



Connectivity Scorecard 2009: United States

United States: Basic data

GDP/Capita (PPP, 2009)	\$48,400
Population	303,475,518 (Feb 2008)
2009 Connectivity Score (Rank)	7.71 (Rank =1)
IBM E-Readiness Ranking	1
ITU Ranking	20
Human Development Index Ranking	0.951 (12 th)

1 United States: Summary of 2009 results

1.1 The following table and accompanying radar chart summarise the United States' performance across the six major sub-categories of the 2009 Connectivity Scorecard.

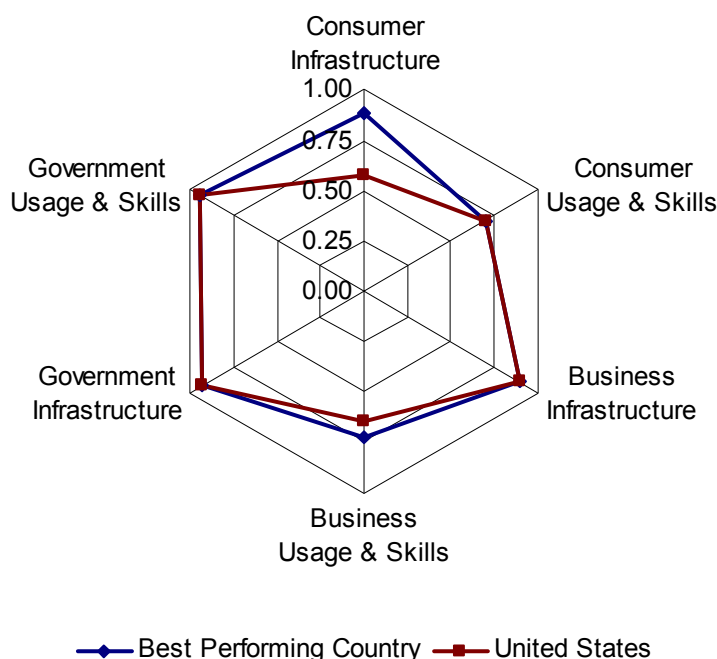
2 **Table 1: Summary of the United States' Connectivity Scorecard 2009 performance**

United States

Component	Score	Weight
Consumer Infrastructure	0.57 (0.88)*	0.18
Consumer Usage & Skills	0.69 (0.69)*	0.18
Business Infrastructure	0.89 (0.89)*	0.44
Business Usage & Skills	0.65 (0.72)*	0.11
Government Infrastructure	0.93 (0.93)*	0.06
Government Usage & Skills	0.94 (0.94)*	0.02

* The score of the leading performer for this component

Figure 1: 2009 comparative star diagram (United States)



- 2.1 The United States is the best-performing country or close to the best-performing country on a number of sub-categories. This can be seen readily from the radar chart above. Perhaps the most relevant aspect of the US performance—the aspects that contributed most heavily to the US’ top rankings—were the performances on the business infrastructure and business usage and skills categories. These two categories account have a combined weight of 55 percent in computing the US’ final score.

- 2.2 Among the measures on which the US performed particularly strongly were: PCs per 100 population (the US lags behind many countries if only residential PC penetration is considered, but high business usage of PCs makes it one of the better-performing countries when overall PC penetration is considered). The penetration of secure Internet servers is the highest in the world, suggesting a high level of e-commerce development in the United States. While not a top scorer on business spending on hardware and software, and on the penetration of enterprise telephony, the US is nevertheless very strong on these measures. The US is also very strong on categories such as Internet purchasing and selling by enterprises and on business spending on computer services. Keeping in mind that the category scores reported in the table above are averages across all

indicators included in that category, the US gets a high reward for its consistent performance. One measure shows some reasons for concern however: the share of IP and Ethernet in corporate data services revenues is rather lower than in many other nations, suggesting that US businesses are perhaps not using these advanced services as intensively as their counterparts elsewhere.

