

ITU EXPERT GROUP ON HOUSEHOLD INDICATORS (EGH)

BACKGROUND DOCUMENT 3

PROPOSAL FOR A DEFINITION OF SMARTPHONE¹

SUMMARY

The added features and functionalities of smartphones provide additional opportunities for individuals to participate in the digital economy. However, data on smartphone access, use and ownership is not currently included in the list of ICT Household Indicators collected by ITU.

The list of ICT Household Indicators includes one indicator on mobile phone access (HH3) and two indicators on mobile phone usage (HH10) and ownership (HH18); however, none of these indicators have a specific sub-category to track the access, use and ownership of smartphones.

The issue of smartphones has come up several times at previous EGH meetings (mainly related to the definition of computers); however, the definition of smartphones has not been discussed at length. Smartphones are often described in different ways; however, most definitions tend to focus on its internet connectivity and advanced features.

In order to start collecting data on smartphone access, use and ownership, it is first necessary to agree on a clear and common definition of smartphones to ensure internationally comparable data.

Comments received from the online forum: Brazil (Cetic.br), Cyprus, Kenya, Saudi Arabia, United Kingdom (GSMA), Uruguay (Agesic)

Preliminary conclusion:

- Tracking smartphone adoption is highly relevant for policy makers and investors.
- There is need to add a sub-category to specifically track smartphone adoption in *HH3: Proportion of households with telephone*, *HH10: Proportion of individuals using a mobile cellular telephone* and in *HH18 Proportion of individuals who own a mobile phone*.
- Many different definitions of smartphones exist; however, the boundaries between feature phones vs. smartphones, and smartphones vs. tablets, are often not clear.² It is thus necessary to agree on a common definition to ensure international comparable data is collected.
- Based on the definitions used by standard-setting organizations and by the industry, the proposed definition is: *a mobile handset with a touchscreen display that is used as the person's primary phone device, but enables access to advanced Internet-based services and performs many of the functions of a computer, including having an operating system capable of downloading and running applications, also those created by third-party developers.*

¹ This document was prepared by Fredrik Eriksson, ITU.

² The reference to feature phones in this document follows the GSMA definitions, which distinguishes between basic phones and feature phones, with feature phones having some, but not all of the functionalities of a smartphone.

Points for discussion:

- Do countries and experts agree with the proposed definition of a smartphone?
- Do countries and experts agree with the proposal to add a sub-category on smartphones in ICT household indicators *HH3: Proportion of households with telephone*, *HH10: Proportion of individuals using a mobile cellular telephone* and *HH18: Proportion of individuals who own a mobile phone* to be collected annually by ITU?

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I. Background: the need to define smartphones

The rapid spread of smartphones and its ability to connect to the Internet from practically anywhere has drastically changed our lives and opened up the world to a whole new range of online services. New businesses, for example, can be created by using only a smartphone, allowing people to easier than before connect to new customers and markets. The use of applications and geographical positioning are key features to match customers' increasing needs to access convenient services.

Users' quick and easy access to news, information and entertainment, many communication channels to connect with family and friends, and the ability to shop, pay and connect to banking and government services from any location are some of the other possibilities made available through these "magical" devices. Yet, there are different views of the key features which define a smartphone. Hence, a sound and internationally agreed definition of smartphones needs to be set.

The list of ICT Household Indicators includes one indicator on mobile phone access (HH3) and two indicators on mobile cellular telephone usage (HH10) and ownership (HH18); however, none of these indicators have a specific sub-category to track the access, use and ownership of smartphones.³ Consequently, data on smartphone access, use and ownership is currently not collected by the ITU. The issue of smartphones has come up several times at previous meetings of the Expert Group on ICT Household Indicators (EGH), but mainly related to the definition of computers. The definition of smartphones itself has not yet been addressed.

Considering the importance to policy makers and investors, it is crucial to begin to track smartphone access, use and ownership separately from mobile cellular telephones. However, **in order to begin tracking smartphone access, use and ownership at international level, it is crucial to first reach a clear and commonly agreed definition of a smartphone.**

The added features and functionalities of smartphones provide additional opportunities for individuals to participate in the digital economy, yet there are different definitions of what constitutes a smartphone. This background document presents various definitions of "smartphone" that are currently being used by standard-setting organizations and by the industry. This document also includes inputs received in the EGH online forum on this topic.

