



5.11 The information age

	Daily newspapers	Radios	Television ^a		Mobile phones ^a	Fax machines ^a	Personal computers ^a	Internet hosts ^b
	per 1,000 people 1996	per 1,000 people 1997	Sets per 1,000 people 1998	Cable subscribers per 1,000 people 1998	per 1,000 people 1998	per 1,000 people 1998	per 1,000 people 1998	per 10,000 people July 1999
Albania	36	217	109	0.0	1	3.6	..	0.24
Algeria	38	241	105	0.0	1	0.2	4.2	0.01
Angola	11	54	14	..	1	..	0.8	0.00
Argentina	123	681	289	163.1	78	2.0	44.3	27.85
Armenia	23	224	218	0.4	2	0.1	4.2	1.85
Australia	293	1,376	639	43.6	286	48.6	411.6	477.85
Austria	296	753	516	139.1	282	..	233.4	252.01
Azerbaijan	27	23	254	0.1	8	..	..	0.23
Bangladesh	9	50	6	..	1	..	..	0.00
Belarus	174	296	314	..	1	1.9	..	0.77
Belgium	160	793	510	367.3	173	18.7	286.0	266.90
Benin	2	108	10	..	1	0.2	0.9	0.04
Bolivia	55	675	116	..	27	..	7.5	0.47
Bosnia and Herzegovina	152	248	41	..	7	..	..	1.38
Botswana	27	156	20	..	15	2.3	25.5	6.00
Brazil	40	444	316	16.3	47	3.1	30.1	18.45
Bulgaria	257	543	398	28.8	15	..	..	11.89
Burkina Faso	1	33	9	..	0	..	0.7	0.19
Burundi	3	71	4	..	0	0.7	..	0.00
Cambodia	2	127	123	..	6	0.3	0.9	0.12
Cameroon	7	163	32	..	0	..	..	0.00
Canada	159	1,077	715	263.8	176	33.3	330.0	422.97
Central African Republic	2	83	5	..	0	0.1	..	0.00
Chad	0	242	1	0.0	0	0.0	..	0.00
Chile	98	354	232	44.8	65	2.7	48.2	21.45
China	..	333	272	40.0	19	1.6	8.9	0.50
Hong Kong, China	792	684	431	61.8	475	54.3	254.2	142.77
Colombia	46	581	217	16.7	49	4.8	27.9	7.51
Congo, Dem. Rep.	3	375	135	..	0	..	..	0.00
Congo, Rep.	8	124	12	..	1	..	..	0.00
Costa Rica	94	271	387	13.8	28	2.3	39.1	10.41
Côte d'Ivoire	17	164	70	0.0	6	..	3.6	0.25
Croatia	115	336	272	..	41	11.2	111.6	25.94
Cuba	118	353	239	0.0	0	..	..	0.06
Czech Republic	254	803	447	77.1	94	10.4	97.3	85.58
Denmark	309	1,141	585	248.4	364	..	377.4	540.30
Dominican Republic	52	178	95	15.5	31	0.3	..	7.63
Ecuador	70	419	293	11.7	25	..	18.5	1.42
Egypt, Arab Rep.	40	324	122	..	1	0.5	9.1	0.28
El Salvador	48	464	675	..	18	..	..	1.17
Eritrea	..	91	14	..	0	0.4	..	0.01
Estonia	174	693	480	15.1	170	..	34.4	174.65
Ethiopia	1	195	5	..	0	0.0	..	0.01
Finland	455	1,496	640	175.7	572	38.5	349.2	1,116.78
France	218	937	601	27.5	188	47.4	207.8	110.64
Gabon	29	183	55	..	8	0.4	8.6	0.02
Gambia, The	2	168	3	..	4	1.0	2.6	0.02
Georgia	..	555	473	2.8	11	..	..	1.59
Germany	311	948	580	214.5	170	73.1	304.7	173.96
Ghana	14	238	99	..	1	..	1.6	0.06
Greece	153	477	466	1.2	194	3.8	51.9	59.57
Guatemala	33	79	126	28.5	10	..	8.3	1.26
Guinea	..	47	41	0.0	3	0.4	2.6	0.00
Guinea-Bissau	5	44	0	0.4	..	0.13
Haiti	3	55	5	..	0	0.00
Honduras	55	386	90	..	5	..	7.6	0.19



