

# **PROPOSED METHODOLOGY FOR A NEW MOBILE/WIRELESS BROADBAND DATA COLLECTION**

This paper proposes a methodology for collecting wireless/mobile broadband data. It will form the foundation of the discussions during the OECD Expert Workshop on Measuring Mobile/Wireless Service Data, to be held at Culturgest, in Lisbon, on 19 and 20 February 2009.

## Introduction

This paper responds to the request from a number of delegations to collect and report data on mobile broadband in conjunction with the ongoing collection and reporting of the development of broadband services. The paper presents a proposed methodology for collecting and reporting mobile/wireless broadband statistics across the OECD. The methodology is the result of two rounds of contributions from member countries. The new indicator will assist in informing policy makers and other stakeholders in this increasingly important market segment.

## Background

The OECD began collecting and reporting broadband data in 2000 as a way to capture and record significant changes in OECD markets for Internet access. The OECD set the minimum threshold for broadband at a download speed of 256 kbit/s at the time, primarily to exclude ISDN technologies at 144 kbit/s and to include the majority of commercial offers then available via other technologies.

Wireless broadband technologies (such as fixed wireless and satellite) have always been included in the historical OECD broadband subscriber statistics, although they have only accounted for a small percentage of total connections. Less than 2% of all reported broadband subscriptions were wireless in June 2008. Internet-enabled mobile phones were not included by the OECD or the ITU in broadband statistics due to speed limitations and difficulties determining actual use.

There have been significant advances in wireless and wired broadband since the OECD first starting reporting the number of broadband subscriptions. As highlighted in the forthcoming Communications Outlook 2009, operators directed large amounts of investment to upgrading mobile networks so they could offer higher-speed connectivity. These upgraded 3G (IMT-2000) mobile networks now provide much higher-speed connections than were originally available at the beginning of the data collection. Examples of high-speed wireless data networks available in the OECD are HSDPA<sup>1</sup>, CDMA2000 upgrades<sup>2</sup> and WiMAX<sup>3</sup>.

## Process

The OECD sent out a questionnaire in June 2007 asking whether delegations felt the OECD should gather the statistics and requesting information about what data were already available.

The CISP Secretariat reported on the findings of the questionnaire and put forward a preliminary methodology in December 2007. Delegates at the December 2007 CISP meeting discussed the paper and the first methodology. This proposed methodology is based on discussions in the December 2007 meeting and the written comments submitted to the Secretariat in January 2008. It will serve as a basis for discussion at the workshop in February 2009 with a goal to finalise the methodology.

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<sup>1</sup> HSDPA (UMTS) is capable of sharing 14.4 Mbit/s of capacity among all end users in a given cell. As of June 2007 there were a total of 120 HSDPA operators worldwide and commercial networks in 27 of the 30 OECD member countries (3G Americas, 2007).

<sup>2</sup> CDMA2000 networks can also offer “broadband-type” speeds to end users. Qualcomm announced that the next revision on the technology (CDMA2000 1xEV-DO Rev B) will offer a maximum bandwidth of 14.7 Mbit/s in a cell area and should be available in 2007 (Qualcomm, 2007)

<sup>3</sup> Other portable Internet technologies exist which are not tied to mobile phone networks. One of the most well-known is WiMAX. Korea’s WiBro technology (a type of WiMAX) allows users to connect at up to 3 Mbit/s in fast-moving vehicles and has roughly 20,000 subscribers in Seoul.

## Wired and wireless as separate indicators

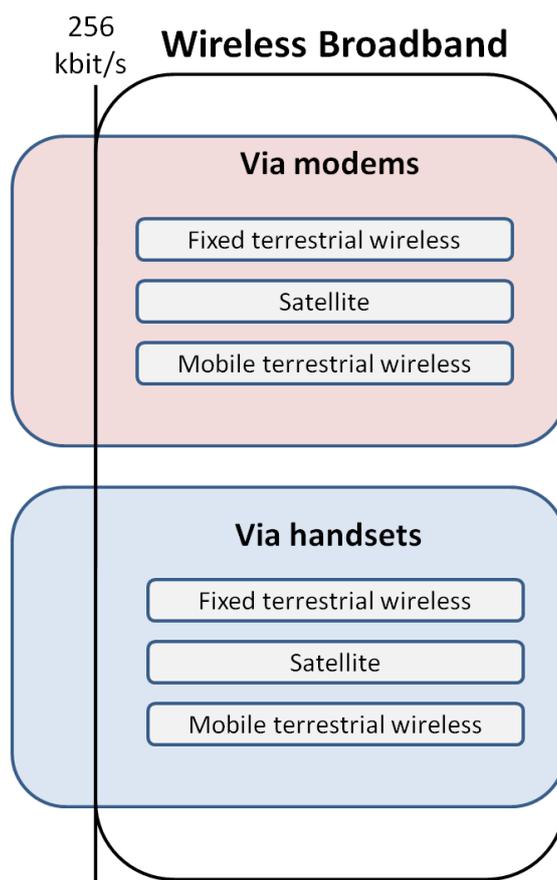
In December 2007, the Secretariat proposed separating *wired* and *wireless* high-speed connections into two different indicators. There was general agreement that this would be the best way to move forward given the particular challenges of categorising broadband over mobile networks. Fixed-wireless broadband connections are already included in OECD broadband statistics and these fixed-wireless subscriptions will be moved into the new “wireless” indicator.

