



The OECD Model Survey on ICT Access and Usage by Households and Individuals

2nd Revision

Working Party on Measurement and Analysis of the
Digital Economy

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FOREWORD

This report presents the second revision of the OECD Model Survey on the Use of Information and Communication Technologies (ICT) by Households and Individuals.

The Model Survey was released in 2002 and then revised for the first time in 2005 [DSTI/ICCP/IIS(2005)3/FINAL].

The report was prepared by the OECD Secretariat in consultation with delegates from the OECD Working Party on Indicators for the Information Society (WPIIS) and declassified by the Information, Computer and Communication Policy Committee (ICCP) on 13 December 2013.

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THE OECD MODEL SURVEY ON ICT ACCESS AND USAGE BY HOUSEHOLDS AND INDIVIDUALS: 2ND REVISION

Background to the revision process

1. This paper presents the revision of the *OECD* model survey on the adoption and use of Information and Communication Technologies (ICTs) by households and individuals. This model survey (MS) and its counterpart covering ICT usage by businesses were first issued by the Working Party on Indicators for the Information Society (WPIIS, of which the Working Party on Measurement and Analysis of the Digital Economy – MADE is the follower) in 2002 and 2001 respectively,¹ setting an international standard for the production of indicators on the Information Society. Both surveys were subsequently revised only once, in 2005.²

2. Since the last review, the usage of ICTs in people's everyday life has increased dramatically across all OECD economies. Patterns of use also underwent remarkable changes, along with important technological and market developments. Indeed, the price of broadband – especially mobile – fell considerably and connection speeds accelerated. In the meantime, a plethora of innovations meant that the functionality of devices and applications improved greatly while becoming more affordable. In many countries, contracts where flat data connections are bundled with mobile or fixed communications (themselves being transmitted over Internet Protocol) are becoming standard, and *multiple play*, which includes content, such as access to TV channels, is also spreading. Now, many individuals are *always switched on* and can shift in a seamless fashion across different networks and devices, performing a greater variety of online tasks than they were doing only a few years ago.

3. As with ICT use by businesses, progress in the measurement of ICT use by individuals since the last revision has been steady, although uneven among countries, so that comparability did not progress in a similar fashion. Policy relevant aspects and associated measurement needs have changed, with new aspects gaining importance, as usage becomes pervasive in a growing number of areas in people's life.

4. In view of the above, at its 2010 meeting the WPIIS decided to revise both model surveys on ICT use, to ensure that they reflect evolving policy needs and priorities and to align them with current practices, as well as to take into account developments in standards and definitions – notably, that of e-commerce, approved by the WPIIS in 2009.³ To this end, two expert groups were set up with a mandate to report progress to the Working Party. A first set of proposals for this model survey was discussed at the 2011 meeting (DSTI/ICCP/IIS(2011)2), and at its December 2012 meeting the WPIIS discussed preliminary drafts for both surveys (Room documents no.1 and 2) and agreed that the two model surveys required finalisation, following a common framework. The secretariat drafted a proposal that was discussed by WPIIS at its December 2013 meeting (DSTI/ICCP/IIS(2013)1) and recommended for declassification to

1. Presented as [DSTI/ICCP/IIS\(2001\)1/REV1](#) and [DSTI/ICCP/IIS\(2002\)1/REV2](#).

2. The revised model surveys were published as [DSTI/ICCP/IIS\(2005\)2/FINAL](#) for businesses, and [DSTI/ICCP/IIS\(2005\)3/FINAL](#) for households and individuals.

3. For the updated definitions of e-commerce and ICT industries, products and occupations, as well as for the past editions of the model surveys, see the *OECD Guide to Measuring the Information Society 2011* (www.oecd.org/sti/measuring-infoeconomy/guide).

the OECD Committee for Information, Communications and Computer Policy (ICCP, now CDEP). This final version of the same document includes the comments received during the declassification process.

5. The WPIIS-MADE also agreed that the two model surveys should henceforth be subject to an annual review process. The scope of any revisions would vary: for example, new thematic modules could be discussed or new definitions could be introduced. The main purpose of the annual process would be to ensure that the two model surveys are consistently aligned with policy priorities as reflected in OECD discussions. Moreover, reviews on a rolling basis would allow MADE to be more forward looking and proactive in the development of international standards.

Main elements of this revision

6. The present revision takes into account policy priorities expressed by the OECD Committee for Information, Communications and Computer Policy (ICCP) and sister Working Parties,⁴ as well as the in-depth comments on the questionnaire (in the Annex) submitted by Eurostat and the European Commission (DG CONNECT). Other colleagues in national statistical institutes and specialised agencies also provided comments. All contributions in the development of this revision have been greatly appreciated.⁵

Purpose

7. Overall, the OECD model surveys are meant to improve international comparability by encouraging the use of standardised indicators. As such, the purpose of this revision is to better align the MS with the evolution of the availability of ICTs and their use by households and individuals and with progress in metrics in general, while taking into account emerging policy needs. To achieve these objectives, the current revision marks a significant change in terms of approach and scope of the survey.

Approach

8. The proposed survey approach is based on a two-tier structure consisting of core and supplementary indicators within 11 thematic modules.⁶ Core indicators represent statistical information deemed essential to monitor relevant dimensions in usage, i.e. access to the internet, frequency and intensity of usage and the type of activities performed, together with elements regarding the uptake of e-commerce, the use of e-government services, individuals' IT skills, measures in place to protect security and privacy and related incidents. Supplementary indicators are meant to provide more in depth

4. See, *inter alia*, envisaged work on metrics in [DSTI/ICCP\(2013\)7](#), or [DSTI/ICCP/REG\(2012\)12/REV1](#).

5. Special acknowledgements should go to: Martin Mana from the Czech Statistical Institute and member of WPIIS Bureau, who led the dedicated expert group, authored the earlier drafts on which this revision is based and provided mindful and extensive comments. All other WPIIS Bureau members, i.e. Luis Magalhães (Chair, Lisbon Technical University – Portugal), Justin Bayard (Industry Canada), Aarno Airaksinen (Statistics Finland) and Hans-Olof Hagen (Statistics Sweden) provided guidance throughout the process. Albrecht Wirthmann and Heidi Seybert from Eurostat provided a number of insights and shared their experience with the European model survey. Stefano Abruzzini (DG CONNECT) was of great help in discussing future trends and characteristics of indicators. Valuable comments and feed backs were also provided by Susan Teltscher and other ITU colleagues, Mark Uhrbach (Statistics Canada), Diane Braskic, Andrew Puljic and Neil Griffin (Australian Bureau of Statistics), as well as by other WPIIS colleagues. Last but not least, Elif Köksal Oudot, Pedro Herrera-Gimenez and Pierre Montagnier from the Secretariat gave precious help throughout the process which led to this document.

6. The modular approach is common in survey practice and was the approach taken in the first edition of the MS The 2005 revision, instead, adopted a questionnaire “look and feel”, but it also introduced 9 complementary items, corresponding to relatively untested indicators, most of which are now streamlined.

information on these phenomena, including individuals' satisfaction and perception of obstacles, and to extend surveying to child online protection and to the use of ICTs at school.

9. More concretely, the current revision includes one section with two modules on access to ICTs by households, and one with nine modules (7 of which core) on individual use of ICTs, which covers a much broader range of topics than the previous revision.⁷ The indicators draw from member countries' current ICT surveys and best practices including the European model surveys, adopted by the large majority of OECD countries, and surveys and modules developed in Canada, Israel, Japan, Korea, the United States, Australia and New Zealand.

Scope

10. Extensions in scope with respect to the 2005 revision are summarised in Table 1. These include new themes grouped in the modules on Internet use for business purposes, on the level of ICT skills, and in the two *supplementary* modules on the protection of children online – high in the policy Agenda⁸ – and on the usage of ICTs in schools. A number of new indicators are introduced in many other modules. Most of these new items are already covered in current national survey practice on ICT usage or in other surveys, but the revision also includes a few topics which have seldom been addressed, such as the *nomadic* use of the Internet, an experimental multi-item indicator on the use of *apps* and the possible inclusion of *apps* as a specific channel for e-purchases, or an item reporting broadband speed tiers recently agreed by ICCP, included in conjunction with connection types in the module on connectivity.

11. The WPIIS also considers extending the approach and scope of the model surveys through a regular revision process and calendar, with the objective of coordinating data development across the OECD on specific, non-core items. In this process, *complementary* indicators, many of which are based on extensive cognitive testing, provide a credible statistical reference for countries seeking to collect information for certain priority areas. As proposed by the WPIIS Bureau, the benefits of this approach could be maximised by joint (coordinated) efforts on data collection, especially on emerging topics. Finally, a periodic assessment of *core* indicators through the revision process can reinforce data harmonisation amongst OECD member and non-member countries.⁹

7. A similar expansion was proposed for the twin survey on ICT usage by businesses [see [DSTI/ICCP/IIS\(2013\)2](#)], with 75 (often multiple-item) indicators, against 24 in the previous release, without counting background information, which has also been extended in scope.

