The ruses of inequity: from the digital to the cognitive gap

References

CURRENT SITUATION (latest available data)
- Better situation
- Above average
- Below average
- Worse situation
- Insufficient data

EVOLUTION (since 1990 or closest available year)
- → Significant progress
- → Slight progress
- = Stagnant
- ← Regression
- ← Major regression

Complete table at: **www.socialwatch.org/statistics2008**

Summary: CURRENT SITUATION (colour) EVOLUTION (arrow-icon)	COUNTRIES (BCI value, 0-100)	INTERNET USERS (per 1,000 people)	PERSONAL COMPUTERS (per 1,000 people)	TELEPHONE MAINLINES (per 1,000 people)	SCIENTISTS AND ENGINEERS IN R&D[1] (per million people)	ICT[2] EXPENDITURE (% of GDP)	R&D[1] EXPENDITURE (% of GDP)
—	Afghanistan (52)	1 =		3 =			
→	Albania (94)	60 →	12 →	88 →			
→	Algeria (94)	58 →	11 →	78 →		2.4 =	
—	American Samoa (—)			182 ←			
—	Andorra (—)	331 →		535 →			
→	Angola (62)	11 →	2 →	6 =			
—	Antigua and Barbuda (—)	350 →		467 →			
→	Argentina (98)	177 →	83 →	227 →	720 →	6.9 →	0.4 =
→	Armenia (96)	53 →	66 →	192 →			0.3 =
→	Australia (99)	698 →	683 →	564 →	3759 →	6.5 =	1.7 =
→	Austria (—)	486 →	607 →	450 →	2968 →	5.5 =	2.3 =
→	Azerbaijan (85)	81 →	23 →	130 →			0.3 =
—	Bahamas (99)	319 →		439 →			
→	Bahrain (99)	213 →	169 →	270 →			
→	Bangladesh (57)	3 =	12 →	8 →	51* =	2.7 →	0.6 =
→	Barbados (99)	594 →	148 →	500 →			
—	Belarus (99)	347 →		336 →			0.6 =
→	Belgium (99)	458 →	348 →	461 →	3065 →	5.9 =	1.9 =
→	Belize (93)	130 →	132 →	114 →			
→	Benin (68)	50 →	4 →	9 →			
→	Bermuda (—)	661 →	542 →	892 →			0.1*
→	Bhutan (78)	39 →	20 →	51 →			
→	Bolivia (80)	52 →	23 →	70 →	120 →	4.9 =	0.3 =
—	Bosnia and Herzegovina (—)	206 →		248 →			
→	Botswana (92)	34 →	45 =	75 →			
→	Brazil (92)	195 →	105 →	230 →	344*	6.4 →	1.0 =
→	Brunei Darussalam (100)	277 →	85 →	224 →	274		0.0
→	Bulgaria (99)	206 →	59 →	321 →	1263 ←	3.5 =	0.5 =
→	Burkina Faso (64)	5 →	2 =	7 →	17* →		0.2* =
→	Burma/Myanmar (76)	2 =	8 →	9 →	17 →		0.1 =
→	Burundi (58)	5 →	5 →	4 =			
→	Cambodia (66)	3 →	3 →	3 =			
→	Cameroon (70)	15 →	10 →	6 =		5.1 →	
→	Canada (99)	520 →	700 →	566 →	3597 →	5.7 =	1.9 =
→	Cape Verde (93)	49 →	97 →	141 →	127 →		
=	Central African Republic (65)	3 =	3 →	2 =	47* ←		
=	Chad (42)	4 →	2 =	1 =			
→	Chile (100)	172 →	141 →	211 →	444 →	5.2 ←	0.6 =
→	China (90)	85 →	41 →	269 →	708 →	5.3 →	1.4 →
→	Colombia (90)	105 →	42 →	171 →	109 →	8.0 =	0.2 =
→	Comoros (79)	33 →	9 →	28 →			
—	Congo, DR (69)	2 →		0 =			
→	Congo, Rep. (79)	13 →	4 →	4 ←	30* ←		
→	Costa Rica (94)	254 →	219 →	321 →		7.3 =	0.4 =
→	Côte d'Ivoire (79)	11 →	15 →	14 →			
→	Croatia (99)	327 →	190 →	425 →	1296 →		1.1 =
→	Cuba (99)	17 →	33 →	75 →			0.7 =

