



A BROADBAND AND INTERNET ECONOMY METRIC CHECKLIST

A New Approach

Background

The OECD Committee for Information, Computer and Communications Policy (ICCP) recommended that a new approach be considered to developing measures of broadband and the Internet that draws on work of three of the ICCP's Working Parties [Working Party on Communication Infrastructures and Services Policy (CISP,) Working Party on the Information Economy (WPIE), and Working Party on Indicators for the Information Society (WPIIS)]. Improved metrics can help answer urgent policy questions that the ICCP is working together to address, especially:

- a. Conditions supporting broadband deployment and adoption (CISP)
- b. How adopting broadband affects productivity and growth (WPIE, CISP, WPIIS)
- c. The best way to gather timely, internationally comparable data within limited statistical budgets (WPIIS).

In early 2011, the United States proposed a set of broadband and Internet metrics that would both improve and leverage the OECD's demonstrated analytical and methodological skill in collecting data about information technologies (ICT).

This document reflects comments from 20 OECD member countries. It includes the new and revised set of broadband metrics in Annex A: "OECD Broadband and Internet Economy Metrics Checklist," and suggests supporting activities flowing from the High Level Meeting on the Internet Economy (HLM).

The need for a new approach to an OECD broadband and internet economic metrics checklist

Key goals of the OECD's High Level Meeting on the Internet Economy (28-29 June 2011) include underscoring:

- a. The Internet's impact on economies and their productivity
- b. The increasing need for global connectivity
- c. The importance of national broadband access and adoption in OECD and non-OECD countries.

OECD countries need accurate and pertinent data to:

- a. Establish benchmarks and performance measures for their own broadband access and adoption plans
- b. Assess factors affecting broadband access and adoption, and policies most likely to be effective in furthering adoption.



OECD is a skilled and influential aggregator of broadband statistics. However, broadband access has evolved and new technologies have appeared. A consensus within the CISP, WPIE, and WPIIS proposes:

- a. Reconsidering definitions and developing new indicators
- b. Expanding the data collected to include information needed to assess Internet access, in particular broadband's impact on, and relationship to, other economic factors such as productivity and innovation.

The HLM offers an opportunity to call for:

- a. Re-examining existing data collections
- b. Determining ways to improve ICT- and broadband-related data collections and methodologies across OECD nations
- c. Better integrating the statistical work of the WPIIS, the CISP, and the WPIE to better respond to policy directions.

An illustrative metrics checklist

To improve the data available to analyse what drives the adoption of broadband and the Internet, and their effects on the economy, CISP, WPIE and WPIIS (by circulation) reviewed a proposed Metrics Checklist in late 2010 and early 2011. The comments of 20 member countries are reflected in the revised checklist (See Annex A).

The checklist describes two broad data sets:

- a. Broadband indicators
- b. More broadly based economic variables needed to gauge the economic impact of Internet-based technologies.

The checklist is aspirational:

- a. The list of indicator and economic variables is intended to encompass both countries' existing data collections, and those additional data that ideally would be collected to provide the maximum descriptive and analytical capability.
- b. The list neither describes any single country's data collection activities nor prescribes what countries should collect.

Specific aspirational aspects of the list include, for example:

- a. Expanding data collection to include data on wireless broadband
- b. Examining methodological questions of how national geography, demographic diversity and other, possibly yet unknown, factors can be explored to determine how they affect broadband penetration rates.

While the checklist is aspirational, a "short list" of the metrics listed under "Short-term goals" appears to be collected already by the European Union and as part of the OECD's on-going data collection work programme. In the short-term, three steps could be "low-hanging fruit" — tremendously helpful for cross-country analysis, yet undertaken with existing resources and without new data collections:

- a. Identify which nations are already collecting specific metrics
- b. How to move forward to compile a reliable guide to the availability of the data
- c. Examine whether and how to devise a central repository of publicly available data that is easily accessible in both analytical and machine-readable raw form to add to the OECD broadband portal.



Exploratory work on the reasons why some countries can collect these data, and why others do not, can be another area of joint inquiry for members that does not require additional data collections. Member countries that do not already collect this “short list” of metrics may find it worthwhile to do so in order to ensure definitional parity — and thus comparability — among countries. They may learn from the experiences of those countries that do collect this short list of metrics.

Many metrics described under “Longer-term goals” are more aspirational and will need detailed discussion as an area for future pursuit. They are offered now as a projection of future co-operative work areas across the CISP, WPIE and WPIIS, that could also draw on related work of other Committees and their Working Parties on topics such as innovation, productivity, and intangible assets.

While OECD countries strive to reach consensus on quantitative, empirical measures, there may be a need to gather data on a qualitative (*e.g.* case studies) or anecdotal basis to form the most recent and cross-comparable depiction of economic activities.

Post-HLM activities to develop an OECD broadband metrics and internet economy checklist

The HLM’s consideration and support for a metrics checklist can serve as guidance to the ICCP and its Working Parties, and other relevant Committees, as they track the challenges of the Internet economy and monitor policy and regulatory approaches born of these challenges.

The United States has also offered to host a follow-on workshop on 12-13 October 2011, in Washington, DC, to analyse how best to move forward on guidance on metrics from the HLM:

- a.* Begin to create or refine the set of metrics, building on the HLM
- b.* Make recommendations to the ICCP Committee on strategies for developing the most useful, resource-efficient, and sound data collection methodologies for the future.

