



Connectivity Scorecard 2009

China – Weak business a brake on progress, but consumers show the way

Overview

With a score of 3.19, China achieves a moderate 15th position in the Connectivity Scorecard 2009 rankings of resource and efficiency-driven¹ economies. In the context of the BRIC² grouping of dynamic emerging economies, China finds itself trailing distantly behind both Russia (5.37) and Brazil (5.12), but is itself comfortably ahead of India (1.88).

In recent years China has certainly made giant strides in the realm of Information and Communications Technology – both as a consumer and as a supplier, with an emerging and powerful homegrown industry. The Scorecard, however, illustrates how far the country still has to go before it can realize the social and economic benefits of connectivity achieved by high-flying peers such as Malaysia (7.07) in the resource and efficiency economy rankings; never mind those of countries such as the US, which tops the innovation-driven economies portion of the Scorecard, which is calculated with a far more exacting set of criteria.

One important consideration when assessing China's performance is that most metrics used in the Connectivity Scorecard effectively measure penetration rates on a per capita basis. China, and its population, is thus judged as a whole rather than on those areas where ICT infrastructure is well developed. This factor impacts China's performance significantly.

	Score	Weight
Consumer Infrastructure	0.68 (0.81)*	0.08
Consumer Usage & Skills	0.58 (0.84)*	0.08
Business Infrastructure	0.23 (0.73)*	0.38
Business Usage & Skills	0.28 (0.74)*	0.42
Government Infrastructure	0.50 (0.93)*	0.02
Government Usage & Skills	0.32 (0.92)*	0.02

* The score of the leading performer for this component

¹ As defined by the World Economic Forum

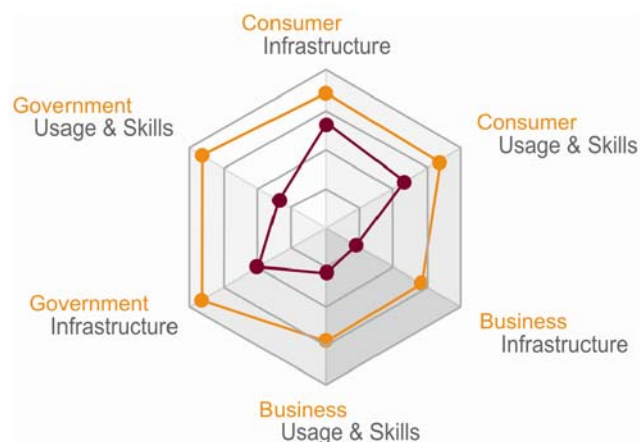
² The term BRIC refers to Brazil, Russia, India, and China – four rapidly developing nations that are thought to be seeking to form a political "alliance", and thereby converting their growing economic power into greater geopolitical strength.



Strengths

Unlike India, China's relative scores are rarely very low, reflecting the fact that China is clearly ahead of India on all consumer and business dimensions of connectivity.

And so, although China's overall score on Connectivity Scorecard 2009 is but moderate, there are pockets of strength, particularly in the consumer categories, where scores of 0.68 for infrastructure and 0.58 for usage and skills match up relatively favorably to the top-performing scores in these segments: 0.81 and 0.84 respectively.



China scores well on the following consumer dimensions: On the infrastructure front, China has strong PSTN subscription, with a relative score exceeding 0.8; broadband penetration – as measured by the percentage of households with service – is also well above the average for resource and efficiency-driven economies. Unlike India, China is near the top in terms of coverage of the population by mobile networks, an impressive accomplishment given the sheer size of the nation.

China's performance on the consumer usage and skills front is more mixed. Internet usage is not as high as one might expect given the high levels of broadband penetration. This, however, reflects the fact that in certain higher-scoring countries on this measure – such as Iran, which performs very well on Internet usage – the primary access modes for Internet are public spaces, rather than at home.

China gets a rather good e-government ranking, scoring 0.76 on a 0 to 1 relative scale. However, neither the level of government spending on hardware and software nor the level of government services that are available online is impressive.

Weaknesses

China's major weakness, in common with many of the resource and efficiency-driven economies, and in particular those at the lower end of the table, falls in the business domain.

One of the Connectivity Scorecard's unique features is that it accords weightings to each of the three segments according to their overall importance to the economy and productivity. In China's case the two business segments carry a weighting of 80 per cent of the total score, so a very low score of 0.23 for business infrastructure and a moderate score of 0.28 for business usage and skills combine to cause a significant drag on China's score and ranking. (For comparative purposes, the highest scores in this segment are 0.73 and 0.74 respectively, which clearly shows the distance by which China lags the countries whose business is making the best use of ICT.)

On the business front, the penetration rate of secure servers is fairly low in China, possibly reflecting the limited development of Internet commerce in the country. China also suffers from rather low availability of international bandwidth. On the business usage and skills measures, China only performs well on the measure of secondary school enrolment, where it achieves a relative score of 0.75 on a 0 to 1 scale. However, the overall level of business spending on software and hardware (an "infrastructure" measure in our scorecard) and on computer services (a reflection of "usage and skills") is not impressive.