The information age 5.11

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Hungary	186	689	437	146.5	105	17.7	58.9	93.13
India	..	121	69	18.8	1	0.2	2.7	0.18
Indonesia	24	156	136	..	5	0.9	8.2	0.76
Iran, Islamic Rep.	28	265	157	0.0	6	..	31.9	0.05
Iraq	19	229	83	..	0	..	..	0.00
Ireland	150	699	403	171.1	257	27.4	271.7	156.68
Israel	290	520	318	184.0	359	24.9	217.2	187.41
Italy	104	878	486	2.8	355	31.3	173.4	68.28
Jamaica	62	480	182	73.1	22	..	39.4	1.04
Japan	578	955	707	114.8	374	126.8	237.2	163.75
Jordan	58	287	52	0.1	12	8.6	8.7	1.17
Kazakhstan	..	384	231	..	2	0.1	..	1.42
Kenya	9	104	21	..	0	..	2.5	0.19
Korea, Dem. Rep.	199	147	53	..	0	..	..	..
Korea, Rep.	393	1,033	346	138.3	302	..	156.8	55.53
Kuwait	374	660	491	..	138	27.6	104.9	23.76
Kyrgyz Republic	15	112	45	..	0	..	..	4.13
Lao PDR	4	143	4	..	1	..	1.1	0.00
Latvia	247	710	492	58.0	68	..	..	50.86
Lebanon	107	906	352	1.4	157	..	39.2	7.02
Lesotho	8	49	25	..	5	..	..	0.08
Libya	14	233	126	0.0	3	..	..	0.00
Lithuania	93	513	459	67.5	72	1.7	54.0	30.45
Macedonia, FYR	21	200	250	..	15	1.5	..	4.40
Madagascar	5	192	21	..	1	..	1.3	0.12
Malawi	3	249	2	..	1	0.1	..	0.00
Malaysia	158	420	166	5.2	99	6.9	58.6	23.53
Mali	1	54	12	0.0	0	..	0.7	0.01
Mauritania	0	151	91	..	0	1.7	5.5	0.00
Mauritius	75	368	226	..	53	24.5	87.1	4.56
Mexico	97	325	261	15.7	35	3.0	47.0	23.02
Moldova	60	740	297	17.6	2	0.2	6.4	2.42
Mongolia	27	151	63	10.8	1	2.7	5.4	0.04
Morocco	26	241	160	..	4	0.7	2.5	0.28
Mozambique	3	40	5	..	0	..	1.6	0.09
Myanmar	10	95	7	..	0	0.1	..	0.00
Namibia	19	144	37	..	12	..	18.6	11.73
Nepal	11	38	6	0.2	0	..	..	0.07
Netherlands	306	978	543	378.3	213	38.4	317.6	403.49
New Zealand	216	990	508	1.3	203	..	282.1	476.18
Nicaragua	30	285	190	40.2	4	..	7.8	2.21
Niger	0	69	27	..	0	..	0.2	0.03
Nigeria	24	223	66	..	0	..	5.7	0.00
Norway	588	915	579	160.1	474	50.0	373.4	754.15
Oman	29	598	595	0.0	43	2.7	21.0	2.87
Pakistan	23	98	88	0.1	1	1.9	3.9	0.22
Panama	62	299	187	..	29	..	27.1	2.97
Papua New Guinea	15	97	24	..	1	..	..	0.49
Paraguay	43	182	101	..	41	..	9.6	2.43
Peru	84	273	144	14.1	30	..	18.1	3.09
Philippines	79	159	108	8.2	22	..	15.1	1.29
Poland	113	523	413	83.3	50	..	43.9	40.86
Portugal	75	304	542	59.8	309	7.0	81.3	59.40
Puerto Rico	126	753	271	..	152	..	..	3.01
Romania	300	319	233	119.2	29	..	10.2	9.01
Russian Federation	105	418	420	78.5	5	0.4	40.6	13.06



