Core indicators on ICT use by businesses and on the ICT sector

Source: UNCTAD Manual for the Production of Statistics on the Digital Economy 2020

B1: Proportion of businesses using computers
Definition of concepts: The proportion of businesses using computers is calculated by dividing the number of in-scope businesses. using computers during the 12-month reference period by the total number of in-scope businesses.
Clarifications and methodological issues: A computer refers to a desktop or a laptop computer. It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants or TV sets.
Model question: Did your business use computer(s) during <reference period>? Yes/ No
Disaggregation and classifications: By industry (using ISIC Rev.4) at section level (A to U) By size of enterprise: • TOTAL • 0–9 employees (micro-businesses) • 10–49 (small businesses) • 50–249 (medium-sized businesses) • 250 or more (large businesses) Optionally, enterprises can be classified as located in urban or rural areas.
Policy relevance: Knowing the extent to which businesses in different sectors and of different sizes use computers is important for policymaking aimed at fostering a more inclusive digital economy and to assess the effectiveness of policy measures seeking to increase ICT use by enterprises.

B2: Proportion of persons employed routinely using computers
Definition of concepts: The proportion of persons employed routinely using computers (in all in-scope businesses) by the total number of persons employed (in all in-scope businesses).
Clarifications and methodological issues: Persons employed refer to all persons working for the business, not only those working in clerical jobs. They include short-term and casual employees, contributing family workers and self-employed persons, who may be paid or unpaid. The definition is aligned with UNSD and ILO standards. Computer: as above. Filters: The question is only asked of those businesses answering 'yes' to the question “Did your business use computer(s)?” Routinely means at least once a week.
Model question: What percentage of persons employed in your business routinely used a computer at work during <reference period>? Percentage values (no decimals) from 0% to 100%
Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which employees routinely use computers is important for policymaking to assess the ICT skills level in enterprises in different sectors and of different sizes, and to assess the effectiveness of policy measures aimed at promoting ICT use by enterprises.

B3: Proportion of businesses using the internet

Definition of concepts:

The proportion of businesses using the Internet is calculated by dividing the number of in-scope businesses using the Internet by the total number of in-scope businesses.

Clarifications and methodological issues:

The Internet is a world-wide public computer network. It provides access to a number of communication services including the World Wide Web and carries email, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer it may also be by mobile phone, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Model question:

Did your business use the Internet during <reference period>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which businesses in different sectors and of different sizes use the Internet is important for policymaking aimed at fostering more inclusive e-commerce and a more inclusive digital economy and to assess the effectiveness of policy measures seeking to increase Internet use by enterprises.

B4: Proportion of persons employed routinely using the Internet

Definition of concepts:

The proportion of persons employed routinely using the Internet is calculated by dividing the number of persons employed routinely using the Internet (in all in-scope businesses) by the total number of persons employed (in all in-scope businesses).

Clarifications and methodological issues:

Persons employed: as above

Computer: as above

Internet: as above. The wording refers to actual use of the internet rather than having access.

Filters: the question is only asked of those businesses answering 'yes' to the question “Did your business use computers?”

Model question:

What percentage of persons employed in your business routinely used the Internet at work during <reference period>? Percentage values (no decimals) from 0% to 100%

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which employees routinely use the Internet is important for policymaking to assess the ICT skills level in enterprises in different sectors and of different sizes, and to assess the effectiveness of policy measures aimed at promoting Internet use by enterprises.

B5: Proportion of businesses with a web presence

Definition of concepts:

The proportion of businesses with a web presence is calculated by dividing the number of in-scope businesses with a web presence by the total in-scope businesses.

Clarifications and methodological issues:

A web presence includes a website, home page or presence on another entity's website (including a related business). It excludes inclusion in an on-line directory and any other web pages where the business does not have control over the content of the page.

Filters: The question is only asked of those businesses answering 'yes' to the question “Did your business use the Internet?”

Model question:

Did your business have a web presence as at <reference date>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which enterprises in different sectors and of different size have a web presence is important for

policymaking to assess the extent to which enterprises are visible online, which is essential for reaching potential buyers through e-commerce.

B6: Proportion of businesses with an intranet

Definition of concepts:

The proportion of businesses with an intranet is calculated by dividing the number of in-scope businesses with an intranet by the total number of in-scope businesses.

Clarifications and methodological issues:

An intranet refers to an internal communications network using Internet protocols and allowing communication within an organization (and to other authorized persons). It is typically set up behind a firewall to control access.

The question is only asked of those businesses answering 'yes' to the question “Did your business use computer(s)?”

Model question:

Did your business have an intranet as at <reference date>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which enterprises in different sectors and of different size have an intranet is important for policymaking to assess the way in which businesses are leveraging digital technologies, and to assess the effectiveness of policy measures aimed at promoting such use by enterprises.