Analysis

To some extent, China's scores, like those of India, in both 2009 and 2008 have been adversely affected by the fact that the Scorecard computes so many performance metrics on a "per capita" basis. However, despite these intrinsic disadvantages, China stands well above India in all measures of basic infrastructure deployment. It is possible that the "tyranny" of dividing by a large population base is more of a factor in producing low scores on the business metrics: but even if this is the case, the fact that China does so well on consumer infrastructure deployment suggests that there is the scope for improving business infrastructure and business usage and skills as well, although doing so would require the demand for infrastructure to arise **as a result** of deeper and more sophisticated usage.

It is also possible – although no firm data are available – that there are serious discrepancies between usage levels by businesses in urban areas and in coastal areas, relative to usage levels by (smaller and domestically-owned) businesses in rural and inland regions.

To the extent that China retains a government-led economic structure, this structure is well-suited to rolling out infrastructure and coordinating the required investment. However, as recent research shows, this sort of structure is not good at fostering innovation or adapting to rapid-fire technological change.³

In summary, China has a unique position in the world economy. It remains a highly state-directed economy, which means that there is a disconnect between aspects of infrastructure and network roll-out that have a "public good" element to them, and those aspects of infrastructure and usage that tend to be highly correlated to private and business usage. As the Chinese economy continues to open up, and as China exhausts the possibilities for "directed growth" or "extensive growth", the importance of incentivizing private and business usage of ICT will increase greatly.

Overall, China's performance reflects an element of "if you build it, they will come." However, there are limits as to how well this approach can work, especially when the demand for infrastructure is so driven by patterns of usage, as in the business sector. Despite these shortcomings, it should be recognized that China has far outstripped India – the only real comparator country – in most aspects of connectivity.

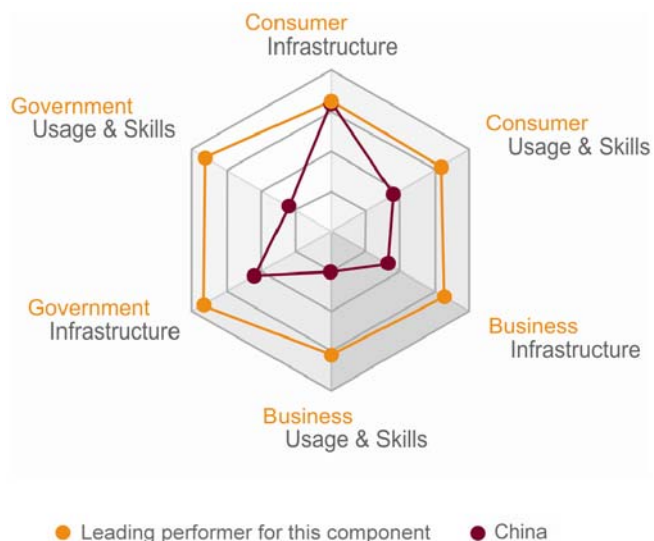
³ See Barry Eichengreen, *The European Economy since 1945: Co-ordinated Capitalism and Beyond*, Princeton: Princeton University Press, 2006.



APPENDICES

2009 compared to 2008

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. The addition of new countries to the Scorecard in 2009 has therefore had an impact on the scores of all countries. At the same time, some data sources used in 2009 are different from those used in 2008, which also results in some changes. How these have affected the China score is explained below.



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.

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.”

Nevertheless we offer some comment on China's ranking and score in 2009 compared to 2008. Although the country's score appears to have declined dramatically from 4.45 to 3.19, this can be explained in a number of ways:

- The information base that we chose to examine for Connectivity Scorecard 2009 was different and less favorable to China.
- More importantly, in Connectivity Scorecard 2009 there are a number of countries that tended to score highly on measures such as broadband penetration and PSTN penetration, on which China excelled in Connectivity Scorecard 2008, and thus pulled down China's overall score.
- We changed the broadband measure to a household penetration measure, whereas in 2008 we used a measure of subscribers per 100 inhabitants. Household size in China is smaller than in most other countries, which implies that the relative rankings of countries when we look at household penetration are different from when we look at population penetration.
- In order to expand our sample to 25 resource and efficiency-driven economies, we had to reduce the number of “business infrastructure” measures that we used compared with 2008, and this – along with the inclusion of higher-scoring nations – appears to have had an impact on the Chinese performance too.

However, the 2008 star diagram for China (see picture above) reflects the same overall patterns that we see in Connectivity Scorecard 2009: strength in deployment of basic infrastructure, some strength in uptake of services by consumers, but rather disappointing performances in the business arena.

About Connectivity Scorecard

Connectivity Scorecard is a global ICT index, which measures the extent to which governments, businesses and consumers make use of connectivity technologies to enhance social and economic prosperity. 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.

Nokia Siemens Networks has commissioned the study, which is the first of its kind to rank countries not only on their deployment of ICT infrastructure but also on the extent to which people, governments and businesses put this infrastructure to economically productive use.

The study is created by Leonard Waverman, Fellow of the London Business School and Dean and Professor at the Haskayne School of Business at the University of Calgary, and conducted under his direction by international economic consulting firm LECG.

For more information on Nokia Siemens Networks’ Connectivity Scorecard, visit www.connectivityscorecard.org

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