³ These are indicators *HH3: Proportion of households with telephone*, *HH10: Proportion of individuals using a mobile cellular telephone* and *HH18: Proportion of individuals who own a mobile phone*. For more information about these indicators and the list of ICT household indicators, see Annex A, B and C, and in the Manual for Measuring ICT Access and Use by Households and Individuals, available at: <http://www.itu.int/pub/D-IND-ITCMEAS-2014>

II. Many definitions of smartphones in use

Smartphones are currently described in different ways; however, most definitions tend to focus on its connectivity and advanced features. Some examples include:

- The **Oxford Dictionary** defines smartphones as “A mobile phone that performs many of the functions of a computer, typically having a touchscreen interface, Internet access, and an operating system capable of running downloaded apps.”
(<https://en.oxforddictionaries.com/definition/smartphone>).
- **Merriam-Webster** defines smartphones as “a cell phone that includes additional software functions (as e-mail or an Internet browser)”
(<https://www.merriam-webster.com/dictionary/smartphone>)
- The methodological manual from **Eurostat** states that “a smart phone is a mobile phone that offers more advanced computing ability and connectivity than a contemporary basic ‘feature phone’”. In addition, the Eurostat manual states that “smart phones are associated with advanced functionalities, e.g. having a full, soft or slide-out keyboard, or advanced touch screen and internet access (e.g. iPhone).”
- The **OECD Model Survey** on ICT Access and Usage by Households and Individuals uses the same definition as Eurostat: “Smart-phones (themselves mobile phones) offer more advanced functions and connectivity than basic mobile phones.”
(<https://www.oecd.org/sti/ieconomy/ICT-Model-Survey-Access-Usage-Households-Individuals.pdf> page 22).
- The general framework of mobile financial services from the **International Organization for Standardization (ISO)** states that smartphone mobile devices “perform functions of a computer such as data storage, capability to run downloadable applications and Internet access” (ISO 12812-1:2017).
- The **GSMA** has both a **technical** and a more **consumer friendly** definition of smartphones:
 - **GSMA technical definition:** A smartphone is defined as a mobile handset enabling advanced access to internet-based services with computer-like functions. Smartphone platforms, such as Android, iOS, Windows Phone and BlackBerry, support native applications created by third-party developers, whereas feature phones used closed platforms that do not support native development, although downloadable applications are often supported using Java.
 - **GSMA consumer friendly definition:** A smartphone allows me to go on the internet and to download and use applications* such as Facebook, WhatsApp or Youtube. It has a large touchscreen display and functions with operating systems such as Android, Apple iOS, Blackberry OS, or Windows Mobile.

GSMA also distinguishes smartphones from “basic mobile phones” and “feature phones”.

According to the GSMA consumer friendly definition, a basic mobile phone “has a small screen and a keyboard (with one number and several letters per button). It does not allow me to browse websites or use mobile applications, such as Facebook, WhatsApp or Youtube.”⁴ Feature phones have some,

⁴ GSMA’s definition for applications is: An application looks like a small, square icon on your screen that you can tap with your finger to open a specific function on your phone, for example Facebook, email, WhatsApp. You can download an application from an online store like Google Play Store, Apple Store, or Windows MarketPlace.

but not all of the functionalities of a smartphone. However, a feature phone *“allows me to browse websites or use social media applications such as Facebook. It has a small screen and a keyboard (with one number and several letters per button)”*.

In addition, countries often have their own definitions of smartphones, for example the one from the Interviewer's Handbook in **Uruguay**, which states: *“a smartphone is a mobile phone built on a mobile computing platform, with a greater capacity to store data and perform activities similar to a mini computer and connectivity than a conventional mobile phone. The term “smart” refers to the ability to be used as a handheld computer”*.

III. Further considerations in defining smartphones

All definitions above include some of the additional functionalities of smartphones, such as Internet access and more computing power, compared to other mobile phones. However, while some of the features of a smartphone may appear obvious, e.g. Internet connection and the ability to download and run applications, the boundaries between “feature phones” (as defined by the GSMA), “smartphones”, and “tablets” are not necessarily clear.

