09
Commonwealth of Independent States[b]	90.3	87.1	91.7	1.55
Developing Regions	80.2	83.5	87.9	9.60
Developed Regions[c]	97.3	97.3	96.6	-0.72
Least Developed Countries (LDCs)	53.0	59.2	73.6	38.87

Note: a. The definition of regions is shown here http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Data/RegionalGroupings.htm.
b. Based on classifications provided by the UNSD. Comprises Belarus, Republic of Moldova, Russian Federation and Ukraine in Europe, and Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, in Asia.
c. Based on classifications provided by the UNSD. Comprises Europe (except CIS countries but including transition countries in Europe), Australia, Canada, Japan, New Zealand and the United States.
Source: *The Millennium Development Goals Report 2007*, United Nations Statistics Division 2007.[3]

Table 3. Literacy rate of 15-24 year-olds, women and men, percentage of the population aged 15-24 years who can both read and write[4]

	1984-1994			*1995-2004*			*Percentage change*		
Level of development and region[a]	*Total*	*Men*	*Women*	*Total*	*Men*	*Women*	*Total*	*Men*	*Women*
World	83.5	87.8	79.2	87.4	90.3	84.4	4.7	2.8	6.6
Northern Africa	66.7	76.7	56.3	84.3	89.9	78.4	26.4	17.2	39.3
Sub-Saharan Africa	64.4	71.0	58.4	67.8	72.2	63.8	5.3	1.7	9.2
Latin America and the Caribbean	93.7	93.3	94.2	96.0	95.6	96.5	2.5	2.5	2.4
Eastern Asia	94.5	97.1	91.8	98.9	99.2	98.5	4.7	2.2	7.3
Southern Asia	60.7	71.6	49.1	74.6	82.1	66.6	22.9	14.7	35.6
South-Eastern Asia	94.9	95.9	93.9	96.2	96.4	96.0	1.4	0.5	2.2
Western Asia	88.5	93.8	82.9	91.8	95.5	88.0	3.7	1.8	6.2
Oceania	73.0	75.3	70.6	72.8	74.9	70.5	-0.3	-0.5	-0.1
Developing Regions	80.2	85.4	75.0	85.0	88.5	81.4	6.0	3.6	8.5
Commonwealth of Independent States[b]	99.7	99.7	99.6	99.7	99.7	99.8	0.0	0.0	0.2
Developed Regions[c]	98.7	99.4	99.4	99.4	99.4	99.4	0.7	0.0	0.0
Least Developed Countries (LDCs)	56.3	64.0	49.1	62.3	67.9	57.1	10.7	6.1	16.3

Note: a. The definition of regions is shown here http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Data/RegionalGroupings.htm.
b. Based on classifications provided by the UNSD. Comprises Belarus, Republic of Moldova, Russian Federation and Ukraine in Europe, and Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, in Asia.
c. Based on classifications provided by the UNSD. Comprises Europe (except CIS countries but including transition countries in Europe), Australia, Canada, Japan, New Zealand and the United States.
Source: *The Millennium Development Goals Report 2007*, United Nations Statistics Division 2007.[3]

Table 4. Unemployment rate for youth, aged 15-24 years, percentage

Level of development and region	*1996*			*2006*		
	Total	*Male*	*Female*	*Total*	*Male*	*Female*
World	12	13	12	13	13	13
Developed economies and European Union	15	15	16	13	13	12
Central and South-Eastern Europe (non-EU) and CIS countries	20	19	20	19	19	18
East Asia	8	9	6	8	9	6
South-East Asia and the Pacific	10	9	10	17	16	17
South Asia	10	10	11	10	10	10
Latin America and the Caribbean	15	12	19	17	14	22
North Africa	29	26	34	26	23	34
Sub-Saharan Africa	18	18	17	18	18	17
Middle East	25	22	32	25	22	31

Source: International Labour Organization, *Key Indicators of the Labour Market* (KILM), 2007.[5]

Employment

21. For most regions, the youth unemployment rate[6] was similar between 1996 and 2006. The most significant exception was the South-East Asia and Pacific region, where youth unemployment rose by 7 percentage points. For all world youth, the rate in 2006 was 13 per cent. Overall, 2006 regional rates ranged from 8 per cent for East Asia to 26 per cent for North Africa.

22. For all regions, the unemployment rate for youth is much higher than it is for adults (for the world total, by a factor of 3 in 2006). Most regions are similar to the overall world average, except for South-East Asia and the Pacific, where the youth unemployment rate is 5 times the adult rate.

23. In most regions in 2006, female youth unemployment was similar to the rate for male youth. However, in the Latin America and the Caribbean, North Africa and Middle East regions, there were particularly large differences in unemployment rates, with the female rate being around 10 percentage points higher in each case.

Table 5. Ratio of youth to adult unemployment rate

	1996	*2006*
World	2.9	3.0
Developed economies and European Union	2.4	2.3
Central and South-Eastern Europe (non-EU) and CIS countries	2.5	2.7
East Asia	2.8	2.8
South-East Asia and the Pacific	5.5	4.8
South Asia	3.6	2.7
Latin America and the Caribbean	2.6	2.7
North Africa	3.2	3.5
Sub-Saharan Africa	3.3	3.0
Middle East	3.1	3.1

Source: International Labour Organization, *Key Indicators of the Labour Market* (KILM), 2007.[5]

ICT infrastructure

24. The data presented in this section provide a picture of the state of ICT infrastructure and its affordability in developed and less developed economies, and different regions. The data are collected by the International Telecommunication Union (ITU) and published in the *World Telecommunication/ ICT Indicators Database* (ITU, 2007a).[7] They are defined in the *Telecommunication Indicators Handbook* (ITU, 2007b). The indicators presented here are the core ICT indicators A1 to A9 adopted by the Partnership on Measuring ICT for Development.

25. The indicators in Table 6 show that fixed telephone lines are uncommon in least developed economies. Access to mobile phones is therefore likely to be more important to individuals in such economies. There were 10 mobile subscribers per 100 inhabitants in 2006 in least developed economies; while this is low compared to other levels of development, it represents significant growth in recent years (there were 0.3 mobile subscribers per 100 inhabitants in 2000).

26. Access to computers and to the Internet, especially broadband, is markedly higher for developed economies than for less developed economies. Importantly, the cost of ICT access (mobile phones and Internet) is much higher as a proportion of *per capita* income in less developed economies, with the least developed economies particularly disadvantaged (Table 7).

Table 6. Availability of ICT infrastructure, aggregate values,[8] latest year available[9]

Level of development and region	*Fixed telephone lines*	*Mobile cellular subscribers*	*Computers*	*Internet subscribers*	*Broadband Internet subscribers*	*International Internet bandwidth per inhabitant (bits)*	*Percentage of population covered by mobile cellular telephony*
	Number per 100 inhabitants						
Developed economies	**51**	**92**	**62**	**24**	**19**	**4'755**	**99**
Asia[a]	43	79	na	27	21	1'038	100
Europe	49	107	50	24	17	6'245	99
Northern America	58	75	77	22	20	3'645	99
Oceania	48	95	52	32	18	10'026	98
Transition economies	**23**	**77**	**10**	**3**	**2**	**223**	**88**
Asia	11	20	4	1	0.1	25	69
Europe	26	93	11	3	2	277	97
Developing economies	**15**	**33**	**5**	**4**	**2**	**177**	**74**
Africa	6	35	2	2	0.3	58	77
Asia	16	30	4	4	2	168	69
Latin America and the Caribbean	18	55	12	5	3	335	90
Oceania	4	9	7	4	0.5	50	74
Least developed economies	**0.9**	**10**	**0.7**	**0.2**	**0.0**	**7**	**59**
Africa	0.7	8	0.6	0.3	0.0	8	48
Asia	1	13	0.9	0.2	0.0	5	76
Latin America and the Caribbean[a]	2	6	0.2	0.9	na	18	na
Oceania	4	5	3	0.6	0.1	25	20

Note: a. This category consists of one country only.
Source: ITU.

Table 7. The cost of ICT infrastructure, median values,[8] latest year available[9]

Level of development and region	*Internet access tariffs, in US$*	*Internet access tariffs, as a percentage of per capita income*	*Mobile cellular tariffs, in US$*	*Mobile cellular tariffs, as a percentage of per capita income*
	20 hours per month		*100 minutes of use per month*	
Developed economies	**16**	**1**	**30**	**2**
Asia[a]	14	0.5	52	2
Europe	19	1	28	2
Northern America	na	na	12	na
Oceania	17	0.9	43	2
Transition economies	**12**	**11**	**27**	**17**
Asia	12	26	19	35
Europe	13	7	27	15
Developing economies	**22**	**8**	**20**	**8**
Africa	31	21	20	14
Asia	12	3	13	3
Latin America and the Caribbean	24	11	26	9
Oceania	25	53	22	6
Least developed economies	**41**	**123**	**22**	**60**
Africa	42	168	23	87
Asia	26	39	8	18
Latin America and the Caribbean[a]	71	213	13	39
Oceania	58	50	34	35

Note: a. This category consists of one country only.
Source: ITU.

Conclusion

27. Developed economies have, on average, a significantly older population than less developed economies. As young people tend to be early adopters of ICT, less developed economies may have an advantage over more developed ones because of the relative youth of their populations. The challenge is to provide an environment that fosters the development of these young people and enables them to realize their potential in the Information Society.

28. The Tables in this chapter show that those challenges are significant. They include overcoming relative disadvantages in rates of education and literacy, and the low availability and relatively high cost of ICT. Some progress has been made in those areas, including increases in enrolment of children of primary school age, improvements in literacy rates and increasing use of some technologies, especially mobile phones.

[1] http://www.census.gov/ipc/www/idb/.

[2] http://www.un.org/millenniumgoals/.

[3] Based on data from the UNESCO Institute for Statistics, see: http://millenniumindicators.un.org/unsd/mdg/Resources/Static/Data/2007%20Stat%20Annex%20current%20indicators.pdf.

[4] According to UNSD, the regional averages presented in the table are calculated by using a weighted average of the latest available observed data point for each country or territory for the reference period. UIS estimates have been used for countries with missing data.

[5] http://www.ilo.org/public/english/employment/strat/kilm/.

[6] Youth unemployment as a proportion of the youth labour force.

[7] ITU collects infrastructure and access data from several sources but mainly through an annual survey of telecommunication authorities and some private companies. Additional data are obtained from reports provided by telecommunication regulatory authorities, ministries and operators, and from ITU staff reports.

[8] The term 'na' means not available, that is, there are insufficient data to produce a meaningful result or no data are available. All values which are less than 1 have been shown to 1 decimal place.

[9] *Latest year available* is generally 2005 or 2006.

CHAPTER 3. HOW USE OF ICT BY YOUNG PEOPLE IS MEASURED

Introduction

29. This chapter looks at the statistical standards used for measuring ICT access and use by households and individuals. In relation to young people, statistics on individual use of ICT are disaggregated by age, with age characteristics included in the standards.

30. The Organisation for Economic Co-operation and Development (OECD) started developing statistical standards for information society measurement about 10 years ago, through its Working Party on Indicators for the Information Society (WPIIS). It has produced two model surveys of ICT access and use by households/individuals (2002 and 2005) which have established a set of questions and standards for measuring this topic (see OECD 2007a).

31. Eurostat has been very active in the area of developing standards for information society measurement, mainly through its *Community survey on ICT usage in households and by individuals*. The surveys utilize harmonized

Box 1. Development of core ICT indicators by the Partnership on Measuring ICT for Development

An early aim of the *Partnership* was to develop a core list of ICT indicators that could be collected by all countries. A final list was discussed, and agreed on, at the WSIS Thematic Meeting on Measuring the Information Society, held in Geneva in February 2005.

The list (published as *Core ICT Indicators, Partnership* 2005) was officially presented at the second phase of WSIS, held in Tunis in November 2005, during a parallel event on "Measuring the Information Society".

The list has now been widely disseminated and serves as a basis for the *Partnership*'s work on measuring ICT. The core list was endorsed by the United Nations Statistical Commission (UNSC) at its thirty-eighth meeting of March 2007 (UNSC, 2007).

There are 41 core ICT indicators in four groups as follows:

- ICT infrastructure and access (12 indicators);
- Access to, and use of, ICT by households and individuals (13 indicators);[1]
- Use of ICT by businesses (12 indicators); and
- The ICT sector and trade in ICT goods (4 indicators).

Whilst the list is not mandatory, its use has been recommended by the UNSC (2007). Each indicator is nominated as either 'basic core' or 'extended core', where the latter are considered of lower priority and/or relatively untested. They are therefore more suitable for countries with more advanced ICT statistical systems (*Partnership*, 2005).

The development of ICT indicators is a continuing process and the list will be reviewed periodically by the *Partnership*. In particular, ICT indicators in the areas of education and government are currently being developed.

Table 8. Core indicators on access to, and use of, ICT by households and individuals

Indicator	*Type of indicator*	*Name of indicator*
HH1	Household access	Proportion of households with a radio
HH2	Household access	Proportion of households with a TV
HH3	Household access	Proportion of households with a fixed line telephone
HH4	Household access	Proportion of households with a mobile cellular telephone
HH5	Household access	Proportion of households with a computer
HH6	Individual use, including computer use by young people	Proportion of individuals who used a computer (from any location) in the last 12 months
HH7	Household access, including access by households with and without children	Proportion of households with Internet access at home
HH8	Individual use, including Internet use by young people	Proportion of individuals who used the Internet (from any location) in the last 12 months
HH9	Individual use, including location of Internet use by young people	Location of individual use of the Internet in the last 12 months Home Work Place of education Another person's home Community Internet access facility Commercial Internet access facility Others
HH10	Individual use, including Internet activities of young people	Internet activities undertaken by individuals in the last 12 months Getting information: About goods or services Related to health or health services From government organizations/public authorities via websites or email Other information or general web browsing Communicating Purchasing or ordering goods or services Internet banking Education or learning activities Dealing with government organizations/public authorities Leisure activities Playing/downloading video or computer games Downloading movies, music or software Reading/downloading electronic books, newspapers or magazines Other leisure activities
HH11	Individual use, including use of mobile phones by young people	Proportion of individuals with use of a mobile telephone
HH12	Household access, including access by households with and without children	Proportion of households with access to the Internet by type of access Narrowband access Broadband access
HH13	Individual use, including frequency of Internet use by young people	Frequency of individual access to the Internet in the last 12 months (from any location) At least once a day At least once a week but not every day At least once a month but not every week Less than once a month
HHR1	Reference indicator	Proportion of households with electricity[a]

Note: a. Electricity is not an ICT commodity, but is an important prerequisite for using many ICTs. It is therefore included as a reference indicator.
Source: *Core ICT Indicators* (*Partnership,* 2005). [2]

questionnaires that are provided to member states to use in their national surveys. The resulting data are highly comparable and offer a good set of observations over time (that is, 'time series'). More information on these surveys can be found in Eurostat's *Methodological Manuals* (Eurostat 2006 and 2007a).

32. The Partnership on Measuring ICT for Development has extended this work by developing a core list of ICT indicators that are applicable to all countries. The main purpose of the core list is to help countries that produce ICT statistics (or hope to produce them in the future) to compile high quality and internationally comparable data. Box 1 outlines the objectives and history of this work.

33. More information on information society statistical standards, including the core list, can be found in the *Partnership*'s recent statistical compilation, *The Global Information Society: A Statistical View* (*Partnership*, 2008).

Core indicators on access to, and use of, ICT by households and individuals

34. Most of the data presented in this report are based on the Partnership's core ICT indicators on *access to, and use of, ICT by households and individuals* (HH1–HH13). The core indicators are of two types – household access indicators that refer to the ICT facilities available to the household and individual use indicators, which detail the use of ICT by individuals. The main emphasis in this report is the set of individual use indicators, HH 6, 8, 9, 10, 11 and 13. All the core indicators are shown in Table 8, with the relevance to young people's use of ICT indicated (in the *Type of indicator* column).

35. The core indicators have associated standards and metadata including:

- Definitions of terms (e.g. *computer, the Internet*);
- Model questions;
- Calculation of indicators (e.g. appropriate denominators for calculating proportions);
- Classificatory variables (e.g. age and gender for individual ICT use core indicators);
- Advice on particular statistical issues (such as the measurement of mobile phone use);
- Collection scope (e.g. age of individuals surveyed); and
- Limited recommendations on methodology (e.g. statistical units, survey vehicles).

36. The individual use core indicators refer to use of ICT equipment and services by individuals. The suggested time period ('reference period') is the last 12 months (although many statistical offices use a shorter period of three months, or even one month). The individual use core indicators are presented as the *proportion of individuals who used [equipment, Internet access] in the last 12 months*, with three indicators dissecting Internet use (by location, Internet activities, frequency).

37. The ICT use indicators can be distinguished by whether they are simple (the proportion is calculated by dividing the number of in-scope individuals using [equipment, Internet access] by the total number of in-scope individuals) or complex (the proportion may use the total population as the denominator or the sub-population of Internet users).

38. The complex indicators are HH9 (location of use), HH10 (Internet activities) and HH13 (frequency of use). In this report, most data on the complex indicators are presented as the proportion of individuals using the Internet.

39. Sub-indicators can be constructed using the classificatory variables: age, gender, education level, employment status and occupation. This report focuses on the variables, age and gender.

40. The classificatory variables recommended for the core indicators on individual use of ICT include age ranges. They are: 16-24, 25-34, 35-44, 45-54, 55-64 and 65-74. Those ranges have been adapted for this publication based on age range standards employed by the UN; a range for children, 5-14, has been added and the youth range has been changed to 15-24.

41. More information on the core indicators can be found in the *Partnership* publication, *Core ICT Indicators* (*Partnership*, 2005).

[1] A 'reference indicator', HHR1, on the proportion of households with electricity is also part of this set. However, few economies collect it and it is not included in the count of ICT indicators.

[2] http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf.

CHAPTER 4. CURRENT STATISTICAL COLLECTION WORK AND ITS LIMITATIONS

Introduction

42. This chapter looks at some practical issues concerning the collection of data for the core ICT indicators on individual use of ICT, and the more detailed statistics on use by young people. It looks broadly at collection work being undertaken by countries and examines the limitations of existing statistics.

Collection of individual ICT use core indicators

43. Statistics on household/individual ICT access and use are typically collected by national statistical offices (NSOs) via household surveys. Such surveys may be dedicated to measuring ICT access and use, but they are frequently surveys such as labour force or 'omnibus' ('general purpose') surveys where ICT is one of several topics.

44. Most developed economies have been collecting ICT use statistics for a number of years, using model questionnaires recommended by the OECD and Eurostat. Other economies are starting to collect these statistics using the core ICT indicators methodological recommendations (*Partnership*, 2005) and/or those of the OECD (2007a) and Eurostat (2006 and 2007a). Among developing economies, the Latin America and Caribbean region has been particularly active in the collection of household ICT indicators.

45. The OECD and Eurostat have been collecting aggregated household/individual ICT access and use statistics from their member countries since about 2002. More recently, ITU has started to collect these statistics from developing economies and compiles statistics for all economies. ITU is currently preparing a statistical manual on the measurement of household/individual ICT access and use. It is expected that this will facilitate the collection of these data by its member countries and result in improved statistics in this area.

Limitations of existing statistics

Data availability

46. While official statistics on ICT use by individuals are collected by a number of countries (mainly developed economies), not all countries are able to disaggregate their data by age and gender.

47. Table 9 shows the availability of data for the core indicators on individual ICT use and Annex 1 outlines data available on ICT use by young people. They show that the core indicators on individual ICT use are widely available only for developed economies. Data availability for developing and transition economies is low for all indicators, while only two least developed economies[1] collect any individual ICT use data.

48. European countries have the most comparable and available data, while the wider membership of the OECD has a reasonable set of comparable statistics.[2] Amongst developing economies, some Latin America and Caribbean economies have

Table 9. Summary of global measurement status: core indicators on use of ICT by individuals[3]

Indicator	*Developed economies*	*Transition economies*	*Developing economies*	*Least developed economies*	*Number of economies with indicator*
	Percentage of economies with each indicator				
Proportion of individuals who used a computer (from any location) in the last 12 months (HH6)	66%	17%	14%	0%	53
Proportion of individuals who used the Internet (from any location) in the last 12 months (HH8)	68%	17%	23%	4%	66
Location of individual use of the Internet in the last 12 months (HH9)	64%	17%	18%	0%	56
Internet activities undertaken by individuals in the last 12 months (HH10)	66%	17%	16%	0%	55
Proportion of individuals with use of a mobile telephone (HH11)	60%	11%	17%	0%	52
Frequency of individual access to the Internet in the last 12 months (from any location) (HH13)	64%	17%	10%	0%	47
Total number of economies	**50**	**18**	**120**	**50**	**238**

Source: ITU and Eurostat.

quite comprehensive and recent datasets, although differences in age scope exist.

49. Given that use of social networking and free content-hosting websites is a major activity of young people, registration data for such sites (for example, *Facebook* and *YouTube*) would constitute a useful information source. However, they were not made available for this report (as discussed further in Chapter 5). Arguably, such data may be of dubious value because of the tendency of those registering to adopt different personas (often with different age and/or gender characteristics).

