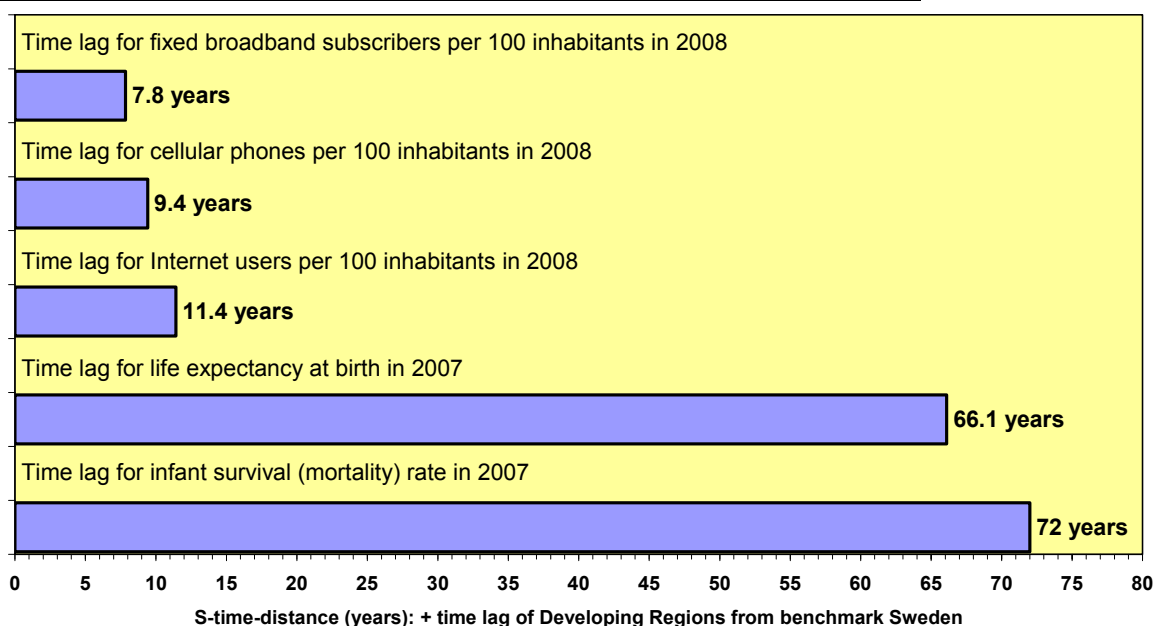


# Time distance view: ICT is an important tool of development and one of the best performers among MDG indicators

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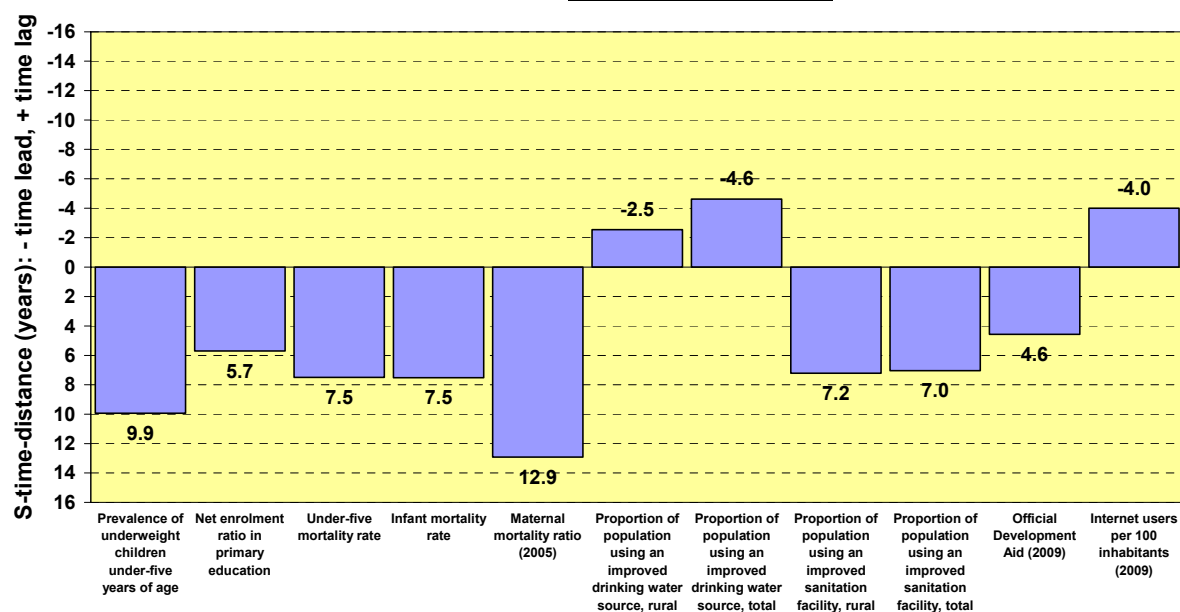
## 1. The speed of diffusion of ICT sector indicates its much greater potential for catching up and becoming an important instrument to reduce world disparities