Summary: CURRENT SITUATION (colour) EVOLUTION (arrow-icon)	COUNTRIES (BCI value, 0-100)	INTERNET USERS (per 1,000 people)	PERSONAL COMPUTERS (per 1,000 people)	TELEPHONE MAINLINES (per 1,000 people)	SCIENTISTS AND ENGINEERS IN R&D[1] (per million people)	ICT[2] EXPENDITURE (% of GDP)	R&D[1] EXPENDITURE (% of GDP)
→	Cyprus (99)	430 →	337 →	554 →	630 →		0.4 =
→	Czech Republic (99)	269 →	240 →	314 →	1594 →	7.4 =	1.3 =
→	Denmark (98)	527 →	656 →	619 →	5016 →	6.0 =	2.6 →
→	Djibouti (75)	13 →	24 →	14 →			
→	Dominica (97)	361 →	182 →	293 →			
—	Dominican Republic (88)	158 →		95 →			
→	Ecuador (83)	47 →	39 →	129 →	50 ←	3.0 =	0.1 =
→	Egypt (88)	68 →	38 →	140 →	493* →	1.4 =	0.2 =
→	El Salvador (79)	93 →	51 →	141 →	47* →		0.1*
→	Equatorial Guinea (59)	14 →	14 →	20 →			
=	Eritrea (67)	16 →	8 →	9 →			
→	Estonia (99)	513 →	483 →	328 →	2523 →		0.9 =
→	Ethiopia (54)	2 =	3 →	9 →			
—	Faeroe Island (—)	642 →		419			
→	Fiji (99)	77 →	52 →	122 →			
→	Finland (100)	534 →	481 →	404 ←	7832 →	6.8 ←	3.5 →
→	France (99)	430 →	575 →	586 →	3213 →	6.4 =	2.2 =
→	French Polynesia (—)	214 →	109 →	208 →			
→	Gabon (82)	48 →	33 →	28 →			
→	Gambia (70)	33 →	16 →	29 →			
→	Georgia (89)	39 →	43 →	151 →			0.3 =
→	Germany (100)	455 →	545 →	667 →	3261 →	6.2 =	2.5 =
→	Ghana (66)	18 →	5 →	15 →			
→	Greece (100)	180 →	89 →	568 →	1413 →	4.0 =	0.6 =
—	Greenland (—)	668 →		448 →			
→	Grenada (92)	182 →	151 →	309 →			
—	Guam (—)	383 →		507 →			
→	Guatemala (68)	79 →	19 →	99 →			
→	Guinea (66)	6 →	5 →	3 =			
—	Guinea-Bissau (61)	20 →		7 =			
→	Guyana (81)	213 →	39 →	147 →			
—	Haiti (—)	70 →		17 →			
→	Honduras (78)	36 →	16 →	69 →		4.6 =	0.1 =
→	Hong Kong (—)	508 →	601 →	546 →	1564 →	8.8 →	0.6 =
→	Hungary (99)	297 →	146 →	333 →	1472 →	6.0 ←	0.9 =
→	Iceland (100)	869 →	479 →	653 →	6807 →		3.0 →
=	India (71)	55 →	16 →	45 →	119* ←	6.1 →	0.9 =
→	Indonesia (84)	73 →	14 →	58 →	207 ←	3.1 =	0.1 =
→	Iran (91)	103 →	109 →	278 →	1279 →	2.4 →	0.7
	Iraq (83)	1 =	8	38 =			
→	Ireland (100)	276 →	494 →	489 →	2674 →	4.2 ←	1.2 =
→	Israel (100)	470 →	740 →	424 →		8.3 =	4.5 →
→	Italy (99)	478 →	367 →	427 →	1213 ←	4.4 =	1.1 =
→	Jamaica (95)	404 →	63 →	129 →		9.7 ←	0.1 =
→	Japan (99)	668 →	542 →	460 →	5287 →	7.9 ←	3.2 =
=	Jordan (97)	119 →	57 →	121 →	1927*	8.0 ←	
→	Kazakhstan (98)	27 →		167 →	629 ←		0.2 =
=	Kenya (71)	32 →	9 →	8 =		2.6 =	
→	Kiribati (88)	20 →	10 →	47 →			
—	Korea, DPR (—)	0 =		44 →			
→	Korea, Rep. (100)	684 →	545 →	492 →	3187 →	6.6 =	2.6 =
→	Kuwait (98)	276 →	237 →	201 →		1.4 =	0.2 =
=	Kyrgyzstan (95)	54 →	19 →	85 →			0.2 =
→	Lao, PDR (58)	4 →	18 →	13 →			
→	Latvia (99)	448 →	217 →	318 →	1434 →		0.4 =
→	Lebanon (95)	175 →	102 →	247 →			
—	Lesotho (72)	24 →		27 →			0.0

