WORLD ECONOMIC FORUM

COMMITTED TO IMPROVING THE STATE OF THE WORLD

Highlights of the Global Information Technology Report 2007-2008

Denmark is number one in the Global Information Technology Report 2007-2008 for the second year consecutively, culminating an upward trend observed since 2003–04. Among the drivers of Denmark's success in networked readiness, one can mention the supportive ICT environment (ranked 2nd), characterized by one of the best regulatory frameworks (2nd) for doing business and for ICT. Denmark is ranked 1st in the world for the development of its ICT legislation and for the efficiency of its legal framework to settle disputes. Also the country is showing the rest of the world the way in ICT usage, boasting the highest Internet bandwidth and the highest broadband Internet penetration rates in the sample. The remarkable ICT penetration rates have much to do with the government's clear vision on the importance of ICT diffusion, its consistent prioritization of the ICT sector from a very early stage, and its capacity to mobilize civil society in this regard. Other important advantages are the country's well-functioning and developed internal market, which provided the national ICT industry with a large number of consumers at its early stages; its top-notch educational system; and its people's cultural openness and talent for developing, pioneering, and using new technologies and applications.

Besides Denmark, the other **Nordic countries** confirm their prowess in leveraging ICT for increased competitiveness, with **Sweden**, **Finland**, **Iceland**, and **Norway** all among the most networked economies in the world, at 2nd, 6th, 8th and 10th position, respectively. It is worth noticing that their continuous focus on education and innovation and high levels of technological readiness also drive their performance in general competitiveness, as witnessed by the top ranks occupied by the latter in the Forum's Global Competitiveness Index.

Switzerland is up two places, at 3rd position, continuing last year's impressive upward trend. It is worth noting that Switzerland's remarkable performance in networked readiness seems to be driven mainly by businesses and individuals (readiness ranks of 1st and 3rd, respectively, and usage ranks of 4th for both), rather than by the strength of the government's specific ICT strategy and vision, as evidenced by the rather low ranking in government readiness and usage (20th and 18th, respectively). Switzerland's rise in the rankings is driven by its strength in the overall environment subindex (ranked 6th) as well as a world-class educational system.

Singapore, down two positions at 5th place, displays the most ICT-conducive market and regulatory environment and among the highest levels of government readiness (1st in the sample) and usage (4th) in the world, representing a textbook case on how governments can promote ICT—and thus general competitiveness—with a comprehensive ICT strategy, a continued focus on education and innovation, and savvy private-public partnerships.

The **United States** improves 3 ranks to 4th place, continuing to benefit from one of the most efficient market environments and ICT-related infrastructures in the world. In particular, the well-qualified and large pool of human resources (12th for availability of scientists and engineers), as well as the top-notch research institutions (ranked 2nd), provide an excellent infrastructure for innovation to flourish and for the development of the ICT industry. This has resulted in the country's undisputed role as the world's innovation powerhouse, witnessed by the 1st position obtained by the United States for the number of registered utility patents. On a less positive note, some red tape and rigidities seem to hinder the US business environment, notably with respect to the burden of government regulation and the relatively high tax rates (67th). Moreover, the regulatory framework, assessed at 22nd, presents a number of relatively problematic areas, among which the independence of the judiciary (37th), the efficiency of the legal framework for disputes (30th), and the protection of property rights (30th).

Korea, at 9th place, realizes one of the most impressive improvements (10 places) from last year among the 127 economies covered by the *Report*. This reflects the country's comparative advantages in the quality of its higher educational system, availability of qualified labor force (13th for the availability of scientists and engineers), and leading research institutions (11th). This, combined with a very dynamic and sophisticated business sector, has fostered remarkable degrees of innovation (as reflected in Korea's 8th place in the world for the number of registered utility patents) and the emergence of word-class multinationals. Last but not

least, the coherent and continued role of the government in making ICT and, more generally, innovation a cornerstone of Korea's development strategy must be highlighted, as well as its success in promoting ICT diffusion and in using ICT as an engine of increased productivity and efficiency.

In Europe, not only Denmark tops the NRI rankings, but 10 other countries are among the top 20, as follows: Sweden (2nd), Switzerland (3rd), **Finland** (6th), the **Netherlands** (7th), Iceland (8th), Norway (10h), the **United Kingdom** (12th), **Austria** (15th), **Germany** (16th), and **Estonia** (20th).
The networked readiness picture for the **EU15** is rather mixed. The Nordic countries, the Netherlands, the United Kingdom, Germany, Austria, **France** (21st), **Ireland** (23rd), and **Belgium** (25th) present satisfactory levels of networked readiness and benefit from ICT advances. However, countries such as **Greece** (56th) and, to a lesser extent, **Italy** (42nd) continue to lag behind and even seem to be losing speed with respect to last year.