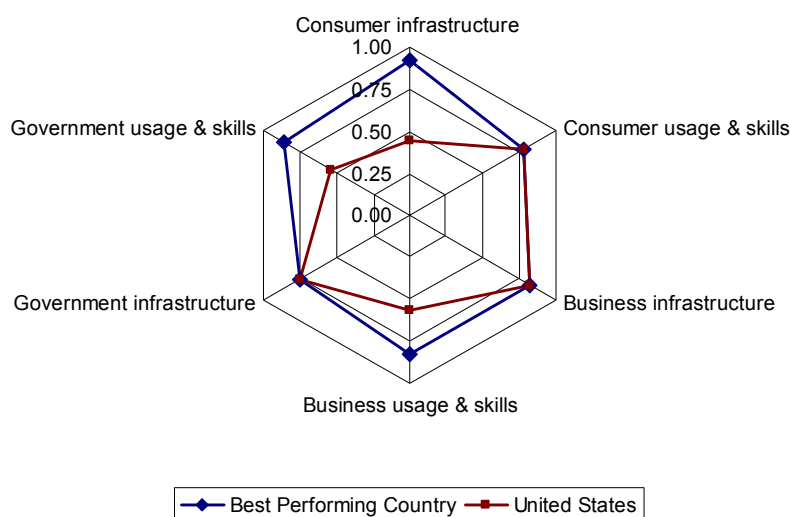
- 2.3 The US performance on the limited number of “government” measures that we utilised for the Scorecard were also very good, propelled by a high proportion of schools with broadband access, and high levels of usage of online government services by the general public and by enterprises, and by high levels of government spending on computer services.
- 2.4 On the consumer front, it is noticeable that the US performance is conspicuously weaker on the “consumer infrastructure” sub-category than on other parts of the Scorecard. 3G penetration and even broadband penetration measured by the proportion of households that have broadband is moderate by standards of the innovation-driven economies. The US is one of a limited number of countries that is seeing widespread fibre broadband deployment, and arguably the only country that is seeing this deployment take place on a purely commercial basis. But actual penetration is far behind the leading nations of East Asia, although well ahead of much of Europe.
- 2.5 The US does much better on consumer usage. Despite the reportedly lower levels of mobile penetration in the United States compared to Europe, mobile telephony usage (measured in outgoing minutes) is multiples higher than that of most Western European countries, with fixed-line usage also being very high. At the same time, the US mobile or “wireless” sector is financially strong and ARPU is high, suggesting that the US wireless business model has been good for consumers and good for firms. SMS usage is also now taking off in the United States.

3 2009 compared to 2008

- 3.1 We have repeatedly stressed the fact that the Connectivity Scorecard is designed to provide a comparison of how countries rank in relation to each other at a given point in time. As with other indices of relative rankings, it is hard to interpret absolute scores and it is hard to make comparisons of absolute scores over time.

- 3.2 In addition, we substantially expanded and revamped the information base for the current version of the Scorecard and we also expanded greatly the list of countries that we included for consideration in 2009. These factors mean that it is not possible to generate very direct comparisons between absolute scores over time and to easily interpret these as “improvements” or “deteriorations.”
- 3.3 Nevertheless we offer some comment on the US ranking and score in 2009 compared to 2008. In 2008, the US topped the list of 16 countries that were included in the Innovation-driven portion of the Scorecard. The US obtained an absolute score of 6.97. In 2009, despite the inclusion of many other countries that often rank with the US in other indicia such as the E-Readiness index, the US still topped the rankings.
- 3.4 Even though consumer infrastructure was an area in which the US was relatively at its weakest, the US relative performance on this front was boosted by the inclusion of metrics that were forward looking. For example, the US is one of the few countries in which a mainstream incumbent operator offers 50 Mbps services. The US also scores more favourably on broadband penetration when this is measured as a proportion of households rather than as connections per 100 population—US household size is larger than in many European nations.
- 3.5 Additionally the US received a “boost” on the business usage front. This is a function of our decision to incorporate new metrics derived from data on Enterprise usage prepared by a leading vendor, and to not rely on some survey data that we had used in the previous Scorecard.

2008 Radar Chart for the United States



4 Specific background information on the United States: Special Comment

- 4.1 The U.S. has in the 2000s been thought of as lagging behind Europe and the Far East in terms of connectivity based on various measures of 'lines' such as mobile phone and broadband subscribers. For example, in 2005 there were just over 70 mobile subscribers per 100 inhabitants in the U.S. compared to 124 in Italy and 123 in Hong Kong.¹ Similarly, as of 2005 there were just 97 broadband subscribers per 1,000 U.S. inhabitants compared to 248 in Korea or 198 in Canada.² The Information Technology and Innovation Foundation ranked the U.S. 12th overall out of 30 OECD economies in its annual broadband ranking. This moderate performance in terms of consumer infrastructure was reflected in the 2008 Connectivity Scorecard with the U.S. scoring just 0.44 on the consumer infrastructure component of the scorecard. It continues to be reflected in the 2009 Scorecard, albeit to a lesser extent.
- 4.2 Unlike other indexes however, the Connectivity Scorecard focuses on the productivity enhancement and economic growth dividends of Information and

¹ "Digital Opportunity Index", Published by ITU

² "Digital Opportunity Index", Published by ITU

Communications Technology rather than ‘just measuring how much ICT there is and how much a country spends on ICT.