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Rwanda	0	102	0	..	1	0.1	..	0.00
Saudi Arabia	57	321	262	..	31	..	49.6	1.17
Senegal	5	142	41	..	2	..	11.4	0.28
Sierra Leone	4	253	13	0.0	0	0.5	..	0.14
Singapore	360	822	348	49.5	346	31.6	458.4	322.30
Slovak Republic	185	580	402	105.1	87	10.0	65.1	38.79
Slovenia	199	406	356	150.5	84	9.8	250.9	99.34
South Africa	32	317	125	..	56	3.5	47.4	33.36
Spain	100	333	506	11.8	179	17.8	144.8	76.75
Sri Lanka	29	209	92	0.0	9	..	4.1	0.52
Sudan	27	271	87	0.0	0	0.6	1.9	0.00
Sweden	445	932	531	221.4	464	50.9	361.4	581.47
Switzerland	337	1,000	535	352.7	235	29.2	421.8	371.37
Syrian Arab Republic	20	278	70	..	0	1.4	1.7	0.00
Tajikistan	20	142	285	..	0	0.3	..	0.24
Tanzania	4	279	21	0.0	1	..	1.6	0.05
Thailand	63	232	236	10.1	32	2.5	21.6	4.49
Togo	4	218	18	..	2	4.1	6.8	0.17
Trinidad and Tobago	123	534	334	..	20	3.9	46.8	28.20
Tunisia	31	223	198	..	4	3.4	14.7	0.06
Turkey	111	180	286	9.2	53	1.7	23.2	8.06
Turkmenistan	..	276	201	..	1	..	..	0.56
Uganda	2	128	27	..	1	0.1	1.5	0.06
Ukraine	54	884	490	15.7	2	0.0	13.8	4.56
United Arab Emirates	156	345	294	..	210	21.0	106.2	39.44
United Kingdom	329	1,436	645	45.9	252	33.9	263.0	270.60
United States	215	2,146	847	244.3	256	78.4	458.6	1,508.77
Uruguay	293	607	241	..	60	..	91.2	38.34
Uzbekistan	3	465	275	..	1	..	..	0.05
Venezuela, RB	206	468	185	25.8	87	3.0	43.0	3.98
Vietnam	4	107	47	..	2	0.3	6.4	0.00
West Bank and Gaza	..	..	..	..	..	..	..	..
Yemen, Rep.	15	64	29	..	1	..	1.2	0.02
Yugoslavia, FR (Serb./Mont.)	107	297	259	..	23	1.9	18.8	7.65
Zambia	12	121	137	..	1	0.1	..	0.48
Zimbabwe	19	93	30	..	4	..	9.0	1.19
World	.. w	418 w	247 w	55.8 w	55 w	12.7 w	70.6 w	94.47 w
Low income	..	206	138	27.7	8	0.9	6.2	0.31
Excl. China & India	13	148	60	..	2	..	..	0.22
Middle income	74	401	255	36.3	39	1.9	37.4	13.40
Lower middle income	59	354	227	..	15	..	24.9	5.89
Upper middle income	96	471	297	44.8	75	3.5	50.3	24.65
Low & middle income	..	263	172	29.5	17	1.3	15.6	4.16
East Asia & Pacific	..	302	228	39.7	25	1.6	14.1	2.39
Europe & Central Asia	102	442	353	60.5	23	1.6	34.6	15.47
Latin America & Carib.	71	420	255	28.3	45	3.1	34.0	14.78
Middle East & N. Africa	33	274	135	..	8	..	9.9	0.37
South Asia	..	112	61	16.3	1	0.3	2.9	0.17
Sub-Saharan Africa	12	198	52	..	5	..	7.5	2.32
High income	286	1,286	662	184.0	265	72.3	311.2	607.55
Europe EMU	209	824	541	110.3	230	47.9	228.9	157.53

a. Data are from the International Telecommunication Union's (ITU) *World Telecommunication Development Report 1999*. Please cite the ITU for third-party use of these data. b. Data are from the Internet Software Consortium (<http://www.isc.org>).



The information age 5.11

About the data

The table includes indicators that measure the penetration of the information economy—newspapers, radios, television sets, mobile phones, fax machines, personal computers, and Internet hosts. Other important indicators of information and communications technology—such as the use of teleconferencing or the use of the Internet in organizing conferences, distance education, and commercial transactions—are not collected systematically and so are not reported here. All these indicators fail to capture important elements of the information disseminated, such as its quality.