8. In particular, in 2012 was agreed the *Children Online Recommendation of the OECD Council: Report on risks faced by children online and policies to protect them*. See http://www.oecd.org/sti/ieconomy/childrenonline_with_cover.pdf.

9. The WPIIS is directly engaged in the *Partnership on Measuring ICT for Development*, with UN agencies and other international Organisations. Countries approaching the collection of ICT usage statistics can find useful guidance in the ITU *Manual for Measuring ICT Access and Use by Households and Individuals*, (www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITCMEAS-2009-PDF-E.pdf) and in the UNCTAD *Manual for the Production of Statistics on the Information Economy* published in 2009 in the framework of the Partnership (see http://unctad.org/en/docs/sdteecb20072rev1_en.pdf). For all definitions related to ICTs, please refer to the latest (2011) edition of the *OECD Guide to Measuring the Information Society* (www.oecd.org/sti/measuring-infoeconomy/guide).

Table 1. The 2013 revision at a glance

Modular structure and contents of the 2013 revision		No. of Indicators (2013 – 2005) ¹⁰		Novelties in 2013 revision vs. 2005 revision
Section I. Household access to ICTs				
A. Access to computer: Basic access to computer. Complementary question relates to the type of computer.		2	5	Updated lists. Introduced speed tiers and distributed access issues.
B. Access to Internet: Basic access to internet at home, with connection types and speed. Complementary questions relate to distributed signal and reasons for non-access.		6		
Section II. Individual use of ICTs				
C. Access to ICTs and Internet use: Use of different types of ICT equipment and frequency and place of use. Complementary questions relate to intensity (time) of use, type of connection and obstacles to mobile connection.		13	12	In-depth measurement of frequency and intensity of use. New questions on mobility.
CORE MODULES	D. Internet activities for private purposes: Activities online. Complementary questions relate to activities via mobile connection, to frequency by major online activity type and to intensity of use.	8	1	Updated list. Activities online through mobile connection. Intensity of communication-related activities. Focus on health-related issues.
	E. Internet use for business purposes: Frequency of Internet use at work. Teleworking and other purposes of the remote connection purpose of online work-related activities.	3	-	New topic
	F. E-government: Use of ICT to interact with public authorities, ways and types of interaction. Complementary questions relate to the level of satisfaction and perceived obstacles.	4	4	Updated lists.
	G. E-commerce: Types of goods and services purchased on line and frequency. Complementary questions relate to intensity and amount of purchases, payment modalities, geographical location of providers and perceived obstacles.	7	4	Intensity and payment modalities.
	H. ICT skills: Level of computer and Internet skills. Complementary questions on the channels of ICT skills acquisition.	3	-	New topic
I. Security and Privacy: IT protection tools and security incidents encountered. Complementary questions relate to update frequency of the IT protection tools and reasons for not using such tools.	5	3	Update frequency of the IT protection tools, extension of the incidents typology, actions post- incident, reasons for not using such tools.	
SUPPLEMENTARY	J. Protection of children online (household level): Victimization forms encountered and protection measures related to children's use of Internet at home.	2	-	New topic
	K. Internet activities at school: Access to ICTs, intensity of Internet use, frequency of computer/Internet-based activities.	4	-	New topic (Inspired by the OECD PISA Survey)
Background information: Details auxiliary variables on households/individuals' characteristics (age, gender, educational attainment and employment situation).		6	3	Detailed list.
		Total numbers of indicators: 63 32		

10. Please note that the numeric comparison is purely indicative: for the sake of simplicity, here and in Tables 2 and 3 below, different modalities or lists of items related to the same dimension are counted as one indicator. To keep comparison meaningful, however, items related to use of e-government services which in the 2005 survey were included in one broader question on online activities, here are counted as specific indicators.

Complementary tools and the work ahead

12. This revision entails a major revision of the OECD model survey on ICT usage by households and individuals, including substantial changes to its architecture and a large broadening in scope. However, many of the indicators proposed are bound to become obsolete, while other measurement opportunities and needs will emerge.

13. For instance, in the near future it might become less relevant to track computer use and even broadband and/or mobile connectivity, or to collect information on many of the activities which are now being monitored. New sets of activities, uses and devices might instead require greater attention, such as *Internet of things* (IoT) applications, domotics, or automation tools based on ICTs (e.g. robots).

14. Also, the focus of surveys may shift from the diffusion of given activities among individuals to the dependence of such activities on connectivity, i.e. the relevance of online vs. offline performance, and how this impacts on their diffusion.¹¹

15. Finally, as discussed in the WPIIS meeting of December 2012, and similar to the case of businesses, the Internet and other sources of data collection can also contribute to enlarge the array of available indicators beyond the scope of this model survey.

16. In view of the above, and considering the complexity of the current revision process, the WPIIS agreed that lighter updates to its model surveys would be performed on a rolling basis, following a simplified procedure. A methodological expert group has been formed to this effect, which would review model surveys annually, to ensure ongoing relevance. Hence, the current revision was conceived as an evolving platform that can provide a reference for countries and, possibly, be reinforced by metadata information. In particular, following the enhanced data and metadata collection also agreed at the 2012 meeting,¹² a repository of existing surveys is being set up, which might also be queried for specific indicators and for comparisons of countries' experiences.

17. An outline of key statistical issues and developments in surveying is also proposed in Annex 1 to this document. Aspects addressed include age-related extension of surveying, classificatory variables, survey techniques and vehicles. These latter, in particular, vary considerably among OECD countries and condition the "size" of survey and the possibility of collecting and analysing information on ICT usage together with other characteristics of households and individuals. Future work by the WPIIS might also usefully address these issues.

Proposed coverage of the model survey of ICT use by households and individuals

18. This section provides an outline of proposed core and complementary indicators. The Working Party is invited to agree on the choice of core versus complementary indicators reported in Tables 2 and 3 respectively, and/or to recommend changes. For the sake of simplicity in presentation and to keep aligned with questions in model survey implementation, here different modalities or lists of items related to the same dimension are counted as one indicator only. Underlying data might, instead, provide several indicators, including measures of central tendency, position and dispersion, per item in lists, based on association of different items, etc.

11. An example at the crossroads in this domain is the diffusion of combined online and offline purchases, i.e. checking for products and prices in shops and buying online and, vice-versa, online reservations which do not entail obligations, followed by ordering and/or direct purchasing in person as, increasingly, online dealers rely on physical points-of-sale.

12. See [DSTI/ICCP/IIS\(2012\)7](#).

19. The complete list of indicators in each module is provided in Annex 2 together with relevant information and definitions: please note that in Annex 2 proposed core indicators are highlighted in grey.

Core versus non-core indicators

20. Core indicators are proposed based on policy relevance and statistical feasibility. The number of proposed core indicators is kept to a bare minimum to maximise the likelihood of obtaining a set of key, internationally comparable indicators. These address key topics in the domains of connectivity, use of ICT devices and the Internet by individuals, covering the policy-relevant areas of e-commerce, e-government, IT-skills and security and privacy. Two fully supplementary modules, which do not include any *core* indicators, are also envisaged to allow the extension of surveying to youth related issues, i.e. child online protection and the use of IT in education, while complementary indicators are present in both types of modules.

21. This dual approach ensures that a common set of prioritised information is complemented with advanced measures of ICT sophistication. For member countries, it means that existing policy issues can be monitored while providing sufficient adaptability to anticipate new or emerging policy needs. This flexibility also provides strategic value to the WPIIS and its work plan moving forward.

Table 2. Proposed core indicators by module

Households' access to and use of ICTs
Access to computers
1. Households with computer access at home (% of all households)
Access to the Internet
2. Households with internet access at home (% of all households)
3. Type of internet connection used in the household (% of households w/Internet access)
4. Maximum advertised download speed (% distribution by speed-tiers).
Individuals' use of ICTs
Access to ICTs and Internet use
5. Use of selected ICT equipment (% of individuals, by equipment)
6. (Frequency of) computer use (% of computer users, by frequency)
7. (Frequency of) Internet use (% of individuals, by frequency)
8. Places of use of the Internet (% of users by location)
Internet activities for private purposes
9. Activities performed over the Internet (% of individuals by activity – can be duplicated for handheld devices)
Internet use for business purposes
10. Frequency of internet use at work (% of persons employed with access to a computer)
11. Work-related activities performed remotely over the Internet (% of p.e. w/Internet access, by activity)
E-government
12. Use of public services on line by intensity of interaction (% of individuals by activity)
13. Use of public services on line by type of service used (% of individuals by service)
E-commerce
14. Most recent occurrence of online purchases (% of individuals buying online and frequency)
15. Types of goods and services purchased online (% relevance of each type of item)
ICT skills
16. Ability to perform selected IT tasks (% of capable individuals by task)
Security and Privacy
17. Protection from IT threats (% of individuals using protected devices)
18. Security incidents (% relevance of incidents by type)