Source: Author's calculations based on ITU and UNICEF data

## 2. One of the best performers among MDG indicators is ICT indicator Internet users

Monitoring of the MDGs measured by S-time-distance deviation from the line to target for selected indicators: DEVELOPING REGIONS, 2008



Source: Author's calculations based on data from United Nations and ITU

The numerical MDG target for Internet users per 100 inhabitants is not clearly specified. Therefore we show the **outcomes of a sensitivity analysis** for the aggregate of Developing Regions if the 2015 targets for Internet penetration rate would be 30%, 35% or 40%. In all these cases the aggregate for Developing Regions would still be ahead of the respective lines to target, the values of S-time-distance would be -3.1 for 30% penetration rate, -2.5 for 35% and -2.0 for 40%. However, this might be different at the country level as for some countries the infrastructure may not allow them to follow the aggregate for Developing Regions.

A much greater change in results is found if the assumed line to 25% target is linear rather than exponential used in all other ICT examples. Then the assumed actual in 2009 would be expected on the line to target in about in 2010. In this calculation the S-time-distance would be about 1.4 years ahead of the linear line to target. However, the speed of increase in Internet penetration rate is very high and the linear projection would at these levels simply seriously understate the probable growth.

**Table 1. Examples of calculations for sensitivity analysis for Developing Regions**

**Internet users per 100 inhabitants target 25% penetration rate**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Line to target	2.0	2.4	2.9	3.4	4.0	4.7	5.6	6.6	7.8	9.2	10.8	12.8	15.2	17.9	21.2	25
Actual value	2.0	2.8	4.3	5.5	6.7	7.8	9.4	12.0	15.1	18.0						
S-time-distance	0	-1.0	-2.5	-2.9	-3.1	-3.0	-3.1	-3.6	-4.0	-4.0						
Time on LT	2000	2002.0	2004.5	2005.9	2007.1	2008.0	2009.1	2010.6	2012.0	2013.0						
Deviation in [%]	0	17.8	52.0	62.4	67.1	66.1	68.8	83.3	94.6	96.2						

**Internet users per 100 inhabitants target 30% penetration rate**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Line to target	2.0	2.4	2.9	3.5	4.2	5.0	6.0	7.2	8.6	10.2	12.2	14.7	17.5	21.0	25.1	30
Actual value	2.0	2.8	4.3	5.5	6.7	7.8	9.4	12.0	15.1	18.0						
S-time-distance	0	-0.8	-2.2	-2.5	-2.6	-2.5	-2.5	-2.9	-3.2	-3.1						
Time on LT	2000	2001.8	2004.2	2005.5	2006.6	2007.5	2008.5	2009.9	2011.2	2012.1						
Deviation in [%]	0	16.4	48.3	56.6	59.2	56.3	56.9	68.3	76.6	75.9						

**Internet users per 100 inhabitants target 35% penetration rate**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Line to target	2.0	2.5	3.0	3.6	4.4	5.3	6.4	7.7	9.3	11.2	13.6	16.4	19.8	24.0	29.0	35
Actual value	2.0	2.8	4.3	5.5	6.7	7.8	9.4	12.0	15.1	18.0						
S-time-distance	0	-0.7	-2.0	-2.2	-2.2	-2.1	-2.1	-2.4	-2.5	-2.5						
Time on LT	2000	2001.7	2004.0	2005.2	2006.2	2007.1	2008.1	2009.4	2010.5	2011.5						
Deviation in [%]	0	15.2	45.3	51.9	52.8	48.4	47.5	56.7	62.7	60.3						

