



Connectivity Scorecard 2010

Denmark – Another consistent
Nordic performer

Overview

Denmark continues to be a top performer on the Connectivity Scorecard, although this year it is eclipsed by its Scandinavian neighbors Sweden and Norway. With a score of 7.54, Denmark ranks fourth in the innovation-driven economy¹ rankings of the Scorecard, after Sweden, the US and Norway.

As last year, the country performs consistently well across nearly all sub-categories and even notches up the highest score in government infrastructure this time around. Despite the strong performance, Denmark's score remains short of the best-performing countries on the Scorecard. It shows that there is still some room for improvement to capture the full potential of Information and Communications Technology (ICT), especially in the area of consumer infrastructure, which happens to be Denmark's weakest link.

Strengths

Denmark performs very strongly on all government-related metrics and clinches the top score this year on government infrastructure.² In particular, Denmark finishes at the top of the UN E-Government Readiness Index, near the top when it comes to schools with broadband access and behind only a few countries on measures of utilization of e-government offerings.

	Score	Weight
Consumer Infrastructure	0.57 (0.96)*	0.11
Consumer Usage & Skills	0.79 (0.82)*	0.11
Business Infrastructure	0.73 (0.86)*	0.52
Business Usage & Skills	0.82 (0.87)*	0.14
Government Infrastructure	0.93 (0.93)*	0.10
Government Usage & Skills	0.83 (0.93)*	0.03

* The score of the leading performer
for this component

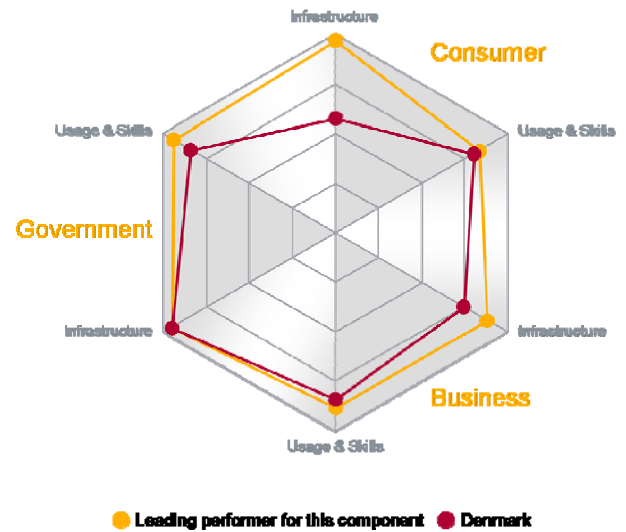
¹ As defined by the World Economic Forum

² While the "government infrastructure" sub-category of the Scorecard measures a country's performance on provision of e-government infrastructure, the "government usage and skills" sub-category looks at the usage of e-government services per capita.



Another area where Denmark does well is business usage and skills, where it achieves a score of 0.82 compared to top scorer Norway (0.87). Denmark has a large proportion of enterprise turnover arising from electronic transactions, and in fact, together with Norway, achieves the highest score of all nations on this measure. The country also scores very highly in terms of the proportion of businesses that have websites, and respectably in terms of the measure of human capital quality that has been introduced this year.

In terms of business infrastructure, Denmark has a high penetration of business broadband, high ratio of new data protocols in enterprise connectivity, and a high score on the penetration rate of secure servers, indicating a robust electronic transaction infrastructure. Danish businesses invest less heavily in IT hardware and software and also in ICT-related research and development (R&D) than Swedish or American businesses; nevertheless, the country still gets a respectable score on business investments in ICT.



Denmark also demonstrates strong performance on the consumer usage and skills front. The country has a strong residential personal computer (PC) penetration. In terms of online banking usage and the proportion of frequent internet users in the adult population, Denmark is matched only by other Nordic nations and is well ahead of several very “online” nations such as the English-speaking countries. Clearly, the internet is a part and parcel of Danish life in a way that is matched by few other countries.

Weaknesses

Denmark’s performance on the consumer infrastructure front is patchy, and this is one area where it lags behind neighboring Sweden, but ties with Norway. Given Denmark’s advanced status on most ICT metrics, it’s also surprising to find its 3G penetration to be just about average for Europe.