Table 3. Proposed complementary indicators by module

<p>Household's access to and use of ICTs</p> <p>Access to computers</p> <p>1. Type of computer accessed from home</p> <p>Access to the Internet</p> <p>2. Presence of distributed internet signal at home (% of households)</p> <p>3. Number of devices connected to the Internet at home (% of households by number and type)</p> <p>4. Reasons for not having access to the Internet (% relevance of each motivation)</p> <p>Individuals' use of ICTs</p> <p>Access to ICTs and Internet use</p> <p>5. Frequency of use of mobile phone (% of individuals by use brackets)</p> <p>6. Time of use of mobile phone (% of individuals by time-of-use brackets)</p> <p>7. Time of use of the Internet (% of individuals by time-of-use brackets)</p> <p>8. Experience with Internet use (% of users by years-of-use brackets)</p> <p>9. Devices used to access the internet (% relevance of each device and use of multiple devices)</p> <p>10. Frequency of Internet use via handheld devices (% of users over handheld devices)</p> <p>11. Type of Internet connection used: wired, fixed wireless and mobile (% of users by type of connection)</p> <p>12. Difficulties experienced with mobile connectivity (% relevance by type)</p> <p>13. Barriers to using mobile connectivity (% relevance by barrier)</p> <p>Activities performed on the Internet</p> <p>14. Use of Apps on mobile devices by category (% of users by category)</p> <p>15. Time of use of the Internet for communicating (% of users by time-of-use brackets)</p> <p>16. Frequency of use of social networks (% of individuals by frequency)</p> <p>17. Frequency of reading online newspapers (% of individuals by frequency)</p> <p>18. Use of online information by type of access (subscription, RSS etc.: % of users by type)</p> <p>19. Use of internet for health related purposes (% of individuals by activity)</p> <p>20. Frequency of Internet use for audio-visual content (% of users by frequency and activity)</p> <p>21. Use of own devices for work related activities (% of persons employed using own devices)</p> <p>E-government</p> <p>22. Level of satisfaction for online public services (% of users, by type of interaction and service)</p> <p>23. Reasons for not using advanced e-government services (submitting completed forms) (% relevance)</p> <p>E-commerce</p> <p>24. Number of orders placed online in the last three months, by channel (% of brackets, and web vs. apps)</p> <p>25. Location of sellers: national or foreign (% distribution)</p> <p>26. Amount spent on online purchases (% of buyers by value brackets)</p> <p>27. Payment channels for online purchases (% of buyers by channel)</p> <p>28. Reasons for not purchasing online (% relevance of each reason)</p> <p>ICT skills</p> <p>29. Means of acquiring IT skills (% relevance of each mean)</p> <p>30. Ability to address basic needs: work, communication, security and privacy (% of individuals, by need)</p> <p>Security and Privacy</p> <p>31. Frequency of update of protection tools (% of users by frequency, by tool)</p> <p>32. Actions taken following a security incident in the last 3 months (% of individuals by type of action)</p> <p>33. Reasons for not using protection tools (% relevance of each reason)</p> <p>Protection of Children online (household level)</p> <p>34. Diffusion of children online incidents (% of households with children, by type of incident experienced)</p> <p>35. Diffusion of children online-protection (% of households with children, by type of action taken)</p> <p>ICT usage in education (for students)</p> <p>36. Availability of ICT tools at school (% of individuals in education, by tool)</p> <p>37. Access to the Internet at school (% of individuals in education).</p> <p>38. Activities performed over the Internet at school, by frequency (% of individuals by use brackets)</p> <p>39. Frequency of Internet activities performed at school (% of individuals in education, by activity)</p>

22. Except in the two supplementary modules, non-core indicators provide additional information on topics already covered by core indicators. The items they address are in general well established, but unevenly surveyed among OECD countries (the EU guaranteeing the most regular coverage). The WPIIS-MADE will work for a coordinated rotation system of such indicators and of supplementary modules be put in place, to allow for a harmonised coverage of these themes across the OECD.

Different types of non-core indicators

23. Complementary indicators have different characteristics with respect to their relevance, ease of implementation and current use. In the following, we shall briefly go through the features of the main groups of indicators with respect to their adoption.

24. The majority of complementary indicators, already established in survey practice in many OECD countries, are typically suited for coordinated implementation. These include indicators providing highlights on *online activities* such as social networks, information or health,¹³ or detailing e-commerce (*payment channels*, used in Japan and being implemented in countries referring to the European model survey), and the use of *e-government services* (level of satisfaction, which might be usefully detailed according to the service, and reasons for *not* using). Overall, indicators pointing at barriers to usage are considered to be highly relevant from a policy perspective, although the quality of information achieved in past surveying is not always satisfactory. As a matter of fact, these indicators are likely to evolve in the future, as basic uptake becomes generalised.

25. Also suited for adoption via coordinated action are the indicators in the complementary module on *child online protection*, which aim at providing appropriate metrics to address an emerging policy need (see note 8 above) and were already tested with slight differences in Australia and, to a limited extent, the USA.¹⁴ The same applies to the complementary indicators proposed for the module on *security and privacy* which, in view of its high policy relevance, already includes three core indicators.

26. A few indicators might be candidate to be streamlined as *core* in the future, in view of their policy interest and ease of implementation. These include the indicators portraying *time spent using the Internet*, which move forward with respect to binary and frequency indicators¹⁵ and might be detailed according to main categories of activity (here, the only individual activity included is use for communication purposes). To date, time of use is already being monitored by Canada, Israel, Korea, Switzerland and the United States along similar lines, and was included in the original set of proposals presented to WPIIS in DSTI/ICCP/IIS(2011)2 and, in Europe, in the methodological guidelines for general time-use surveys, which might also represent an alternative vehicle.¹⁶ The proposed addition of *apps* as a specific item for online purchases might as well belong to this category.

13. Where the item on “*Accessing or uploading medical information or health record via an application provided by healthcare organisation*” mirrors an activity proposed for surveying *ICT availability and use in Health System* ([COM/DELSA/DSTI\(2013\)3](#)) from the perspective of health care providers.

14. Within the *Children's Participation in Cultural and Leisure Activities Survey* (2009 and 2012) in Australia and the *Current Population Survey* (2011) in the USA. A similar framework is also proposed by the ITU (http://www.itu.int/council/groups/wg-cop/second-meeting-june-2010/COP_Stat_Framework_7%20June_2010.pdf).

15. Intensity of usage is acknowledged to be an important emerging dimension (see for example, “Measuring ICT Engagement and Dependency: A Statistical Framework”, [DSTI/ICCP/IIS\(2010\)4](#) – Annex)

16. See http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-08-014/EN/KS-RA-08-014-EN.PDF. Similar considerations apply to *time-of-use for mobile phones* and to the indicators on *activities performed over handheld devices*, which, however, might become less relevant as the use of these devices becomes more generalised. The same applies to *place of usage*, currently surveyed in most countries.

27. Indicators included in the module on *Use of ICTs at school* and the indicator on *self-assessment of IT skills level*, which are already produced in most countries by other means (such as the OECD PISA and more recent PIAAC surveys), are proposed as references for implementation by OECD and non-OECD countries which did not participate in these surveys and, for surveying of other age-cohorts apart from the 14-15 year-olds in the scope of PISA.¹⁷

28. Finally, some other indicators are proposed for (extended) piloting. These include the complementary indicators on *Household access*, notably on the presence of distributed signal (wi-fi or cable) and number and types of devices connected point at providing information on the evolving conditions of access to technologies within the household, and the multi-item indicator on the use of *apps*.

29. The above indicators on access are relatively new (only distributed access has been tested in New Zealand). For these, pilot tests could be carried out to check the extent to which similar indicators could be used as proxies – for example, those pointing at individual usage of different types of devices, and how they are related socio-economic conditions of households. The indicator on the use of *apps* – whose items were defined combining the taxonomies proposed by main app-platforms – instead, has not yet been implemented in surveying, and might be tested to usefully complement information on activities performed online with handheld devices.

Other features

30. The 2005 revision of the Model Survey provided a questionnaire. This revision presents only indicators, to avoid rapid obsolescence and lengthy debates on the wording of questions. However, it is worth recalling that information on the most relevant aspects in surveying is provided in Annex 1, with reference to current practices and developments, while the full list of indicators in Annex 2 also provides details on how indicators can be obtained, as well as on items which might be monitored. Finally, examples of wording of questions can be taken from *existing* survey practice and shall be made available in the upcoming metadata repository.

17. Please note that indicators on ICT in education are meant to be collected directly on children. In some cases, however, proxy information might be collected from parents, especially for the case of children in primary education. Results might require some adjustments accordingly.

ANNEX 1. STATISTICAL ISSUES AND DEVELOPMENTS IN SURVEYING

This Annex addresses some key aspects of survey methodology, outlining most advanced practices and emerging issues. The aim is not to provide detailed methodological guidelines, already accessible elsewhere,¹⁸ but rather to recall elements – related to coverage, survey units, breakdowns and other aspects in survey strategy – which are deemed useful for the harmonisation process moving forward and increase the robustness of current and new indicators and modules. The WPIIS in the future might also provide guidelines on some of these issues. For relevant definitions, please see Annex 2.