- 4.3 Much of the established economic literature shows that gains from ICT come from the use of ICT by other business sectors, particularly financial services and retailing. This literature also shows that investment in ICT is most effective when it is accompanied by (a) investment in complementary skills and capital, and (b) investment in organisational change.
- 4.4 Hence we place more weight on business and B2B use of ICT than other indexes. We also treat government as if it were a business focusing on governments’ use of ICT in delivering services efficiently. It is efficient delivery which also focuses U.S. on the complementary skills and capital required to render ICT investments by firms and governments genuinely productivity enhancing.
- 4.5 Brynjolfson and Hitt (2000) have suggested:

“...case studies and econometric work point to organizational complements such as new business processes, new skills and new organizational and industry structures as a major driver of the contribution of IT. These complementary investments, and the resulting assets, may be as much as an order of magnitude larger than the investments in the computer technology itself.”³

It should not be surprising that the U.S.’ more flexible business environment and its superior record of both technological and organisational innovation results in an environment that is more conducive to realising the full benefits of ICT.

The design of our Connectivity Scorecard has resulted in a U.S. score that seems fully consistent with academic research on the gains from ICT, which have been more substantial in the U.S. than elsewhere. The New Economy has been largely a U.S. story until recently. Productivity figures from the EU Klems database suggest that the absolute contribution of ICT to productivity growth in the U.S over the past decade has been higher than anywhere in continental Europe. ICT has

³ Brynjolfsson, E & Hitt, L.M, (2000), “Beyond Computation: Information Technology, Organizational Transformation and Business Performance, Journal of Economic Perspectives, Volume 14, Issue 4, p.23-48

contributed an average of 0.8 percentage points to annual U.S. GDP growth compared with 0.54 percentage points in Europe.⁴

5 Some background information on regulation and government policies {note: not feasible to provide similar levels of details for all countries}

- 5.1 As with most OECD nations, the United States has a fully liberalized telecommunications and ICT sector, and in fact does not have the history of state ownership in the sector that Europe has had. The US had a highly regulated investor-owned “Bell System” in place for most of the 20th century. Following the break-up of the Bell System in 1984, the US telecommunications industry has wound its way to a state of full competition on a largely deregulated basis.
- 5.2 There is still a significant amount of regulation of the telecommunications industry by the Federal Communications Commission (FCC) and its counterparts in the 50 states. However, the two most dynamic parts of the telecommunications industry—broadband and “wireless”—are substantially deregulated. A series of court decisions and FCC rulings in the 2003-05 period resulted in the United States becoming the first major country to greatly relax infrastructure-sharing and “unbundling” obligations often imposed on incumbent telecoms firms offering broadband services. Partly as a result of these decisions, the United States broadband market is largely a two-way battle between the “Bells” (AT&T, Verizon and Qwest) and the cable operators (Comcast and Cox, for example). This inter-platform competition and deregulation has played a role in ensuring that the US is well ahead of many European countries in terms of large players investing in widespread Next-Generation Access. Against this, prices in the US market are higher than in the European market, and penetration slightly lower.
- 5.3 Similarly the US wireless sector has followed a different path from Europe. The US features GSM, WCDMA, and CDMA/CDMA2000/CDMA2000-EVDO networks, although there appears to be convergence in terms of larger operators opting for LTE as their choice for 4th-generation technology. Most US consumers are on post-paid plans, and tend to have very high usage levels compared to their European counterparts.

⁴ EU Klems, <http://www.euklems.net/>, Averages for the period 1996-2005

- 5.4 President Obama has made broadband deployment one of the key tenets of his “ICT policy.” For the first time in a generation, the United States is seriously considering the use of public funds along with incentives and tax credits to ensure that no American is left behind. Rural broadband deployment might be the beneficiary of public funding in particular.
- 5.5 A major challenge for the United States is education. The country arguably produces too few graduates in Science and Engineering, and a very high share of PhD graduates are foreign citizens. While relaxation of visa and immigration rules may help the short-term US position, longer-term the US needs to grapple with the uncomfortable fact that it is one of the few nations in which the 25-34 age group is less well-educated than preceding age groups.
- 5.6 Being an innovator has always been the source of the US’ wider strengths in ICT and computing. Education policy and worker training policies ought to be given highest priority. In fact the message of the Connectivity Scorecard 2009 to the incoming administration is that in order for the United States to remain on top it needs to do more than just spend large sums of money on infrastructure and public works. It needs to ensure that it invest in the “smarts” that will enable effective utilization of the infrastructure. For a long time, the country had much higher tertiary education rates than most of its counterparts. This is no longer the case, and the fact that there are striking disparities in educational attainment across regions, ethnic groups, and income levels is further cause for concern. The Scorecard reflects current strengths built on the back of past investment. The future looks more uncertain for the United States.