50. While most data in the report are core ICT indicator data, other official and unofficial sources have also been included, and are:

- Data from the Pew Internet Project in the United States on social networking;
- Data from Eurostat on selected web-based activities (apart from those included in the core indicators);
- Data on time spent using the Internet (statistical agencies);
- Data from the OECD PISA studies on student proficiency; and
- Data from Facebook on growth in membership.

Data deficiencies

51. There are several aspects of existing data that limit their usefulness for the types of analysis presented in this report, and elsewhere. They have been grouped here under the broad headings, *Data accuracy, Data timeliness* and *International comparability*. More generally, data quality can be considered in terms of several dimensions or criteria (for example, relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability, and coherence).[4]

Data accuracy

52. Data accuracy refers to how well statistics reflect the phenomena they are designed to measure. There are two main components of data accuracy, being data reliability and bias. These are often referred to as sampling error and non-sampling error respectively. Note that bias is generally not

measurable but its possible sources are usually well known,[5] enabling it to be minimized.

53. Sampling error arises where an estimate is based on a sample. The reliability of an estimate is usually indicated by the coefficient of variation or a confidence interval. The coefficient of variation (CV), also called the relative standard error (RSE), is the ratio of the standard error of an estimate to the value of the estimate to which it refers; and is usually expressed as a percentage. Ideally, statistical agencies would release measures of sampling error for a range of statistics and indicate estimates with a particularly high level of error (e.g. the CV is over 25 per cent).

54. It is important to be aware that sampling error usually increases as breakdowns become more detailed. This is especially relevant for the statistics disaggregated by age and gender that are presented in this report. Because they are subsets of larger datasets, the underlying sample size on which the estimates are based may be quite small (especially for breakdowns such as by location and age or gender). Some data based on very small sample sizes were omitted from this report for this reason. However, it was not always clear what the underlying sample sizes were for components of each country's data and therefore data with high sampling errors may be included.

55. In relation to bias, the only source considered in this chapter is potential bias resulting from a low response rate. Other sources of bias are likely but are unknown.[5] Because some of the statistics in this report come from surveys with low response rates, non-response bias might be present (but is largely unmeasurable). Available response rates for surveys used in this report are shown in Table 10 and range from 39 per cent for China to 95 per cent or more for several countries.

Table 10. Response rates for surveys used to collect the ICT use core indicators

Country	*Reported response rate*
Australia	94%
Austria[a]	56%
Azerbaijan	95%
Belgium	74%
Bermuda	82%
Brazil	98%
Bulgaria[a]	95%
China	39%
Czech Republic	66%
Estonia	67%
Germany[a]	74%
Hong Kong (China)	75%
Ireland[a]	76%
Japan	62%
Lithuania[a]	87%
Malaysia	77%
Mauritius	99%
Netherlands	67%
New Zealand	89%
Occupied Palestinian Territory	86%
Romania[a]	95%
Serbia	98%
Spain[a]	80%
TFYR Macedonia	89%
Thailand	98%
United States of America	87%

Note: a. From Eurostat *Methodological Manual* 2007, refers to 2004 survey.
Source: ITU, national statistical sources and Eurostat.

Data timeliness

56. The fast growth in ICT sophistication and use means that dated data may be of limited value. By the time statistics are collated, they may be 12 months old, and by the time they are cited or used by policymakers they may be two years old and largely out of date. A 2007 OECD study (OECD, 2007b), for example, rightly claimed that, in 2005, Facebook was a popular social networking system limited to University and High School Campuses, with 5.5 million users. By the end of 2007, Facebook had over 62 million active users (Facebook, 2008), showing the extremely rapid growth of this ICT service.

57. In an area such as use of ICT, it is obviously preferable if available data are as recent as possible. Most data presented in this report have a reference year of 2005 or 2006. However, some date from as early as 2003. A comparison of data from 2003 with data from 2006 obviously has its limitations, given the pace of change in adoption of many technologies. In addition, most

countries do not have good time series of ICT use data (Eurostat countries are the exception). When comparing data across countries, it can be useful to compare the rate of change in adoption so lack of time series data is also a data comparability issue.

International comparability

58. Official surveys on ICT use generally collect information at the individual and/or household level. Work by the OECD, Eurostat and the *Partnership* to standardize statistical indicators and methodologies has improved comparability significantly. However, a number of differences still exist and, with a few exceptions, good statistical comparability has not been achieved.

59. There are a number of issues concerning data comparability across countries. They include:

- Variations in timeliness and lack of time series data (discussed above);

- Variability in recall period (with Eurostat countries and several others using a 3 month reference period rather than 12 months); it is assumed that such variations do not have much effect on events which are reasonably common such as use of the Internet for communicating; they may be a source of incomparability for rarer events such as purchasing over the Internet;

- Age scope variability, including significant variation in the age scope of the 'children' category (5-14 years) and total population age scope, for instance, for the Eurostat countries it is 16-74 years, whether or not a country has data for younger age groups; for most other countries, the age scope includes those in younger age groups where data exist;

- Access to the Internet may be from computers only (Japan, Brazil) or from all devices; and

- Variations in definitions used for question categories ('response items'), for instance, how locations and activities are defined. An example of the former is the definition of community and commercial Internet access facilities. Eurostat collects location data at a more detailed level and the categories do not readily map to *community* and *commercial* Internet access facilities. Other countries only include free access under *community Internet access facilities* (Mauritius) or have other restrictions such as public computer access facilities provided by government (Hong Kong (China)). Commercial Internet access facilities may only include cyber/Internet cafés (Japan, Mauritius and Hong Kong (China)). The notes to the data Tables in Annex 2 provide available information on differences in response items.

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[1] Afghanistan and Bhutan have produced statistics on core ICT indicator HH8, use of the Internet by individuals.

[2] Eurostat, the statistical agency for the EU also collects data from a small number of non EU countries, including Norway, Iceland and candidate countries. Data for those countries are not included in EU aggregates presented in this report.

[3] An indicator is considered to be available if complete or partial data for it (including zero values) are known to be available for the year 2002 or later. The total economy count includes countries from which ITU or Eurostat do not collect data. The economies which are included in each 'Level of development' category follow the UN Statistics Division's *Standard country or area codes for statistical use* (31 January 2008 revision), see http://unstats.un.org/unsd/methods/m49/m49.htm.

[4] Examples are the Australian Bureau of Statistics' quality template (see: http://www.nss.gov.au/nss/home.NSF/533222ebfd5ac03aca25711000044c9e/61743489d51ade77ca2571ab002436be/$FILE/Appendix%201.pdf); Eurostat's code of practice for European statistics, principles 11 to 15 on statistical output (see: http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP_DS_QUALITY/TAB47141301/VERSIONE_INGLESE_WEB.PDF) and IMF's Data Quality Assessment Framework (see: http://dsbb.imf.org/Applications/web/dqrs/dqrsdqaf/).

[5] Bias can arise from several factors, including: non-response (if the characteristics of the responding population differ from those of the non-responding population), respondent errors (e.g. lack of understanding of technical terms), errors in the population frame (e.g. undercoverage of particular sub-populations), poor questionnaire design (e.g. confusing question wording or poor logic), interviewer error (e.g. leading respondents to particular answers) and processing errors (e.g. in data entry or editing).

CHAPTER 5. USE OF ICT BY THE WORLD'S CHILDREN AND YOUTH

Introduction

60. This chapter presents available statistics on use of ICT by young people. The main sources are official statistics,[1] from national statistical offices (NSOs).[2] Some non-official statistics are also included, although less data on young people's use of ICT are available from such sources (which include private-sector research firms, university research output and user or survey data from organizations providing ICT services).

61. Most of the statistical data presented in this chapter are official statistics based on the core ICT indicators on ICT use developed by the Partnership on Measuring ICT for Development and discussed in detail in Chapter 3.

62. In this chapter, the following terminology is used:

- *Young people* refers to individuals aged under 25;
- *Children* refers to individuals in the age group 5-14 or younger; and
- *Youth* refers to individuals in the age group 15-24.

63. It should be noted that there are a number of points of non-comparability between the country data presented in this chapter (see Chapter 4 for details). Specific examples are referred to in this chapter. Age scope variability is a particular issue for statistics on children's use of ICT. The Tables in Annex 2 show details of non-standard age ranges where these are used.

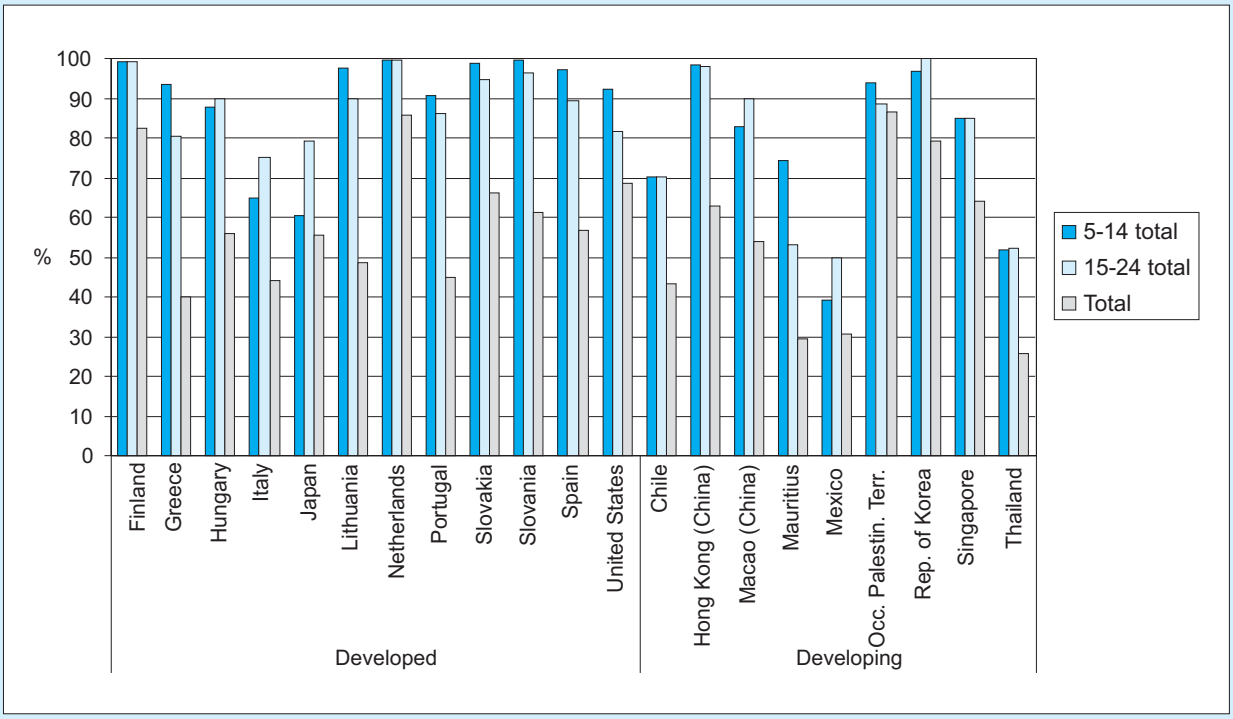
Use of computers, the Internet and mobile phones by young people

64. This report considers use of the ICTs, computers, the Internet and mobile phones, by children and youth. Limited data are available on use of other ICTs; examples of available data include Singapore, which collects information on use of portable equipment such as laptops and game machines (see Table 11), and Eurostat countries, which collect data on use of handheld and portable computers to access the Internet. Detailed data on the use of computers, the Internet and mobile phones by young people can be found in Tables 26 to 28 in Annex 2.

65. Charts 1 to 3 show available ICT use data for children and youth, plus the total population, for comparison. Although there are some issues of data non-comparability as described in the previous chapter, several general conclusions can be drawn as follows:

- Despite the availability of devices other than computers to access the Internet, computer use is generally higher than Internet use (a notable exception is Japan, where there appears to be quite a high level of access using devices other than computers).

Chart 1. Computer use by age, percentage of individuals[3]



Source: ITU, Eurostat and national statistical sources.

- With few exceptions, children and youth are much more likely to use computers and the Internet than the general population. There is no clear relationship between rates of use of these technologies by children and youth, with variations most likely due to different age ranges used.[4]

- Mobile phones are often a personal ICT device, whereas computers and the Internet can be used without being owned. This distinction probably explains the finding that youth aged 15-24 are more likely to use mobile phones than the general population, but mobile phone use by children is usually lower than for the general population.

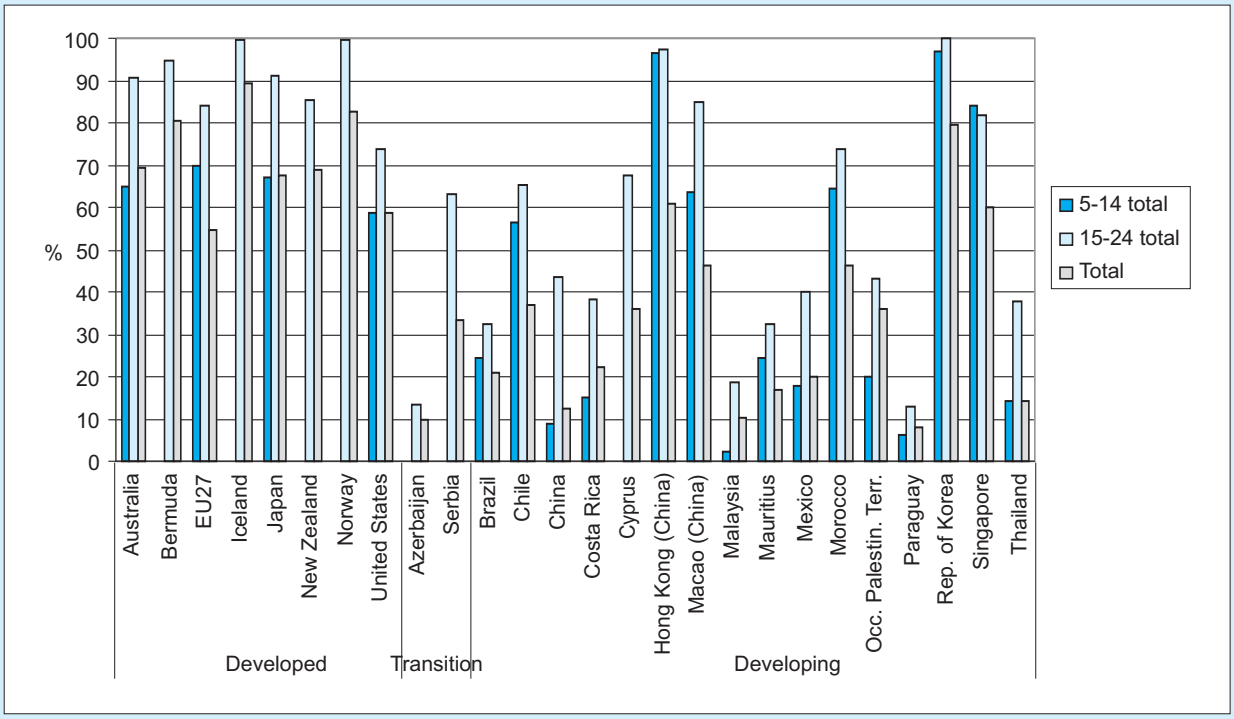
- Rates of use of computers and the Internet for all age groups tend to be lower for transition and developing economies than for developed economies, although there are notable exceptions

Table 11. Portable equipment users, Singapore, 2006

	All Ages			*10-14*	*15-24*
	Total	*Male*	*Female*		
	Percentage of individuals in each group				
GSM/GPRS mobile phone	47	52	43	14	62
3G mobile phone	13	15	11	8	18
Laptop/notebook	23	28	18	6	32
Game machine	4	5	4	5	10

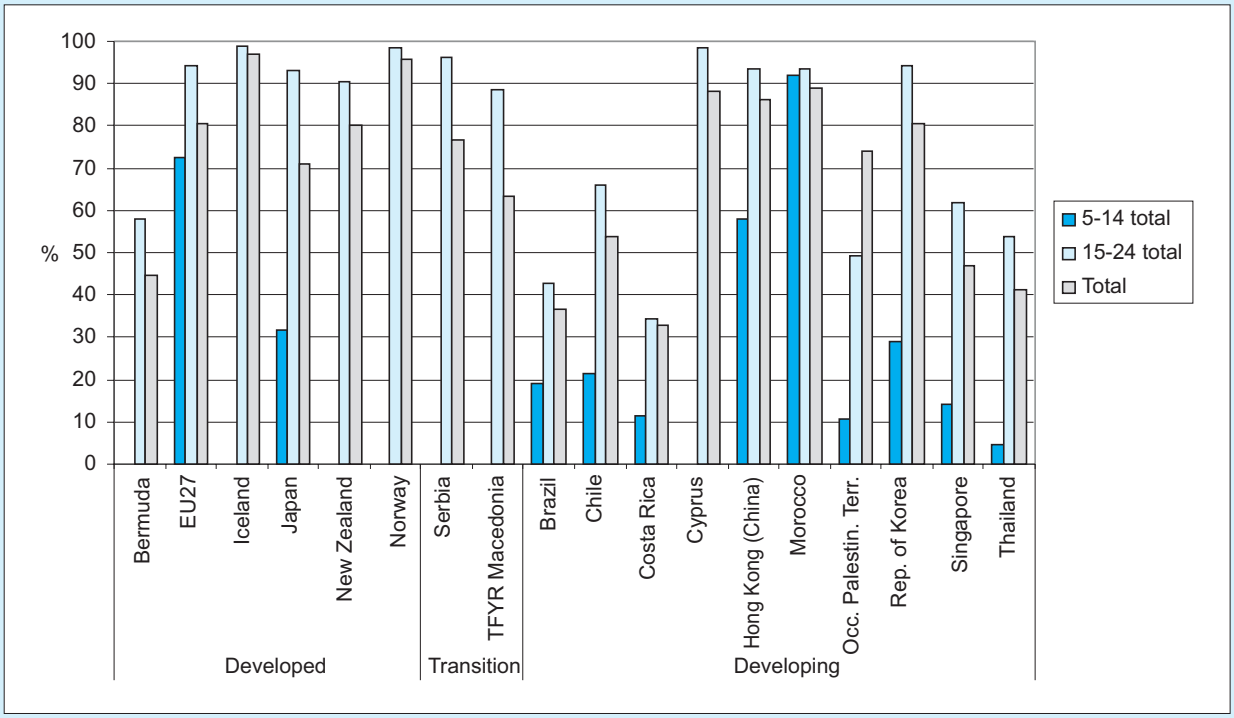
Source: Infocomm Development Authority, Singapore.

Chart 2. Internet use by age, percentage of individuals[3]



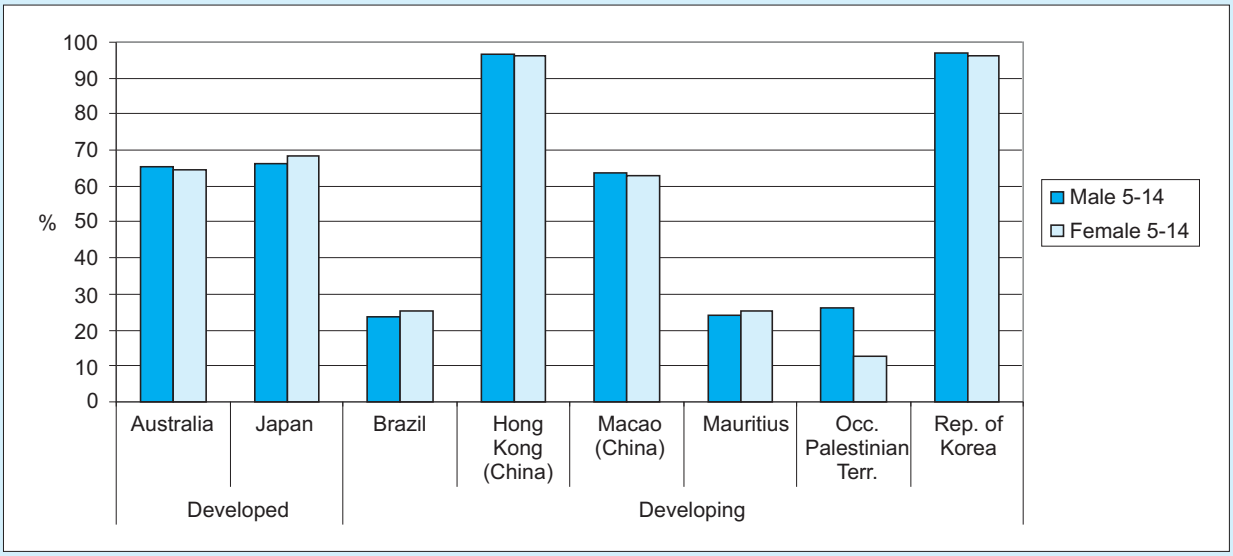
Source: ITU, Eurostat and national statistical sources.