Survey scope and coverage, and classificatory variables

31. Hereunder is reported some basic information on prevailing practices which are essential for setting the survey, such as: what is to be surveyed? How should results be grouped and computed for dissemination and analysis? Nearly all OECD countries follow very similar practices to this respect, but recalling them is not superfluous to encourage further harmonisation, as well as to provide guidelines to countries willing to compare internationally with the OECD.

Units and field of observation

32. Common practice, reflected in past editions of the model survey, is to refer to both households and individuals as statistical units.¹⁹ *Accessibility* of devices and services, and most socio-economic variables are most often monitored with respect to households, while *usage* typically refers to individuals.

33. With respect to *age*, the prevailing practice is to include individuals from 16 to 74 year old, as recommended in the past revision and required in the European model survey. This is currently also the minimal coverage adopted. Indeed, about half of the OECD countries extend surveying to individuals aged below 16, with the lower threshold ranging from 10 to 15 year-olds²⁰ except in Korea, Mexico and the

18. For an overview of all relevant topics (e.g. ways to minimize errors, treatment of non-response, etc.), see the *Methodological manual for statistics on the Information Society* published by Eurostat, whose latest edition (updates are published making specific reference to that year's surveys) can be accessed at <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>, while key topics are addressed also in the original edition, available at http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-BG-06-004/EN/KS-BG-06-004-EN.PDF. For detailed guidelines for countries approaching measurement of ICT usage and for all definitions related to ICTs, see note 9.

19. Following the UNSD's Principles and Recommendations for Population and Housing Censuses Revision 2 a household is defined as *a group of two or more persons living together who make common provision for food and other essentials for living* (http://unstats.un.org/unsd/publication/SeriesM/Seriesm_67rev2e.pdf). The SNA 2008 also uses a similar "housekeeping concept" definition of a household (24.12) however it multi-persons households.

20. In five countries (Australia, Chile, Estonia, New Zealand and Switzerland) the scope for individuals also covers 15 year-olds. The Netherlands and the Slovakia set the lower age threshold at 12 years, while Germany, Portugal, Slovenia and Spain put it at 10 years.

USA, where children as young as three years old are surveyed. Similarly, nineteen countries extend their survey coverage to include people aged 75 or over, usually without any upper limit.²¹

34. The extension of surveying to younger and/or older cohorts reflects the growing policy interest for these population segments as well as growing uptake (in particular among young generations), and the WPIIS might update its recommendations accordingly. The extension of surveying to younger cohorts could be (and is already) done by means of adapted ICT modules, alternative vehicles or both.²²

35. With respect to the *geographical scope*, the established practice in all OECD countries is to include both rural and urban population by means of a random selection of households in the area of study (either at country or regional level or at both).

Relevant population groups: classificatory variables and their treatment

36. Key classificatory variables used to define the scope of the survey, stratification and the presentation of indicators for individuals, consist of *age*, *gender*, *educational attainment*. Mixed categories derived from household related data include *income* and the *area of residence* (region/state, rural vs. urban, etc.). Most of these variables tend to be correlated (e.g. income, area of residence and education, age and education, a higher female presence in the older cohorts, etc.). Therefore, to produce sound results, so that the effects of ‘hidden’ explanatory variables can be disentangled, requires a careful sampling strategy combined with sufficiently large samples.

37. With respect to *age*, all OECD countries are already able to provide data for individuals aged 16 to 74 by 10 years age groups (plus the 16-24), as required in the OECD current data collection practice. However, a more detailed grouping could separate 18 to 24 year olds from the younger cohort. In case an extension of surveying is envisaged, possible age bands for children might consist of five years age groups (e.g. 5 to 9 and 10 to 14 year-olds), following the United Nations recommendations,²³ although different choices are also in place and meaningful.²⁴ For the case of elders, changes in the characteristics of the population might be taken into account by distinguishing (or limiting the survey to) the individuals aged 75 to 79 year-olds from those aged 80 or more, while in the medium term the 80 to 84 year-olds might also become a relevant target age cohort.

38. *Educational attainment* is commonly measured according to the *International Standard Classification of Education* (ISCED) maintained by UNESCO.²⁵ As a matter of fact, the level of education, gross of income effects, has a very relevant impact on uptake for older cohorts, and on the type of activities performed by *digital native* generations. In the current OECD data collection a simplified graduation of levels of education (from 7 to 3 groups) has been adopted, but the availability to provide more detailed information could be explored with countries.

21. This is set only in Norway at the age of 79 and in Denmark at the age of 89.

22. Spain and Poland use an adapted module in the stand-alone ICT usage survey, which in the latter case also includes questions on parental control, while Australia collects information on children from 4 to 14 years old in the targeted survey on *children’s participation in cultural and leisure activities*.

23. See http://unstats.un.org/unsd/publication/SeriesM/SeriesM_74e.pdf. ITU currently recommends including children from the age of 5 in surveying.

24. For instance, Korea set the start age for surveying at 3, while Australia in the survey on children’s participation in cultural and leisure activities refers to 5 to 8, 9 to 11, and 12 to 14 age bands.

25. The latest release is the ISCED 1997, providing a 0 to 6 scale of educational levels. The still to be approved new release (ISCED 2011) will introduce a 0 to 8 scale, including a finer detail for tertiary education. See <http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx>.

39. With respect to the *household income*, all countries present data by quartiles of the income distribution, except Korea and Japan, which publish indicators broken down by ad hoc income intervals, and Australia which uses quintiles. This more detailed breakdown is recommended, because it allows aligning data on ICT use to an established categorisation in social statistics,²⁶ and is now being adopted by Eurostat as well, to complement data by quartiles.²⁷

40. Australia is, to date, also the only country to process household income based on scales of equivalence for the size and composition of the household (i.e. data refer to *equivalised* household income) for ICT variables: this procedure, commonly used in social statistics, enhances the quality of estimates.²⁸ Overall, this is an area for possible further harmonisation and improvement.

Types of indicators and their computation: auxiliary variables and weighting.

41. Nearly all indicators in this survey consist of percentage shares, the reference unit (denominator in ratios) usually being the population of respondents (individuals or households). This applies, in particular, to all binary and qualitative indicators. The population considered may be a subset of the total (e.g. for questions on Internet use, it will be limited to Internet users).

42. Some of the indicators shall be computed based on auxiliary variables collected within the survey (e.g. percentage of individuals within a particular age group) and might require (simple or double) weighting as well as maintaining consistency with the primary sources of these variables.

43. Indeed, it is well established that correcting estimates based on auxiliary variables from other sources, such as demographic or social surveys, can significantly improve the efficiency of estimates by mitigating the impact of non-response and response variance, especially when these auxiliary variables are highly correlated to target variables (calibration techniques).²⁹

Other aspects in survey methodology

Collection techniques and survey features

44. Across OECD countries, data on ICT use in households are collected by means of a variety of techniques, ranging from postal surveys to the most widespread (computer assisted - CA) telephone or personal interviews (CATI/CAPI), which are often used in combination (e.g. Australia, New Zealand, Spain and Portugal). A few countries collect information by means of self-administered questionnaires: in Germany, Italy and Japan data collection relies only in paper questionnaires, while in Belgium respondents are given also the possibility of submitting the information via web applications and both Denmark and France use on line questionnaires as complementary tools.

45. While decisions on (the mix of) data collection techniques are often influenced by the resources available for conducting surveys, including costs and existing infrastructure, the choice has an impact on

26. Households in the bottom quintile are usually considered as a policy relevant aggregate. Quintiles are also endorsed in the guidelines developed by the ITU and the UN Economic Commission for Latin America (ECLAC).

27. The Eurostat *transmission template* for 2013 requires figures for both quartiles and quintiles.

28. Indeed, members of a household have different resource needs and enjoy economies of scale derived from living together. Income adjustments are often made on the basis of the 'modified OECD' equivalence scale (see <http://www.oecd.org/eco/growth/OECD-Note-EquivalenceScales.pdf>).

29. For an overview of weighting methodologies, refer to Eurostat *Methodological manual for statistics on the Information Society* (see note 18).

the quality of the collected information and derived estimates. According to experiences in France, for instance, responses obtained through self-administered questionnaires (either computer assisted web interviews - CAWI or paper and pencil interviews - PAPI) tend to provide higher estimates on the availability of ICT equipment and on the use of the Internet with respect to those obtained through CATI.³⁰

46. Lastly, it is widely acknowledged that participation mode – voluntary or compulsory – is a factor with a strong influence on the magnitude of unit non-response and on self-selection bias (Germany adjusts for this latter element). Particular care should be taken when using mixed modes of data collection (especially those including self-administered ones) in the context of voluntary surveys.