**Internet users per 100 inhabitants target 40% penetration rate**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Line to target	2.0	2.5	3.0	3.7	4.5	5.5	6.7	8.2	10.0	12.2	14.8	18.1	22.1	26.9	32.8	40
Actual value	2.0	2.8	4.3	5.5	6.7	7.8	9.4	12.0	15.1	18.0						
S-time-distance	0	-0.7	-1.8	-2.0	-2.0	-1.8	-1.7	-1.9	-2.1	-2.0						
Time on LT	2000	2001.7	2003.8	2005.0	2006.0	2006.8	2007.7	2008.9	2010.1	2011.0						
Deviation in [%]	0	14.2	42.7	47.9	47.4	42.0	39.8	47.2	51.5	48.0						

Source: Author's calculations based on ITU data

Calculations were made with the free web tool for monitoring deviations from line to target that we developed and is available on [http://www.gaptimer.eu/s-t-d\\_monitoring\\_tool.html](http://www.gaptimer.eu/s-t-d_monitoring_tool.html)

Table 2 shows what would similar sensitivity analysis for 6 world regions amount to for the four alternative targets in 2015 (penetration rate 25%, 30%, 35% and 40%). For Europe, Americas and CIS all alternative targets for 2015 would already be achieved in 2009, with the exception of CIS for 40%. For all four alternative targets the other three regions, Arab States, Asia & Pacific and Africa are ahead of the respective lines to 2015 targets. Higher targets for the indicator Internet users per 100 inhabitants reduce the time lead ahead of the lines to target but even Africa for the target of 40% penetration rate would in 2009 still be ahead of its line to target. This is in sharp contrast with some other MDG indicators where the delays behind the respective lines to targets were very substantial, as seen in the figure above.

**Table 2. Examples of calculations for sensitivity analysis for 6 world regions**  
for four alternative targets in 2015 (penetration rate 25%, 30%, 35% and 40%)

S-time-distance	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Africa 25</b>	0	0.1	-0.1	-0.3	-0.3	-0.5	-0.7	-0.4	-1.3	-1.9
<b>Africa 30</b>	0	0.1	0.0	-0.1	-0.2	-0.2	-0.4	-0.1	-0.9	-1.4
<b>Africa 35</b>	0	0.1	0.0	0.0	0.0	-0.1	-0.2	0.2	-0.6	-1.0
<b>Africa 40</b>	0	0.2	0.1	0.1	0.1	0.1	0.0	0.4	-0.3	-0.7
<b>Arab States 25</b>	0	-0.4	-2.1	-2.6	-3.5	-4.4	-4.8	-4.9	-4.8	-4.5
<b>Arab States 30</b>	0	-0.4	-1.9	-2.3	-3.1	-3.9	-4.2	-4.2	-4.1	-3.7
<b>Arab States 35</b>	0	-0.3	-1.7	-2.1	-2.8	-3.5	-3.7	-3.7	-3.5	-3.1
<b>Arab States 40</b>	0	-0.2	-1.6	-1.9	-2.5	-3.2	-3.4	-3.3	-3.1	-2.7
<b>Asia &amp; Pacific 25</b>	0	-0.7	-2.2	-2.4	-2.8	-2.7	-2.6	-3.4	-3.9	-4.1
<b>Asia &amp; Pacific 30</b>	0	-0.6	-1.8	-1.9	-2.2	-2.1	-1.9	-2.5	-2.9	-3.0
<b>Asia &amp; Pacific 35</b>	0	-0.5	-1.6	-1.6	-1.8	-1.6	-1.4	-1.9	-2.2	-2.2
<b>Asia &amp; Pacific 40</b>	0	-0.4	-1.4	-1.3	-1.5	-1.2	-1.0	-1.4	-1.6	-1.6
<b>CIS 25</b>	0	-1.3	-2.5	-4.8	-5.8	-5.6	-5.6	-6.4	-7.0	TA
<b>CIS 30</b>	0	-1.1	-2.2	-4.3	-5.2	-5.0	-4.9	-5.6	-6.1	TA
<b>CIS 35</b>	0	-1.1	-2.1	-4.0	-4.8	-4.5	-4.4	-5.0	-5.4	TA
<b>CIS 40</b>	0	-1.0	-1.9	-3.7	-4.4	-4.2	-4.0	-4.5	-4.9	-5.5
<b>Europe 25</b>	0	-9.5	TA	TA	TA	TA	TA	TA	TA	TA
<b>Europe 30</b>	0	-5.4	TA	TA	TA	TA	TA	TA	TA	TA
<b>Europe 35</b>	0	-3.9	-11.1	TA	TA	TA	TA	TA	TA	TA
<b>Europe 40</b>	0	-3.0	-8.8	-10.3	-11.0	TA	TA	TA	TA	TA
<b>Americas 25</b>	0	-7.3	TA	TA	TA	TA	TA	TA	TA	TA
<b>Americas 30</b>	0	-4.0	-10.5	TA	TA	TA	TA	TA	TA	TA
<b>Americas 35</b>	0	-2.8	-7.4	-8.9	-10.2	TA	TA	TA	TA	TA
<b>Americas 40</b>	0	-2.1	-5.7	-6.8	-7.7	-8.1	-8.6	TA	TA	TA