The data on the number of daily newspapers in circulation and radio receivers in use are from statistical surveys carried out by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). In some countries definitions, classifications, and methods of enumeration do not entirely conform to UNESCO standards. For example, newspaper circulation data should refer to the number of copies distributed, but in some cases the figures reported are the number of copies printed. In addition, many countries impose radio and television license fees to help pay for public broadcasting, discouraging radio and television owners from declaring ownership. Because of these and other data collection problems, estimates of the number of newspapers and radios vary widely in reliability and should be interpreted with caution.

The data presented for other electronic communications and information technology are from the International Telecommunication Union (ITU) and the Internet Software Consortium (formerly Network Wizards). Data on television sets and cable television subscribers are supplied to the ITU through annual questionnaires sent to national broadcasting authorities and industry associations. Some countries require that television sets be registered. To the extent that households do not register their televisions or do not register all of their televisions, the number of licensed sets may understate the true number.

Because of different regulatory requirements for the provision of data, complete measurement of the telecommunications sector is not possible. Telecommunications data are compiled through annual questionnaires sent to telecommunications authorities and operating companies. The data are supplemented by annual reports and statistical yearbooks of telecommunications ministries, regulators, operators, and industry associations. In some cases estimates are derived from ITU documents or other references.

The data on fax machines exclude fax modems attached to computers. Some operators report only

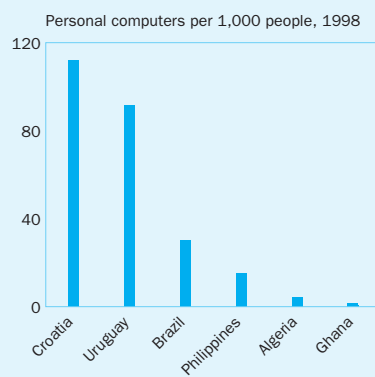
the equipment they sell, lease, or register, so the actual number is almost certainly much higher.

The estimates of the number of personal computers are derived from an annual questionnaire, supplemented by other sources. In many countries mainframe computers are used extensively, and thousands of users can be connected to a single mainframe computer; thus the number of personal computers understates the total use of computers.

Internet hosts are computers connected directly to the worldwide network, each allowing many computer users to access the Internet. Hosts are assigned to countries on the basis of the host's country code, though this does not necessarily indicate that the host is physically located in that country. All hosts lacking a country code identification are assigned to the United States. The Internet Software Consortium changed the methods used in its Internet domain survey beginning in July 1998. The new survey is believed to be more reliable and to avoid the undercounting that occurs when organizations restrict download access to their domain data. Nevertheless, some measurement problems remain, so the number of Internet hosts shown for each country should be considered an approximation.

Figure 5.11

The information technology revolution has not reached all shores



Source: Table 5.11 based on International Telecommunication Union data.

Developing economies have about 16 personal computers per 1,000 people on average. In some, access to computers is similar to that in high-income economies. But in many, access remains extremely limited.

Definitions

- **Daily newspapers** are the number of newspapers published at least four times a week, per 1,000 people.
- **Radios** are the estimated number of radio receivers in use for broadcasts to the general public, per 1,000 people.
- **Television sets** are the estimated number of television sets in use, per 1,000 people.
- **Cable television subscribers** are households that subscribe to a multichannel television service delivered by a fixed line connection. Some countries also report subscribers to pay television using wireless technology or those cabled to community antenna systems.
- **Mobile phones** refer to users of portable telephones subscribing to an automatic public mobile telephone service using cellular technology that provides access to the public switched telephone network, per 1,000 people.
- **Fax machines** are the estimated number of facsimile machines connected to the public switched telephone network, per 1,000 people.
- **Personal computers** are the estimated number of self-contained computers designed to be used by a single individual, per 1,000 people.
- **Internet hosts** are the number of computers with active Internet Protocol (IP) addresses connected to the Internet, per 10,000 people. All hosts without a country code identification are assumed to be located in the United States.

Data sources

The data on newspapers and radios are compiled by UNESCO, mainly from official replies by member states to UNESCO questionnaires and special surveys, but also from official reports and publications, supplemented by information from national and international sources. The data on television sets, cable television subscribers, mobile phones, fax machines, and personal computers are from the annual questionnaire sent to member countries by the ITU. These data are reported in the ITU's *World Telecommunication Development Report 1999* and Telecommunications Indicators database. The data on radios are also reported in these sources. The text also draws on ITU sources. The data on Internet hosts are from the Internet Software Consortium (<http://www.isc.org>).