Summary: CURRENT SITUATION (colour) EVOLUTION (arrow-icon)	COUNTRIES (BCI value, 0-100)	INTERNET USERS (per 1,000 people)	PERSONAL COMPUTERS (per 1,000 people)	TELEPHONE MAINLINES (per 1,000 people)	SCIENTISTS AND ENGINEERS IN R&D[1] (per million people)	ICT[2] EXPENDITURE (% of GDP)	R&D[1] EXPENDITURE (% of GDP)
—	Liberia (65)	0		2			
	Libya (98)	36	24	133	361*		
—	Liechtenstein (—)	633		574			
→	Lithuania (99)	358	155	235	2136		0.8
→	Luxembourg (97)	690	635	535	4301		1.8
→	Macao (—)	369	295	379	41*		
→	Macedonia (96)	79	222	262	504		0.3
→	Madagascar (61)	5	5	4	15*		0.1
→	Malawi (62)	4	2	8			
→	Malaysia (99)	435	197	172	299	6.8	0.7
→	Maldives (86)	59	112	98			
	Mali (69)	4	3	6			
→	Malta (100)	315	165	501	681		0.3
→	Marshall Islands (93)	35	82	76			
→	Mauritania (66)	7	14	13			
→	Mauritius (98)	146	162	289			0.4
→	Mexico (94)	181	136	189	268	3.3	0.4
—	Micronesia (—)	127		113			
→	Moldova (96)	103	29	240			0.8*
—	Monaco (—)				41*		
→	Mongolia (95)	105	133	61			0.3
→	Morocco (79)	153	25	44		6.4	0.6
→	Mozambique (66)	7	6	4			0.6
→	Namibia (85)	37	109	64			
→	Nepal (65)	4	4	17	59		0.7
→	Netherlands (100)	739	682	466	2482	6.3	1.9
—	Netherlands Antilles (—)	11*		461			
—	New Caledonia (—)	324		236			
→	New Zealand (98)	672	474	422	3945	10.6	1.2
→	Nicaragua (72)	27	43	43	73		0.1
	Niger (52)	2	1	2			
→	Nigeria (63)	35	6	9		3.4	
→	Norway (100)	735	573	460	4587	5.3	1.8
→	Oman (99)	111	47	103			
→	Pakistan (64)	67	4	34	75*	6.8	0.2
→	Panama (91)	64	46	136	97	8.2	0.3
→	Papua New Guinea (68)	23	64	11			
→	Paraguay (85)	34	78	54	79		0.1
	Peru (86)	164	100	80	226*	5.9	0.1
→	Philippines (77)	54	45	41	48	6.7	0.1
→	Poland (100)	262	193	309	1581	4.2	0.6
→	Portugal (99)	279	134	401	1949	4.4	0.8
—	Puerto Rico (—)	221		285			
→	Qatar (96)	269	171	253			
→	Romania (96)	208	113	203	976	3.2	0.4
→	Russian Federation (98)	152	122	280	3319	3.2	1.2
—	Rwanda (53)	6		3			
→	Samoa (97)	32	7	73			
	San Marino (—)	536	857	741			
—	Sao Tome and Principe (82)	131		46			
→	Saudi Arabia (97)	70	376	164		2.3	
→	Senegal (71)	46	21	23		8.7	
→	Serbia (—)	203	52	360			
→	Seychelles (—)	249	189	253	19		0.1
—	Sierra Leone (61)	2		5			
→	Singapore (91)	571	621	425	4999	9.3	2.3
→	Slovakia (97)	464	358	222	1984	5.5	0.5