B7: Proportion of businesses receiving orders over the internet

Definition of concepts:

For international comparability, the proportion of businesses receiving orders over the Internet by the total number of in-scope businesses. Alternatively, output can be presented as the proportion of in-scope businesses using the Internet.

Clarifications and methodological issues:

Orders received include orders received via the Internet whether or not payment was made on line. They include orders received via websites, specialized Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and email. They also include orders received on behalf of other organizations – and orders received by other organizations on behalf of the business. Orders received exclude orders that were cancelled or not completed. In theory, a business without access to the Internet could receive Internet orders via agents. Where this is thought to be common, countries could alter the scope of the question to those businesses using computer(s).

Filters: The question is only asked of those businesses answering 'yes' to the question “Did your business use the Internet?”

Model question:

Did your business receive orders or goods or services (that is, make sales) via the Internet during <reference period>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which enterprises in different sectors and of different size are receiving orders over the Internet is important for policymaking to assess the uptake of e-commerce, and to assess the effectiveness of policy measures aimed at promoting e-commerce use by enterprises.

B8: Proportion of businesses placing orders over the internet

Definition of concepts:

For international comparability, the proportion of businesses placing orders over the Internet is most simply calculated by dividing the number of in-scope businesses placing orders over the Internet by the total number of in-scope businesses. Alternatively, output can be presented as the proportion of in-scope businesses using the Internet.

Clarifications and methodological issues:

Orders placed include orders placed via the Internet whether or not payment was made on line. They include orders placed via websites, specialized Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and email. Orders placed exclude orders that were cancelled or not completed. In theory, a business without access to the Internet could place Internet orders via agents. Where this is thought to be common, countries could alter the scope of the question to those businesses using computer(s).

Filters: The question is only asked of those businesses answeing 'yes' to the question “Did your business use the Internet?”

Model question:

Did your business place orders for goods or services (that is, make purchases) via the Internet during <reference period>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which enterprises in different sectors and of different size are placing orders over the Internet is important for policymaking to assess the uptake of e-commerce, and to assess the effectiveness of policy measures aimed at promoting e-commerce use by enterprises.

B9: Proportion of businesses using the Internet by type of access (Narrowband, fixed broadband and mobile broadband)

Definition of concepts:

This indicator should be calculated as the proportion of in-scope Internet-using businesses that use each type of access

service, for instance, the proportion of Internet-using businesses that use a broadband service as their means of access.

Clarifications and methodological issues:

It is expected that countries will collect data at a finer level than ‘narrowband’ and ‘broadband’. The categories chosen by countries should allow aggregation to total narrowband and total broadband, as well as fixed and mobile broadband, as defined below. As businesses can use more than one type of access service, multiple responses are possible. Possible country variations to the respone categories are: remove the categories where items are not feasible; add or split categories according to technologies available and country data requirements.

Filters: The question is only asked of those businesses answering 'yes' to the question “Did your business use the Internet?”

Model question:

How did your business connect to the Internet during <reference period>? The list of response categories should allow the grouping into narrowband and broadband, and for the later, into fixed and mobile. Yes/ No or tick box for each response category.

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the quality of Internet access for enterprises in different sectors and of different size is important for policymaking to assess the potential for more advanced use of the Internet, and to assess the effectiveness of policy measures aimed at promoting such use by enterprises.

B10: Proportion of businesses with a local area network (LAN)

Definition of concepts:

The proportion of businesses with a LAN is calcultad by dividing the number of in-scope businesses with a LAN by the total number of in-scope businesses.

Clarifications and methodological issues:

A LAN refers to a network connecting computers within a localized area such as a single building, department or site; it may be wireless. Substituting the question by Did your business have an internal network? Could provide relevant information on information sharing within businesses rather than the actual technology used.

Filters: The question is only asked of those businesses answering 'yes' to the question “Did your business use computer(s)?”

Model question:

Did your business have a local area network (LAN) as at <reference date>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which enterprises in different sectors and of different size have a local area network (LAN) is important for policymaking to assess the way in which businesses are leveraging digital technologies, and to assess the effectiveness of policy measures aimed at promoting such use by enterprises.

B11: Proportion of businesses with an extranet

Definition of concepts:

The proportion of businesses with an extranet is calculated by dividing the number of in-scope businesses with and extranet by the total number of in-scope businesses.

Clarifications and methodological issues:

An extranet is a closed network that uses Internet protocols to securely share a business' information with suppliers, vendors, customers or other businesses partners. It can take the form of a secure extension of an Intranet that allows external users to access some parts of the business' Intranet. It can also be a private part of the business' website, where business partners can navigate after being authenticated in a login page.

Filters: The question is only asked of those businesses answering 'yes' to the question "Did your business use computer(s)?"