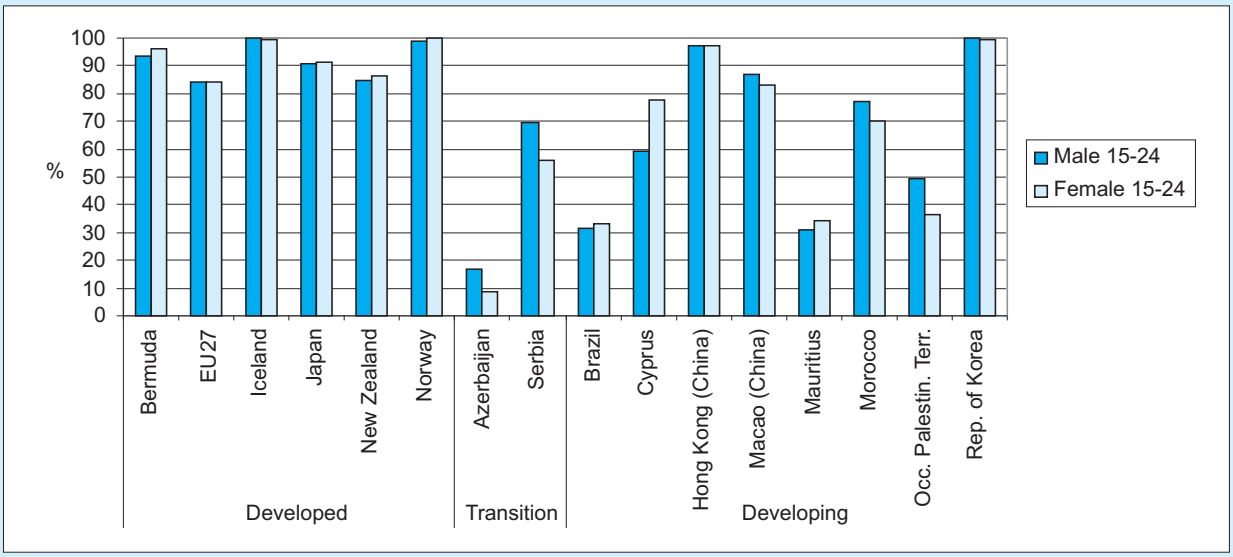
Chart 3. Mobile phone use by age, percentage of individuals

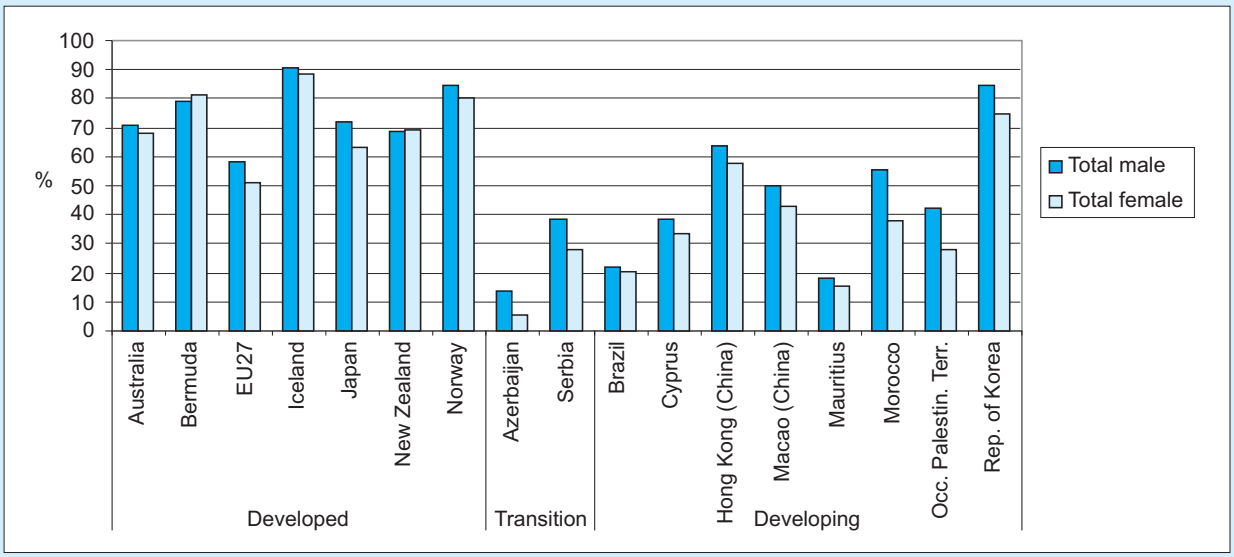


Source: ITU, Eurostat and national statistical sources.

Chart 4. Internet use by age and gender, percentage of individuals[3]







Source: ITU, Eurostat and national statistical sources.

(for example, Hong Kong (China), the Republic of Korea and Singapore).

- Mobile phone use is high in developed and transition economies, and relatively high for most developing economies for which data are available. This finding is supported by infrastructure statistics, which show that mobile phone use and the number of subscribers are relatively high in developing economies compared with computer and Internet access and use (see Chapter 2).

66. Table 11 shows use of portable equipment by individuals in Singapore. For all types of portable equipment, there is higher use by youth in the 15-24 year old group compared with the total population. The opposite is true for children aged 10-14 who have a lower level of use of all types of portable equipment except for games machines. Male use is higher than female use for all types of portable equipment (this is also true for computer and Internet users in Singapore).

Gender differences in the use of ICT by young people

67. Chart 4 shows very similar rates of Internet use for boys and girls aged 5-14, for most economies for which data are available (the exception is Occupied Palestinian Territory). The situation is similar in the youth age group of 15-24, although there are more exceptions: Azerbaijan, Cyprus, Occupied Palestinian Territory and Serbia. For Cyprus, a significantly higher proportion of females than males used the Internet; for the other economies, males are more likely to be Internet users. For most economies, the situation for the general population is different from that pertaining to young people, with a much higher gender gap in Internet use, in favour of male users.

68. The gender differences for computers and mobile phone use (Tables 26 and 28) show a similar pattern to Internet use, that is, levels of use for young females are similar to those for young males. For computer use, for the age group 15-24, the gender gap for the three economies with a high ratio of male to female users are lower and for Cyprus, it is higher (that is the male to female ratio is less than one but higher than for Internet use). For mobile phone use, the only country with a significant gender gap for 15-24 year olds is the Occupied Palestinian Territory, where more than twice as many males as females in that age group are mobile phone users.

The influence of other demographic factors on ICT use

69. Many countries are able to disaggregate Internet use data by individual characteristics, apart from age and gender. They include occupation, income, level of education and employment status. The main findings are that:

- Those in managerial and professional occupations are more likely to use the Internet than those in other occupations;
- Higher income earners are more likely to be Internet users;
- People with tertiary qualifications are more likely to be Internet users than those without; and
- Those who are employed have a higher Internet use rate than those who are unemployed.

70. While this report primarily explores the relationship between age, gender and ICT, the influence of other individual characteristics is of interest. Unfortunately, there are little data available disaggregated by age. Eurostat provides some useful data on Internet use by age and level of education and employment status. Table 12 shows available data for EU27. The data support the generalization presented above, that is, that those with a higher level of education and those who are employed are more likely to be Internet users.

Use of ICT by young children

71. The intensity of ICT use by younger children appears to be different from use by older children and young people. It is therefore useful to further split and extend the age range 5-14 which is used elsewhere in this report.

72. Some countries measure use of ICT by very young children (those under 5). They include the United States and the Republic of Korea. Other countries have a higher age cut-off but disaggregate children's ICT use data into finer age groups (for instance, Australia produces data for children aged 5-8, 9-11 and 12-14).

Table 12. Internet use by individual characteristics, EU27, 2007, percentage of individuals aged 16-24 in each category

Persons aged 16-24 with no or low education	84
Persons aged 16-24 with medium education	90
Persons aged 16-24 with high education	97
Employees and self-employed persons (including family workers) aged 16-24	86
Unemployed persons aged 16-24	72

Source: Eurostat (30 Nov 07).

73. Tables 13 to 15 show Internet use data for the Republic of Korea, the United States of America and Australia. Even though the data are not strictly comparable, they all show the same pattern for younger children, that is, a trend of increasing Internet use with age.[5]

Where young people use the Internet

74. Most countries that collect individual ICT use data ask about the location of Internet use. Information on all locations where individuals have used the Internet during the reference period is generally collected (rather than only the main location).

Table 13. Internet use by age, from any location, Republic of Korea, 2007

Age	*Internet users (percentage in each age group)*
3 years	34
4 years	47
5 years	69
3 – 5 years	51
5 – 14 years	97
15 – 24 years	100

Source: National Internet Development Agency of Korea (2007).[6]

Table 14. Internet use by age, from any location, United States of America, 2001 and 2003

	Internet users (percentage in each age group)	
Age Group	*September 2001*	*October 2003*
3 – 4 years	18	20
5 – 9 years	41	42
10 – 13 years	67	67
14 – 17 years	76	79
18 – 24 years	67	71

Source: U.S. Department of Commerce (2004).

Table 15. Internet use by age, from any location, Australia, 2006

Age	*Internet users (percentage in each age group)*
5 – 8 years	38
9 – 11 years	76
12 – 14 years	89
5 – 14 years	**65**
15 – 24 years	91

Source: Australian Bureau of Statistics (2006 and 2007).[7]

The locations of use presented in this publication follow those of the core household ICT indicator, HH13 (location of individual use of the Internet in the last 12 months), that is: home, work, place of education, another person's home and community and commercial Internet access facilities. Available data are shown in Charts 5 and 6, with detailed data in Annex 2. Note that there are several variations in scope and definitions that affect the comparison.[8] Despite these differences, some general observations may be made as follows:

- For people in developed economies, home is the most likely location of Internet use, irrespective of age. This generally reflects the higher level of home Internet access in developed economies.
- The more developed Asian economies show similar patterns of use to the developed economies. Among other developing economies, home is less important as a place of Internet use, reflecting lower levels of household Internet access.

Chart 5. Location of Internet use: home and place of education, percentage of Internet users

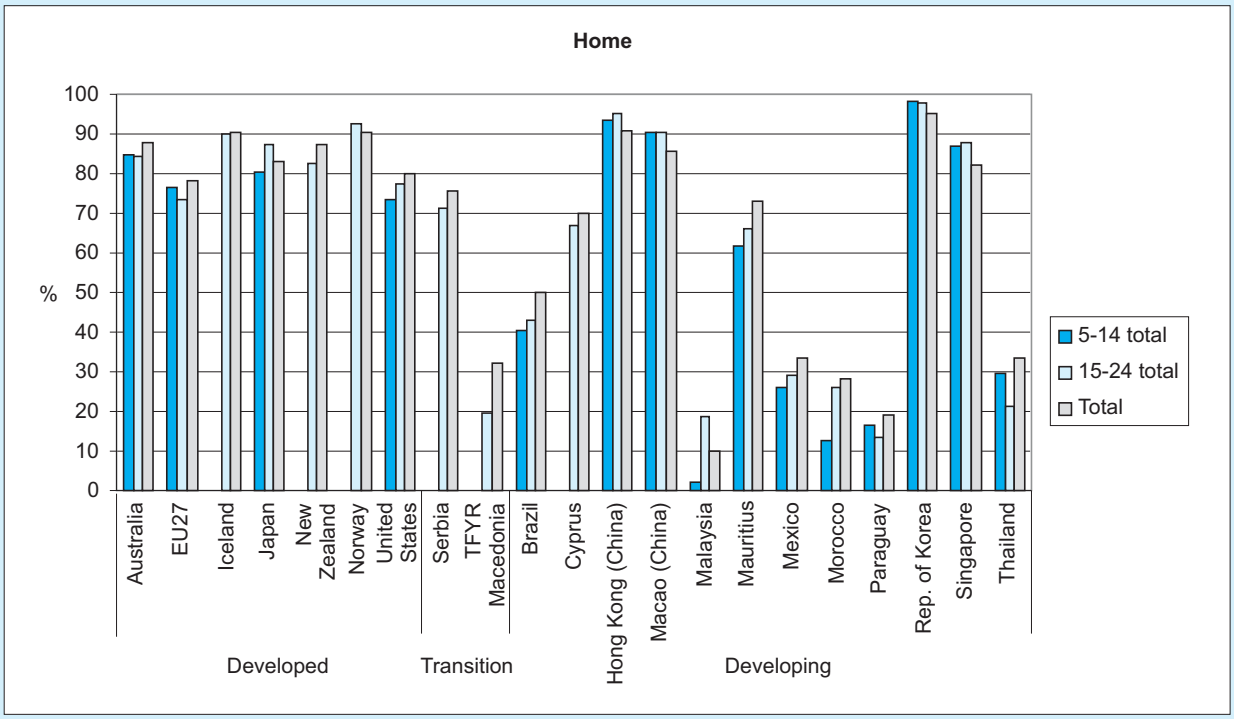
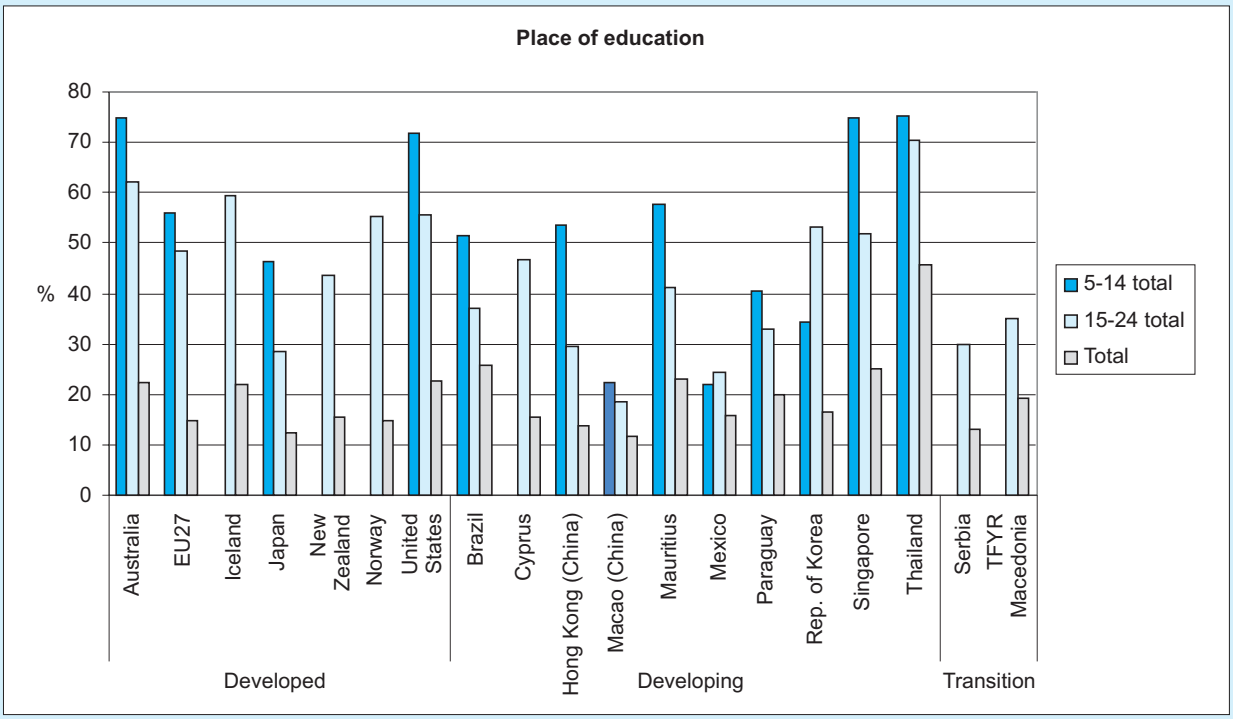
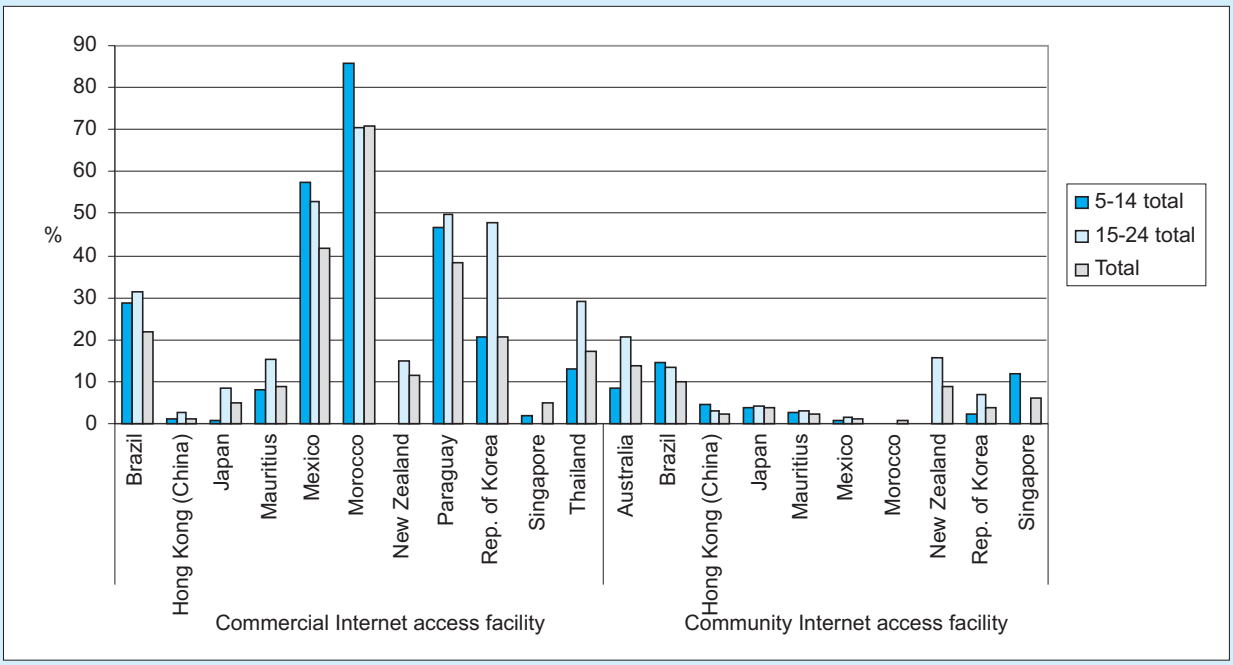


Chart 5. Location of Internet use: home and place of education, percentage of Internet users (continued)



Source: ITU, Eurostat and national statistical sources.

Chart 6. Location of Internet use by individuals: commercial and community Internet access facilities, percentage of Internet users



Source: ITU and national statistical sources.

- Not surprisingly, children and youth who use the Internet are quite likely to use it at a place of education. For most economies, children have higher rates of use at a place of education than youth.

- While there is significant policy interest in use of the Internet at community Internet access facilities, relatively few countries collect data on this location of use. In addition, data on these locations are unlikely to be comparable due to inconsistent definitions.[8] Chart 6 presents available data on both community and commercial Internet access facilities. The data show higher rates of use for commercial than community access facilities, with use of the former being particularly high in Brazil, Mexico, Morocco, Paraguay, Thailand and the Republic of Korea.[9] However, the situation might be different in other developing economies where people may be more reliant on public or subsidized access.

Access to ICT by households with or without children

75. The presence of dependent children in a household appears to be positively related to household ICT access. This may be due to factors such as the age of the adults in the household, the total income of the household and the demand for ICT by children (and on their behalf, for example, for educational purposes). These factors are likely to vary significantly across regions, given differences in family structures and income. Cross-classification against household income to further isolate influential factors would be informative, but unfortunately, comparable statistics are not available.

76. Data from Eurostat and Australia on household ICT access classified by the presence or absence of dependent children are shown below. They show that households with children are far more likely to have access to computers or the Internet than those without children. Furthermore, households with children are even more likely to have broadband access than those without.

Use of ICT in education

77. Arguably, ICT has a major role to play in educational facilities at every level. Measurement of ICT use in schools and universities worldwide and analysis of the connection between the quality of education and optimal ICT use are important research endeavours, with the ultimate goal being the improvement of educational standards, access and opportunities.

78. The 2003 World Summit on the Information Society (WSIS) in Geneva produced goals with respect to the development and expansion of access to ICT. In particular, high priority was given to the role ICT could play in the achievement of the UN's Millennium Development Goals (MDGs). In relation to education, the WSIS Geneva *Plan of Action* included goals to connect educational institutions with ICT and to adapt school curricula to meet the challenges of the Information Society. It also discussed the importance of capacity-building and ICT literacy as the means to benefit from the Information Society. It stated that ICT

Table 16. Access to ICT by households with and without children, EU27 and Australia

	EU27 (2006)		*Australia (2006-07)*	
	With children	*Without children*	*With children*	*Without children*
Household ICT indicator	*As a percentage of households*			
Households with a computer	76	55	88	67
Households with Internet access	61	44	81	57
Households with dialup Internet access (EU27 includes ISDN)	20	17	23	19
Households with broadband Internet access (EU27 DSL, Australia mainly DSL)	33	21	57	38

Source: Eurostat (30 Nov 07) and Australian Bureau of Statistics (2007).[10]

can contribute to the goal of universal education in several ways, including by delivering education and training of teachers. The *Tunis Commitment* referred to the potential of ICT to expand access to quality education (ITU, 2005).

79. Given the policy importance of ICT and education and the focus of this report on young people, it is appropriate to consider statistics on use of ICT in education. Some statistics on education and training as an Internet activity and on place of education as a location of Internet use are presented in this chapter. They show that young Internet users are more likely to use the Internet for educational activities than the general population and that place of education is an important location of Internet use for young people in many countries.

80. Other data sources on the topic of ICT in education are available and are discussed in some detail in the *Partnership*'s 2008 statistical publication (*Partnership*, 2008). This report will examine one of these sources, the PISA study of 2003.