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→	Slovenia (99)	545 →	404 →	408 →	2543 →	3.1 =	1.6 =
→	Solomon Islands (82)	8 →	46 →	16 =			
→	Somalia (—)	11 →	6 →	12 →			
→	South Africa (89)	109 →	85 →	101 →	307 ←	10.0 →	0.8
→	Spain (99)	348 →	277 →	422 →	2195 →	3.6 =	1.1 =
→	Sri Lanka (98)	14 →	27 →	63 →	128* ←	5.4 =	0.1 =
→	St Kitts and Nevis (95)	214 →	234 →	532 →			
→	St Lucia (98)	339 →	160 →	321 →			0.4* ←
→	St Vincent and Grenadines (93)	84 →	135 →	189 →			0.2 =
→	Sudan (76)	77 →	90 →	18 →			0.3 =
	Suriname (86)	71 →	46	180 →			
→	Swaziland (77)	32 →	32 →	31 →			
→	Sweden (100)	764 →	763 →	717 →	5416 →	7.2 =	3.7 =
→	Switzerland (97)	498 →	865 →	689 →	3601* →	7.7 =	2.6 =
→	Syria (94)	58 →	42 →	152 →	29*		
—	Tajikistan (85)	1 =		38 ←	660* ←		
→	Tanzania (73)	9 →	7 →	4 =			
→	Thailand (96)	110 →	58 →	110 →	287 →	4.0 =	0.3 =
→	Togo (71)	49 →	30 →	10 →			
→	Tonga (95)	29 →	49 →	111 →			
→	Trinidad and Tobago (95)	123 →	79 →	248 →			0.1 =
→	Tunisia (95)	95 →	57 →	125 →	1013 →	6.0 →	0.6 =
→	Turkey (92)	222 →	52 →	263 →	341 →	8.2 =	0.7 =
—	Turkmenistan (—)	8 →		80 →			
→	Uganda (59)	17 →	9 →	4 =			0.8 =
→	Ukraine (99)	97 →	38 →	256 →		7.8 =	1.2 =
→	United Arab Emirates (99)	308 →	197 →	273 →		3.6 =	
→	United Kingdom (99)	473 →	600 →	528 →	2706* →	7.0 ←	1.9 =
→	United States of America (99)	630 →	762 →	606 →	4605 →	8.7 ←	2.7 =
→	Uruguay (96)	202 →	130 →	304 →	366 →	7.8 →	0.3 =
—	Uzbekistan (—)	34 →		67 =			
→	Vanuatu (87)	38 →	14 →	33 →			
→	Venezuela (95)	125 →	82 →	136 →		3.7 =	0.3 =
→	Vietnam (90)	129 →	13 →	191 →	115 ←	15.2 →	0.2
—	Virgin Islands (USA) (—)	276 →		652 →			
→	West Bank and Gaza (—)	67 →	48 →	96 →			
→	Yemen (61)	9 →	15 →	39 →			
→	Zambia (73)	20 →	10 →	8 =	51* →		0.0* =
→	Zimbabwe (80)	77 →	92 →	25 →		4.5 =	

NOTES: (*) Data refer to years or periods other than those specified in the column heading. Figure 0 means a value under 0.5
(1) Research and Development.
(2) Information and Communication Technology.