Survey frequency and reference period/date

47. Most OECD countries (notably those bound by the regulations of the European Statistical System – ESS) undertake the survey on annual basis. Few countries conduct such surveys on multi-annual or occasional basis. The WPIIS proposal to coordinate calendars to increase the number of comparable indicators might, in this latter case, serve to improve comparability overall.

48. Also, most countries – including those in the ESS – compute many indicators with reference to a given period, usually the three months or the year preceding the survey. This approach aims at excluding remote and occasional events from results (e.g. people which happened to use the internet once several months before), but is not uniform across countries and indicators.³¹

49. For general indicators related to individual use, the 2002 and 2005 model surveys referred to a 12 months recall period. For the 2005 version filter questions were included to probe the time period when activities occurred, so that comparable tabulations could be achieved. In the implementation of the current revision, a similar approach might be adopted by countries with longer recall periods. Such differences in general have a limited impact on results, very infrequent users being a small minority.

50. Exceptions include indicators related to activities with an intrinsic seasonality (e.g. holiday reservations and, in general, online purchases) or typically less frequent (e.g. e-government), for which in principle a recall period of 12 months should be considered. However, most people would fail to remember what they purchased and how much they spent over the Internet over a whole year, so that there is not a straightforward solution.

51. In Annex 2, we shall refer only to a *possible* recall period for such indicators, keeping it in line with current ESS indications, which specify a twelve months period for e-commerce and a three months period for most other indicators. The WPIIS might consider these aspects in future guidelines.

30. Besides the pros and cons of each method, it is worth noting that the way of collecting information is also not neutral with respect to the way the questionnaire should be shaped: in direct interviews the simpler, “tick all that apply” approach can be applied, while when the respondent is not assisted a “yes/no” presentation is recommended, to reduce the incidence of false negatives. When the questionnaire is administered electronically, this can usefully be supplemented by “binding” features (the respondent cannot proceed until it has ticked YES or NO to all questions) that prevent missing answers on individual items. The trade-off, though, is represented by the need to tick all items in sometimes long lists, which might lead respondents to quit the questionnaire before completion.

31. For many indicators ESS countries refer to a recall period of 3 months, Switzerland uses a recall period of 6 months, while Australia, Canada, Japan, Korea, Mexico New Zealand (and partly Chile) refer to the last 12 months. USA does not use any recall period.

Survey vehicles

52. Survey vehicles greatly differ. In the majority of OECD countries statistics on ICT adoption and use by households and individuals are collected by means of stand-alone surveys, but in about one third of countries data collection is conducted by means of a module inserted into another household survey, which is originally aimed at purposes other than compiling data on ICT use. Austria, Belgium, Canada, the Czech Republic, Estonia Mexico and New Zealand use the Labour force survey as a vehicle, while Australia, Ireland, Italy, Norway and the United Kingdom embed ICT usage questionnaires in their national *multi-purpose household survey*. Italy also included a basic question on connectivity in the 2011 census on population and housing and Australia too is going to include questions about the use of ICTs in its 2016 census.

53. One of the advantages of a dedicated survey is the possibility of increasing the number of indicators available. Labour force and multi-purpose surveys, instead, impose a constraint on the size of the ICT module, but allow for the collection of information on other characteristics of both households and individuals, jointly to ICT usage, which can be useful to elicit new aspects of ICTs. This is particularly the case for censuses, which stay necessarily limited in thematic coverage but can provide an extremely rich set of auxiliary variables joint to total coverage of population, which is also useful to benchmark surveys.

Concluding remarks: the work ahead

54. This targeted excursus on survey practices allows us to highlight the state of art and some areas for improvement in the harmonisation and coverage of surveys, which might be form the object of WPIIS future methodological work. These include updating recommendations on age coverage and breakdowns, recall periods, the treatment of income-related variables, analysis on the effects of survey vehicles and techniques on values of indicators and possible actions to mitigate such impacts. Coordinated analytical work on ICT use, possibly linked to socio-economic characteristics of households and individuals, might also provide a tool for the selection of indicators and relevant survey features.

ANNEX 2. INDICATORS ON ICT ACCESS AND USE BY HOUSEHOLDS AND INDIVIDUALS³²**SECTION I. HOUSEHOLD ACCESS TO ICTs****Module A: Access to Computers****Definitions:**

Information and Communication Technologies (ICT) consist of the hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services.

Computers include personal computers (desktop) as well as portable and handheld computers (laptops, tablets, other portable devices). Computers here do not include smart phones or any other device, although with embedded computing abilities, having a main function other than computing (e.g. MP3 and other media players, game consoles, electronic dictionary, GPS navigation device, e-book reader etc.). It should be stressed that the borderline is increasingly blurred: e.g. mobile devices which embed all tablet pc functionalities (so called *phablets*) might as well be considered as computers.

Computers that are not owned by the household but at a household member's disposal for personal use are to be included.

A1.	Households with computer access at home (% of all households)	Population: All households.
A2.	Type of computer accessed from home (% of households by device[s])	Population: All households. The aim of this indicator is to assess the typology and variety of computer equipment available in the household. The list of equipment might include: a. Desktop computers; b. Portable computers; c. Handheld computers;

32. In the following, **core questions are highlighted in grey**. For general guidelines, please refer to Annex 1.

Module B: Access to the Internet

Definitions:

Broadband: Subscriptions with a download speed of at least 256 Kbit/s.

Wired (fixed) broadband technologies include xDSL, cable modem, optical fibre (e.g. FTTH/B), leased lines, Ethernet, PLC, BPL;

Fixed wireless connections include public-WIFI, satellite and terrestrial fixed wireless such as fixed WiMAX, LMDS and MMDS;

(Terrestrial) Mobile wireless broadband connections include technologies such as 3G/4G, UMTS, CDMA2000, LTE, and any other future technology.

Distributed signal refers to the possibility of connecting several devices in the household by cable; WiFi or PLC technologies.

B1.	Households with internet access at home (% of all households)	Population: All households. Note: any type of connection, including mobile only.
B2.	Type of internet connection used (% of households w/Internet access)	Population: Households with access to the Internet. Types of internet connection ought to be detailed into: a. Fixed Broadband: further detail might include: – Digital Subscriber Line (xDSL) (e.g. ADSL, SDSL, VDSL) – Cable modem (e.g. Hybrid Fibre Coaxial) – Fibre optic line (FTTH) – Other wired broadband (leased lines, Ethernet and PLC) – Satellite Terrestrial fixed wireless (e.g. WIFI, fixed WiMAX) b. Mobile broadband (terrestrial mobile wireless connections) c. Narrowband connections: further detail might include – Dial-up over a telephone line – Terrestrial mobile less than 3G (e.g. 2G+/GPRS) d. Don't know
B3.	Maximum advertised download speed ³³ (% distribution by speed-tiers)	Population: Households with access to a fixed broadband connection Speed tiers include the following: a. Up to 2 Mbit/s b. Up to 10 Mbit/s c. Up to 30 Mbit/s d. Up to 100 Mbit/s e. Up to 1 Gbit/s f. At least 1 Gbit/s (relevant in the near future) g. Don't know
B4.	Presence of distributed internet signal at home (% of households)	Population: Households with access to the Internet.
B5.	Number of Internet enabled devices at home (% of households by number and type)	Population: Households with access to the Internet. Examples of devices include: computers, smart tvs, mobile phones, etc.
B6.	Reasons for not having access to the Internet (% relevance of each motivation)	Population: households with no access to the Internet at home. Reasons might include: a. No need for the Internet b. Having access to the Internet elsewhere c. Lack of confidence, knowledge or skills to use the Internet d. Cost of equipment e. Cost of access f. Privacy or security concerns g. Internet services not available or very poor in the area h. Other reasons (e.g. health, fear of harmful content, etc.)

³³ The availability of certified measures on *real* speed and quality might render this indicator obsolete.

SECTION II – INDIVIDUAL USE OF ICTs

Module C: Access to ICTs and Internet Use

Definitions:

Computers include personal computers (desktop), transportable and handheld computers (laptops, netbooks, tablets, other devices). Computers here do not include mobile phones or any other device, although with embedded computing abilities, having a main function other than computing (e.g. MP3 and other media players, game consoles, electronic dictionaries, GPS navigation devices, e-book readers etc.). It should be stressed that the borderline is increasingly blurred: e.g. mobile devices which embed all tablet pc functionalities (so called *phablets*) which here are not considered as computers.

A **handheld device** is a portable electronic device for different applications. It is sufficiently small and of low weight that it can be held by only one hand when being used (therefore the term handheld). These include handheld computers (see above) as well as MP3 and other media players, game consoles, electronic dictionary, GPS navigation devices, e-book readers etc.

A **mobile phone** is a device that can make and receive telephone calls over a radio link while moving around a wide geographic area. It does so by connecting to a cellular network provided by a mobile phone operator, allowing access to the public telephone network. *Smart-phones* (themselves mobile phones) offer more advanced functions and connectivity than basic mobile phones.