81. The OECD's PISA (Programme for International Student Assessment) is a three-yearly study of the knowledge and skills of thousands of 15-year old students in a number of OECD and non-OECD countries (41 countries in 2003 and 56 countries in 2006). As a supplement to the PISA studies, an additional survey is presented to participating students, which investigates their use of ICT (computers and Internet) as well as their background, attitudes and motivation. This information enables measurement of the impact of ICT on educational outcomes.

82. Computer use rates from the 2003 study show that in the majority of countries surveyed, over 98 per cent of students had used a computer at some point. Information on whether the student had access to the Internet at home was also gathered, and when compared with household access data, shows a strong correlation between the household presence of adolescent children and the presence of an Internet connection (R^2=0.87) (OECD, 2005).

83. One of the great advantages of such a study is the potential to obtain good data on school access to computers and the Internet. The proportion of students who have computer access from school is very high in the developed OECD nations involved in the study, and whether or not a student is an active and long-term computer user is strongly correlated with performance scores – most notably mathematics. Implying causality, however, is much harder. As PISA also collects information on socio-economic status, it is possible to control for these factors to some degree. The results (Table 17) show that students who use computers have a significant advantage – and the longer the student has been a user, the greater the advantage.

84. Table 17 shows the mean differences between the mathematical literacy scores of those with varying levels of computer use experience, compared with

Table 17. Length of time students have been using a computer and student performance on the PISA mathematics scale

	Difference in mathematical literacy scores after accounting for the socio-economic background of students, by years using a computer					
	1-3 years	***SE***	***3-5 years***	***SE***	***>5 years***	***SE***
OECD average [a]	+34	1.6	+56	1.6	+64	1.7
Latvia	+29	5.5	+43	6.8	+44	6.5
Russian Federation	+26	4.2	+42	6.3	+46	7.3
Serbia	+17	3.5	+27	4.6	+37	6.3
Thailand	+13	3.7	+34	5.6	+47	6.1
Uruguay	+17	6	+52	5.3	+69	5.5

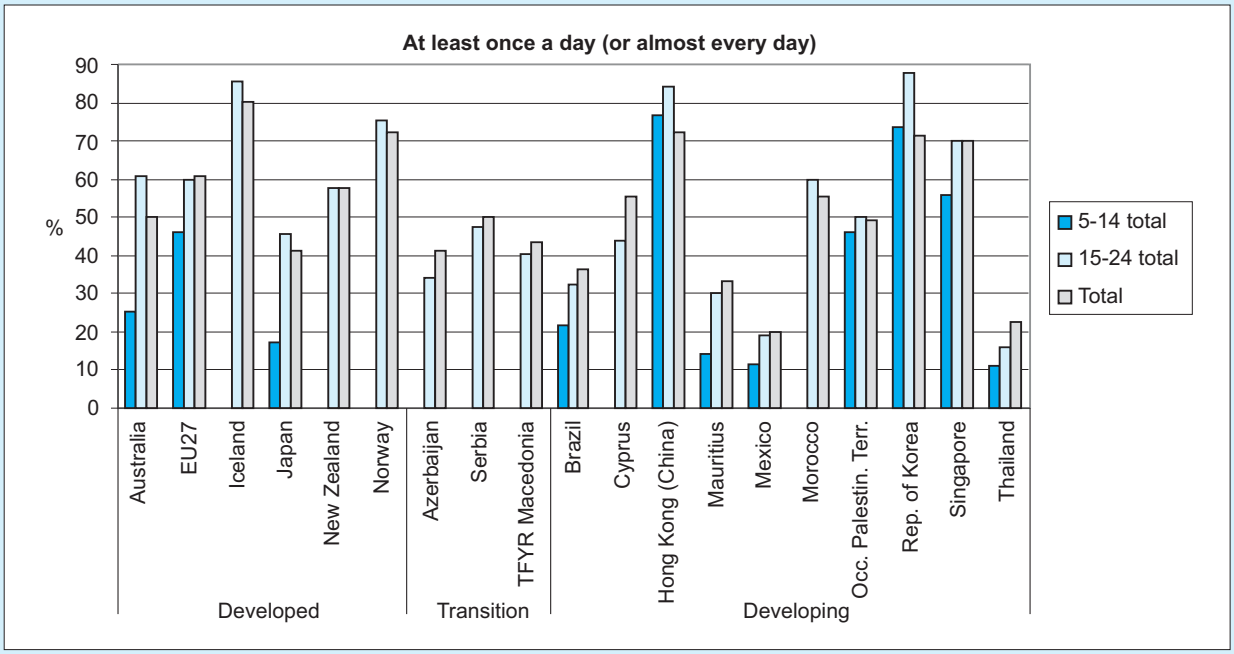
Note: a. United Kingdom is excluded from the OECD average due to low response rates.
Source: OECD (2005) Table 4.3.[11]

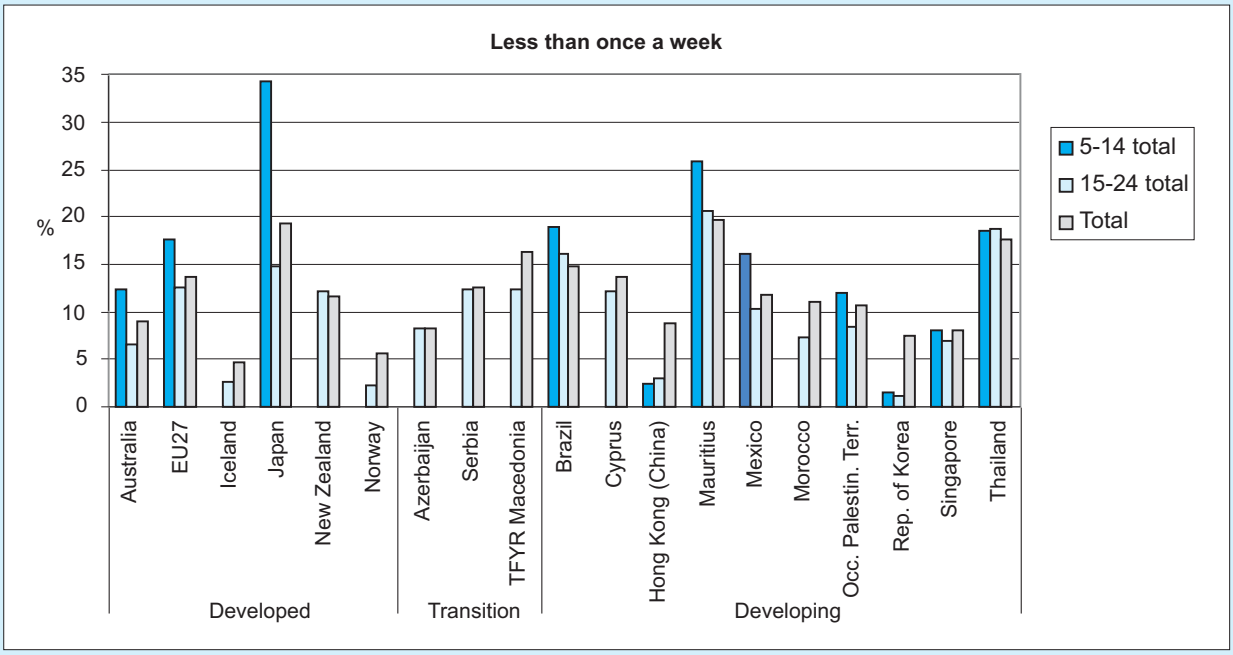
the overall mean and corrected for socio-economic differences. As a reference frame, the overall mean scores are: OECD average 433 (SE[12] 1.6), Latvia 449 (SE 5.2), Russian Federation 451 (SE 5.0), Serbia 420 (SE 3.6), Thailand 393 (SE 3.7) and Uruguay 376 (SE 5.3). This yields a range of mean score percentage increases of 3-9 per cent for 1-3 years computer use, 7-16 per cent for 3-5 years and 10-22 per cent for over 5 years use.

How often young people use ICT

85. The frequency with which an individual uses a facility or technology is an indication of its importance and contribution to one's lifestyle. An individual who uses a computer, for example, once a month, would most likely agree that a computer is less important to them than an individual who uses a computer many times a day.

Chart 7. Frequency of Internet use (from any location), percentage of Internet users





Source: ITU, Eurostat and national statistical sources.

86. Frequency of Internet use is a core ICT indicator and data are reasonably widely available.[13] Chart 7 compares very frequent Internet use (at least once a day) with infrequent use (less than once a week). Detailed data on the frequency of use of the Internet can be found in Annex 2.

87. The data show that, for most countries, the majority of Internet users among youth and the general population log on at least once a day. While this is true of all countries for which data are available, the highest rates (over 80 per cent of 15-24 year olds) are seen in the high ICT-using countries of Finland, Hong Kong (China), Iceland, Netherlands and the Republic of Korea. Children are less likely to be frequent users in most countries, with rates quite low (about 20 per cent or less) for Brazil, Greece, Japan, Mauritius, Mexico and Thailand. Conversely, children are more likely to be infrequent users (less than once a week) than other age groups.

The time spent by young people using ICT

88. The ICT use surveys of some countries include questions on how much time people spend using ICT. Results for Hong Kong (China), Brazil and the Republic of Korea are presented below. This is a useful measure as it gives an idea of intensity of use rather than just the incidence of use.

89. Even though they have different measurement approaches, the results indicate lower average time spent using the Internet by children (10-14 years for Hong Kong (China) and Brazil, and 3-5 and

Table 18. Hong Kong (China): average hours per week using ICT, 2006, frequent users (at least once a week)

Age (years)	*Average time (hours) per week spent using:*		
	PCs	*Internet*	*Internet for entertainment* [a]
10-14	15.8	12.0	7.9
15-24	28.1	20.8	9.3
25-34	36.0	23.6	6.2
35-44	29.5	18.2	4.5
45-54	23.0	14.0	4.5
55 and over	15.8	11.0	4.0
Total	27.5	18.4	7.3

Note: a. Includes playing on-line games, listening to songs/radio programmes on line and watching video programmes on line.
Source: Census and Statistics Department (2006).[14]

Table 19. Brazil: hours per week using Internet, 2005, percentage of Internet users in each age group

Age (years)	*Hours per week*					*Total*
	<= 20	*21-40*	*41-60*	*61-80*	*81-100*	
10-14	95	4	0	0	0	100
15-24	91	7	1	0	0	100
25 and over	91	8	1	0	0	100
Total	92	7	1	0	0	100

Source: IBGE, data extracted by ECLAC.

Table 20. Republic of Korea: average hours per week using Internet, 2007, Internet users

Males	15.1
Females	12.0
Age (years)	
3-5	4.3
6-19	10.1
20-29	18.7
30-39	14.2
40-49	14.2
50-59	10.6
60 and over	9.8

Source: NIDA (2007).[15]

6-19 for the Republic of Korea) compared with older ages. For Hong Kong (China), the level of Internet use peaks for the 25-34 year age group and for the Republic of Korea for the 20-29 year age group. Other results for Hong Kong (China) indicate that, while use of the Internet for entertainment peaks for the 15-24 year group, it constitutes a higher proportion of Internet use time for children aged 10-14 compared with other age groups (66 per cent of time spent on the Internet compared with 45 per cent for the 15-24 age group).

The nature of Internet use by young people

90. The nature of people's use of ICT will depend almost entirely on their needs and wants from a given technology or facility. As the nature of use of most ICT is fairly fixed (for example, listening to radio broadcasts and watching television), nature of use questions are normally asked of Internet use only (given the great diversity of potential uses of a computer with Internet access).

91. Individual Internet use can be explored by looking at the Internet activity undertaken, (that is, what people are using the Internet for) and the purpose of the use (the objective of the use). There are very few statistics available on the latter although the two may be difficult to distinguish (arguably, some of the activity categories used in country collections are also a purpose, for instance, educational use).

92. As discussed in Chapter 4, data on Internet activities are affected by comparability issues due to varying definitions of response categories. Nevertheless, some observations may be made for patterns of use between age groups, if not between countries. Chart 8 shows that use of the Internet for communicating is high for most countries,

Chart 8. Internet activities, percentage of Internet users

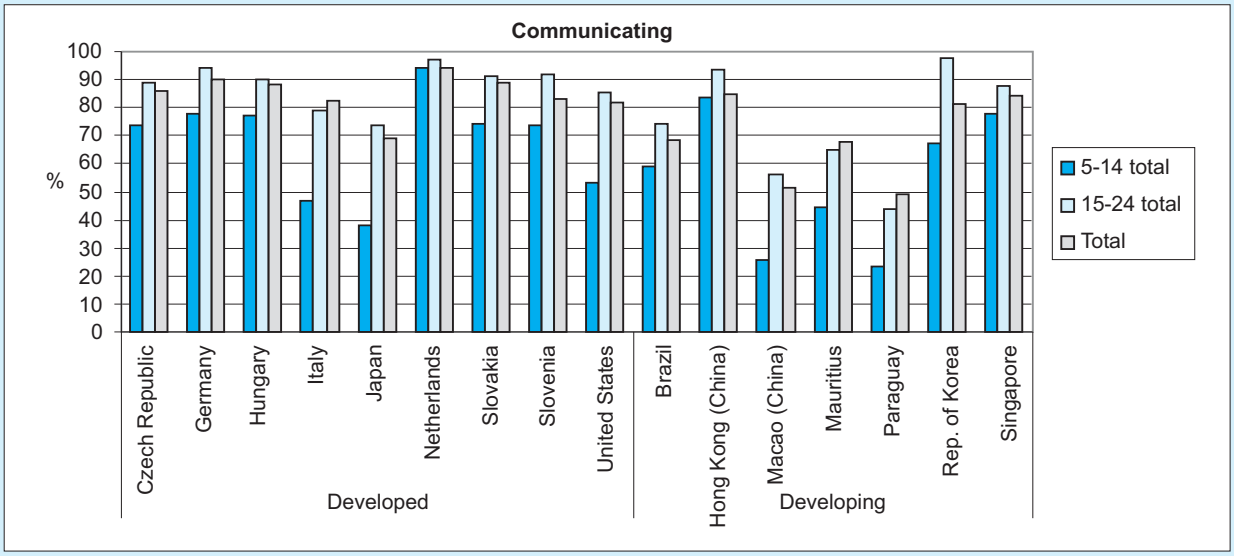
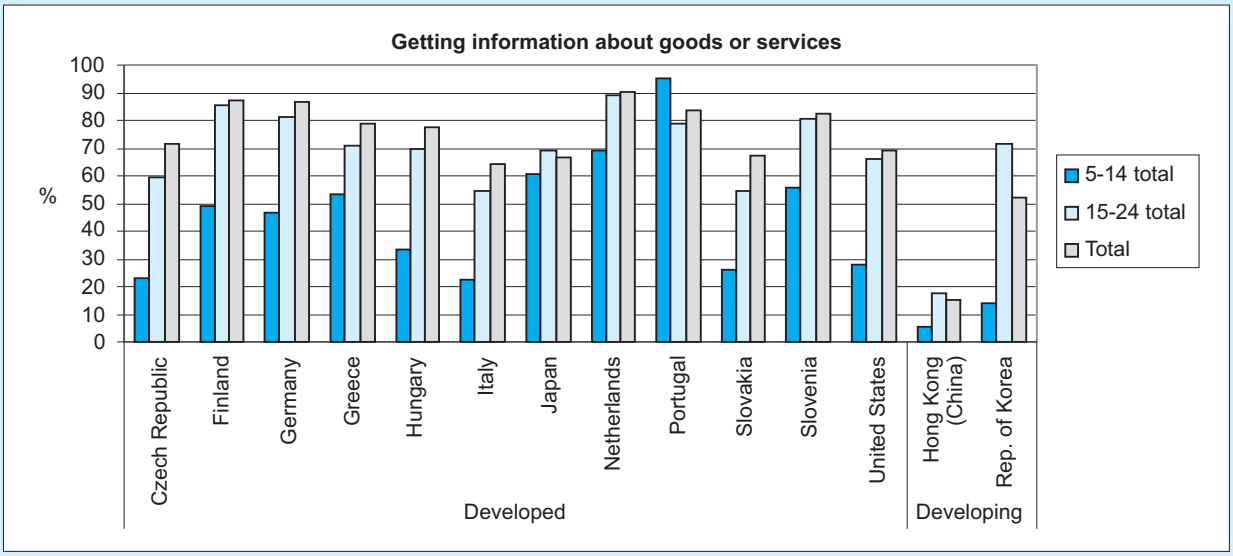
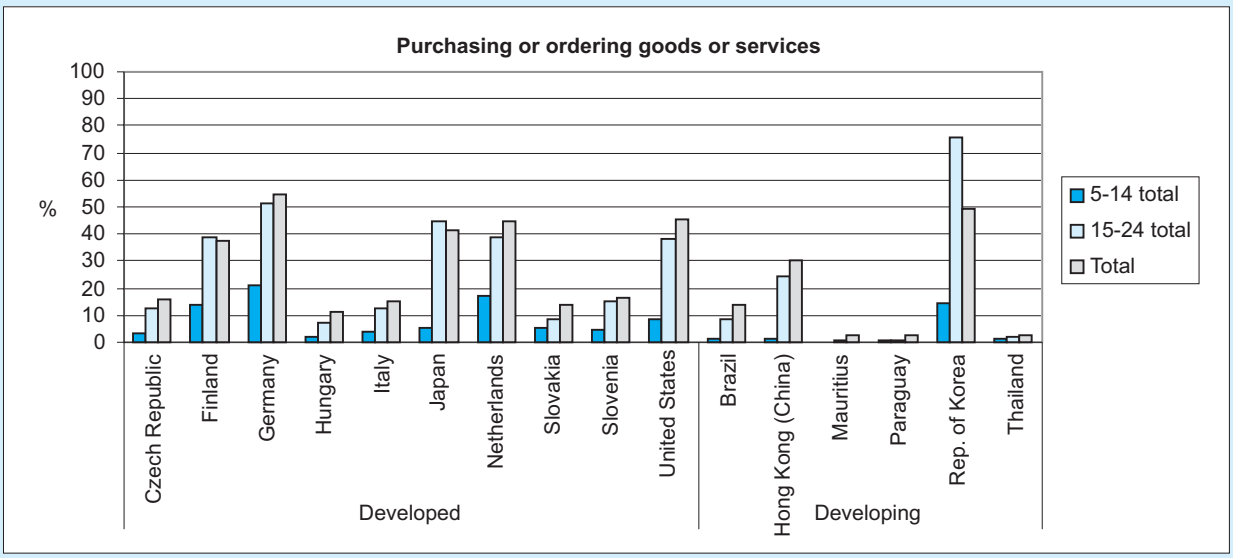


Chart 8. Internet activities, percentage of Internet users (continued)





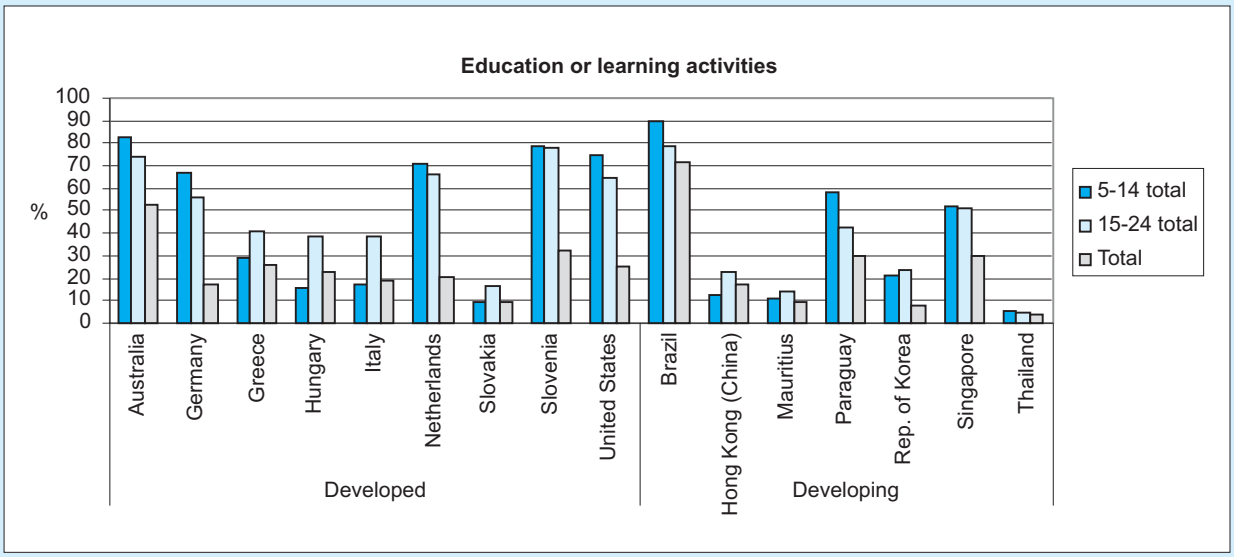
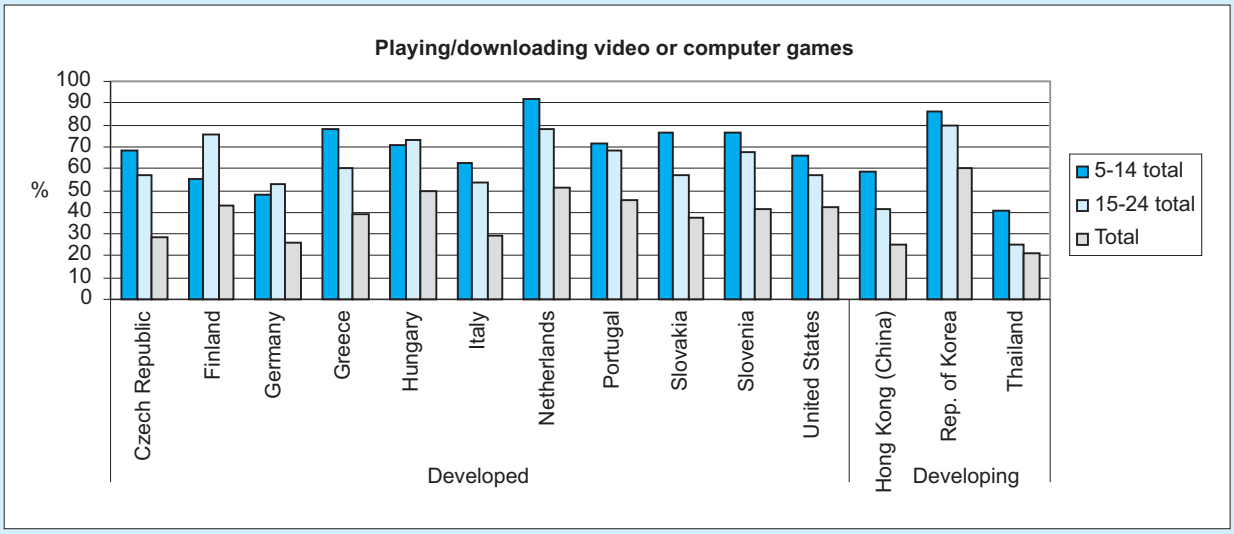


Chart 8. Internet activities, percentage of Internet users (continued)



Source: ITU, Eurostat and national statistical sources.

with this activity more common for youth and the general population than for children. Use of the Internet to get information about products is also reasonably high for most of the countries for which data are available. Children are generally less likely to undertake this activity than youth or the general population.