Denmark ranks very high on broadband penetration but slightly lower on the quality of the broadband infrastructure. Judged on two metrics – average download speed and penetration rate of IP addresses that download data at 5 Mbps (penetration rate of “high broadband” IP addresses) – in Akamai’s State of the Internet report for Q2 2009, Denmark trails Japan, Korea, Sweden and the Netherlands.³

Rather surprisingly, Denmark does not perform particularly well in terms of business-related PC penetration, although residential PC penetration in the country is very high. Denmark’s modest score of on this metric may reflect moderate business PC intensity. On the other hand, there may be definitional issues with how PCs are defined and classified, and it is possible that different sources could be classifying things in different ways.

³ For an explanation of Akamai and Akamai’s State of the Internet report, see the “Appendices” section of this document.

Conclusion

Like its Scandinavian peers Sweden and Norway, Denmark continues to be a very strong and consistent performer across the various sub-categories of the Scorecard, with its shining performance only marred by its relatively weak showing on the consumer infrastructure front. An improved consumer infrastructure, including a push to investments in advanced next-generation networks, would help the country tap its full potential and further extend the benefits of ICT.



APPENDICES

2010 compared to 2009

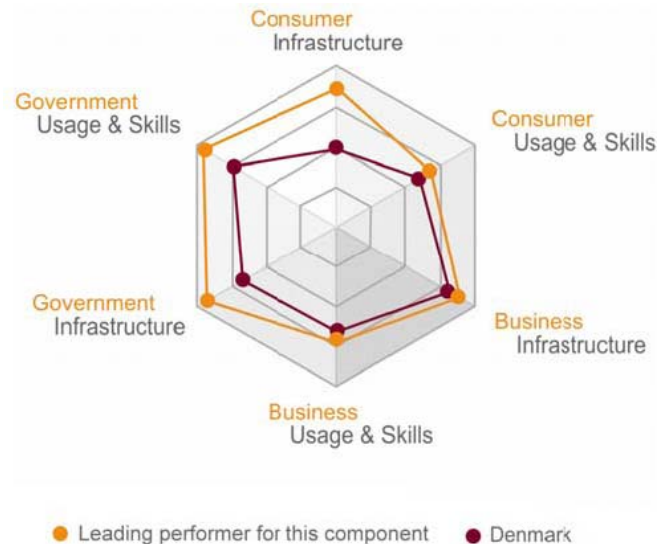
The Connectivity Scorecard is based on comparative scores between countries, and, therefore, each country's performance is measured in relation to the best performing nation in each segment at a given point of time. As with other indices of relative rankings, it is therefore hard to interpret the Scorecard in terms of absolute "improvements" or "deteriorations" and to make comparisons of scores over time.

Added to this, we have made a number of changes to the indicators in the 2010 version of the Scorecard to reflect the changes in technology and to more precisely capture "real-world" data.

We have used Akamai's data on speed this year rather than using measures such as "fastest speed advertised by the incumbent" as done in the previous edition of the Scorecard. Akamai is a leading provider of cached content with servers located all over the world and its metrics capture not just the "speed" that is measured in other speed tests, but also additional factors such as congestion in the network that affect the user experience. In addition, we decided to use the UN E-Government Readiness Index to measure countries' performance in the government category, rather than the Brookings Institution E-Government measures that we utilized last year. We have also incorporated new metrics from the Economist Intelligence Unit.

The impact that these changes have had on Denmark's relative performance is worth discussing (for Denmark's 2009 performance see also the comparative star diagram on this page). The use of Akamai data affected Denmark's ranking relative to Sweden. Using a better measure of the real-world user experience, Denmark fared worse than its Nordic peer due to the relatively lower deployment of next-generation networks, although its performance is significantly higher than that of many other European countries.

The other change ended up boosting Denmark's score slightly. The country fares much better on the UN E-Government Readiness Index and, therefore, is one of the strongest scorers on the new metric on the Scorecard.



About Connectivity Scorecard

Connectivity Scorecard is a global ICT index – the first of its kind to rank countries not only on their deployment of ICT infrastructure but to also measure the extent to which governments, businesses and consumers make use of connectivity technologies to enhance social and economic prosperity. This “useful connectivity” illuminates how the potential of ICT is being harnessed to boost productivity and economic growth. Unlike other research available, Connectivity Scorecard also measures “usage and skills,” such as literacy, the use of enterprise software and the accessibility of women to ICT.

Commissioned by Nokia Siemens Networks, the study was created by Professor Leonard Waverman, Dean, Haskayne School of Business, University of Calgary, and Fellow, London Business School. The study was conducted under Professor Waverman’s direction by international economic consulting firm LECG.

For more information on the Connectivity Scorecard, visit www.connectivityscorecard.org

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