SOURCE: World Development Indicators 2008, World Bank (www.worldbank.org).

For more detailed information on the reference years of the data see complete tables at: www.socialwatch.org/statistics2008

DEFINITION OF INDICATORS:

Internet users (per 1,000 people): People with access to the internet, per 1,000 people.
Last available data: 2001-2004; evolution since 1990.

Personal computers (per 1,000 people): Personal computers are self-contained computers designed to be used by a single individual, per 1,000 people.
Last available data: 2001-2005; evolution since 1990.

Telephone mainlines (per 1,000 people): Telephone lines connecting a customer's equipment to the public switched telephone network. Data are presented per 1,000 people for the entire country.
Last available data: 2001-2005; evolution since 1990.

Scientists and engineers in research and development (per million people): People trained to work in any field of science who are engaged in professional R&D (research and development) activity, per million people. Most such jobs require completion of tertiary education.
Last available data: 2004; evolution since 1996.

Information and communication technology expenditure (% of GDP): Includes external spending on information technology ('tangible' spending on information technology products purchased by businesses, households, governments, and education institutions from vendors or organizations outside the purchasing entity), internal spending on information technology ('intangible' spending on internally customized software, capital depreciation, and the like), and spending on telecommunications and other office equipment. Expressed as percentage of gross domestic product (GDP).
Last available data: 2005; evolution since 2000.

Research and development expenditure (% of GDP): Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development. Expressed as percentage of gross domestic product (GDP). Last available data: 2000-2005; evolution since 1996.

Methodological notes and guidelines at, the end of the section.

The ruses of inequity: from digital to cognitive gap

As the appearance of new information and digital technologies has consolidated what is known as the third industrial revolution, their impact has become an object of debate over the so-called "knowledge society". In the UNESCO World Report Towards Knowledge Societies, Director General Koichiro Matsuura asks, "Which types of knowledge are we talking about? Do we have to endorse the hegemony of the techno-scientific model in defining legitimate and productive knowledge? And what of the imbalances that mark access to knowledge and the obstacles confronting it, both locally and globally?"[1]

On the other hand, knowledge societies add new inequities without resolving those inherent to the "society model". To the well established problem of the "digital gap", that is, the socioeconomic difference between communities that have access to information and communication technologies (ICTs) and those that do not, a more profound and more subtle gap is added: the "cognitive gap", which is related to the differences in the ability to assimilate and use ICTs effectively, due to their different levels of literacy and technological capacity.

The cognitive gap determines that even if parity is reached in the access to knowledge and information, the ability to assimilate this information and knowledge will be differential, and certainly smaller, in societies and sectors that lack the minimum necessary elements to assimilate the new tools. Consequently, any attempt to bridge the digital gap between societies will lead to an increase of inequities if, apart from the chances to access them, the opportunities for incorporating them are not equalled.

Contradictory trends

This occurs in a paradoxical context, in which two opposite tendencies coexist: on the one hand, the new technologies facilitate access to information; on the other, there is a growing tendency, under the excuse that it is a necessary (military, scientific, commercial, professional, etc.) secret, to exclude increasingly larger sectors of the population from a significant part of the information generated.