S-time-distance (years): + time lag, - time lead from line to target, TA – target already achieved  
Source: Author's calculations based on ITU data

If analysed by individual countries, in 2008 out of 194 countries 149 countries were ahead of their lines to this target, 83 countries already achieved the 25% target. Only 14 countries were more than 2 years behind their line to the target, 7 of them in Africa. The detailed results are in the table below. These results weighted by the percentage share of the population are visualised in the Figure 3: the left hand side shows that widely predominant share of population (88% of world population) is ahead of the line to target.

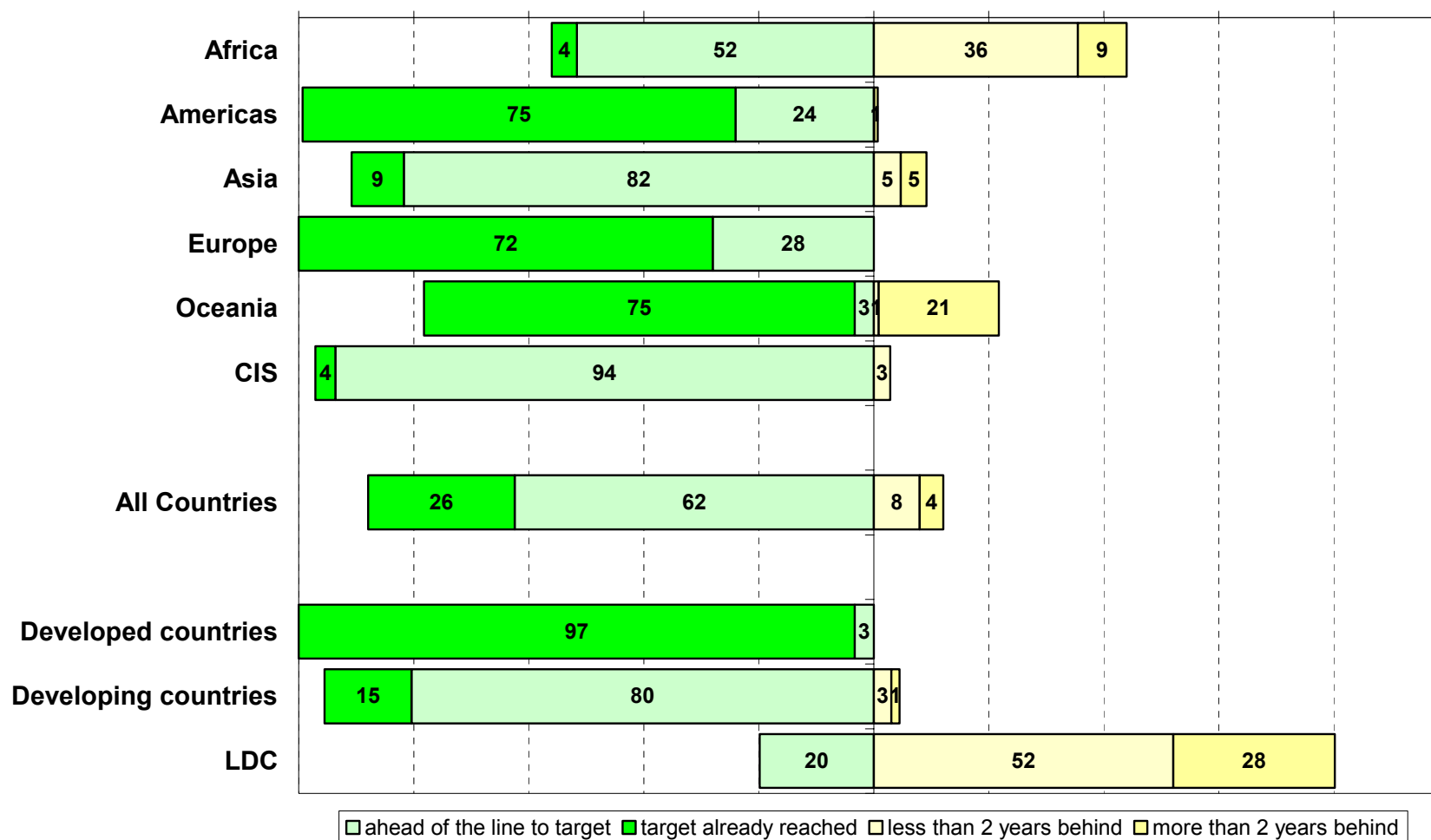
**Table 3. S-time-distances in 2008 from the line to the MDG target of 25% Internet users penetration rate in 2015**  
(frequency distribution of countries by regions)