A **smart TV** is a television set with integrated Internet capabilities or a set-top box for television that offers computing ability and Internet connectivity.

C1.	Use of selected ICT equipment (% of individuals, by equipment)	Population: All individuals. The aim of this indicator is to assess the typology and variety of equipment in use by individuals (in survey implementation, a reference period of 3 months could be used) The list of equipment might include: a. Desktop computers; b. Portable/laptop computers (e.g. notebook, netbook); c. Tablet computers; d. Mobile phones (can be further detailed for smart phone usage); e. Smart TV; f. Electronic book devices (e-book readers); g. Music and/or video (MP3/4) players (e.g. iPod touch); h. Other handheld devices (e.g. video game consoles, GPS tools).
C2.	(Frequency of) Computer use (% of computer users)	Population: Computer users. In implementing the survey, population might be deduced from C1 and frequency might be surveyed for 'recent' users only, e.g.: a) Within the last 3 months → – Daily or almost every day – At least once a week (but not every day) – Less than once a week b) Between 3 months and 1 year ago c) More than a year ago or never
C3.	(Frequency of) Mobile phone use (% of mobile phone users)	Population: Mobile phone users (deduced from C1). Frequency might include a finer detail (i.e. "several times a day"; "Daily or almost every day"; "less frequently")
C4.	Time of use of mobile phone (% of users by time-of-use brackets)	Population: mobile phone users; use: any type of use Time of use expressed in minutes per day and brackets might include: (a) less than 10 minutes; (b) from 10 to 30 minutes; (c) from 30 minutes to 1 hour; (d) more than 1 hour.
C5.	(Frequency of) Internet use (% of individuals, by frequency)	Population: individuals who used ICT devices mentioned in C1. Frequency: see C2. Above

C6.	Places of use of the Internet (% of users by location)	Population: Internet users (within the last 3 months). Choices might include: a. Home; b. Workplace (other than home); c. School or education facility; d. Other places (*); e. In mobility (i.e. during a journey in metro, bus, train etc.). (* The item “Other places” can be further detailed into the following (non-core) sub-items: Another person’s home; Community Internet access facility (e.g. public library, post office, town hall etc.); Commercial Internet access facility (e.g. Internet café, hotel, restaurant, airport etc.).
C7.	Time of use of the Internet (% of users by time of use bracket)	Population: Internet users (within last 3 months, any place and type of use). Time of use expressed in hours per week; brackets include: a. Less than 5 hours; b. Between 5 and 9 hours; c. Between 10 and 19 hours; d. Between 20 and 29 hours; e. Between 30 and 39 hours; f. 40 hours or more.
C8.	Experience with Internet use (% of users by years’ bracket)	Population: Internet users (within the last 3 months – any place) Experience expressed in number of years; brackets include: a. Less than 1 year; b. Between 1 and 2 years; c. Between 2 and 5 years; d. More than 5 years; e. (Don’t know)
C9.	Devices used to access the internet (% relevance of each device)	Population: Internet users (within the last 3 months – any place). Devices include: a. Desktop computer; b. Portable computer (e.g. notebook, netbook); c. Tablet computer; d. Mobile phones (including smartphones; <i>phablets</i> might pose an issue of classification) e. Other handheld device (e.g. e-book reader, music/video/game player); f. Smart TV; g. Other ICT devices (please specify). Note: indicator(s) include the use of multiple devices
C10.	Frequency of Internet use via handheld devices (% of users over handheld devices)	Population: individuals having used the Internet within the last 3 months with a handheld device (for any purpose). Frequency: see C2.
C11.	Type of Internet connection used (% of users by type of connection)	Population: Internet users (within the last 3 months). Excludes work and education premises. Multiple choices possible. Types of connection include: (a) Fixed wired; (b) Fixed wireless such as a “hotspot”; (c) WIFI or WiMAX away from home or office; (d) Mobile wireless phone network.

C12.	Difficulties experienced with mobile connectivity (% relevance by type)	Population: Internet users over mobile connections (within the last 3 months), resulting from C11. Multiple choices possible Hindrances experienced might include: a. Difficulty in obtaining information on cost of Internet access; b. Unexpected high bills (e.g. due to roaming service); c. Difficulties with mobile network signal (unavailability of broadband or low speed); d. Difficulties in setting or changing parameters for Internet access (e.g. switching to WIFI, activation of location aware applications or activation of internet access); e. Inconvenience of using small screen or entering text on handheld device.
C13.	Barriers to using mobile connectivity (% relevance by barrier)	Population: Internet users only over a fixed connection (within the last three months). Multiple choices possible Reasons for not using mobile connections include: (a) lack of access to devices; (b) no need to use the Internet in mobility; (c) Lack of knowledge on the use the devices (d) Inconvenient to use the small screen on a handheld device; (e) cost of device and/or subscription; (f) connection too slow; (g) Security or privacy concerns

Module D: Internet Activities for Private Purposes

D1.	Activities performed over the Internet (% of individuals, by activity) Note: additional indicators might consider individuals by number and sets of activities	Population: Internet users (within the last 3 months). This multiple indicator encompasses all types of activities commonly performed over the Internet, excluding the purchases of products (addressed in Module G). The list of activities, by type, might include the following: <u>Communication:</u> a. E-mailing b. Using social networking sites (e.g. MySpace, Facebook) c. Accessing to chat sites, blogs, newsgroups or online discussions d. Interacting with health or education professionals e. Telephoning/video calling (via webcam) <u>Access to Information:</u> f. Finding information about goods and services g. Reading / downloading online newspapers / news magazines h. Seeking health information (on injury, disease, nutrition etc.) i. Downloading software (other than games), patches or upgrades <u>Leisure:</u> j. Listening for web radios, watching web television k. Playing/streaming/downloading games, images, films or music l. Playing networked games with other persons <u>Professional life:</u> m. Looking for a job or sending a job application n. Participating in professional networks (e.g. LinkedIn: note: this is increasingly performed also using common social networks) <u>Learning:</u> o. Doing an online course (in any subject) p. Consult wikis (e.g. Wikipedia) or any online source of <u>Creativity/User-Generated Content (UGC)</u> q. Managing personal homepage r. Uploading self-created content on sharing websites (e.g YouTube) s. Blogging (maintaining or adding content to a blog) <u>Other activities:</u> t. Internet banking u. Selling of goods or services (e.g. on eBay) v. Using services related to travel or travel related accommodation
D1. bis	Activities performed over the Internet using handheld devices (% of individuals by activity)	Population: individuals who used the Internet within the last 3 months with a handheld ICT device. List of activities: see D1.

Definitions:

Apps: A mobile application (or mobile app) is a software application designed to run on smartphones, tablet computers and other mobile devices. They are usually available (for free or paying a fee) through application distribution platforms operated by the owner of the mobile operating system (Apple iOS, Android, etc.) and downloaded to the target device.

<p>D2.</p>	<p>Use of Apps on mobile devices by category³⁴ (% of users by category)</p>	<p>Population: Internet users over handheld devices (within the last 3 months).</p> <p>Categories might include the following:</p> <ul style="list-style-type: none"> a. Books; b. Business and finance (e.g. bank, specialised tools); c. Communication (VOIP, messaging and the like); d. Entertainment (excluding multimedia); e. Games; f. Health and fitness; g. Reference (includes dictionaries, encyclopaedias etc.); h. Life-style (e.g. home design, horoscopes, food, etc.); i. Music; j. Navigation & maps; k. News l. Photo & Video; m. Productivity tools (e.g. office software); n. Shopping and local info on shops; o. Social (i.e. social networking); p. Sport; q. Transports (i.e. rail, air, local public transportation); r. Travel (e.g. hotel reservation); s. Utilities; t. Weather.
<p>D3.</p>	<p>Time-of-use of the Internet for communicating (% of users by time-of-use brackets)</p>	<p>Population: Internet users performing communication related activities (within the last three months; in survey implementation, this group might be derived from D1, including items D1a to D1e)</p> <p>Time-of-use brackets, expressed in hours per week, include: (a) Less than 5 hours; (b) between 5 and 9 hours; (c) between 10 and 19 hours; (d) 20 hours or more.</p>
<p>D4.</p>	<p>Frequency of use of social networks (% of individuals by frequency)</p>	<p>Population: users of social networking sites (within the last 3 months).</p> <p>Frequency brackets include: (a) Daily or almost every day; (b) At least once a week (but not every day); (c) less often than the above.</p>
<p>D5.</p>	<p>Frequency of reading online newspapers (% of individuals by frequency)</p>	<p>Population: readers of online newspapers/news magazines (within the last 3 months)</p> <p>Frequency brackets include: (a) Daily or almost every day; (b) At least once a week (but not every day); (c) less often than the above.</p>

34. Please note that this is a still experimental indicator (see main text).

Definitions:

Really Simple Syndication (RSS) is a family of web feed formats used to publish frequently updated content such as blog entries, news headlines or podcasts. It enables to keep up to date with certain preferred websites in an automated manner rather than checking them manually.