Model question:

Did your business have an extranet as at <reference date>? Yes/ No

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing the extent to which enterprises in different sectors and of different size have an extranet is important for policymaking to assess the way in which businesses are leveraging digital technologies, and to assess the effectiveness of policy measures aimed at promoting such use by enterprises.

B12: Proportion of businesses using the Internet by type of activity

Definition of concepts:

The proportiong of businesses using the Internet by type of activity can be calculated as: either the proportion of in-scope businesses or the proportion of Internet-using businesses that undertook each activity. For international comparability, output is most simply presented as the porpotion of in-scope businesses undertaking each activity, for instance, the proportion of businesses using the Internet for sending or receiving emails. An alternative presentation is the proportion of business internet users undertaking each activity.

Clarifications and methodological issues:

Internet: as above.

Businesses should be asked about all Internet activities (that is, the question used by countries should specify multiple responses). Activities are not necessarily mutually exclusive and hence multiple responses are possible as the business

may use the Internet for various purposes. Possible country variations to response categories are to add or split categories according to country data requirements.

Filters: The question is only asked of those businesses answering 'yes' to the question “Did your business use the Internet?”

Model question:

For which of the following activities did your business use the Internet during <reference period>?

Response categories:

Access to information

- Getting information about goods or services
- Getting information from general government organizations

Communication

- Sending or receiving e-mail
- Telephoning over the Internet/ VoIP or using video conferencing
- Use of instant messaging, bulletin boards

Interaction with government, providers and customers

- Internet banking
- Accessing other financial services
- Interacting with general government organizations
- Providing customer services
- Delivering products online

Human resource management

- Internal or external recruitment
- Staff training

Yes/ No or tick box for each response category

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

By size of enterprise:

• TOTAL

• 0–9 employees (micro-businesses)

• 10–49 (small businesses)

• 50–249 (medium-sized businesses)

• 250 or more (large businesses)

Optionally, enterprises can be classified as located in urban or rural areas.

Policy relevance:

Knowing how enterprises in different sectors and of different size make use of the Internet is important for policymaking to assess the extent to which enterprises are taking full advantage of digital technologies, and to assess the impact of such use on productivity and growth. This kind of information is also important for assessing the effectiveness of policy measures aimed at promoting more advanced Internet use of businesses.

ICT1: Proportion of total business sector workforce involved in the ICT sector

Definition of concepts:

The proportion of total business sector workforce involved in the ICT sector is calculated by dividing the ICT sector workforce by the total business sector workforce (expressed as a percentage).

Clarifications and methodological issues:

ICT workforce (or ICT employment) consists of those persons employed in businesses that are classified as belonging

to the ICT sector. Total business workforce represents all persons engaged in domestic production in the business sector. In a national accounts framework, employment can be measured in terms of headcounts, jobs, full-time equivalents (FTE) or hours worked. Currently, total headcounts or jobs are used for most countries.

Model question: Not applicable

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

Policy relevance:

With growing digitalization of the economy and society, it becomes increasingly important for countries to have a minimum level of capabilities in the ICT goods and services producing sector. It is therefore important for policymakers to know how the ICT sector's share of the total business sector workforce is evolving over time.

ICT2: Value added in the ICT sector (as a percentage of total business sector value added).

Definition of concepts:

Value added in the ICT sector is calculated as the estimated value added of the ICT sector divided by total business sector value added (expressed as a percentage).

Clarifications and methodological issues:

Value added for a particular industry represents its contribution to national GDP. It is sometimes referred to as GDP by industry and is not directly measured (but is estimated in a national accounts framework). In general, it is calculated as the difference between production (gross output) and intermediate inputs (the energy, materials and services required to produce final output).

Model question: Not applicable

Disaggregation and classifications:

By industry (using ISIC Rev.4) at section level (A to U)

Policy relevance:

The ICT sector comprises many different activities that contribute in different ways to economic growth and development. It is important for policymakers to know how the ICT sector is contributing to overall value added in the economy, and how that share is evolving over time.

Core indicators not covered by the update: trade in ICT goods, ICT services, and digitally deliverable services

ICT3: ICT goods imports as a percentage of total imports

Definition of concepts:

ICT3 is calculated as the quotient of the value of imports of all ICT goods divided by the total value of imports (expressed as a percentage).

Clarifications and methodological issues:

ICT goods are defined by the OECD's ICT goods classification in terms of the HS classification. Other concepts are per the UN COMTRADE database e.g. re-exports and reimports are not netted out, and data are presented in US dollars (converted by the UN from country currencies).

Model question: Not applicable (extracted from trade data)

Disaggregation and classifications: By product codes.

Policy relevance:

With increased digitalization of the world economy, the demand for various kinds of ICT goods is growing. For policymakers, knowing how imports of ICT goods are evolving is important from the perspective of designing trade and

tax policies, understanding value chains and promoting a more inclusive digital economy.