Among the **EU accession 12**, countries such as **Estonia** (20th), **Slovenia** (30th), **Lithuania** (33rd), the **Czech Republic** (36th), and **Hungary** (37th) have made remarkable progress in networked readiness, as well as general competitiveness, over the last two decades. Among these countries, Estonia, the tiny homeland of Skype, has benefited from a savvy e-leadership from the government that fostered innovation and universal ICT access as a platform for improved competitiveness. Another Baltic state, Lithuania, realizes one of the biggest improvements (six positions) in Europe from last year.

Poland (62nd) and **Bulgaria** (68th) struggle, even if it must be noted that the latter posted a very large improvement (seven positions in a constant sample) from 2006–07, boosted by better levels of usage, especially from its citizens. Poland, in turn, continues to show notable weaknesses specifically in government readiness (96th) and usage (103rd), as well as in the regulatory environment (90th), indicating the unsatisfactory role of the government as an engine of ICT diffusion.

Turkey is broadly stable at 55th, with a rather even performance across the three NRI components and much room for improvement especially in the readiness subindex (61st), typically in the accessibility of ICT, the quality of education, and the government's vision and e-leadership in ICT diffusion.

Russia positions itself, largely unchanged, at 72nd place this year. Its networked readiness rests on the country's good-quality education and research institutions as well as on firms' innovative potential. Nevertheless, the poor quality of the market (88th) and regulatory (92nd) environments, coupled with a lack of focus on ICT in the government's agenda (as highlighted in the poor marks for government readiness and usage, at 89th and 101st, respectively), remain reasons for concern.

In Asia, **Hong Kong**, broadly stable at 11th from last year, continues to benefit from high levels of ICT usage (5th overall), especially for citizens (5th) and the government (7th), and one the most ICT-friendly market environment in the world (2nd).

Taiwan, although losing some ground this year (4 places), is still ranked at a satisfactory 17th place overall, showing its resilience as one of the world's largest ICT exporters and producers (1st for the high-tech exports as a percentage of total exports) and a leading innovator (3rd for the number of registered utility patents). Taiwan's development story is textbook example of how a resource-poor rural economy can transform itself in the short span of three decades in a ICT powerhouse, thanks to coherent e-leadership from the government in fostering ICT penetration, innovation, and education.

Japan is down 5 positions at 19th, mainly because of deterioration in the market environment conditions (from 7th in 2006–07 to 14th this year) and in the individual readiness pillar (from 14th last year to 27th this year). In particular, the fall in the market environment can be explained, among other elements, by the inclusion of new hard data capturing the tax rate, for which the country ranks a dismal 91st. Nevertheless, the country benefits from a sophisticated and innovative business sector, displaying high ranks in readiness (9th) and usage (3rd). The government has also played a major role in promoting ICT diffusion (15th in the government prioritization of ICT variable), by constantly prioritizing the latter in the national agenda and adopting a comprehensive digital agenda from an early stage.

India, at 50th, loses four positions in a constant sample from 2006–07. Although the country scores well for the sophistication of its business environment, availability of qualified labor force (an impressive 4th place for

the availability scientists and engineers), and innovation potential, the poor state of the ICT infrastructure (71st) and the extremely low levels of ICT penetration among individuals (109th for individual usage) present severe obstacles for the country to fully use and leverage ICT in its economic and social activities.

China is up five positions in a constant sample at 57th, presenting similar weaknesses as India, notably in its underdeveloped ICT infrastructure (86th) and scarce individual usage (80th). On a more positive note, ICT penetration seems to occupy a rather central position in the government agenda (42nd for government readiness). Moreover, the government's ICT strategy appears to have already borne some fruit in the form of ICT promotion, e-government services, and the government's productivity and efficiency improvements (ranked 34th for government usage).

At 34th, **Chile** leads Latin America and the Caribbean in networked readiness, with a relatively homogeneous performance across the three NRI subindexes, boosted by a strong focus of the government on ICT penetration and by the early adoption of a comprehensive digital agenda. This agenda has resulted in the establishment of world-class e-government services (ranked 12th) and in sophisticated e-commerce practices.

Among the top performers in the region, **Barbados** (38th) is an interesting case of networked readiness driven mainly by its citizens (34th and 32nd for individual readiness and usage respectively) and by an ICT-conducive regulatory framework (27th) and infrastructure (19th). The relative degree of prioritization of ICT in the government agenda has failed so far to translate into higher levels of government usage (87th).