93. Use of the Internet for purchasing is generally low for children and is particularly low for some economies. The latter is likely to be a function of available websites and/or how the question is worded or asked in the national survey. Use of the Internet for education and playing games is generally higher for children than for the other age groups.

Changes in young people's use of ICT over time

94. There are not much time series data available on use of ICT, apart from Eurostat and some OECD countries, such as Australia, Japan and the Republic of Korea. Data on the changing level of use of the Internet for the EU15 countries are shown below. They show steady rises for all age groups, and for both males and females.

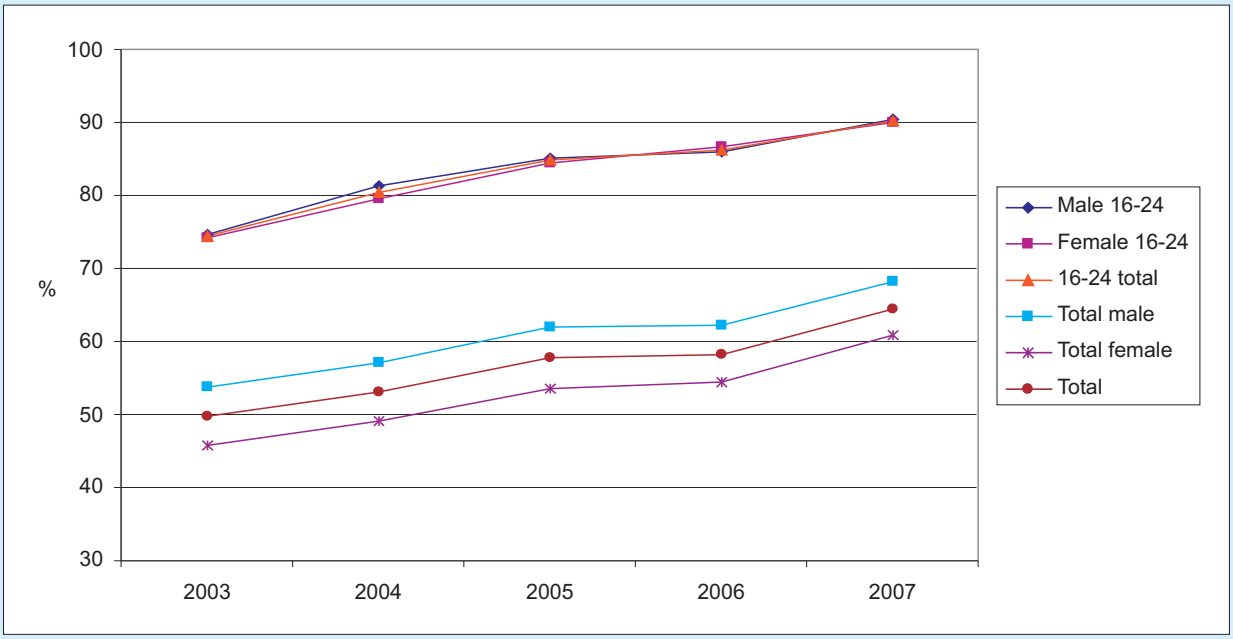
New styles of ICT use by young people

95. The way that children and youth use ICT is constantly shifting. The diverse and changing nature of available ICT equipment and applications is such that measurement at any point in time is likely to quickly become irrelevant. There is a natural separation of ICT into 'old' and 'new' technologies, with the latter including mobile phones, computers and the Internet, and the former including fixed-line telephones, radios and televisions. Notwithstanding the importance of older technologies, especially in the developing world, we will focus here on the 'new' ICTs and the Internet, in particular, given its potential as a tool for change.[16]

History of the Internet and its applications

96. The history of Internet communication arguably starts in the 1960s, but the mainstream and widespread social effects may be considered to start in the 1980s, and have been increasing yearly since then. Email, Telnet, Newsgroups, BBS (Bulletin Board Systems) and IRC (Internet Relay Chat) systems were the predominant forms of mutual Internet communication during that time, with websites being a one-way communication between their authors and their viewers. As systems became more popular, with technology and infrastructure developing quickly, alternatives came into place, in some cases rendering the older systems largely obsolete. During this period, the personal computer was not yet a mainstay household appliance and use was heavily limited by personal access to

Chart 9. Change in use of Internet, EU15, percentage of individuals



Source: ITU, Eurostat and national statistical sources.

infrastructure, as well as individual motivation to use these communication systems.

97. During the 1990s, the use of email continued and expanded rapidly, along with an increase in network-connected computers in workplaces. This Intranet use of electronic text communication probably played a big role in expanding the acceptance of email within the broader circle of computer users. In addition, technologies such as Instant Messaging became widespread,[17] with real-time text communication between any number of people being possible. These systems were predominantly popular with adolescents and youth. A snowball effect of technology uptake was seen in this group, once a large enough proportion of friends and acquaintances were using these services in order to justify (or *need*, as many probably felt) a connected computer. Free web-based email services such as Hotmail (later acquired by Microsoft and now the largest free email provider in the world), Yahoo mail and AOL mail allowed anyone to set up their own email account free of charge and access it from any connected computer. In addition, most ISPs provide at least one email address to their subscribers without advertising, as free providers often do to generate revenue.

98. Still in the 1990s, the introduction of free website-hosting services such as Geocities, Angelfire and Tripod.com gave anyone with access to an Internet connection the opportunity to make their own small website, and to publish photos, art, stories and opinions at no charge, other than their ongoing private Internet access fees. The costs of hosting an independent site also dropped, with aspiring webmasters no long requiring their own high-capacity server but instead able to pay a professional service a monthly or annual fee to host their site, with their own URL and content. The number of domain names (URLs) registered with the DNS exploded during this decade, with 9'300 registered in October 1990 (ISC, 1992), to 72 million in Jan 2000 (ISC, 2000). The number of Internet search engines also increased to help organize this huge amount of information. Because of increasing Internet use rates, having a corporate presence on the Internet in the form of a website became practically mandatory for medium and large businesses, with websites emerging as an important advertising vehicle for many goods and services. The expansion of Internet use throughout the 1990s was largely due

to improvements in technology and infrastructure, with the real price of personal computers dropping rapidly and the typical power, speed and storage capacity increasing quickly. Dial-up Internet services were available in almost all urban areas in more developed economies, and broadband connections were becoming more widespread.

99. Since the year 2000, global access to the Internet has expanded even further, with still higher proportions of users accessing the Internet through high-capacity broadband connections. The number of registered domains continues to rise, with 93 million in July 2000, and 433 million in January 2007 (ISC, 2007). Given such high access rates, or potential access rates, in developed economies, an increasing amount of public and government information has been placed on websites. This is also attributable to the ease of Internet publishing compared to printing, binding and distributing paper forms, or operating information call centres for phone queries. This has given many people much greater access to information, given the ease and speed of finding and reading information on the Internet. However, for those who do not use the Internet as a source of information, these developments may be frustrating. As organizations, corporations and governments place more and more information on line, an increasing amount is not easily available in any other form, providing pressure on non-users to connect.

100. Many developments in the 21st century have resulted from technological change. The expansion of broadband Internet access has allowed more users to upload and download high-capacity content such as photos, videos and music very quickly and inexpensively. The move from film to digital photography, the cost reductions of digital cameras and, more recently, the integration of basic cameras into many mobile phones have enabled Internet users to send or publish their own photographs on line. A similar shift has been seen with video cameras, with amateur video now a large part of Internet culture via live-streaming sites such as YouTube (acquired by Google in 2006 for USD1.65 billion, just 21 months after it was first launched) (YouTube, 2008). Flickr, Photobucket, YouTube, MySpace, BlogSpot and similar free content-hosting sites offer more than just hosting; the sheer amount of content on such sites necessitates a comprehensive and powerful system of organization.

101. The wide integration of Freetags (or Folksonomy, Folk Taxonomy) to such sites helps users to locate and link information that is of interest or relevance to them. It also helps track the number of pieces of content that are related to a particular topic. A Freetag is simply a word, or short phrase, which describes some aspect of a piece of content.[18] This report, for example, might be tagged with the terms *ITU, youth, children, Internet, ICT, technology, education* and *statistics* among other relevant keywords. Such tagging allows users to easily locate publications of interest to them when they search on keywords. It also allows documents to be easily and automatically linked to similar documents that share some of the same tags. This greater access to information means that users can easily find similar content to that which they have authored, uploaded or read, as well as being able to contact those with similar interests or who publish on similar topics.

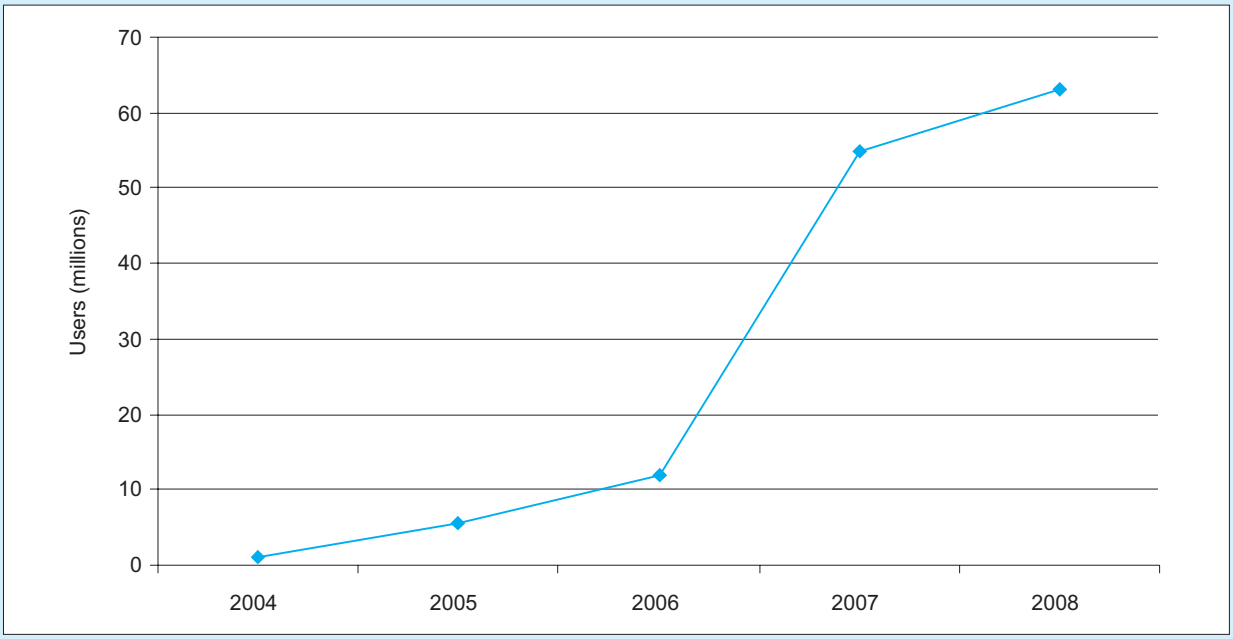
Measuring changing styles of use

102. Monitoring the expansion in the user base of many prominent content hosting sites or systems can help gauge the social impact of such systems. Unfortunately, none of the companies contacted were able to provide any depersonalized use data, but some growth data are publicly available. Chart 10 shows the growth in membership of the popular US social networking site, Facebook. Facebook was launched in February 2004 and, by December 2004, had already amassed nearly 1 million users. The 2008 figure may seem to be a relatively small increase over the 2007 figure, but in fact represents only a 2 month change from November 2007 to January 2008. (Facebook, 2008).

103. Facebook is a social networking site, which means that its role is to connect users with others with whom they share interests, history or activities. Like most large on-line communities, membership is free and the company receives revenue from advertising. According to Wikipedia (2008), Facebook's major competitor, MySpace, has more registered users (200 million). However, their user traffic data are comparable: MySpace holds the Alexa Internet ranking of 6th with about 6 per cent of total Internet traffic, Facebook 7th with around 5.6 per cent (Alexa, 2008).

104. Collectively, the emerging websites and facilities that give relatively free rein to users uploading,

Chart 10. Growth in *Facebook* membership since launch



Source: Facebook (2008).

editing and publishing material are known as User Generated (or Created) Content (UGC) or Consumer Generated Media (CGM). They include social networking sites, where individuals have control over their own profiles, networks and "spaces", free-content upload and sharing sites such as YouTube (video) and Flickr (still images and photographs), public message boards and forums, and Wikis. The OECD (2007c) suggests that in order for content to be classified as UGC, it needs to have three characteristics:

- Publication. Work must be published in some accessible form – even if only accessible to a limited group such as a network or list of contacts. Usually UGC would be accessible either without restriction, or to members of a site or community.

- Creative Effort. There should be some original, creative component from the author in order to create a new work. Simple replication, recording or copying of another's work does not constitute UGC. The creative effort may be collaborative between multiple individuals, however.

- Creation is not part of a professional practice. Creators may be professional, but as UGC is an amateur practice, they cannot be paid for this work. The motivations for creation of UGC are more intrinsic and expressive.[19]

105. Time Magazine's 2007 Person of the Year was "You" (Time Magazine, December 2006). This does not refer to every person on the planet, but instead to the public population of amateur authors, photographers, journalists, opinion writers and movie producers who are responsible for the creation of an enormous volume of on-line content, and to which anyone is free to be a part. The Internet revolution in the 1990s allowed unprecedented access to information and communication. Web 2.0[20] in the 21st century goes a step further – allowing unprecedented and practically unlimited license to anyone to publish their own content. This community of free speech and opinion exchange is enormous and wide-ranging, and young users are at the forefront of it.

106. Unfortunately, there are limited data on how young people are responding to this content-rich virtual environment. Some data are available for developed economies of Europe and the United States; these are shown in Tables 21 to 25. In the developing world, there is little information available. One concern is that the opportunities to benefit from the Internet and its applications

Table 21. Use of the Web by European young people, EU25, percentage of the total population and Internet users, 2006

Activity	*Population*	*Female 16-24*	*Male 16-24*	*All 16-24*	*All Individuals*
I have [ever] created a web page	Total population	17	26	22	9
	Internet users	19	29	24	16
I have [ever] used peer-to-peer file sharing for exchanging movies, music, etc	Total population	24	39	32	11
	Internet users	27	43	36	18
I have [ever] posted messages to chat rooms, newsgroups or an on-line discussion forum	Total population	47	53	50	19
	Internet users	52	59	56	32
I have used Internet, in the last 3 months, for listening to web radios/ for watching web television	Total population	22	31	26	12
	Internet users	26	37	32	22
I have used Internet, in the last 3 months, for other communication uses (chat sites, etc.)	Total population	48	54	51	18
	Internet users	57	65	61	33
I have used Internet, in the last 3 months, for reading/downloading on-line newspapers/news magazines	Total population	25	29	27	19
	Internet users	30	35	32	35

Source: Eurostat, 30 November 2007.

are growing quickly in developed economies and only slowly in others, thus increasing the digital divide between rich and poor economies. A counter argument is that the Internet is such a broad phenomenon that people in poorer countries are able to benefit from developments targeted at wealthier economies, albeit with a lag. Yet another view is that some of these activities are not positive and, in fact, distract young people from more useful or fulfilling activities. However, without more data, including data on the impacts of ICT, these views are only speculation.

107. Table 21 shows how prolific European young people are in creating and using rich content compared with the general population. Although

Table 22. Use of the Web by American 12-17 year olds

	2000	*2004*	*2006*
Internet users (percentage of population aged 12-17)	73	87	93
Daily Internet users (percentage of population aged 12-17)	42	51	61
Percentage of Internet users who:			
Share artwork, photos, stories or videos		33	39
Create or work on web pages/blogs		32	33
Created own on-line journal/blog		19	28
Maintain personal webpage		22	27
Remix on-line content into own creations		19	26
Do at least one of these activities			64

Source: Pew Internet Project 2007, *Teens and Social Media*.[21]

Table 23. Use of blogs by American 12-17 year olds

	2004	*2006*		
Percentage of Internet users who:	***Total***	***Girls***	***Boys***	***Total***
Write blogs	19	35	20	28
Read blogs	38	57	43	49

Source: Pew Internet Project 2007, *Teens and Social Media*.[21]

these data are not current (2006) they give an indication which remains accurate – that adolescents and youth are very enthusiastic users and creators of web content. Interestingly, there is a significant gender gap for all the activities shown, with fewer young female Internet users undertaking the activities.

108. Table 22 shows detailed use data for young people aged 12-17 in the United States for the years 2004 and 2006. It shows very high general Internet use in 2006 by this age group (93 per cent) as well as a high level of content creation among users. In 2006, nearly two thirds (64 per cent) of teenage users, aged 12-17, engaged in some sort of Internet content creation or publication, with the most common activity being to 'Share artwork, photos, stories or videos' (39 per cent). The survey is too different from the Eurostat surveys to make direct comparisons. However, the incidence of creative web activities for young people in the EU and the United States seems reasonably similar (for instance, 33 per cent of US 12-17 year old Internet users created or worked on web pages/blogs compared to 24 per cent of EU 16-24 year old Internet users creating a web page).

109. Table 23 shows a more detailed breakdown of the use of blogs by American 12-17 year olds. It demonstrates that, as with traditional diaries and journals, teenage girls are more likely to record their thoughts and feelings in the form of an on-line weblog (35 per cent compared with 20 per cent of boys). They are also more likely to read the blog of someone else (57 per cent compared with 43 per cent of boys). On the whole, both reading and writing of weblogs has increased in this age group between 2004 and 2006 – by 9 and 11 percentage points respectively

110. Table 24 details content creation in the form of posting photos to a website, journal or social networking profile. In this field also, girls are the more prolific users, with a 54 per cent rate compared with 40 per cent of boys. An interesting, if unsurprising, side note is that young Internet users who are connected with broadband are more likely to post photos (a demanding task in terms of bandwidth) at 51 per cent compared with 39 per cent of those connected with dial-up. Regular Internet users are also much more likely to be posting photos than their counterparts who are on line less often (59 per cent compared with 29 per cent).

111. Table 24 also shows that boys were more prolific than girls in posting videos, in 2006. Almost twice as many Internet-using boys as girls posted videos on the Web. The adult rate for posting videos is far lower overall – only 8 per cent. Sites like YouTube.com provide an opportunity to share videos with a huge audience at no individual cost to users. Far from inspiring high quality film-making, much of the content of such sites is humorous or farcical in nature, perhaps reinforcing their popularity with teenage boys.

112. To put some of the Internet-based social media data in context, in 2006 PEW also asked questions about other methods of social communication practised by America's young people (Table 25). Not surprisingly, technology-based communication dominates. Traditional forms of social communication included in this list are limited to landline telephone use and speaking face-to-face. It is perhaps reassuring that the latter form of communication still ranks highly, with 31 per cent of teenagers seeing their friends in person outside of school hours on a daily basis. Email is surprisingly low on the list, perhaps indicating that the ease of short text messages via cell phones or Internet-based systems is making email somewhat obsolete within this age group.