Tablets, which are included in the definition of computer, may hold sim cards and would therefore match many of the features of a smartphone; however, it is not expected that people use their tablets as its primary phone device. Today, tablets are generally known for their larger screen size, e.g. generally larger than 7 inches, and greater processing power. However, considering the technological advances in making screen sizes larger in what is considered smartphones, screen size is becoming a less distinctive factor between the two types of devices. It is also possible further advances in smartphone design may further blur the boundary between smartphones and tablets, e.g. if a smartphone can be folded, its portability could be maintained, but at the same time it could allow it to have an even larger screen size. In conclusion, **the key distinguish factor between a smartphone and a tablet appears to be that a smartphone is used as the person’s primary phone device.**

Secondly, the distinction between a feature phone and a smartphone can be debatable. Phones that were able to connect to the Internet were often considered as smartphones 10 years ago, but today they would instead be considered a feature phone. A key factor in the GSMA technical definition of a smartphone is that it “*support native applications created by third-party developers*”, e.g. it allows users to download applications through open platforms. Feature phones, on the other hand, may have Internet connectivity and some pre-installed applications, however, the system is “closed”, i.e. it does not support native applications developed by third-party developers to be downloaded. However, considering smartphones are becoming more and more affordable, the trend in many countries is moving away from feature phones. **It is therefore suggested to keep the GSMA reference to “*third-party developers*” in the definition of smartphones.**

In addition, some of the current definitions are rather ambiguous and refer to “*advanced functionalities*” and “*additional software functions*” or its similarity to a computer, e.g. “*perform functions of a computer*”. **It is therefore necessary to first agree on a clear definition of smartphones in order to ensure internationally comparable data is collected.**

IV. Proposal of a smartphone definition

The ITU proposal builds on the definitions currently used by standard-setting organizations and by the industry, but aims to clarify some of the necessary functionalities of a smartphone.

The proposal can also clarify the current definitions of Indicator *HH3: Proportion of households with telephone*, *HH10: Proportion of individuals using a mobile cellular telephone*, and *HH18: Proportion of individuals who own a mobile phone*, all which include smartphones, but do not specifically mention smartphones in their definition.

A smartphone could therefore be defined as:

a mobile handset with a touchscreen display that is used as the person's primary phone device, but enables access to advanced Internet-based services and performs many of the functions of a computer, including having an operating system capable of downloading and running applications, also those created by third-party developers.

The definition of smartphones would be included in the next iteration of the *Manual for Measuring ICT Access and Use by Households and Individuals* and data collection on smartphone access, use and ownership would be added to ITU's data collection of ICT household indicators in 2018.

- Do countries and experts agree with the proposed definition of a smartphone?
- Do countries and experts agree with the proposal to add a sub-category on smartphones in ICT household indicators *HH3: Proportion of households with telephone*, *HH10 Proportion of individuals using a mobile cellular telephone* and *HH18 Proportion of individuals who own a mobile phone* to be collected annually by ITU?

Annex A: Current definition of the Indicator HH3: Proportion of households with telephone

| HH3 Proportion of households with telephone | |
|---|---|
| <i>Definition</i> | <p>This is the proportion of households that have a telephone.</p> <p>A fixed telephone line refers to a telephone line connecting a customer's terminal equipment (e.g. telephone set, facsimile machine) to the public switched telephone network (PSTN) and which has a dedicated port on a telephone exchange. This term is synonymous with the terms main station or Direct Exchange Line (DEL) that are commonly used in telecommunication documents. It may not be the same as an access line or a subscription.</p> <p>A mobile (cellular) telephone refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.</p> |
| <i>Clarifications and methodological issues</i> | <p>'Household with a mobile telephone' means that the mobile telephone is generally available for use by all members of the household at any time, regardless of whether it is actually used. The mobile telephone may or may not be owned by the household but should be considered a household asset (as has traditionally been the case for fixed telephone).</p> <p>Household is defined in Chapter 7.</p> <p>A household can be considered as having access to a mobile telephone when it is able to receive and make calls from inside, or within the near vicinity of, the house (for example, the garden of the house).</p> <p>Equipment should be in working condition at the time of the survey</p> |
| <i>Model question:</i> | <p>For fixed telephone: Does this household have a fixed telephone line? Yes/No</p> <p>For mobile telephone: Does this household have a mobile telephone? Yes/No</p> |
| <i>Policy relevance:</i> | <p>A telephone provides shared, two-way communication services to a household and therefore allows members of a household to be reached, or to make a call, without having to travel any distance. It is an important basic device to stay in contact with people and to make calls in the case of an emergency. Basic telephone services remain relatively affordable and are usually free for incoming calls, which makes them relatively accessible to low income households. At the same time, almost anyone can use a telephone since it does not require specific literacy or ICT skills.</p> <p>Mobile cellular telephones are becoming the predominant method of communication in many countries.</p> |