The December 2011 Working Party meetings for CISP and WPIE and future WPIIS meetings are expected to receive guidance from the ICCP Committee to incorporate HLM-supported guidance on metrics, as well as the results of the October workshop, as the ICCP develops future programmes of work and budget and forms its research agendas.



ANNEX A: OECD BROADBAND AND INTERNET ECONOMY METRICS CHECKLIST

BROADBAND MEASUREMENT

Overarching Goal: Development of meaningful cross-sectional and time series broadband data that can be used to describe the broadband services available and who receives them. While not all countries may provide data for each series, providing as much data as possible in internationally comparable forms, and in a central repository, will benefit all.

Short-term goals

1. Broadband deployment at a disaggregated, statistical, geographic area level for residential and business grade services together, and separately for residential grade services and business grade services where possible
 - a. Speed tiers
 - b. Number of competitors (including facilities-based and non-facilities-based providers with annotations of the member country's definition of "facilities-based")
 - c. Differentiated by technology including fibre, hybrid fibre/coax (HFC), twisted pair copper, fixed and mobile wireless, satellite and others.
2. Broadband adoption at a disaggregated, statistical, geographic area level, for residential and business grade services together, and separately for residential grade services and business grade services where possible
 - a. Speed tiers
 - b. Number of competitors (separately for facilities-based providers and non-facilities-based providers with annotations of the member country's definition of "facilities-based")
 - c. Differentiated by technology including fibre, hybrid fibre/coax (HFC), twisted pair copper, fixed and mobile wireless, satellite and others.
3. Demographic metrics at a disaggregated, statistical, geographic area level
 - a. Including education, income, age, household type, gender, employment, occupation and other factors as appropriate
 - b. Urbanicity metrics, particularly urban versus rural
 - c. Metrics for household dispersion to compare/normalise availability figures
4. Continued discussion of purpose and methods for broadband price collection including issues such as:
 - a. Price benchmark methodology and "affordability" analyses
 - b. Usage structure of packages (such as data caps, metered pricing, and other elements), bundling, roaming
 - c. Metrics such as revenue per bit
 - d. Frequency of data collection
 - e. Enterprise metrics, such as ICT and broadband investment by industry and geography, and how businesses use those investments.



Longer-term goals

1. Mass market subscriber price data (including analysis of promotional pricing and bundling)
2. Discussion of cost of broadband deployment by technology (*e.g.* initial cost vs. recurring costs, access to rights of ways, ducts, and conduits)
3. Network performance data, including actual vs. advertised speeds, security, and reliability
4. Usage data (correlated with usage caps/plans) by demographics and geography, including: time of day (such as peak hours, peak days, peak periods), usage patterns for high bandwidth/low latency applications and content; and analysis of identified factors for why population is not using broadband
5. Standardised broadband mapping methods
6. Discussion of metrics for assessing the competitiveness of markets (*e.g.* gauges of market power)
7. Special considerations for data on mobile broadband services
 - a. Demand side customer-survey metrics such as frequency and purpose of broadband Internet use by owners of mobile devices of various types, customer awareness of available mobile applications, and customer willingness to use new mobile applications; survey information about pricing and other customer concerns that affect adoption
 - b. Supply side metrics such as cell size, capacity utilisation, and spectrum availability
8. Data on consumer demand for applications and content (such as VoIP, email) and social media Best practices for data collection (*e.g.* granularity that allows aggregation to larger sub-national geographies; connections/person vs. connections/household)

MEASURING INNOVATION AND PRODUCTIVITY IN THE INTERNET ECONOMY

Overarching goal: Development and implementation of comparable cross-section and longitudinal data, both qualitative and quantitative, that can be used to estimate both the drivers of Internet usage and its effects on innovation and productivity within and across countries. The data series outlined in this section encompass the set of wide-ranging measures that researchers would find optimal for analyses of the inter-twined relationships of ICT, innovation, and productivity in the Internet economy. Not all countries may collect all the data series outlined in this section. Sharing countries' experience about the data they do collect allows for refinements of definitions and possible best practices that will benefit all.



Short-term goals:

1. Identify when internationally recognised definitions of measurement concepts such as “innovation,” “productivity,” and “broadband” exist, and where they need to be developed
2. IT and ICT investment levels in the business and government sectors
3. Innovation in business practices and public administration
 - a. Management and organisational practices
 - b. Innovation in goods, services, and/or processes
4. Innovation in services and products
5. Supply chain and ICT usage
6. Survey instruments that include analysis of education/skills levels
7. New survey instruments that address current knowledge gaps in statistical instruments

Longer-term goals:

1. Reach consensus, through the OECD/DSTI/ICCP working party structure, on internationally comparable definitions for broadband and similar Internet access technologies.
2. Pursue collection of detailed longitudinal micro data on broadband availability and adoption, together with measures of basic economic variables required for productivity analysis and the impact of broadband on productivity, such as number of employees, total compensation, total revenues, capital investments, and spending on materials
3. Conduct analyses of the impact on productivity and other economic outcomes of broadband and Internet use by businesses, accounting also for capital, labour, energy, materials (KLEM) variables, using micro-data at the business unit level
4. Build on and co-ordinate with existing work on definitions and data collections on concepts such as innovation, research and development, and intangible assets that are needed to estimate the determinants of productivity in the Internet economy.