Table 24. Incidence of photo and video posting by American 12-17 year olds, 2006

Photo Posting (percentage of Internet users)	*Girls*	*Boys*	*Total 12-17*
Total	**54**	**40**	**47**
Connected with dial-up			39
Connected with broadband			51
On line daily			59
On line several times per week or less			29
Video Posting (percentage of Internet users)	10	19	14

Source: Pew Internet Project 2007, *Teens and Social Media*.[21]

Table 25. Methods of (daily) communication by American 12-17 year olds, percentage of individuals

Talk to friends on landline telephone	39
Talk on cell phone	35
Spend time with friends in person	31
Instant message	28
Send text messages via cell phone	27
Send messages over social network sites	21
Send email	14

Source: Pew Internet Project 2007, *Teens and Social Media*.[21]

[1] Statistics produced by government statistical agencies according to the UN's fundamental principles of official statistics as adopted by the United Nations Statistical Commission in 1994: http://unstats.un.org/unsd/statcom/doc94/e1994.htm.

[2] The term NSO is also taken to include government agencies which collect official statistics (where a national statistical system is decentralized, there may be several official statistical agencies in a country). NSOs are usually government-funded and are responsible for providing high quality, standardized statistical data to government, industry and the public.

[3] From any location in the last 12 months, latest year available.

[4] Countries which have a low age cut-off for the 5-14 age group tend to show lower ICT use for this group, probably because use by very young children tends to be lower than for older children.

[5] With the exception of the United States where use by teenagers aged 14-17 is greater than that of young adults, aged 18-24.

[6] http://isis.nida.or.kr/board/service/bbsList.jsp?bbs_id=10.

[7] www.abs.gov.au/ausstats/abs@.nsf/mf/4901.0 and www.abs.gov.au/ausstats/abs@.nsf/mf/8146.0.

[8] There are a number of points of non-comparability between country data. Some affect ICT use data generally and are discussed in Chapter 4. In respect of data on location of Internet use, there are a number of differences between countries. The main differences are varying definitions of sub-categories, for instance, it is not possible to identify Eurostat data corresponding to community and commercial Internet access facilities.

[9] In the Republic of Korea, the high rate of use among youth is related to the high incidence of multiplayer gaming (in 'PC bangs').

[10] www.abs.gov.au/ausstats/abs@.nsf/mf/8146.0.

[11] http://www.oecd.org/dataoecd/28/4/35995145.pdf.

[12] SE refers to the standard error of the score.

[13] There are fewer areas of non-comparability than for other statistics presented in this chapter. The main areas are those affecting ICT use data generally.

[14] http://www.censtatd.gov.hk/products_and_services/products/publications/statistical_report/social_data/index_cd_B1130227_dt_latest.jsp.

[15] http://isis.nida.or.kr/board/service/bbsList.jsp?bbs_id=10.

[16] Another reason is the relative availability of data on newer technologies compared with older ones. While there are good datasets for many countries on household level of access to older ICTs, there is very little information on their use by individuals. On the other hand, as we saw earlier in the chapter, there is quite a lot of data on use of the newer ICTs.

[17] ICQ, MSN Messenger, Yahoo Instant Messenger and AOL Instant Messenger were all popular examples.

[18] This principle has been used in data systems for a long time and is known as Metadata in that context.

[19] This distinction becomes blurred when those in professional and public positions maintain blogs, spaces or sites which are personal in nature and which may be promotional of the individual or their affiliated company, organization or political party (e.g. the MySpace pages of Australian Prime Minister, Kevin Rudd, or the blog of Sun Microsystems President and CEO Jonathan Schwartz).

[20] Web 2.0 is a catchphrase which attempts to capture this new style of Internet use.

[21] http://www.pewinternet.org/pdfs/PIP_Teens_Social_Media_Final.pdf.

CHAPTER 6. SUMMARY AND RECOMMENDATIONS

Introduction

113. As stated in the preface, the main purpose of this report is to investigate the current global state of ICT use by young people through available statistics. A secondary aim is to describe the limitations of those statistics and to make recommendations to improve them. This chapter summarizes the main findings of the report and describes the data limitations that hamper further analysis of this important topic. Recommendations are made in respect of those limitations and some of the policy implications of the findings are explored.

Main findings

114. It should be noted at the outset that the findings of this report and the conclusions based on them have an important limitation, namely the small number of countries for which relevant data are available. While the majority of developed economies have rich datasets on individual use of ICT, data availability is poor for most developing and transition economies, and very poor for the least developed economies (only two of which collect any individual ICT use data).

115. With that caveat in mind, the data compiled for this report indicate relatively high use of computers, the Internet and mobile phones by young people, compared with the general population. For most countries, peak use of these technologies occurs in the 15-24 year age group, with high use also for the younger group, 5-14.[1]

116. An important finding is that computer use is higher in both the 5-14 and 15-24 year age groups than the general population in all countries for which data are available (Table 26). With very few exceptions, the same pattern is seen for Internet use (Table 27). Use of the Internet in the 15-24 year age group is higher than for the general population in all countries. However, use among children is lower than the general population for a small number of countries.[2] While, for all but one country,[3] those in the 15-24 year age group are more likely to use a mobile phone than the general population, the same is not true of children (Table 28). This can probably be attributed to the fact that mobile phones are personal devices that are less likely to be readily available to children.

117. There are probably several reasons for higher use of ICT by young people. We can hypothesize that it is related to factors such as:

- The natural enthusiasm for new technology that young people seem to have, and their capacity to learn to use it quickly;
- Higher literacy of young people in most economies;
- The extra spare time which young people (outside of the full-time workforce) tend to have compared to older people within the same community, combined with the leisure opportunities offered by ICT;

- The 'critical mass' effect of communication media, whereby it becomes inconvenient or impractical to communicate with others in one's social group unless one adopts the method of communication being used by members of that social group;[4] and

- The presence of computers and/or Internet access in schools and further education facilities, predominantly used by young people.

118. The data in the report show that the level of ICT use is higher in more developed economies. The reasons for this are reasonably obvious and include better (and cheaper) access to ICT infrastructure and higher levels of discretionary spending per capita. Factors which appear to restrict the availability of ICT in less developed economies include:

- Electricity connections being absent, expensive or unreliable;

- Computers, the Internet or mobile phones not being available locally; and

- Telecommunications services (mobile phone and Internet) having low-capacity, or being unreliable and/or expensive (see Chapter 2 for details).

119. Data on ICT use by age and gender show little difference between the proportions of young male and female users, for most countries. This differs from the situation for the general population where there is generally a gender gap in favour of male users.

120. Data on growth in use of ICT are not widely available, except for European countries. Information from Eurostat shows steady growth for males and females in all age groups (under 16, 16-24 and 16-74) over the period 2003 to 2007.

121. This report also includes information on frequency and location of use of the Internet, and Internet activities undertaken (Tables 29 to 31). The main findings are as follows:

- For the majority of countries, over half the Internet users among youth and the general population log on at least once a day. In some European countries and the more developed Asian economies, over 80 per cent of 15-24 year olds log on every day. Children are more likely than older age groups to be infrequent users (those using the Internet less than once a week).

- Reflecting the higher level of home Internet access, in developed economies (and the more developed Asian economies), home is the most likely location of Internet use for all age groups. Among less developed economies, home tends to be less important as a place of Internet use, reflecting lower levels of household Internet access. Despite the policy interest, data on use at community (or 'public') Internet access facilities are collected by few countries. Available data, while limited, show higher rates of use at commercial than at community Internet access facilities.

- Data on Internet activities are not very well standardized, mainly because of differences in the response categories used by countries that collect this information. However, some general observations are possible and indicate greater use of the Internet by children for education and playing games. Use of the Internet for communication is greater for youth and the general population than it is for children.

122. It is clear that styles of Internet use by young people are rapidly evolving – at least in developed economies. This report examines the use of the Internet for generating user content and social networking. While little data are available, they indicate that this is a young person's realm (at least in Europe and the United States). For Europe, EU25 data show that children and youth are greater users and creators of web content. A significant gender gap exists, with fewer young females undertaking these activities. In the United States, a large proportion of teenage (12-17) Internet users share and create web content. Teenage boys are more prolific than girls in posting videos on the Web, while girls are more likely to post photos.

Policy implications of the findings

123. In Chapter 2, it was noted that developing economies (including least developed economies) have a younger age profile than more developed economies. Given the findings on higher ICT use among the young, a larger proportion of young people in a population suggests a potential asset in the human capital required to develop an Information Society – and ultimately improve a country's economic and social situation.

Developing economies that recognize that ICT is a tool for development, and adopt appropriate policies to encourage its wider use, will be best able to take advantage of their 'youth asset'.

124. The types of policies which could be pursued are well known and include:

- Providing access to computers and the Internet in schools;
- Making changes to school and higher education curricula to encourage the ICT and language skills that are needed in a global Information Society;
- Establishing community access facilities (and/or encouraging the establishment of commercial Internet access facilities); and
- Working with ICT service providers to reduce the cost and improve the quality of ICT services.[5]

125. An important aim of such policies is to raise a generation that is capable of using ICT and can benefit from its use (for instance, by utilizing information available on the Internet and communicating with others).

126. Requisite basic skills include the ability to create and manipulate computer files; use applications such as word processors and spreadsheets; type with a reasonable level of accuracy and speed; and manage a computer by performing tasks such as installing and uninstalling programs, and fixing minor technical problems.

127. As ICT penetration increases, it is likely that these basic competencies will become even more important. Ensuring that the current generation of school age children and young adults has access to computers and computer education will be essential in minimizing digital and other gaps between developed and less developed economies.

128. It is worth noting that the basic skills listed above, while requiring computer access, do not necessarily require powerful or expensive computers – nor do they require high speed Internet access. This indicates that significant advances can be made without the high level of equipment and infrastructure often available in developed economies.

129. Of course, many other advances, such as the transformation of business and government processes, are reliant on a higher level of ICT infrastructure, including broadband access.

Data limitations

130. Data limitations were described in some detail in Chapter 4. It is clear that there are a number of issues to be addressed in order to improve the level of data available and its international comparability. The foremost limitation is lack of data for many economies, including the least developed economies. As Table 9 and Annex 1 show, the core indicators on individual ICT use are widely available only for developed economies. Data availability for developing and transition economies is low for all indicators, while only two least developed economies (Afghanistan and Bhutan) collect any individual ICT use data.

131. For most countries with relevant data, various problems limit comparison with the data of other countries. These limitations include data deficiencies that are intrinsic, for instance small sample sizes resulting in unreliable statistics, and those that are common to many countries, for instance lack of adherence to international standards. The importance of consistency and standardization in the collection and reporting of statistics cannot be overemphasized.

Recommendations for improving data

132. The core ICT indicators developed by the Partnership on Measuring ICT for Development were introduced in Chapter 3. There are a number of definitions and methodological recommendations associated with the core indicators. Closer adherence to these standards would solve a large number of the comparability issues that affect ICT use statistics.

133. While a majority of developed economies include ICT statistics in their statistical programs, the same is not true of most developing economies. It is suggested that such inclusion would generally bring benefits in terms of data understanding and quality. It would also enable the production of time series data, which can be a useful policy monitoring tool. As an example of the latter, if a country has a policy to establish community Internet access facilities in order to promote

ICT use in rural areas, then time series data on location of Internet use by region would enable quantification of growth in use attributable to such an initiative.

134. It is suggested that countries use the resources of the Partnership on Measuring ICT for Development (and its partners) to progress work on ICT statistics. Useful references include:

- Partnership on Measuring ICT for Development (2005), *Core ICT Indicators*, http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf;

- OECD, *Guide to Measuring the Information Society, 2007*, www.oecd.org/sti/measuring-infoeconomy/guide; and

- Eurostat, *Methodological Manual for Statistics on the Information Society, Survey year 2007 v2.0*, http://europa.eu.int/estatref/info/sdds/en/isoc/isoc_metmanual_2007.pdf.

135. In addition, the *Partnership* undertakes training and capacity-building activities aimed at improving countries' capacities to collect ICT statistics. Examples of these activities can be found on the ITU website, see http://www.itu.int/ITU-D/ict/partnership/index.html.

136. ITU is currently developing a manual for measuring household/individual ICT access and use; this is expected to be released in the second half of 2008. The manual should prove to be a valuable resource for countries involved in measurement of ICT use by individuals.

[1] Noting again that this group is of variable age, with some countries collecting data for those as young as 3 and others for older children, e.g. 12-14 year olds.

[2] Where this is the case, the proportions are usually quite close.

[3] Occupied Palestinian Territory.

[4] Where there are high levels of social activity among young people, this could contribute to their adoption of ICT as a group. Much of the use reported is of a social or communicative nature, rather than simple information gathering or research – although these uses are common as well. SMS use (on mobile phones) and Chat/IM/Social networking use (through an Internet connection) are primarily the domains of the young. It could be suggested that while a communication system (for example, an instant messaging service such as AIM or MSN) has a relatively low rate of use within a group, there is little impetus for members to adopt it. However, once a certain proportion of users have adopted a system for reasons of functionality, convenience or otherwise, it gives other members of that group a strong motivation to adopt it as well. As such we could expect to see a rapid rise in the user base of such systems. An example is shown in Chart 10 which shows the very rapid increase in membership of the US social networking site Facebook, in which social groups and networks are given central importance.

[5] This includes a recognition by web designers that bandwidth limitations should be taken into account when designing websites.

ANNEX 1. AVAILABILITY OF DATA ON USE OF ICT BY YOUNG PEOPLE

The situation described in this annex applies to countries known to have ICT use data disaggregated by age. There may be other countries with such data, which have not provided information to ITU or to Eurostat, or are not known to the consultants who prepared this report. It should also be noted that, for various reasons,[1] not all data that are available have been used in this report.

Region/country	*Status of data collection*
Africa	
Mauritius	2006 data on ICT use by children and youth, aged 12+.
Morocco	2006 data on ICT use by children and youth, aged 12-65.
Asia	
Azerbaijan	2006 data on ICT use by youth, aged 15+.
China	2007 data on Internet use by children and youth, aged 6+
Hong Kong (China)	2007 data on ICT use by children and youth, aged 10+.
Japan	2006 data on ICT use by children and youth, aged 6+.
Macao, China	2006 data on ICT use by children and youth, aged 3+.
Malaysia	2006 data on Internet use at home are available for all ages.
Occupied Palestinian Territory	2006 data on ICT use by children and youth, aged 10+.
Republic of Korea	2007 data on ICT use by children and youth, aged 5+. Supplementary data on ICT use by very young children (aged 3-5) are also available.
Singapore	2006 data on ICT use by children and youth, aged 10+.
Thailand	2006 data on ICT use by children and youth, aged 6+.
Europe[2]	
Belgium	Annual data on ICT use by youth (16-24) and total population (16-74).
Czech Republic	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
Estonia	Annual data on ICT use by youth (16-24) and total population (16-74).
Finland	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
France	Annual data on ICT use by youth (15-24) and total population (16-74).
Germany	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
Greece	Annual data on ICT use by children (12-15), youth (16-24) and total population (16-74).
Hungary	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
Iceland	Annual data on ICT use by youth (16-24) and total population (16-74).
Italy	Annual data on ICT use by children (6-15), youth (16-24) and total population (16-74).
Latvia	Annual data on ICT use by youth (15-24) and total population (16-74).
Lithuania	Annual data on ICT use by children (12-15), youth (16-24) and total population (16-74).
Netherlands	Annual data on ICT use by children (12-15), youth (16-24) and total population (16-74).
TFYR Macedonia	Annual data on ICT use by youth (16-24) and total population (16-74).

Region/country	*Status of data collection*
Norway	Annual data on ICT use by youth (16-24) and total population (16-74).
Poland	Annual data on ICT use by youth (16-24) and total population (16-74).
Portugal	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
Serbia	Annual data on ICT use by youth (16-24) and total population (16-74).
Slovakia	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
Slovenia	Annual data on ICT use by children (10-15), youth (16-24) and total population (16-74).
Spain	Annual data on ICT use by youth (15-24) and total population (16-74).
Switzerland	Biennial data on ICT use by youth, aged 14+.
Turkey	Data on computer and Internet use by youth, 16-24.
Latin America and the Caribbean[3]	
Brazil	2005 data on ICT use by children and youth, aged 10+.
Chile	2006 data on ICT use by children and youth, aged 5+.
Costa Rica	2005 data on ICT use by children and youth, aged 5+.
Mexico	2006 data on ICT use by children and youth, aged 6+.
Paraguay	2005 data on ICT use by children and youth, aged 10+.
Northern America	
Bermuda	2003 data on ICT use by youth (16-24) and total population (16-65).
Canada	Data on ICT use by individuals, aged 18+ from 2005.
USA	2003 data on ICT use by children and youth, aged 3+.
Oceania	
Australia	Annual data on ICT use by youth, 15+. Occasional surveys on use of ICT by children aged 5-14 (the latest was for 2006).
New Zealand	2006 data on ICT use by youth (15-24).

[1] Reasons include use of non standard definitions or concepts (such as collecting main Internet activity rather than all possible activities), as well as intrinsic issues such as very small sample sizes for disaggregated data.

[2] Eurostat collects data on ICT use annually from most European countries (including non EU members Norway, Iceland, Serbia and TFYR Macedonia). Those countries which collect additional data for individuals under 16 may not do so every year; the situation with respect to such data described here applies to 2006.

[3] A number of other Latin American and Caribbean countries have data on ICT use by individuals. It is therefore probable that more countries than those shown have data on ICT use by children and youth.

ANNEX 2. DATA TABLES

General notes on Tables:

1. Data are generally the latest available except for countries that conduct the Eurostat community survey. In this case, 2006 data were used because a relatively large number of European countries collected data in respect of children in that year (more than in 2007). The exception is Serbia for which only 2007 data are available.

2. Eurostat: *Total* age range is 16-74 year olds; *15-24* refers to the 16-24 year old group; the majority of countries do not collect data for those under 16; for those which do, the age range varies, see *Notes*.

3. For data from other sources, unless indicated otherwise in the Notes, age ranges are 5-14 and 15-24, with Total being 5 (or 15) years or older. Where an age range was one year different from a standard range, no note was added.

4. Some economy and source names have been abbreviated to save space.

5. Much of the data were derived from numbers, some of which were rounded (e.g. to the nearest hundred or thousand). On conversion to percentages, small rounding errors may occur, leading to slight differences compared with published data.

6. Data sources are shown in footnotes and in the *Source* column. Eurostat data were extracted from the downloadable Access database, version 30 November 2007, see http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2973,64549069,2973_64554066&_dad=portal&_schema=PORTAL.

Table 26. Individuals who used a computer (from any location) in the last 12 months, percentage in each age and gender group

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Australia	92	93	92							2006; 2007	ABS	
Austria				93	95	94	75	66	70	2006	Eurostat	
Azerbaijan				27	17	22	22	11	17	2006	State Stat. Committee	
Belgium				91	91	91	73	65	69	2006	Eurostat	
Bermuda				96	97	96	87	91	89	2003	Department of Statistics	Total refers to 16-65
Bulgaria				67	69	68	33	33	33	2006	Eurostat	
Chile			70			70			43	2006	UNECLAC	
Cyprus				78	91	84	49	44	46	2006	Eurostat	
Czech Republic				89	87	88	57	53	55	2006	Eurostat	
Denmark				100	98	99	90	88	89	2006	Eurostat	In the last month
Estonia							66	63	64	2006	Eurostat	
Finland			99	99	99	99	84	81	82	2006	Eurostat	'5-14' refers to 10-15
Germany							82	76	79	2006	Eurostat	
Greece			94	80	81	80	44	36	40	2006	Eurostat	'5-14' refers to 12-15
Hong Kong (China)	98	98	98	98	98	98	66	60	63	2006	Census and Stats Dept	'5-14' refers to 10-14; Total refers to 10+
Hungary			88	91	89	90	57	55	56	2006	Eurostat	'5-14' refers to 10-15
Iceland				99	100	100	92	90	91	2006	Eurostat	
Ireland				78	82	80	60	62	61	2006	Eurostat	
Italy			65	75	76	75	50	39	44	2006	Eurostat	'5-14' refers to 6-15
Japan	60	61	61	80	78	79	63	48	56	2006	MIC	'15-24' refers to 15-29
Latvia				95	93	94	58	56	57	2006	Eurostat	
Lithuania			98	90	90	90	49	48	48	2006	Eurostat	'5-14' refers to 12-15
Luxembourg				100	96	98	86	68	77	2006	Eurostat	

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Macao (China)	83	82	83	92	88	90	58	51	54	2006	Stats and Census Serv.	last 3 months; Total refers to 3+
Mauritius	72	76	74	51	55	53	32	27	30	2006	Central Statistics Office	'5-14' refers to 12-14; Total refers to 12+
Mexico			39			50			31	2006	UNECLAC	
Netherlands			100	100	100	100	88	83	86	2006	Eurostat	'5-14' refers to 12-15
New Zealand				88	92	90	74	75	74	2006	Statistics NZ	
Norway				100	100	100	88	85	87	2006	Eurostat	
Occ. Palestinian Territory	95	93	94	92	85	89	90	83	87	2006	Central Bur. of Statistics	'5-14' refers to 10-14; Total refers to 10+
Poland				92	91	91	55	50	52	2006	Eurostat	
Portugal			91			86	48	41	45	2006	Eurostat	'5-14' refers to 10-15
Republic of Korea	97	96	97	100	100	100	84	74	79	2007	NIDA	
Romania				66	62	64	36	31	33	2006	Eurostat	
Serbia				81	76	79	48	40	44	2007	Eurostat	
Singapore			85			85	70	58	64	2006	IDA	'5-14' refers to 10-14; Total refers to 10+
Slovakia			99	95	94	95	68	64	66	2006	Eurostat	'5-14' refers to 10-15
Slovenia			100	97	96	97	65	57	61	2006	Eurostat	'5-14' refers to 10-15
Spain				89	89	89	60	53	57	2006	Eurostat	
Sweden				100	98	99	92	89	90	2006	Eurostat	
TFYR Macedonia						69	44	32	38	2006	Eurostat	
Thailand			52			52			26	2006	National Stat. Office	
United Kingdom							79	73	76	2006	Eurostat	
United States			92			82	69	69	69	2003	Bureau of the Census	'5-14' refers to 6-14; Total refers to 3+

Source: ITU, Eurostat and national statistical sources; data were extracted from the Eurostat downloadable database (30 Nov 07 version).