D6.	Use of online information, by type of access (% of users by type: RSS, subscriptions, etc.)	Population: users of online news sites/newspapers or magazines (within the last 3 months). Multiple choices possible. Type of access includes: (a) subscription for content; (b) paying for any online content; (c) Use browser based news feeds (e.g. RSS).
D7.	Use of internet for health related purposes (% of individuals by activity)	Population: Internet users for accessing health related information (within the last 3 months). Multiple choices possible. Activities might include the following: a. Searching information about an illness or injury; b. Searching information about wellness or lifestyle (e.g. nutrition); c. Participating in social networking sites on health and wellness (e.g. forums, patient groups and associations, etc.); d. Making, changing or cancelling an appointment via a website (e.g. hospital, health care centre or a surgery of practitioner); e. Asking medical advice via email or web page; f. Making an online medical consultation through videoconference; g. Receiving online results of your clinical or medical test; h. Accessing or uploading medical information or health record via an application provided by healthcare organisation; i. Buying medicines online; j. Other health related activities (Please specify).
D8.	Frequency of Internet use for audio-visual content (% of users by frequency and activity)	Population: Internet users (within the last 3 months). Frequency includes:(a) Daily or almost every day; (b) At least once a week (but not every day); (c) less often than the above. Activities include: a) Listening to Web radio; b) Watching Web television; c) Watching <i>Video on demand</i> programs; d) Downloading or streaming (playing) films; e) Downloading or streaming (playing) music; f) Playing online games.

Module E: Internet Use for Business Purposes

E1.	Frequency of internet use at work (% of persons employed using a computer)	Population: employed individuals with access to a computer (routing: from C1 and X3a) Frequency includes:(a) Daily or almost every day; (b) At least once a week (but not every day); (c) less often than the above.
E2.	Work-related activities performed remotely (% of p.e. w/Internet access, by activity)	Population: employed individuals with access to the Internet. Activities include: (a) Access to professional e-mail; (b) Access to documents on enterprise's servers; (c) Use of dedicated business software applications (e.g. for orders or sales management, or <i>Enterprise Resource Planning</i> applications); (d) Teleworking (i.e. working remotely upon an arrangement with the employer).
E3.	Use of own devices for work-related activities (% of p.e. using their own devices)	Population: employed individuals who declared to undertake any of the activities listed in E2. Ownership relates to: Provided by the employer; My own.

Module F: E-Government & E-Public services

Definitions:

E-government here refers to the usage of on-line public services and related information. These include, in particular, citizen obligations (e.g. tax declaration, notification of moving), rights (e.g. social benefits), official documents (e.g. ID card, birth certificate), public educational services (e.g. public libraries, information on/and enrolment in public schools and universities), public health services (e.g. services of public hospitals).

F1.	Use of public services on line (% of individuals by activity)	<p>Population: Internet users (recall period: 12 months).</p> <p>Interaction is graded using the following items: (a) Obtaining information; (b) Downloading official forms; (c) Submitting completed forms.</p> <p>A simplified (no-items) formulation includes “visit or interaction with government or public services websites”</p>
F2.	Use of public services on line by type (% of individuals by service)	<p>Population: Internet users for e-government (in last 12 months)</p> <p>Services used include:</p> <ol style="list-style-type: none"> a. Income tax declaration; b. Claiming social security benefits (e.g. unemployment benefits, retirement, child allowance); c. Requesting personal documents (passport, ID card or driver's licence) or certificates (birth, marriage, death); d. Public libraries (availability of catalogues, search tools); e. Enrolment in education or university; f. Notification of change of address; g. Interacting with health services (e.g. booking appointments, getting results of analyses etc.).
F3.	Satisfaction for online public services (% of users, by type of interaction and service)	<p>Population: Internet users for e-government (in last 12 months)</p> <p>Criteria for assessing satisfaction include: (a) Ease of finding information; (b) Usefulness of the information available; (c) The information provided on the progress, follow-up of request; (d) Ease of using services on the website; (e) support service of the website.</p> <p>In survey implementation, data collection related to this indicator might be joined to F2, to get information on satisfaction referring to specific services. The level of satisfaction might be graded according to a basic two levels (mainly satisfied/dissatisfied) scale, plus an item for ‘don’t know/not applicable)</p>
F4.	Reasons for not submitting completed forms (% relevance of each reason)	<p>Population: Internet users for e-government (in last 12 months).</p> <p>Proposed reasons (multiple choices possible) include:</p> <ol style="list-style-type: none"> a. No need to submit official forms; b. No such website service available; c. Prefer personal contact (e.g. to get information); d. Immediate response is missing; e. Trust more submitting by paper ; f. Lack of skills or knowledge, use of website too complicated; g. Concerns about security of personal data; h. Relevant services require anyway personal visit; i. Electronic signature or electronic ID/certificate (required for authentication/using the service); j. Another person did it on my behalf (e.g. consultant, tax advisor, relative or family member)

Module G: E-Commerce³⁵

G1.	Most recent occurrence of online purchases (% of individuals buying online and frequency)	Population: Internet users (within the last 12 months). Most recent occurrence refers to: (a) During the last 3 months; (b) 3 months to one year ago; (c) More than one year ago; (d) Never
G2.	Types of goods and services purchased online (% relevance of each item-type in list)	Population: individuals who purchased products over the internet Types of goods and services include: a. Books, magazines or newspapers b. Clothing, footwear, sporting goods or accessories c. Computer equipment or parts (including peripheral equipment) d. Computer or video games e. Computer software (includes upgrades and paid <i>apps</i> ; not games) f. Cosmetics g. Financial products (including shares and insurance) h. Food, groceries, alcohol or tobacco i. ICT services (excluding software) j. Medicine k. Movies, short films or images l. Music products m. Photographic, telecommunications or optical equipment n. Tickets or bookings for entertainment events (sports, theatre, concerts, etc.) o. Travel products (travel tickets, accommodation, vehicle hire etc.)
G3.	Orders placed online in the last three months (% relevance of each bracket) [Note: apps can be distinguished from website]	Population: individuals who purchased products over the Internet. Number of orders can be grouped according to the following brackets: (a) 1 or 2; (b) 3 to 10; (c) 11 to 20; (d) More than 20.
G4.	Location of sellers: national or foreign (% distribution)	Population: individuals who purchased products over the Internet. Location includes: country of residence; Abroad; (Don't know).
G5.	Amount spent on online purchases (% of buyers by value brackets)	Population: individuals who purchased products over the Internet. Amounts can be expressed in national currency (total) or based on brackets defined as [% of Gross National Income per capita], e.g. [less than 5%], [5 and up to 10%], [10 to 20%], [20% or more] (Don't know).
G6.	Payment channels for online purchases (% of buyers by channel)	Population: individuals who purchased products over the Internet Multiple choices possible. Channels include: a. credit card online; b. Debit card or electronic bank transfer online; c. Online payment service (e.g. Paypal, Google Checkout); d. Prepaid gift card or online voucher; e. Points from rewards or redemption program (e.g. Air Miles); f. Other (e.g. cash, cheque by post, etc.).
G7.	Reasons for not purchasing online (% relevance of each reason)	Population: individuals who did not purchase over the Internet. Multiple choices possible. Reasons include: a. Not interested; b. Prefer to shop in person; c. Security concerns (e.g. about giving debit or credit card details); d. Privacy concerns (e.g. about giving personal details); e. Trust concerns (e.g. about warranties, receiving or returning products); f. Lack of confidence, knowledge or skills.

35. Note: E-commerce refers to *orders*, not *payments*. The OECD definition is included in the *OECD Guide to Measuring the Information Society* (see note 3). All Items in this module are intended to be surveyed using a reference period of 12 months.

Module H: ICT Skills

<p>H1.</p>	<p>Ability to perform selected ICT tasks (% of capable individuals, by task)</p>	<p>Population: All individuals.</p> <p>Tasks include the following:</p> <ol style="list-style-type: none"> a. Using word processing software b. Using basic arithmetic formulas in a spreadsheet c. Using spreadsheet advanced functions to organise and analyse data, such sorting, filtering, using formulas, creating charts d. Using software for electronic presentations (slides) e. Sending e-mails with attached files (document, picture, video) f. Posting messages (e.g. to chat rooms, newsgroups or forums) g. Transferring files (e.g. digital camera, mobile phone, m-player) h. Finding, downloading and installing software from the Internet i. Modifying or verifying the configuration of software applications j. Modifying the security settings of Internet browsers k. Computer programming using a specialised language l. Creating a web page m. Installing or replacing an operating system
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Definitions:

Formal education refers to institutionalised learning activities that lead to a learning achievement that can be positioned in the National Framework of Qualifications (NFQ). The NFQ recognises learning activities constituted of structured hierarchical programmes with chronological succession of levels and grades, admission requirements and formal registration.

Non-formal education refers to institutionalised learning activities, which are not part of the NFQ. It includes structured activities which either do not lead to any qualification or lead to qualifications that are not included in the NFQ.