ICT4: ICT goods exports as a percentage of total exports

Definition of concepts:

ICT4 is calculated as the quotient of the value of exports of all ICT goods divided by the total value of exports (expressed as a percentage).

Clarifications and methodological issues:

ICT goods are defined by the OECD's ICT goods classification in terms of the HS classification. Other concepts are per the UN COMTRADE database e.g. re-exports and reimports are not netted out, and data are presented in US dollars (converted by the UN from country currencies).

Model question: Not applicable (extracted from trade data)

Disaggregation and classifications: By product codes.

Policy relevance:

With increased digitalization of the world economy, the demand for various kinds of ICT goods is growing. For policymakers, knowing how exports of ICT goods are evolving is important from the perspective of designing innovation, trade and tax policies, understanding value chains and promoting a more inclusive digital economy.

ICT5: imports of ICT services as a proportion of total imports of services

Definition of concepts:

ICT5 is calculated as the quotient of the value of imports of all ICT services divided by the total value of imports of services (expressed as a percentage).

Clarifications and methodological issues:

ICT services include:

- Telecommunications services
- Computer services - Computer software
- Computer services - Other computer services
- Licenses to reproduce and/or distribute computer software

Model question: Not applicable (calculated from BOP data)

Disaggregation and classifications:

Can be disaggregated by EBOPS 2010 codes or with more detail by ISIC Rev. 4 codes.

Policy relevance:

With globalization and digitalization of the world economy, new opportunities for accessing ICT services from abroad have emerged. This makes it important for policymakers to have information on the extent to which the economy relies on imports of ICT services, and from where these services are sourced.

ICT6: Exports of ICT services as a proportion of total exports of services

Definition of concepts:

ICT6 is calculated as the quotient of the value of exports of all ICT services divided by the total value of exports of services (expressed as a percentage).

Clarifications and methodological issues:

ICT services include:

- Telecommunications services
- Computer services - Computer software
- Computer services - Other computer services
- Licenses to reproduce and/or distribute computer software

Model question: Not applicable (calculated from BOP data)

Disaggregation and classifications:

Can be disaggregated by EBOPS 2010 codes or with more detail by ISIC Rev. 4 codes.

Policy relevance:

With globalization and digitalization of the world economy, new opportunities for supplying ICT services to foreign markets have emerged. This makes it important for policymakers to have information on the extent to which the economy is exporting ICT services, and to what destinations.

ICT7: imports of ICT-enabled services as a proportion of total imports of services

Definition of concepts:

ICT7 is calculated as the quotient of the value of imports of all ICT-enabled services divided by the total value of imports of services (expressed as a percentage).

Clarifications and methodological issues:

ICT-enabled services include:

ICT services

- Telecommunciations
- Computer services (including computer software)

Other potentially ICT-enabled services:

- Sales and marketing services, not incl. trade and leasing services
- Information services
- Insurance and financial services
- Management, administration, and back office services
- Licensing services
- Education and training services

Model question: Not applicable (calculated from BOP data)

Disaggregation and classifications:

Can be disaggregated by EBOPS 2010 codes or with more detail by ISIC Rev. 4 codes.

Policy relevance:

With increased digitalization of the economy, it has become possible to deliver more services remotely over ICT networks. Some goods (such as books, records, software and videos) are now possible to download directly from the Internet. It is estimated that as much as half of all services trade can now be delivered digitally. Policymakers need information on the extent to which services that are imported are delivered digitally or through other means. Few countries currently have such information and rather rely on estimates based on balance of payments statistics. Better information may be valuable for the design of trade and tax policies, among others.

ICT8: Exports of ICT-enabled services as a proportion of total exports of services

Definition of concepts:

ICT8 is calculated as the quotient of the value of exports of all ICT-enabled services divided by the total value of exports of services (expressed as a percentage).

Clarifications and methodological issues:

ICT-enabled services include:

ICT services

- Telecommunciations
- Computer services (including computer software)

Other potentially ICT-enabled services:

- Sales and marketing services, not incl. trade and leasing services
- Information services
- Insurance and financial services
- Management, administration, and back office services
- Licensing services
- Education and training services

Model question: Not applicable (calculated from BOP data)

Disaggregation and classifications:

Can be disaggregated by EBOPS 2010 codes or with more detail by ISIC Rev. 4 codes.

Policy relevance:

With increased digitalization of the economy, it has become possible to deliver more services remotely over ICT networks. Some goods (such as books, records, software and videos) are now possible to download directly from the Internet. It is estimated that as much as half of all services trade can now be delivered digitally. Policymakers need information on the extent to which services that are exported are delivered digitally or through other means. Better information may be valuable for the design of industrial, innovation, trade and tax policies, among others.