Table 27. Individuals who used the Internet (from any location) in the last 12 months, percentage in each age and gender group

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Australia	65	65	65			91	71	68	69	2006; 2007	ABS	
Austria				90	91	91	69	58	64	2006	Eurostat	
Azerbaijan				17	9	13	14	6	10	2006	State Statistical Committee	
Belgium				90	89	89	68	60	64	2006	Eurostat	
Bermuda				93	96	95	79	82	80	2003	Department of Statistics	Total refers to 16-65
Brazil	24	25	24	31	33	32	22	20	21	2005	IBGE	'5-14' refers to 10-14; Total refers to 10+; last 3 months; access by computer
Bulgaria				59	57	58	28	26	27	2006	Eurostat	
Chile			56			65			37	2006	UNECLAC	
China			9			43	13	11	12	2007	CNNIC	
Costa Rica			15			38			22	2005	UNECLAC	
Cyprus				59	78	68	38	34	36	2006	Eurostat	
Czech Republic			75	83	81	82	50	46	48	2006	Eurostat	'5-14' refers to 10-15
Denmark				99	98	99	88	86	87	2006	Eurostat	in the last month
Estonia							65	63	64	2006	Eurostat	
Finland			98	98	99	99	82	78	80	2006	Eurostat	'5-14' refers to 10-15
France				82	86	84	50	44	47	2006	Eurostat	
Germany			91				76	68	72	2006	Eurostat	'5-14' refers to 10-15
Greece			69	72	70	71	37	28	32	2006	Eurostat	'5-14' refers to 12-15
Hong Kong (China)	97	96	96	97	97	97	64	58	61	2006	Census and Stats Dept	'5-14' refers to 10-14; Total refers to 10+

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Hungary			71	83	82	82	48	46	47	2006	Eurostat	'5-14' refers to 10-15
Iceland				100	99	100	90	89	90	2006	Eurostat	
Ireland				73	72	73	55	54	55	2006	Eurostat	
Italy			34	67	68	68	43	33	38	2006	Eurostat	'5-14' refers to 6-15
Japan	66	68	67	91	91	91	72	63	68	2006	MIC	'15-24' refers to 15-29
Latvia				95	93	94	55	52	54	2006	Eurostat	
Lithuania			90	88	86	87	45	43	44	2006	Eurostat	'5-14' refers to 12-15
Luxembourg				98	92	95	82	63	73	2006	Eurostat	
Macao (China)	64	63	63	87	83	85	50	43	46	2006	Stats and Census Serv.	last 3 months; Total refers to 3+
Malaysia			2			19	11	10	10	2006	MCMA	no lower age restriction but respondents must be able to respond; home use only; previous month
Mauritius	24	25	25	31	34	33	18	15	17	2006	Central Statistics Office	'5-14' refers to 12-14; Total refers to 12+
Mexico			18			40			20	2006	UNECLAC	
Morocco			64	77	70	74	56	38	46	2006		Total refers to 12-65
Netherlands			99	100	99	99	86	79	83	2006	Eurostat	'5-14' refers to 12-15
New Zealand				85	86	86	69	69	69	2006	Statistics NZ	
Norway				99	100	99	85	80	83	2006	Eurostat	
Occ. Palestinian Territory	26	13	20	50	36	43	43	28	36	2006	Central Bur. of Statistics	'5-14' refers to 10-14; Total refers to 10+

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Paraguay			6			13			8	2005	UNECLAC	'5-14' refers to 10-14; Total refers to 10+
Poland				87	86	86	47	42	45	2006	Eurostat	
Portugal			75	81	80	81	42	35	38	2006	Eurostat	'5-14' refers to 10-15
Republic of Korea	97	96	97	100	100	100	85	75	80	2007	NIDA	
Romania				56	53	54	27	23	25	2006	Eurostat	
Serbia				70	56	63	38	28	33	2007	Eurostat	
Singapore			84			82	65	54	60	2006	IDA	'5-14' refers to 10-14; Total refers to 10+
Slovakia			91	93	91	92	59	53	56	2006	Eurostat	'5-14' refers to 10-15
Slovenia			96	93	88	91	58	50	54	2006	Eurostat	'5-14' refers to 10-15
Spain				86	87	86	54	47	50	2006	Eurostat	
Sweden				98	99	99	90	86	88	2006	Eurostat	
TFYR Macedonia							34	23	29	2006	Eurostat	
Thailand			14			38			14	2006	National Stat. Office	
United Kingdom							73	65	69	2006	Eurostat	
United States			58			74	58	59	59	2003	Bureau of the Census	'5-14' refers to 6-14; Total refers to 3+

Source: ITU, Eurostat and national statistical sources; data were extracted from the Eurostat downloadable database (30 Nov 07 version).

Table 28. Individuals with use of a mobile phone, percentage in each age and gender group

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Austria				95	97	96	87	82	85	2006	Eurostat	
Belgium				96	95	95	89	85	87	2006	Eurostat	
Bermuda				57	60	58	53	36	45	2003	Department of Statistics	Total refers to 16-65
Brazil	15	23	19	40	46	43	38	35	37	2005	IBGE	'5-14' refers to 10-14; Total refers to 10+
Bulgaria				81	80	81	66	56	61	2006	Eurostat	
Chile			22			66			54	2006	UNECLAC	
Costa Rica			11			34			33	2005	UNECLAC	'5-14' refers to 10-14; Total refers to 10+
Cyprus				98	98	98	94	82	88	2006	Eurostat	
Czech Republic			80	97	98	98	90	86	88	2006	Eurostat	'5-14' refers to 10-15
Denmark				100	97	99	93	88	90	2006	Eurostat	
Estonia				98	97	98	90	87	89	2006	Eurostat	
Finland			97	100	100	100	98	94	96	2006	Eurostat	'5-14' refers to 10-15
France				91	95	93	75	72	73	2006	Eurostat	
Germany			75	96	98	97	86	81	83	2006	Eurostat	'5-14' refers to 10-15
Greece			80	93	96	94	82	70	76	2006	Eurostat	'5-14' refers to 12-15
Hong Kong (China)	54	62	58	93	94	94	88	85	86	2006	Census and Stats Dept	'5-14' refers to 10-14; Total refers to 10+
Hungary			83	90	92	91	74	75	74	2006	Eurostat	'5-14' refers to 10-15
Iceland				99	99	99	97	97	97	2006	Eurostat	
Ireland				99	99	99	90	91	91	2006	Eurostat	
Italy			59	95	97	96	89	84	87	2006	Eurostat	'5-14' refers to 6-15
Japan	26	37	32	91	95	93	74	68	71	2006	MIC	'15-24' refers to 15-29; excludes PHS
Latvia				98	97	98	86	82	84	2006	Eurostat	
Lithuania			91	97	99	98	82	81	81	2006	Eurostat	'5-14' refers to 12-15
Luxembourg				99	99	99	95	91	93	2006	Eurostat	
Morocco			92	94	94	94	92	86	89	2006		Total refers to 12-65

Economy	Male 5-14	Female 5-14	Total 5-14	Male 15-24	Female 15-24	Total 15-24	Total male	Total female	Total	Year	Source	Notes
Netherlands			82	98	100	99	90	86	88	2006	Eurostat	'5-14' refers to 12-15
New Zealand				89	93	91	80	80	80	2006	Statistics NZ	
Norway				99	98	98	96	95	96	2006	Eurostat	
Occ. Palestinian Territory	13	8	11	69	31	49	95	48	74	2006	Central Bur. of Statistics	'5-14' refers to 10-14; Total refers to 10+
Poland				90	93	91	70	66	68	2006	Eurostat	
Portugal			67	93	93	93	82	74	78	2006	Eurostat	'5-14' refers to 10-15
Republic of Korea	26	32	29	93	95	94	84	76	80	2007	NIDA	
Romania				73	73	73	60	53	56	2006	Eurostat	
Serbia				97	95	96	79	75	77	2007	Eurostat	
Singapore			14			62			47	2006	IDA	5-14' refers to 10-14; Total refers to 10+; GSM/GPRS mobile phone only
Slovakia			94	98	98	98	89	85	87	2006	Eurostat	'5-14' refers to 10-15
Slovenia			94	97	99	98	89	82	85	2006	Eurostat	'5-14' refers to 10-15
Spain				97	97	97	84	82	83	2006	Eurostat	
Sweden				97	96	96	94	93	93	2006	Eurostat	
Thailand	4	6	5	50	58	54	43	39	41	2006	National Stat. Office	
TFYR Macedonia				91	86	89	70	57	63	2006	Eurostat	
United Kingdom				98	97	98	90	89	90	2006	Eurostat	

Source: ITU, Eurostat and national statistical sources; data were extracted from the Eurostat downloadable database (30 Nov 07 version).

Table 29. Frequency of individual access to the Internet in the last 12 months (from any location), percentage of Internet users in each age group

General note on table: For most economies, the sum of observations adds to 98, 99 or 100 per cent. For a small number, totals for one or more age groups are slightly lower. The discrepancy is likely to result from 'do not know' responses.

Economy	Frequency	Total 5-14	Total 15-24	Total	Year	Source	Notes
Australia	Daily	25	61	50	2006; 2007	ABS	use at home
	At least weekly (but not every day)	62	33	41			
	At least monthly (but not every week)	12	6	8			
	Less than monthly	0	1	1			
Austria	Daily		68	64	2006	Eurostat	
	At least weekly (but not every day)		24	26			
	At least monthly (but not every week)		6	7			
	Less than monthly		2	3			
Azerbaijan	Daily		34	41	2006	State Stat. Committee	last 3 months
	At least weekly (but not every day)		58	51			
	At least monthly (but not every week)		5	5			
	Less than monthly		3	3			
Belgium	Daily		77	72	2006	Eurostat	
	At least weekly (but not every day)		18	22			
	At least monthly (but not every week)		4	5			
	Less than monthly		1	1			
Brazil	Daily	22	33	36	2005	IBGE	'5-14' refers to 10-14; Total refers to 10+; last 3 months; access by computer
	At least weekly (but not every day)	58	49	47			
	At least monthly (but not every week)	15	13	12			
	Less than monthly	4	3	3			
Bulgaria	Daily		55	58	2006	Eurostat	
	At least weekly (but not every day)		35	31			
	At least monthly (but not every week)		9	9			
	Less than monthly			1			

Economy	Frequency	Total 5-14	Total 15-24	Total	Year	Source	Notes
Cyprus	Daily		44	56	2006	Eurostat	
	At least weekly (but not every day)		44	31			
	At least monthly (but not every week)		10	12			
	Less than monthly		2	2			
Czech Republic	Daily	26	42	41	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	49	41	40			
	At least monthly (but not every week)	22	15	17			
	Less than monthly			2			
Denmark	Daily		79	79	2006	Eurostat	in the last month
	At least weekly (but not every day)		17	16			
	At least monthly (but not every week)		2	4			
	Less than monthly		0	1			
Estonia	Daily		78	66	2006	Eurostat	
	At least weekly (but not every day)		18	26			
	At least monthly (but not every week)		4	6			
	Less than monthly			2			
Finland	Daily	59	81	73	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	29	15	19			
	At least monthly (but not every week)	9	3	6			
	Less than monthly	3	1	2			
France	Daily		49	56	2006	Eurostat	
	At least weekly (but not every day)		35	28			
	At least monthly (but not every week)		15	16			
Germany	Daily	40	63	57	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	33	26	28			
	At least monthly (but not every week)	21	9	10			
	Less than monthly	5		4			
Greece	Daily	15	33	44	2006	Eurostat	'5-14' refers to 12-15
	At least weekly (but not every day)	58	42	34			
	At least monthly (but not every week)	17	21	17			
	Less than monthly	9	4	5			

Economy	Frequency	Total 5-14	Total 15-24	Total	Year	Source	Notes
Hong Kong (China)	Daily	77	84	72	2006	Census and Stats Dept	'5-14' refers to 10-14; Total refers to 10+
	At least weekly (but not every day)	21	13	19			
	At least monthly (but not every week)	2	2	5			
	Less than monthly	1	1	4			
Hungary	Daily	29	57	64	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	59	35	29			
	At least monthly (but not every week)	11	7	6			
	Less than monthly	1	1	1			
Iceland	Daily		86	80	2006	Eurostat	
	At least weekly (but not every day)		12	15			
	At least monthly (but not every week)		2	4			
	Less than monthly		0	1			
Ireland	Daily		48	50	2006	Eurostat	
	At least weekly (but not every day)		39	36			
	At least monthly (but not every week)		11	11			
	Less than monthly		2	4			
Italy	Daily	65	79	81	2006	Eurostat	'5-14' refers to 6-15
	At least weekly (but not every day)	11	6	5			
	At least monthly (but not every week)	21	14	13			
	Less than monthly	3	1	2			
Japan	Daily	17	46	41	2006	MIC	'15-24' refers to 15-29; PC access
	At least weekly (but not every day)	34	31	27			
	At least monthly (but not every week)	22	10	12			
	Less than monthly	13	4	7			
Latvia	Daily		66	62	2006	Eurostat	
	At least weekly (but not every day)		29	29			
	At least monthly (but not every week)		4	8			
	Less than monthly		1	1			

Economy	Frequency	Total 5-14	Total 15-24	Total	Year	Source	Notes
Lithuania	Daily	39	56	56	2006	Eurostat	'5-14' refers to 12-15
	At least weekly (but not every day)	48	35	34			
	At least monthly (but not every week)	11	7	8			
	Less than monthly	1	2	2			
Luxembourg	Daily		67	66	2006	Eurostat	
	At least weekly (but not every day)		27	26			
	At least monthly (but not every week)		5	7			
	Less than monthly		1	2			
Mauritius	Daily	14	30	33	2006	Central Statistics Office	'5-14' refers to 12-14; Total refers to 12+
	At least weekly (but not every day)	60	49	47			
	At least monthly (but not every week)	21	16	15			
	Less than monthly	5	4	5			
Mexico	Daily	11	19	20	2006	UNECLAC	
	At least weekly (but not every day)	72	71	68			
	At least monthly (but not every week)	15	9	10			
	Less than monthly	1	2	2			includes 'don't know'
Morocco	Daily		60	55	2006		Total refers to 12-65
	At least weekly (but not every day)		34	34			
	At least monthly (but not every week)		5	8			
	Less than monthly		2	3			
Netherlands	Daily	71	83	75	2006	Eurostat	'5-14' refers to 12-15
	At least weekly (but not every day)	25	14	19			
	At least monthly (but not every week)	4	3	4			
	Less than monthly	1	1	1			
New Zealand	Daily		58	58	2006	Statistics NZ	
	At least weekly (but not every day)		30	30			
	At least monthly (but not every week)		7	6			
	Less than monthly		6	5			

Economy	Frequency	Total 5-14	Total 15-24	Total	Year	Source	Notes
Norway	Daily		76	72	2006	Eurostat	
	At least weekly (but not every day)		22	22			
	At least monthly (but not every week)		2	5			
	Less than monthly		0	1			
Occ. Palestinian Territory	Daily	46	50	49	2006	Central Bur. of Statistics	'5-14' refers to 10-14; Total refers to 10+
	At least weekly (but not every day)	42	41	40			
	At least monthly (but not every week)	12	8	10			
	Less than monthly	0	0	0			
Poland	Daily		54	55	2006	Eurostat	
	At least weekly (but not every day)		33	31			
	At least monthly (but not every week)		12	12			
	Less than monthly		1	3			
Portugal	Daily	40	64	62	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	45	27	26			
	At least monthly (but not every week)	11	7	8			
	Less than monthly			3			
Republic of Korea	Daily	74	88	71	2007	NIDA	
	At least weekly (but not every day)	25	11	21			
	At least monthly (but not every week)	1	1	2			
	Less than monthly	1	1	5			
Romania	Daily		40	42	2006	Eurostat	
	At least weekly (but not every day)		49	46			
	At least monthly (but not every week)		10	11			
	Less than monthly		1	1			
Serbia	Daily		48	50	2007	Eurostat	
	At least weekly (but not every day)		40	37			
	At least monthly (but not every week)		6	8			
	Less than monthly		6	4			

Economy	Frequency	Total 5-14	Total 15-24	Total	Year	Source	Notes
Singapore	Daily	56	70	70	2006	IDA	'5-14' refers to 10-14; Total refers to 10+
	At least weekly (but not every day)	36	22	22			
	At least monthly (but not every week)	8	7	8			
	Less than monthly						
Slovakia	Daily	30	47	53	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	55	37	34			
	At least monthly (but not every week)	14	14	11			
	Less than monthly	1	2	2			
Slovenia	Daily	52	78	72	2006	Eurostat	'5-14' refers to 10-15
	At least weekly (but not every day)	35	17	20			
	At least monthly (but not every week)	13	6	7			
	Less than monthly	1	0	2			
Spain	Daily		52	51	2006	Eurostat	
	At least weekly (but not every day)		32	31			
	At least monthly (but not every week)		12	12			
	Less than monthly		4	5			
Sweden	Daily		79	71	2006	Eurostat	
	At least weekly (but not every day)		17	22			
	At least monthly (but not every week)		3	6			
	Less than monthly		1	2			
Thailand	Daily	11	16	23	2006	National Stat. Office	5-7 days per week
	At least weekly (but not every day)	70	65	60			1-4 days per week
	At least monthly (but not every week)	17	18	17			1-3 days per month
	Less than monthly	1	1	1			1-11 days per year plus unknown
TFYR Macedonia	Daily		40	44	2006	Eurostat	
	At least weekly (but not every day)		45	40			
	At least monthly (but not every week)		12	13			
	Less than monthly			3			
United Kingdom	Daily		60	59	2006	Eurostat	
	At least weekly (but not every day)		26	27			
	At least monthly (but not every week)		9	9			
	Less than monthly			4			

Source: ITU, Eurostat and national statistical sources; data were extracted from the Eurostat downloadable database (30 Nov 07 version).