Although fixed telephone lines have now been surpassed by mobile telephony globally, they are still an important affordable communication medium. Furthermore, they provide a basis for Internet access in most economies, whether through dial-up, Integrated Services Digital Networks (ISDN), or Digital Subscriber Line (DSL) services.

HH3 will help monitor trends in fixed and mobile telephony over time. In developing economies, while fixed telephone networks are often limited to urban areas, mobile-cellular network coverage has reached about 91 per cent of their population, effectively overcoming a major infrastructure barrier.

Many countries have identified specific goals for the delivery of universal service, which refers to the availability of basic telecommunication services for every household. To achieve universal service, many governments have set up universal service funds and identified universal service obligations, which oblige operators to provide basic services (often at set or limited prices) to a certain percentage of households, and in particular those in rural and remote areas, or to households with low income levels. Examples include the 2002 Universal Service Obligation in India and the 1997 United States Universal Service Fund.

Source

ITU (2014) Manual for Measuring ICT Access and Use by Households and Individuals, p.47-48. <https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual2014.aspx>

Annex B: Current definition of the Indicator HH10: Proportion of individuals using a mobile cellular telephone

| HH10 Proportion of individuals using a mobile cellular telephone | |
|---|--|
| <i>Definition</i> | <p>This is the proportion of individuals who used a mobile telephone in the last three months.</p> <p>A mobile (cellular) telephone refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.</p> |
| <i>Clarifications and methodological issues</i> | <p>This indicator refers to the use of a mobile telephone by individual household members for communication (therefore, not only as a clock, playing games or listening to music).</p> <p>Use of a mobile telephone does not necessarily mean that the telephone is owned or paid for by the individual but should be reasonably available through work, a friend or family member, etc. It excludes occasional use, for instance, borrowing a mobile telephone to make a call.</p> <p>The suggested reference period is the last three months. Country practices vary, but ideally, reference periods should be aligned in order to obtain comparable data. Note that this represents a change since the last edition of this manual. Countries changing their reference period may wish to split the reference period in order to obtain comparable time series.</p> |
| Model question: | Have you used a mobile telephone in the last three months? Yes/No |
| Policy relevance: | <p>The proportion of individuals who use a mobile telephone is an important indicator to measure the uptake of mobile cellular technology. The indicator complements the widely available indicator on the number of mobile cellular subscriptions and does not have the same shortcomings as the latter: HH10 provides information on the number and type of people who use a mobile telephone, whereas the mobile cellular subscription indicator measures the number of subscriptions. HH10 is particularly useful for developing economies, where ICT access and use remains limited. Classificatory variables for individuals using a mobile telephone – such as age, sex, education level or labour force status – can help identify digital divides, for example, a gender gap or a socio-economic divide. This information can feed policy analysis and contribute to the design of targeted policies to overcome those divides.</p> |
| Source | <p>ITU (2014) Manual for Measuring ICT Access and Use by Households and Individuals, p.60. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual2014.aspx</p> |

Annex C: Current definition of the Indicator HH18: Proportion of individuals who own a mobile phone

| HH18 | Proportion of individuals who own a mobile phone |
|-------------|--|
| Definition | This is the proportion of individuals who own a mobile phone. An individual owns a mobile cellular phone if he/she has a mobile cellular phone device with at least one active SIM card for personal use. It includes mobile cellular phones supplied by employers that can be used for personal reasons (to make personal calls, access the Internet, etc.) and those who have a mobile phone for personal use that is not registered under his/her name. It excludes individuals who have only active SIM card(s) and not a mobile phone device. |