Previous discussions about this new indicator focused on the term “mobile broadband” but the term “wireless broadband” is better suited to the methodology since the indicator will also include fixed-wireless connections which are not mobile.

## Proposed wireless indicator methodology

Figure 1 presents the new wireless broadband indicator methodology in a graphical way. The methodology gathers all data under the umbrella of wireless subscriptions but maintains a distinction between subscriptions accessing the Internet via a modem and those accessing via a handset. Details are provided below.

Figure 1. Fixed and mobile broadband methodologies



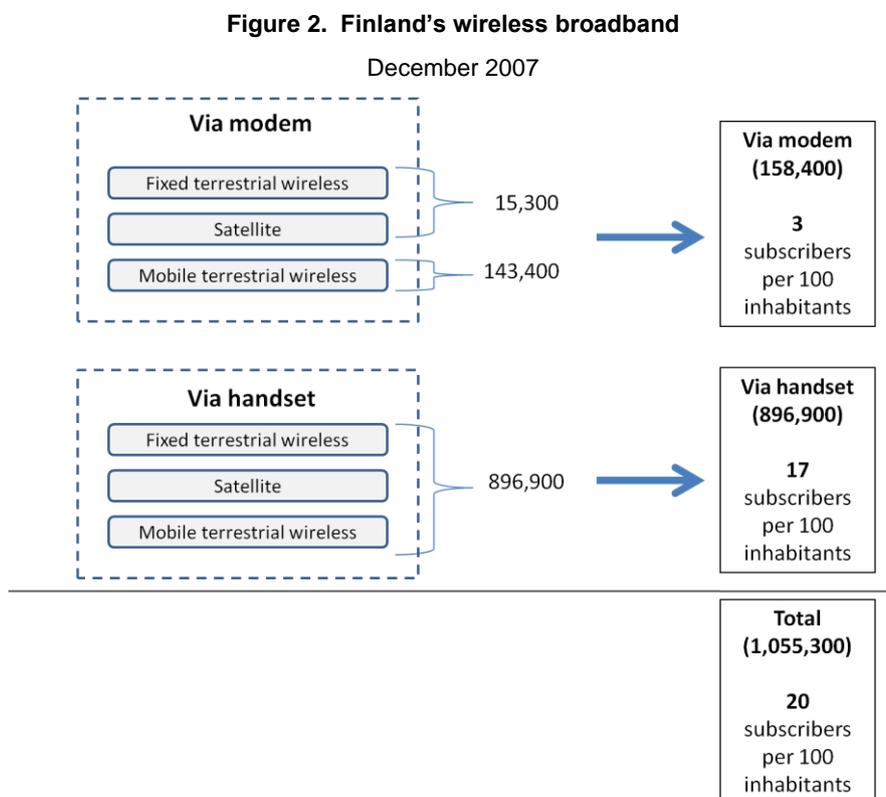
## Wireless broadband: differentiated by modem and handset access

The number of 3G mobile subscribers is much larger than dedicated 3G data card subscribers in most countries. Any changes in 3G “modem” subscriptions would be overshadowed by the sheer size of the 3G “handset” subscription market. As an example, Japan had the most 3G mobile subscribers in the OECD at 88 million in 2007. At the same time, Japan had 13 000 fixed wireless subscribers and an unknown number of other modem-based wireless subscriptions. The ratio of 3G mobile subscribers to fixed-wireless subscribers is 6 800 to 1 in Japan so even large movements in fixed-wireless would be difficult to see relative to the number of mobile Internet subscribers.

Delegations emphasised that it is important to measure growing 3G data card subscriptions because they are increasingly used as fixed-line broadband. The methodology therefore separates all wireless subscribers into two subcategories – subscriptions via a handset and subscriptions via a modem. Having a separate measure of each will be helpful for analysing fixed/wireless broadband substitution.

The OECD would publish three distinct statistics as part of the indicator. The first would be the total number of wireless broadband subscribers. The second would be the subset of subscriptions using a data modem and the third would be the subset of subscriptions via a mobile handset. Separating the three elements allows policy makers to follow each distinct submarket.

Figure 3 provides an example of this breakdown using data supplied by Finland for the Communications Outlook 2009. Finland’s overall wireless broadband subscribers in 2007 would be 1 055 300 which is equivalent to a penetration rate of 20 subscribers per 100 inhabitants. Within this total, 3 subscribers per 100 inhabitants are attributed to dedicated data cards (modems) and 17 per 100 to handset subscribers.