Maybe one of the more obvious manifestations of the second tendency is observed in the huge imbalance between the societies of the North and those of the South regarding copyright, or even the "brain drain", two processes that not only reinforce the imbalance between North and South, but also within each zone, within regions and within societies. In this respect, the UNESCO document states that "Knowledge societies will be knowledge societies *for all* only on the condition that we can actually get beyond this asymmetric opposition between producers and users of knowledge contents."[2]

1 UNESCO (2005). *Towards Knowledge Societies.* UNESCO Publishing. Available at: <unesdoc.unesco.org/images/0014/001418/141843e.pdf>.

2 *Ibid.*

CHART 1. Averages by indicator of countries in better and worse relative situations in information, science and technology

		Internet users (per 1,000 people)	Personal computers (per 1,000 people)	Telephone mainlines (per 1,000 people)	Scientists and engineers in R& D (per million people)	ICT expenditure (% of GDP)	R & D expenditure (% of GDP)
Worse relative situation	Average	37	27	58	120	5	0.3
	Number of countries	61	61	61	21	13	24
Better relative situation	Average	514	535	517	3,187	7	1.9
	Number of countries	28	28	28	24	20	26
Total	Average	190	162	204	1,567	6	0.9
	Number of countries	169	168	169	84	74	100

CHART 2. Current situation in information, science and technology by region (number of countries)

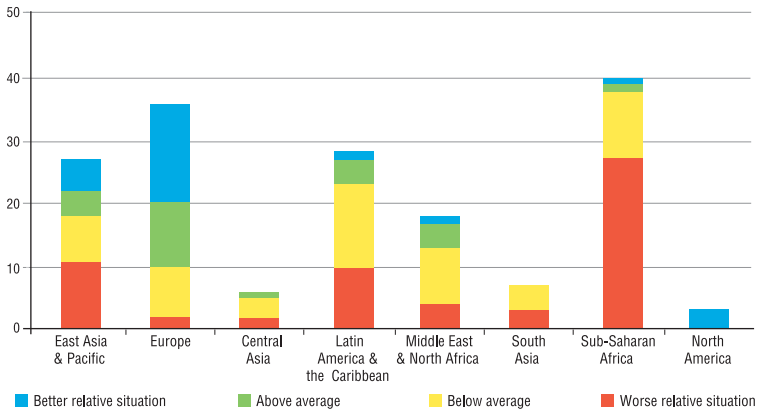

CHART 3. Current situation and evolution in information, science and technology (number of countries)

	←	←	=	→	→	Total
Worse relative situation	0	0	6	50	3	59
Below average	0	0	4	38	13	55
Above average	0	0	0	6	18	24
Better relative situation	0	0	0	6	21	27
Total	0	0	10	100	55	165

The gap in numbers

If we analyze the table "Information, science and technology: The ruses of inequity: from the digital to the cognitive gap", where the five indicators are disaggregated, the persistence of very significant distances between countries becomes more evident. Chart 1 summarizes the gaps between countries in the better and worse situation. For example, the number of scientists and engineers per million inhabitants is almost 30 times higher for the group of countries in the better relative situation. When considering the indicators related not only to the development capacity of countries, but also to the access to its products, such as the number of Internet users, we see that, although the difference is still vast, the "gap", in terms related to the first indicator, is half as large. There are 14 times less Internet users in countries in the worse relative situation.

When considering the worse situations according to region of the countries in Chart 2, it is easy to see the asymmetry according to geographic zones. While around two out of three countries in Sub-Saharan Africa are in the worse relative situation, the situation is diametrically opposite to Europe, and is excellent in North America where there are only countries that belong to the most privileged group.

However, even in the most excluded zones there is significant evolution. Chart 3 shows a trend towards a positive evolution that is not only true for most countries but also has speeded up, since there is an increase in the group of countries with significant progress with respect to the 2007 Social Watch Report. This trend is particularly encouraging for Latin America and the Caribbean, where more than 50% of the countries show significant progress. This is in contrast to less positive zones, such as Sub-Saharan Africa, where some of the worse situations are found as well as the stagnant: this region includes 6 of the 10 countries with not recent evolution at all. ■