Broadband Quality Score III
A global study of broadband quality

“All for Broadband – Broadband for All”
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Changing Quality Requirements

Today
- Social networking
- LD video streaming
- Basic video chatting
- Small file sharing
- SD IPTV

Requirement
- Download 3.75 Mbps
- Upload 1 Mbps
- Latency 9.5 ms

Tomorrow
- Visual networking
- HD video streaming
- Consumer telepresence
- Large file sharing
- HD IPTV

Requirement
- Download 11.25 Mbps
- Upload 5 Mbps
- Latency 60 ms
### BQS2010, Application Readiness

<table>
<thead>
<tr>
<th>Ready for tomorrow</th>
<th>Comfortably enjoying Today’s applications</th>
<th>Meeting needs of Today’s applications</th>
<th>Below Today’s Application Threshold</th>
<th>Basic Apps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea, Japan, Latvia, Sweden, Bulgaria, Finland, Romania</td>
<td>Switzerland, United States, Czech Republic, Hungary, Belgium, France, Slovakia, Norway, Estonia, Luxembourg, Austria, Singapore, Poland, Slovenia, Russian Federation</td>
<td>Taiwan, Spain, Australia, Ireland, Malta, New Zealand, Italy, Turkey, Chile, Israel, Ghana, Thailand, Saudi Arabia, Cyprus, Brazil</td>
<td>United Arab Emirates, Qatar, China, Argentina, Bahrain, Mexico, Tunisia, Costa Rica, South Africa, Malaysia, Pakistan, India, Morocco, Colombia, Philippines, Indonesia, Jordan, Egypt, Vietnam</td>
<td>Algeria, Paru, Nigeria, Kenya, Angola</td>
</tr>
</tbody>
</table>

14 countries already prepared for the Internet “applications of tomorrow” compared to only 1 country in 2008.
**Broadband Leadership: Ranking 2010 and 2009**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Broadband Leadership 2010</th>
<th>Broadband Leadership 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>South Korea</td>
<td>South Korea</td>
</tr>
<tr>
<td>2</td>
<td>Hong Kong</td>
<td>Singapore, Qatar</td>
</tr>
<tr>
<td>3</td>
<td>Japan</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>4</td>
<td>Iceland</td>
<td>Iceland</td>
</tr>
<tr>
<td>5</td>
<td>Switzerland, Luxemburg, Singapore</td>
<td>Switzerland, Singapore</td>
</tr>
<tr>
<td>6</td>
<td>Malta</td>
<td>Netherlands</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>Japan</td>
</tr>
<tr>
<td>8</td>
<td>United Arab Emirates, Qatar</td>
<td>Sweden</td>
</tr>
<tr>
<td>9</td>
<td>Sweden</td>
<td>Denmark, Norway</td>
</tr>
<tr>
<td>10</td>
<td>Denmark</td>
<td>Malta</td>
</tr>
</tbody>
</table>

South Korea, already the leader last year, has made the biggest jump in Broadband Quality in 2010.
Broadband Leadership: All Countries 2010

BROADBAND LEADERS

QUALITY LEADERS

PENETRATION LEADERS

Household Penetration

BQS (Scaled)
Country and City Readiness

Applications
- Audio Call
- Blog/Twitter
- Desktop Sharing
- e-Banking
- e-mail
- File Sharing (Instant)
- File Sharing (Fast)
- File Sharing (Normal)
- File Sharing (Slow)

Selected Apps
- Consumer TP

Broadband Quality Chart

Latency Index
Download Index
Upload Index

Quality Gap
- Download gap: No gap
- Upload gap: 932 kbps
- Latency gap: No gap

Latency threshold
- Consumer TP
- Web video call (High)
- Audio Call
- Gaming
- Web video call (Basic)
- Desktop Sharing

Applications Readiness
- READY
- NOT READY

Upload bandwidth threshold
Quality Digital Gap 2010

In 2010, 38 countries —53% of the total have conquered the digital quality divide, with negligible or negative differences between the broadband quality in their main cities and outside these. This is an improvement of 58% from 2009.
Many emerging economies are leaping ahead, often leapingfrogging by focusing on bringing the best broadband to their cities, acknowledging their relevance and impact on the economy.
There are already 41 cities with the quality required to be “smart and connected”. Europe leads with 21 cities in Western Europe, and 12 in Eastern Europe; Asia follows with 7 cities, and the USA has 1. Seoul tops the list and Japan has the most cities with the highest average quality.
Mobile Broadband Quality: Difference Between Technologies

10% of mobile broadband users enjoy average download throughputs of 3.75Mbps, uploads of ca. 1Mbps and latency below 110ms, with similar quality thresholds than fixed-line broadband for today’s applications.

4% have average download throughputs of 7Mbps, uploads of 1.7Mbps and latencies below 100ms.
Mobile Broadband BQS by Country

Sweden, Denmark are the world leaders in cellular mobile broadband quality, with USA, Spain, Estonia and Hungary following.
Patterns of broadband consumption are diverging and will continue to do so in the future. This has many implications for regulators and SPs.

A very basic digital household with simple quality requirements will be consuming about 20GB per month, and would require a minimum download throughput of 2.7Mbps.
A smart and connected household could be consuming 500GB per month and require a minimum download throughput of 18Mbps.
2010: Impact of Quality and Penetration

The study reaffirms the positive link between broadband leadership and the innovation economy.

- **Broadband Leadership**
  - Country competitiveness
  - Knowledge economy
  - Capability for Innovation
  - Economy incentive regime
  - High levels of education
  - Internet access in the schools

- **Broadband Quality**
  - Percentage of fibre and cable
  - Web usage
  - Improvements in education quality
  - Tertiary education enrolments
  - Government online services
  - Utility of patents
  - Female participation in workforce

- **Broadband Penetration**
  - GDP per capita
  - Labour Productivity
  - Government ICT agenda
  - Level of economic freedom
  - ICT laws in place
  - Company spending in R&D
  - Low economic inequality
  - Government procurement
  - Absorption of technology

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