### ***Limited to “active” subscribers***

In December 2007 the OECD Secretariat proposed a methodology which counts “potential” access by including all 3G mobile phone subscriptions regardless of whether or not subscribers used the data component. Interventions from several countries favoured a narrower view of mobile broadband access that included only “active” subscribers who had made a data connection in the previous three months. This change received strong backing from member countries and is now incorporated into the methodology. Only subscriptions which have been used for data access in the three months prior to the data collection date will be considered as wireless broadband subscriptions.

The question of “activity” mainly applies to subscriptions on 3G mobile networks but should be applicable across all technological platforms in a technologically neutral way. One of the key elements moving forward will be formulating a definition for what counts as active use. The Portuguese regulator Anacom has developed a methodology for counting the number of active mobile data subscribers:

Number of SIM/USIM<sup>1</sup> (Subscriber Identity Module/Universal Subscriber Identity Module) cards which, during period being reported, have established at least one PDP (Packet Data Protocol) session to access the Internet (APN Internet - Internet Access Point Name). Cards deactivated prior to the end of the reported period are excluded. SIM GSM migrations to USIM UMTS, should be considered, where applicable.

The Portuguese definition is technology specific to UMTS-based networks and does not encompass other mobile broadband technologies such as WiMAX. The definition for the OECD data collection would need to be broader in order to accommodate other technological platforms.

### ***Technological platforms are not handset- or modem-specific***

One of the key benefits of this methodology is that it does not assign technologies to either the handset or modem category. For example, WiMAX subscribers using data cards are counted as modem subscribers while WiMAX subscribers using a mobile phone (such as in Korea) would be counted as handset subscribers. This provides a forward-looking basis for categorising future mobile and wireless technologies.

### **Remaining challenge: Data availability**

There are some important challenges which need to be addressed before the OECD can effectively collect and publish wireless broadband statistics. One of the most pressing issues is the availability of data. The recent Communications Outlook questionnaire included questions on mobile/wireless broadband but data are still missing for many countries. The indicator will only be useful to member governments and other stakeholders when data is available from a sufficient number of countries. The development of a standard methodology will likely aid countries in the process of organising a collection of these data although this will likely take time.

Fortunately the subcategories of handset and modem subscriptions may provide a way for regulators who may be missing data in one category to still provide other data which can be compared across countries. For example, a national regulator may have data on the number of dedicated 3G mobile data subscribers but not 3G subscribers via handsets with active data usage. In this case the regulator could still submit data on dedicated data cards which could be published alongside the comparable data from other countries.

### **Remaining challenge: Qualifying bandwidth**

Another key challenge with broadband indicators is determining which connections qualify based on download speeds. The bandwidth quoted in advertisements for broadband on mobile networks is often the capacity at the cell, not what individual users can expect to receive in actual throughput. There is a similar, but less acute problem with wired broadband as well.

Basing the decision to include subscribers on actual throughput would require much more information, such as average utilisation at the cell. For this reason it is preferable to include classes of technologies which have theoretical speeds to subscribers at 256 kbit/s or greater even if users may not receive the advertised throughput in actual use.

### **Remaining challenge: Determining the frequency of the data collection**

Currently the fixed broadband indicator is collected twice a year. Some countries such as Finland collect data on a quarterly basis but others may not. It will be important to determine what level of frequency is the most manageable for delegations and the Secretariat.

### **Remaining challenge: Related coverage data**

The penetration of wireless broadband should be correlated with the coverage of high-speed wireless networks. There will be no coverage requirement for subscriber data to be included in the new indicator. It would, however, be helpful in the future to have better statistics on wireless broadband coverage to pair with wireless broadband penetration data. This would ultimately provide a more comprehensive understanding of actual take up.

### **Conclusion**

It is important for the OECD to have an indicator which measures the development of wireless broadband connections across countries. The indicator methodology developed through these consultations with member countries needs to be robust and sufficiently forward looking. The OECD Secretariat welcomes participation at the workshop on the methodology and data collection in an effort to formalise a standard methodology for June 2009.

The Secretariat will also continue working with international organisations such as the ITU and regional bodies such as the EU to harmonise methodologies and reduce the burden on regulatory and statistical agencies.

## ANNEX 1

### Proposed methodology for the OECD wireless broadband indicator

1. **Modem:** Subscriptions via a modem (active subscriptions with advertised download speeds of at least 256 kbit/s):
  - a. Fixed terrestrial wireless
  - b. Satellite
  - c. Mobile terrestrial wireless
2. **Handset:** Subscriptions via a handset (active subscriptions with advertised download speeds of at least 256 kbit/s):
  - a. Fixed terrestrial wireless
  - b. Satellite
  - c. Mobile terrestrial wireless
3. DOES NOT INCLUDE
  - i. Wi-Fi, except for the cases when Wi-Fi is used as the transport technology for a fixed-wireless Internet service provider. The lines supporting Wi-Fi hotspots are already counted once in the fixed-broadband subscriber methodology.

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