Mexico and **Brazil** drop a few places each this year, to 58th and 59th place, respectively. In both cases, the fall in ranking does not correspond to a dramatic fall in the absolute performance of the country vis-à-vis last year, but rather to the fact other countries have progressed more rapidly. Although the two countries have realized significant progress in business as well as government readiness and usage, and they both show a high degree of ICT prioritization in their national agendas, their overregulated market environments, the poor quality of their educational systems, and low R&D investments remain serious hindrances to achieving higher levels of networked readiness.

Argentina is down to 77th place, experiencing a fall of 11 rankings in a constant sample. A note of caution must be introduced here, since the country's absolute score is unchanged from last year. Nevertheless, the poor assessment of the market (118th) and regulatory (115th) environments in the country, as well as the perceived lack of focus on ICT penetration in the government agenda (106th), are all important shortcomings that need to be addressed as priorities by the new administration.

In Sub-Saharan Africa, only **South Africa** (51st) and **Mauritius** (54th) feature in the first half of the rankings this year. In particular, South Africa, down two positions in a constant sample from 2006–07, continues to rest its ICT prowess on its conducive ICT market (35th) and regulatory (26th) environments and on a sophisticated business sector that has taken the lead in ICT penetration and usage, as confirmed by the good marks registered in business readiness (30th) and usage (44th).

Botswana, one of the traditional ICT champions in the region, is down eight positions in a constant sample to a disappointing 78th place. Again, this drop in rankings should be taken with caution since it corresponds to an actually small 0.03 improvement in the absolute score from last year.

Senegal enters the rankings this year at 85th position, just above **Kenya** (92nd), **Nigeria** (94th), and **Mauritania** (97th).

The bottom ranks of the NRI 2007–2008 are occupied by sub-Saharan countries, notably **Cameroon** (118th), **Mozambique** (121st), **Lesotho** (122nd), **Ethiopia** (123rd), **Zimbabwe** (125th), **Burundi** (126th), and **Chad** (127th), highlighting once again the magnitude of the challenges involved for the region to benefit from the development and competitive potential of ICT. A lack of extensive and well-functioning infrastructure, overregulated and inefficient business environments, and poor governance and educational standards are all important hindrances in these countries.

In North Africa, **Tunisia** continues to be the top performet, stable at 35th place. Its performance is boosted by an ICT-friendly regulatory environment (29th), a significant degree of preparedness and inclination to use ICT by all social actors (29th), and satisfactory usage levels by the business sector (33rd) and the government (35th). The satisfactory marks obtained in government readiness and usage point to the importance accorded to ICT in the national agenda, and to the successes realized by the government in ICT promotion and diffusion.

Egypt (63rd) and **Morocco** (74th) post an impressive 17-place (the highest in the sample) and 5-place improvement, respectively, in a constant sample. Egypt has advanced notably in the environment component (from 74th in 2006–07 to 60th this year), especially in the regulatory environment (from 77th to 61st this year), as well as in government readiness (from 81st to 48th this year), pointing to an increased emphasis on ICT penetration in the national development strategy.

Israel, unchanged at 18th place, continues to lead the Middle East in networked readiness, displaying outstanding levels of technological sophistication and innovation, world-class research institutions and educational system, and excellent ICT penetration. The country represents another success story of a resource-poor economy turned into an ICT powerhouse in the short span of three decades, thanks to visionary e-leadership from the government and its highly educated and entrepreneurial citizens

The **United Arab Emirates (UAE)**, unchanged from last year at 29th place, continues to lead the Gulf States in networked readiness, owing to a leading government role in ICT promotion as witnessed by the excellent marks the country obtains in government readiness (10th) and usage (17th). Dubai's e-Government Initiative, initiated in 2000 and fostering ICT implementation in the UAE, has been recognized as a success story by practitioners and is an integral part of Dubai Vision 2010, which aims to establish Dubai as a knowledge-based economy by leveraging tourism, ICT, media, trade, and services.

Also other Gulf states posted important improvements in the rankings, with **Qatar** (32nd) and **Bahrain** (45th) being at the forefront, with a remarkable 4, 6 respectively, in a constant sample. Also **Kuwait** (52nd) climbed four positions in a constant sample from last year.

One must also note that of the four newly included countries from the region this year, **Saudi Arabia** and **Oman** enter the rankings in fairly high positions: they are 48th and 53rd, respectively, while **Libya** (105th) and **Syria** (110th) seem to have still a long way to go to catch up the rest of the region in networked readiness.