		<b>All Countries</b>	<b>Africa</b>	<b>Americas</b>	<b>Asia</b>	<b>Europe</b>	<b>Oceania</b>	<b>Developed countries</b>	<b>Developing countries</b>	<b>LDC</b>
<b>Target achieved</b>		83	4	20	16	38	5	41	41	0
<b>S-time-distance (years)</b>										
<b>Ahead of the line to target</b>	<b>-7 – -6</b>	12	0	4	4	4	0	2	7	1
	<b>-6 – -5</b>	7	2	1	2	2	0	1	5	0
	<b>-5 – -4</b>	9	2	3	4	0	0	0	4	2
	<b>-4 – -3</b>	12	6	2	4	0	0	0	8	2
	<b>-3 – -2</b>	11	2	3	4	0	2	0	7	3
	<b>-2 – -1</b>	9	5	2	2	0	0	0	6	3
	<b>-1 – 0</b>	6	5	0	0	0	1	0	2	4
<b>Behind the line to target</b>	<b>0 – 1</b>	15	8	1	4	0	2	0	4	10
	<b>1 – 2</b>	16	12	1	3	0	0	0	4	11
	<b>2 – 3</b>	6	4	0	1	0	1	0	0	6
	<b>3 – 4</b>	3	1	1	0	0	1	0	3	0
	<b>4 – 5</b>	2	0	0	1	0	1	0	1	1
	<b>5 – 6</b>	2	2	0	0	0	0	0	1	1
	<b>6 – 7</b>	1	0	0	0	0	1	0	0	1
<b>Summary</b>										
<b>Number of countries</b>		194	53	38	45	44	14	44	93	45
<b>Target already reached</b>		83	4	20	16	38	5	41	41	0
<b>Ahead of the line to target</b>		149	26	35	36	44	8	44	80	15
<b>Less than 2 years behind</b>		31	20	2	7	0	2	0	8	21
<b>More than 2 years behind</b>		14	7	1	2	0	4	0	5	9
<b>More than 3 years behind</b>		8	3	1	1	0	3	0	5	3

**S-time-distance (in years): - ahead of, + behind the line to the MDG target of 25%**

Source: Author's calculations based on ITU data

**Figure 3. The S-time-distance view of deviations from the line to 2015 MDG target of 25% Internet penetration rate**  
**Monitoring MDG implementation for Internet users per 100 inhabitants: 149 countries from**  
**194 countries were in 2008 ahead of the line to 2015 MDG target of 25%**  
**Percentage share of the respective population**



Source: Author's calculations based on ITU data