Table 30. Location of individual access to the Internet in the last 12 months, percentage of Internet users in each age group

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Australia	Home	85	84	88	2006; 2007	ABS	
	Work		26	45			
	Place of education	75	62	22			school
	At another person's home	28	63	38			
	Community Internet access facility	9	21	14			access at libraries/public libraries
	Other places	2	23	19			
Austria	Home		79	77	2006	Eurostat	
	Work		27	48			
	Place of education		37	10			
	At another person's home		17	10			
	Other places		5	5			includes Internet access facilities
Belgium	Home		87	86	2006	Eurostat	
	Work		11	35			
	Place of education		34	10			
	At another person's home		18	9			
	Other places		8	5			includes Internet access facilities
Brazil	Home	41	43	50	2005	IBGE	'5-14' refers to 10-14; Total refers to 10+; last 3 months; access by computer
	Work		26	40			
	Place of education	51	37	26			
	At another person's home	39	38	31			
	Community Internet access facility	15	14	10			'5-14' refers to 10-14; Total refers to 10+; last 3 months; access by computer, using free public Internet centre
	Commercial Internet access facility	29	31	22			'5-14' refers to 10-14; Total refers to 10+; last 3 months; access by computer, paid

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Bulgaria	Home		50	56	2006	Eurostat	
	Work		10	42			
	Place of education		34	12			
	At another person's home		15	9			
	Other places		44	24			includes Internet access facilities
Cyprus	Home		67	70	2006	Eurostat	
	Work		15	51			
	Place of education		47	16			
	At another person's home		28	15			
	Other places		16	9			includes Internet access facilities
Czech Republic	Home	57	62	70	2006	Eurostat	'5-14' refers to 10-15
	Work		10	45			
	Place of education	77	67	20			
	At another person's home	30	34	16			
	Other places	8	15	8			'5-14' refers to 10-15; includes Internet access facilities
Denmark	Home		91	93	2006	Eurostat	in the last month
	Work		10	56			
	Place of education		76	17			
	At another person's home		23	9			
	Other places		13	11			in the last month; includes Internet access facilities
Estonia	Home		74	75	2006	Eurostat	
	Work		16	45			
	Place of education		53	19			
	At another person's home		35	17			
	Other places		9	6			includes Internet access facilities
Finland	Home	90	86	85	2006	Eurostat	'5-14' refers to 10-15
	Work		17	50			
	Place of education	74	68	23			
	At another person's home	58	71	37			
	Other places	4	29	20			'5-14' refers to 10-15; includes Internet access facilities

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
France	Home		70	74	2006	Eurostat	
	Work		11	39			
	Place of education		44	13			
	At another person's home		56	34			
	Other places		16	10			
Germany	Home	90	88	87	2006	Eurostat	'5-14' refers to 10-15
	Work		22	39			
	Place of education	46	43	12			
	At another person's home	23	38	20			
	Other places	5	9	9			'5-14' refers to 10-15; includes Internet access facilities
Greece	Home	39	61	62	2006	Eurostat	'5-14' refers to 12-15
	Work		8	42			
	Place of education	72	44	14			
	At another person's home	17	18	11			
	Other places	24	28	15			'5-14' refers to 12-15; includes Internet access facilities
Hong Kong (China)	Home	94	95	91	2006	Census and Stats Dept	'5-14' refers to 10-14; Total refers to 10+; at least once a week
	Work		17	42			
	Place of education	54	30	14			
	Community Internet access facility	5	3	2			'5-14' refers to 10-14; Total refers to 10+; public computer access facilities provided by government; at least once a week
	Commercial Internet access facility	1	3	1			'5-14' refers to 10-14; Total refers to 10+; cyber cafes; at least once a week
	Other places	4	6	4			'5-14' refers to 10-14; Total refers to 10+; at least once a week
Hungary	Home	22	52	64	2006	Eurostat	'5-14' refers to 10-15
	Work		6	42			
	Place of education	90	73	26			
	At another person's home	29	31	21			
	Other places	20	24	15			'5-14' refers to 10-15; includes Internet access facilities

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Iceland	Home		90	90	2006	Eurostat	
	Work		24	56			
	Place of education		60	22			
	At another person's home		50	25			
	Other places		24	17			includes Internet access facilities
Ireland	Home		58	70	2006	Eurostat	
	Work		22	45			
	Place of education		45	14			
	At another person's home		8	5			
	Other places		10	7			includes Internet access facilities
Italy	Home	78	79	73	2006	Eurostat	'5-14' refers to 6-15
	Work		9	46			
	Place of education	42	44	13			
	At another person's home	30	39	19			
	Other places	10	15	13			'5-14' refers to 6-15; includes Internet access facilities
Japan	Home	80	88	83	2006	MIC	'15-24' refers to 15-29; access from PCs
	Work		23	34			
	Place of education	46	29	12			
	Community Internet access facility	4	4	4			
	Commercial Internet access facility	1	9	5			'15-24' refers to 15-29; access from PCs; Internet café
Latvia	Home		57	62	2006	Eurostat	
	Work		20	43			
	Place of education		49	18			
	At another person's home		26	17			
	Other places		29	18			includes Internet access facilities
Lithuania	Home	61	71	70	2006	Eurostat	'5-14' refers to 12-15
	Work		14	41			
	Place of education	73	68	27			
	At another person's home	41	42	24			
	Other places	18	29	16			'5-14' refers to 12-15; includes Internet access facilities

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Luxembourg	Home		89	92	2006	Eurostat	
	Work		13	45			
	Place of education		49	11			
	At another person's home		22	8			
	Other places		6	3			includes Internet access facilities
Macao (China)	Home	90	91	86	2006	Stats and Census Serv.	last 3 months; Total refers to 3+
	Work		11	26			
	Place of education	22	18	12			
	Other places	8	10	8			
Malaysia	Home	2	19	10	2006	MCMA	no lower age restriction but respondents must be able to answer questions; previous month
Mauritius	Home	62	66	73	2006	Central Statistics Office	'5-14' refers to 12-14; Total refers to 12+
	Work		12	28			
	Place of education	58	41	23			
	At another person's home	2	3	2			
	Community Internet access facility	3	3	2			'5-14' refers to 12-14; Total refers to 12+; free public access facility
	Commercial Internet access facility	8	15	9			5-14' refers to 12-14; Total refers to 12+; cybercafe
	Other places	0	0	0			5-14' refers to 12-14; Total refers to 12+
Mexico	Home	26	29	34	2006	UNECLAC	
	Work		9	24			
	Place of education	22	24	16			
	At another person's home	4	3	2			
	Community Internet access facility	1	1	1			centre of public access without cost
	Commercial Internet access facility	57	53	42			centre of public access with cost
Morocco	Home	13	26	28	2006		Total refers to 12-65
	Work			7			
	Place of education			3			
	At another person's home			3			
	Community Internet access facility			1			
	Commercial Internet access facility	86	70	71			

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Netherlands	Home	96	94	95	2006	Eurostat	'5-14' refers to 12-15
	Work		28	48			
	Place of education	62	52	11			
	At another person's home	37	31	11			
	Other places	2	4	3			'5-14' refers to 12-15; includes Internet access facilities
New Zealand	Home		82	88	2006	Statistics NZ	
	Work		21	36			
	Place of education		44	16			
	At another person's home		43	24			
	Community Internet access facility		16	9			
	Commercial Internet access facility		15	11			
	Other places			0			
Norway	Home		93	90	2006	Eurostat	
	Work		27	58			
	Place of education		55	15			
	At another person's home		34	16			
	Other places		14	13			includes Internet access facilities
Paraguay	Home	17	13	19	2005	UNECLAC	'5-14' refers to 10-14; Total refers to 10+; three main locations only
	Work		13	31			
	Place of education	40	33	20			
	At another person's home	3	5	4			
	Commercial Internet access facility	47	50	38			
	Other places	2	1	1			
Poland	Home		58	66	2006	Eurostat	
	Work		8	33			
	Place of education		59	25			
	At another person's home		40	25			
	Other places		25	14			includes Internet access facilities

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Portugal	Home	48	62	65	2006	Eurostat	'5-14' refers to 10-15
	Work		10	46			
	Place of education	81	61	22			
	At another person's home	36	47	28			
	Other places	22	26	15			'5-14' refers to 10-15; includes Internet access facilities
Republic of Korea	Home	98	98	95	2007	NIDA	
	Work		10	32			
	Place of education	34	53	17			
	At another person's home	14	12	7			
	Community Internet access facility	2	7	4			
	Commercial Internet access facility	21	48	21			
	Other places	3	32	17			includes any location via mobile phone access
Romania	Home		41	53	2006	Eurostat	
	Work		8	35			
	Place of education		47	20			
	At another person's home		18	12			
	Other places		17	12			includes Internet access facilities
Serbia	Home		71	76	2007	Eurostat	
	Work		10	32			
	Place of education		30	13			
	At another person's home		30	18			
	Other places		8	6			includes Internet access facilities
Singapore	Home	87	88	82	2006	IDA	5-14' refers to 10-14; Total refers to 10+
	Work		28	50			
	Place of education	75	52	25			
	At another person's home	14	20	13			
	Community Internet access facility	12		6			
	Commercial Internet access facility	2		5			

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
Slovakia	Home	42	44	48	2006	Eurostat	'5-14' refers to 10-15
	Work		16	52			
	Place of education	82	63	23			
	At another person's home	23	30	18			
	Other places	16	24	15			'5-14' refers to 10-15; includes Internet access facilities
Slovenia	Home	84	90	80	2006	Eurostat	'5-14' refers to 10-15
	Work		26	56			
	Place of education	77	60	19			
	At another person's home	55	47	27			
	Other places	29	37	18			'5-14' refers to 10-15; includes Internet access facilities
Spain	Home		69	68	2006	Eurostat	
	Work		16	46			
	Place of education		41	15			
	At another person's home		47	29			
	Other places		31	21			includes Internet access facilities
Sweden	Home		88	89	2006	Eurostat	
	Work		11	45			
	Place of education		55	14			
	At another person's home		21	9			
	Other places		7	6			includes Internet access facilities
TFYR Macedonia	Home		20	32	2006	Eurostat	
	Work			17			
	Place of education		35	19			
	At another person's home		9	9			
	Other places		72	54			includes Internet access facilities
Thailand	Home	29	21	33	2006	National Stat. Office	
	Work		7	28			
	Place of education	75	70	46			response category described as 'institution'
	Commercial Internet access facility	13	29	17			response category described as 'Internet shop'
	Other places	2	2	2			

Economy	Location of use	Total 5-14	Total 15-24	Total	Year	Source	Notes
United Kingdom	Home		79	85	2006	Eurostat	
	Work		25	46			
	Place of education		46	15			
	At another person's home		49	29			
	Other places		26	21			includes Internet access facilities
United States	Home	74	77	80	2003	Bureau of the Census	'5-14' refers to 6-14; Total refers to 3+
	Work			36			'15-24' refers to 18-24; Total refers to 18+
	Place of education	72	56	23			'5-14' refers to 6-14; Total refers to 3+

Source: ITU, Eurostat and national statistical sources; data were extracted from the Eurostat downloadable database (30 Nov 07 version).

Table 31. Internet activities in the last 12 months, percentage of Internet users in each age group

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Australia	Communicating	48			2006; 2007	ABS	emailing or messaging; use from home; % of home users
	Purchasing or ordering goods or services		52	60			any location
	Education or learning activities	82	74	52			education or study purposes (school or educational activity for those aged 5-14); use from home; % of home users
	Playing/downloading video or computer games	51					playing on-line or Internet-based games; use from home; % of home users
Austria	Getting information about goods or services		74	78	2006	Eurostat	
	Communicating		90	88			
	Purchasing or ordering goods or services		37	38			
	Education or learning activities		41	17			formalized educational activities
	Playing/downloading video or computer games		45	25			playing/downloading games and music
Belgium	Getting information about goods or services		76	82	2006	Eurostat	
	Communicating		94	90			
	Purchasing or ordering goods or services		17	22			
	Education or learning activities		46	19			formalized educational activities
	Playing/downloading video or computer games		59	32			playing/downloading games and music
Bermuda	Getting information about goods or services		72	71	2003	Dept. of Statistics	Total refers to 16-65
	Communicating		88	92			
	Education or learning activities		39	24			
Brazil	Communicating	59	74	69	2005	IBGE	'5-14' refers to 10-14; Total refers to 10+; last 3 months
	Purchasing or ordering goods or services	1	9	14			
	Education or learning activities	90	79	72			
Bulgaria	Getting information about goods or services		43	55	2006	Eurostat	
	Communicating		97	96			
	Purchasing or ordering goods or services		5	6			
	Education or learning activities		37	18			formalized educational activities
	Playing/downloading video or computer games		70	48			playing/downloading games and music

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Cyprus	Getting information about goods or services		72	79	2006	Eurostat	
	Communicating		71	76			
	Purchasing or ordering goods or services		8	15			
	Education or learning activities		47	34			formalized educational activities
	Playing/downloading video or computer games		70	51			playing/downloading games and music
Czech Republic	Getting information about goods or services	23	59	72	2006	Eurostat	'5-14' refers to 10-15
	Communicating	74	89	86			
	Purchasing or ordering goods or services	3	13	16			
	Education or learning activities		50	18			formalized educational activities
	Playing/downloading video or computer games	69	57	28			'5-14' refers to 10-15; playing/downloading games and music
Denmark	Getting information about goods or services		80	82	2006	Eurostat	in the last month
	Communicating		93	91			
	Purchasing or ordering goods or services		43	37			
	Education or learning activities		45	17			in the last month; formalized educational activities
	Playing/downloading video or computer games		61	32			in the last month; playing/downloading games and music
Estonia	Getting information about goods or services		69	72	2006	Eurostat	
	Communicating		95	85			
	Purchasing or ordering goods or services		7	7			
	Education or learning activities		20	9			formalized educational activities
	Playing/downloading video or computer games		71	46			playing/downloading games and music
Finland	Getting information about goods or services	49	85	87	2006	Eurostat	'5-14' refers to 10-15
	Communicating	83	96	88			
	Purchasing or ordering goods or services	14	38	37			
	Education or learning activities		75	31			formalized educational activities
	Playing/downloading video or computer games	56	75	43			'5-14' refers to 10-15; playing/downloading games and music
France	Getting information about goods or services		70	77	2006	Eurostat	
	Communicating		81	77			
	Purchasing or ordering goods or services		29	40			
	Playing/downloading video or computer games		34	20			playing/downloading games and music

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Germany	Getting information about goods or services	47	81	86	2006	Eurostat	'5-14' refers to 10-15
	Communicating	78	94	90			
	Purchasing or ordering goods or services	21	52	55			
	Education or learning activities	67	56	18			'5-14' refers to 10-15; formalized educational activities
	Playing/downloading video or computer games	48	53	26			'5-14' refers to 10-15; playing/downloading games and music
Greece	Getting information about goods or services	54	71	79	2006	Eurostat	'5-14' refers to 12-15
	Communicating		62	62			
	Purchasing or ordering goods or services		9	11			
	Education or learning activities	29	41	26			'5-14' refers to 12-15; formalized educational activities
	Playing/downloading video or computer games	78	60	39			'5-14' refers to 12-15; playing/downloading games and music
Hong Kong (China)	Getting information about goods or services	6	18	15	2006	Census and Stats Dept	'5-14' refers to 10-14; Total refers to 10+; obtain information for price check
	Communicating	83	94	85			'5-14' refers to 10-14; Total refers to 10+
	Purchasing or ordering goods or services	2	25	30			5-14' refers to 10-14; Total refers to 10+; using e-business services on line
	Education or learning activities	12	23	17			'5-14' refers to 10-14; Total refers to 10+
	Playing/downloading video or computer games	59	42	25			
Hungary	Getting information about goods or services	33	70	77	2006	Eurostat	'5-14' refers to 10-15
	Communicating	77	90	88			
	Purchasing or ordering goods or services	2	7	11			
	Education or learning activities	16	39	23			'5-14' refers to 10-15; formalized educational activities
	Playing/downloading video or computer games	70	73	50			'5-14' refers to 10-15; playing/downloading games and music
Iceland	Getting information about goods or services		82	86	2006	Eurostat	
	Communicating		96	93			
	Purchasing or ordering goods or services		31	36			
	Education or learning activities		15	10			formalized educational activities
	Playing/downloading video or computer games		68	38			playing/downloading games and music

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Ireland	Getting information about goods or services		76	83	2006	Eurostat	
	Communicating		88	88			
	Purchasing or ordering goods or services		32	42			
	Education or learning activities		31	18			formalized educational activities
	Playing/downloading video or computer games		38	22			playing/downloading games and music
Italy	Getting information about goods or services	23	55	64	2006	Eurostat	'5-14' refers to 6-15
	Communicating	47	79	82			
	Purchasing or ordering goods or services	4	13	15			
	Education or learning activities	18	38	19			'5-14' refers to 6-15; formalized educational activities
	Playing/downloading video or computer games	62	54	29			'5-14' refers to 6-15; playing/downloading games and music
Japan	Getting information about goods or services	60	69	67	2006	MIC	'15-24' refers to 15-29; access from PCs or mobile phones
	Communicating	38	74	69			
	Purchasing or ordering goods or services	5	45	41			
Latvia	Getting information about goods or services		67	72	2006	Eurostat	
	Communicating		95	86			
	Purchasing or ordering goods or services		11	10			
	Education or learning activities		34	16			formalized educational activities
	Playing/downloading video or computer games		68	47			playing/downloading games and music
Lithuania	Getting information about goods or services		64	70	2006	Eurostat	
	Communicating		87	81			
	Purchasing or ordering goods or services		5	6			
	Education or learning activities		65	34			formalized educational activities
	Playing/downloading video or computer games		79	58			playing/downloading games and music
Luxembourg	Getting information about goods or services		85	90	2006	Eurostat	
	Communicating		98	93			
	Purchasing or ordering goods or services		36	50			
	Education or learning activities		40	17			formalized educational activities
	Playing/downloading video or computer games		61	37			playing/downloading games and music

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Macao (China)	Communicating	26	56	52	2006	Stats and Census Serv.	Total refers to 3+; last 3 months; sending/receiving e-mail
Mauritius	Communicating	44	65	68	2006	Central Statistics Office	'5-14' refers to 12-14; Total refers to 12+; use from home; % of home users; includes email/chat, Internet telephone
	Purchasing or ordering goods or services	0	1	3			'5-14' refers to 12-14; Total refers to 12+; % of all users
	Education or learning activities	11	15	9			'5-14' refers to 12-14; Total refers to 12+; use from home; % of home users
Netherlands	Getting information about goods or services	69	89	90	2006	Eurostat	'5-14' refers to 12-15
	Communicating	94	97	94			
	Purchasing or ordering goods or services	17	39	45			
	Education or learning activities	70	66	21			'5-14' refers to 12-15; formalized educational activities
	Playing/downloading video or computer games	92	78	51			'5-14' refers to 12-15; playing/downloading games and music
New Zealand	Getting information about goods or services		55	65	2006	Statistics NZ	
	Communicating		89	91			
	Purchasing or ordering goods or services		31	41			
	Education or learning activities		45	54			
	Playing/downloading video or computer games		35	17			
Norway	Getting information about goods or services		94	91	2006	Eurostat	
	Communicating		95	90			
	Purchasing or ordering goods or services		60	58			
	Education or learning activities		12	6			formalized educational activities
	Playing/downloading video or computer games		75	45			playing/downloading games and music

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Paraguay	Communicating	23	44	49	2005	UNECLAC	'5-14' refers to 10-14; Total refers to 10+
	Purchasing or ordering goods or services	0	1	2			'5-14' refers to 10-14; Total refers to 10+; purchases, hiring or orders
	Education or learning activities	58	43	30			'5-14' refers to 10-14; Total refers to 10+; formal education and qualification
Poland	Getting information about goods or services		52	61	2006	Eurostat	
	Communicating		89	84			
	Purchasing or ordering goods or services		21	22			
	Education or learning activities		19	9			formalized educational activities
	Playing/downloading video or computer games		59	40			playing/downloading games and music
Portugal	Getting information about goods or services	95	79	84	2006	Eurostat	'5-14' refers to 10-15
	Communicating		89	83			
	Purchasing or ordering goods or services		8	13			
	Education or learning activities		37	18			formalized educational activities
	Playing/downloading video or computer games	72	68	46			'5-14' refers to 10-15; playing/downloading games and music
Republic of Korea	Getting information about goods or services	14	72	52	2007	NIDA	ages 6 and over
	Communicating	67	97	81			
	Purchasing or ordering goods or services	15	76	49			includes making reservations
	Education or learning activities	21	23	8			
	Playing/downloading video or computer games	86	80	60			
Romania	Getting information about goods or services		33	48	2006	Eurostat	
	Communicating		85	85			
	Purchasing or ordering goods or services		3	4			
	Education or learning activities		23	11			formalized educational activities
	Playing/downloading video or computer games		68	52			playing/downloading games and music
Serbia	Getting information about goods or services		58	65	2007	Eurostat	
	Communicating		73	80			
	Purchasing or ordering goods or services		5	4			
	Playing/downloading video or computer games		73	51			playing/downloading games and music

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
Singapore	Communicating	78	88	84	2006	IDA	'5-14' refers to 10-14; Total refers to 15+
	Purchasing or ordering goods or services		19	27			
	Education or learning activities	52	51	30			
Slovakia	Getting information about goods or services	26	54	68	2006	Eurostat	'5-14' refers to 10-15
	Communicating	74	91	89			
	Purchasing or ordering goods or services	6	8	14			
	Education or learning activities	9	17	10			'5-14' refers to 10-15; formalized educational activities
	Playing/downloading video or computer games	77	57	37			'5-14' refers to 10-15; playing/downloading games and music
Slovenia	Getting information about goods or services	56	81	82	2006	Eurostat	'5-14' refers to 10-15
	Communicating	74	92	83			
	Purchasing or ordering goods or services	5	15	16			
	Education or learning activities	79	78	32			'5-14' refers to 10-15; formalized educational activities
	Playing/downloading video or computer games	76	68	41			'5-14' refers to 10-15; playing/downloading games and music
Spain	Getting information about goods or services		76	79	2006	Eurostat	
	Communicating		89	82			
	Purchasing or ordering goods or services		16	21			
	Education or learning activities		14	9			formalized educational activities
	Playing/downloading video or computer games		74	48			playing/downloading games and music
Sweden	Getting information about goods or services		84	86	2006	Eurostat	
	Communicating		95	87			
	Purchasing or ordering goods or services		47	46			
	Education or learning activities		14	6			formalized educational activities
	Playing/downloading video or computer games		75	39			playing/downloading games and music
Thailand	Communicating	6	15	19	2006	National Stat. Office	by email
	Purchasing or ordering goods or services	1	2	3			
	Education or learning activities	5	5	4			e-learning
	Playing/downloading video or computer games	40	25	21			games

Economy	Activity	Total 5-14	Total 15-24	Total	Year	Source	Notes
TFYR Macedonia	Getting information about goods or services		36	43	2006	Eurostat	
	Communicating		86	83			
	Education or learning activities		29	22			formalized educational activities
	Playing/downloading video or computer games		63	51			playing/downloading games and music
United Kingdom	Getting information about goods or services		79	84	2006	Eurostat	
	Communicating		83	82			
	Purchasing or ordering goods or services		50	58			
	Education or learning activities		51	27			formalized educational activities
	Playing/downloading video or computer games		66	37			playing/downloading games and music
United States	Getting information about goods or services	28	66	69	2003	Bureau of the Census	'5-14' refers to 6-14; Total refers to 3+
	Communicating	53	85	82			'5-14' refers to 6-14; Total refers to 3+; those using Internet for e-mail
	Purchasing or ordering goods or services	8	38	45			'5-14' refers to 6-14; Total refers to 3+
	Education or learning activities	75	64	25			'5-14' refers to 6-14; Total refers to 3+; those using Internet for school assignments
	Playing/downloading video or computer games	66	57	42			'5-14' refers to 6-14; Total refers to 3+

Source: ITU, Eurostat and national statistical sources; data were extracted from the Eurostat downloadable database (30 Nov 07 version).

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