Informal learning activities are not institutionalised. They can take place almost anywhere (within the family, with friends, at work) and include learning by doing or self-studying *via* books, cd-roms, online courses, wikis etc.

<p>H2.</p>	<p>Means of acquiring ICT skills (% relevance of each mean)</p>	<p>Population: Individuals with ICT skills of any type.</p> <p>Means refer to: Formal education; Non-formal education; Informal learning.</p>
<p>H3.</p>	<p>Ability to address basic needs to work, communicate, keep security and privacy (% of individuals w/sufficient ability, by need)</p>	<p>Population: Individuals with ICT skills of any type.</p> <p>This indicator portrays individual self-assessed ability (sufficient or insufficient) with respect to the following needs:</p> <ol style="list-style-type: none"> a. Taking up a new job/change job within a year; b. Communicate with relatives, friends, colleagues over the Internet; c. Protecting personal data (e.g. by means of strong passwords); d. Protecting a computer from virus or other computer infection.

Module I: Security and Privacy

<p>I1.</p>	<p>Protection from IT threats, by means (% of individuals using protected devices and relevance of each type of protection)</p>	<p>Population: Internet users (within the last 3 months)</p> <p>Using protected Internet-ready devices (Y/N): types of protection include (incidence of each means – multiple choices possible):</p> <p>a) Software (e.g. firewall, antivirus, antispymware, etc.) b) Strong password authentication (letters, numbers & special characters) c) Safety copy/back up files on external devices or servers (including cloud)</p> <p>Note: software protection might be further detailed into: <i>i. Operating system with built-in security software; ii. Security software supplied by the Internet Service Provider; iii. Other paid security software; and iv. Other free security software</i></p>
<p>I2.</p>	<p>Frequency of update of protection tools (% of users by frequency, by tool)</p>	<p>Population: Internet users (within the last 3 months) on a protected Internet-ready device.</p> <p>Frequency is graded as follows: (a) Often; (b) Sometimes; (c) Rarely/Never.</p> <p>Protection tools include: (a) Software (e.g. firewall, antivirus, antispymware); (b) Password; (c) Safety copy or back up files.</p>

Definitions:

A **virus** is a self-replicating, malicious program, which attaches itself to a host program.

A **Trojan horse** is a program that performs like a real program a user may wish to run, but also performs unauthorised actions.

A **worm** is a malicious program that self-replicates across networks.

<p>I3.</p>	<p>Security incidents (% relevance of incidents by type)</p>	<p>Population: Internet users (within the last three months)</p> <p>Incidents include (multiple choices possible):</p> <p>a. Catching a virus or other computer infection (e.g. worm or Trojan) resulting in loss of information, time or device damaging b. Abuse of personal information sent on the Internet and/or other privacy violations (e.g. abuse of pictures, videos, personal data uploaded on community websites) c. Financial loss as a result of receiving fraudulent messages (phishing) or getting redirected to fake websites asking for personal information (pharming) d. Financial loss due to fraudulent payment (credit or debit) card use</p>
<p>I4.</p>	<p>Actions taken following a security incident (% of individuals by type of action)</p>	<p>Population: Internet users experiencing a security incident (based on positive answer to any item under I4.).</p> <p>Actions include (multiple choices possible):</p> <p>a. Notified the incident to a governmental authority (e.g. Police, data protection authority) b. Notified the incident to my ISP/ changed my ISP (where the incident was due to the ISP) c. Installed/subscribed to a protection software d. Stopped providing personal information at online social networks e. Started reading carefully the terms and conditions before subscribing online services or installing software or applications f. Did not take any measure.</p>
<p>I5.</p>	<p>Reasons for not using protection tools (% relevance of each reason)</p>	<p>Population: Internet users over unprotected devices (within the last 3 months).</p> <p>Reasons include: (a) Price too high; (b) doubts on their efficiency; (c) No need; (d) Lack of knowledge about IT protection tools</p>

COMPLEMENTARY MODULES

Module J: Protection of Children Online (Household Level)³⁶

Definitions:

Cyber bullying means wilful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices. Harm examples include communications that seek to intimidate, control, manipulate, put down or humiliate the recipient. Attacks which were successfully prevented by security measures in place are to be excluded.

Grooming here refers to adults establishing contact (over the Internet or via messaging on mobile phones) with a child with the intention of committing a sexual offence.

J1.	Diffusion of children online incidents (% of households with children, by type of incident)	Population: Households w/at least one child aged 6–15 who has access to the Internet (derived from module X). Children online incidents might include: a) Cyber bullying; b) Child solicitation or grooming.
J2.	Diffusion of children online-protection (% of HH with children, by type of action taken)	Population: households having at least one child aged 6–15, who has access to the Internet. Actions include: a. Agreeing house rules about use of the Internet (e.g. time and conditions of use); b. Installing an Internet content filter (parental control software); c. Supervising or monitoring child(ren)'s use of the Internet (e.g. direct adult presence; checking navigation history, etc.); d. Allowing the child(ren) to access the internet only from a public area in the house; e. Educating child(ren) about safe and appropriate use of the Internet (e.g. not make their full names public on social networking sites, what can be done and what should not be done or is unsafe to do in cyber relationships, etc. (Note: this item applies also to use of the Internet outside the household premises)

36. Note: Items in this module are addressed to parents. The number and age of children should be taken into account in its practical implementation.

Module K: ICT usage in education (Individual Level)³⁷

K1.	Availability of ICT tools at school (% of individuals in education, by tool)	Population: individuals in education (of any age, if the survey is administered also to children below 15). Availability relate to: YES and I use it; YES but I don't use it; No. ICT tools include: a. Desktop computer b. Portable computer c. Tablet computer d. Printer e. USB (memory) stick f. Interactive whiteboard g. E-book reader (e.g. Amazon Kindle)
K2.	Access to the Internet at school (% of individuals in education)	Population: individuals in education (of any age, if the survey is administered also to children below 15). Access is graded as follows: (a) Several times a week or daily; (b) 1-2 times a week; (c) less than on weekly basis; (d) Internet access not available at school.
K3.	Time of use of the Internet at school (% of individuals by time-of-use brackets)	Population: individuals in education using the Internet at school (of any age, if the survey is administered also to children below 15). Time-of-use brackets refer to typical usage, and include: a) More than 4 hours per day; b) Between 1 hour and 4 hours per day; c) 31-60 minutes per day; d) 30 minutes per day or less.
K4.	Frequency of Internet activities performed at school (% of individuals in education, by activity)	Population: individuals in education who use computer and the Internet at school (of any age, if the survey is administered also to children below 15). Frequency includes: a) Every day; b) Almost every day; c) Once or twice a week; d) few times a month; d) less frequently or never. Activities include: a. Chatting on line at school; b. Using email at school; c. Browsing the Internet for schoolwork; d. Downloading, uploading or browsing material from the school's website (e.g. Intranet); e. Posting your work on the school's website; f. Playing simulations at school; g. Practicing and drilling, such as for foreign language learning or mathematics; h. Doing homework on a school computer; i. Using school computers for group work and communication with other students.

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37. Note: this module is meant to be administered directly to individuals in education, including below 15 year-olds. However, indicators might as well be collected through parents and/or via school-level surveys. Some guidelines might be provided by the *Methodological expert group* to ensure comparability.

SECTION III – SOCIO-DEMOGRAPHIC BACKGROUND CHARACTERISTICS

Individual characteristics (To be administered jointly with Section II)

X1	Personal information	<p>Key variables include:</p> <ul style="list-style-type: none"> – Age (years, or year of birth) – Gender (M/F) <p>Additional variables might include as well:</p> <ul style="list-style-type: none"> – Country of birth (native/foreign born) – Country of citizenship (national/non-national) – Legal or de facto marital status (Living with partner or spouse/not living with partner)
X2	Education	<p>Highest level of education attained includes: a) at most lower secondary (ISCED 0, 1 or 2); b) Upper or post-secondary, but not tertiary (ISCED 3 or 4); c) Tertiary (ISCED 5 or above).</p> <p>More detailed surveying might be implemented.</p>
X3	Employment situation	<p>Includes:</p> <ol style="list-style-type: none"> a. Employee or self-employed (includes family workers) b. Unemployed c. Student (not in the labour force) d. Other not in the labour force (retired, inactive, in compulsory military service, etc.) <p>Note: individuals in employment might be asked to describe their occupation (to be then recoded into ISCO 08)</p>

Household characteristics (To be administered jointly with Section I)

X4.	Place of residence	<p>In survey implementation, this variable is usually available <i>a priori</i> (households in a list include addresses). It is here included for reference: the issue being rural vs. urban residence and region.</p>
X5.	Number of persons in the household	<p>Includes overall number, as well as specific information on individuals excluded from survey coverage (e.g. aged below 16 and 75 or more)</p>
X6.	Household income	<p>Income is typically surveyed based on net monthly figures, which are more easily retained by respondents.</p> <p>These ought to be then recoded according to bands (quintiles)</p>